The Begonian

May/June 2015

Tillandsia sp. (top) and *T. xerographica* (bottom) make nice companion plants for begonias.
Photo by Claudia Goodridge

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The Begonian

Publication of the American Begonia Society

American Begonia Society
Founded January 1932
by Herbert P. Dyckman

Aims and Purposes

To stimulate and promote interest in begonias and other shade-loving plants.

To encourage the introduction and development of new types of these plants.

To standardize the nomenclature of begonias.

To gather and publish information in regard to kinds, propagation, and culture of begonias and companion plants.

To issue a bulletin that will be mailed to all members of the society.

To bring into friendly contact all who love and grow begonias.

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VOTE

Ballots for 2015–2017 ABS Officers & Constitutional revision located on page 117 of this issue!

President's Message

This is an election year! This *Begonian* contains a ballot with a slate of officers. The last edition of the *Begonian* had bios on the candidates, so you'll know a little about those running. Please take the time to actually mark the ballot and return it to Ingeborg Foo. Also on this ballot is a Constitutional revision to vote upon. The Publishing Committee is a reorganizational amendment. This committee will oversee the funds established for original and reprinted materials pertaining to begonias. Please take the time to vote.

The Southwest Regional Get-Together will take place at the end of May. Registration materials are available at the Astro Branch website. This is always a relaxed, fun event. Please consider attending.

The American Begonia Society's Annual Convention will take place starting on July 29, 2015 in Boston. Please get the registration materials at the ABS website (www.begonias.org). Get those registrations in! These get-togethers are the very best way to increase your begonia knowledge and collection.

In the garden: whitefly! I will leave you here to figure out how to get my ladder in a position close enough to spray the tops on the angel trumpets but not where the wind will blow the spray back in my face. Oh, the joys of spring.

Good growing and hope to see many of you in Texas or Massachusetts!

Virginia Jens, President

The Begonian
July/August 2015
Deadline Date
May 28

Send your photos, growing tips, or articles to:
begoniaskc@yahoo.com

2015 ABS AWARDS

It is time to send your nominations for ABS awards for 2015. You may send them by post or e-mail but only one nomination per page, per person. **Nominations must be received by May 30, 2015. Please state why your nominee should be chosen.**

Awards and Criteria

The **Eva Kenworthy Gray Award** is given for contributing original material toward helping the rank and file members further their study of begonias.

Award nominations must be received by May 30, 2015. Send yours TODAY!

The **Alfred D. Robinson Medal of Honor.** Any hybrid or cultivar that is registered with the Nomenclature Department. The originator of the begonia must be a member of the American Begonia Society. (There are no time restrictions on the ADR Medal now.)

The **Rudolph Ziesenhenne Award** is presented to an Editor who collects and edits the works of others for a publication either U.S. or International and a) who encourages a broad array of writers both scientific and practical to write and contribute articles and, b) who issues a publication on begonias that is both excellent in design and content, and which contributes to our knowledge and appreciation of begonias.

The **Marge Lee Award** is given to a person who contributes something of a spiritual value toward cementing goodwill and harmony among members.

The **Gene Salisbury Award** is given to a grower who exemplifies the very best in cultural practice, but also brings to us by their careful work the new species and hybrids. These are growers who contribute to our society simply through their excellence in growing begonias.

Send your nominations to:

Cheryl Lenert, 21744 F.M. 2920 Road, Hockley, TX 77447, lenert@flash.net

B. rex

B. rex
Photo by Sally Savelle

This *B. rex* (pictured on front cover and at right) was grown by Merle DeLand of the Tampa Bay branch and entered into the show at the 2014 ABS convention in Tampa. It won Best Species, which put it on the Honor's Table, People's Choice, and it received a Cultural Certificate of 95 points.

From Merle: I got the original plant at the plant auction at the convention in San Francisco. Dr. Rekha Morris brought it from a collecting trip she made to India. It was a very small plant, but responded to my greenhouse conditions quite well. From that time forward, I have had no trouble growing it - in fact, it is a great deal hardier than some of the *rex* hybrids that I am growing (including this plant coming through a recent mildew infestation completely unscathed). I have a 30'x 60' greenhouse with two exhaust fans on one end and a cool pad on the other so that I can keep our summer temperatures within reason. I think that this is the only reason that I have no trouble growing rex hybrids over the summer months. Currently, I have four pots of *B. rex* now sending up new growth. At the time of the convention, I had another larger plant with slightly larger leaves, but I didn't bring it as it was not in as good shape horticulturally. I do not give this *rex* any other care than any of the other begonias in the house.

Request for Holiday Greetings 2015 Donations

Although it is only spring, and it seems to be way too early to be thinking about the holiday season, it is really *not* too early to consider making a donation to Holiday Greetings for 2015! This is especially true for branches that have limited meetings during the summer months. Individuals and branches are able to offer their holiday greetings, while also supporting ABS, when they donate to this fund. Thanks to your generosity, $3846 was contributed in 2014! This money helped with the expense of printing *The Begonian* and also helped to keep the cost of dues down. **Categories are: Bronze, $1–$50; Silver, $51–100; Gold, $101–$150; and Platinum, $151 plus. The contributions, which are tax-deductible, should be made out to ABS Holiday Greetings.** Please send to: **Frances Drescher, 11529 Riverchase Run, West Palm Beach, FL 33412.** The deadline for donations is **September 15th**.

Please help spread the word about this annual program and request that it be added to the agenda of your next meeting. If you have any questions, please contact Frances by email at fkdrescher1@comcast.net. Thank you.

Hello, ABS members! Buxton Branch is looking forward to seeing you at the 2015 Annual Convention, July 29 – August 2, Natick, MA. We have been told on good authority that all of the snow we received this winter will be melted by convention time, but you may want to bring your snowshoes - just in case! The deadline for early-bird registration is May 1st, so please send your registration materials in soon. Also, be sure to book your hotel rooms soon; reservations are filling up quickly. For more information, visit the ABS website or www.BuxtonBegonia.org, email BegoniaRevolution2015@gmail.com, or call 401-484-8854.

Southwest Region Get-Together

"From the Ground Up!"

Houston, TX May 21–23, 2015

MAKE YOUR RESERVATIONS!

For more details and registration form go to:

www.begoniahouston.org

The Sheraton Houston Brookhollow
3000 North Loop West Frwy
Houston, Texas, 77092
(713) 688-0100
Rates for our group are $89.
Please send questions or requests to join the judging school to:
Cheryl Lenert, 281-255-9004, lenert@flash.net

Wednesday, May 20th
Judging School

Thursday, May 21st
Nature's Way tour, lunch with Darrin Duling, and Klein Estate tour
Show Plant Entry

Friday, May 22nd
Casual Get-together
Members Plant Sale
Show Open 7pm

Saturday, May 23rd
Programs: "Terrariums" by Doug Byrom; "Hybridizing" by Freda Holley;
"Everything Begonias" Experts Panel with Cheryl, Tom, and Charles
SWR and ABS Meeting in PM
Evening Banquet

New sender address for The Begonian Online!!

NOTE: The digital Begonian will be arriving from a new email address. Please add this email to your contacts to ensure you recieve your copy:

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If you haven't yet signed up for access, do it TODAY!!
Send your name and email address to:
paroan2001@yahoo.com

A Word with You: *Truncate*

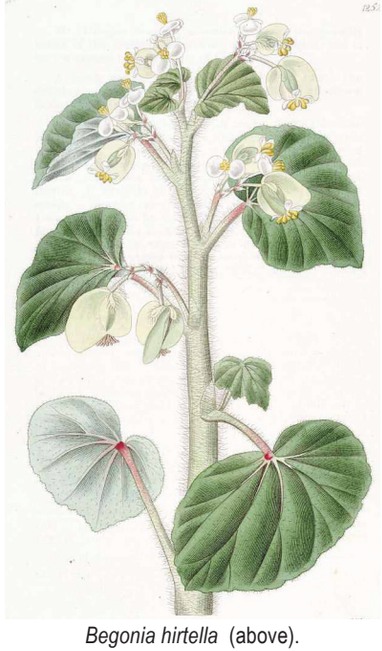
By Claudia Goodridge, New Haven, CT

If someone says something is *truncated* or *truncate*, I can see it. It's a mental picture; something is cut off. Sure enough, a leaf base can be *truncate*, meaning it's cut in a nearly straight line. No mnemonics needed here. I already own this word – just in a different context. To corroborate my own image of this word, I asked several friends for word associations with *truncate*. Everyone knew the word and came up with short, graphic associations – like cut off, shorten – which are just perfect.

Per Mr. Webster, *truncate* comes from the Latin *truncatus*, p.p. of *truncare*, to cut off. I didn't find exactly that in my Cassell's, but I did find *truncus*, meaning trunk of a tree. Cicero apparently used *truncus* as a synonym for "blockhead." English synonyms can be abrupt…clip, lop, cut short. Or they can be more elegant, like abbreviate or curtail. In Botanispeak it means the leaf blade is square at the base where it joins the petiole. Mr. Webster says "in botany, having a square or broad end; appearing as if cut off at the tip; ending in a transverse line; as, a truncate leaf." Mark Tebbitt's glossary says it's a "flat base (or apex) of a two dimensional object." And the Thompsons say, "Base nearly straight across." I'll remember most of the leaf base descriptors we've covered, but pursuing them for this column has once again forced me to look at the variations.

And once again, there is a continuum. Scientific begonia descriptions attest to this continuum by modifying the descriptor where the distinction is not crystal clear, like "almost truncate" or "shallowly cordate" as if transitioning along that continuum. I would love to see an animator give life to a progression from spiraled to *truncate*.

Examples include (per http://flora.huh.harvard.edu/china/PDF/PDF13/Begonia.pdf, Jack Golding, or Mark Tebbitt) *B. circumlobata*, "base sub*truncate* or shallowly cordate," *B. cucullata*, *B. hatacoa,* and *B. hirtella,* both with "base shallowly cordate to almost truncate," *B. howii, B. integerrima* with "base truncate or obtuse," *B. sambiranensis*, *B. sutherlandii* with the "base cordate to almost *truncate*."



Begonia hirtella (above). From Edwards's Botanical Register, vol. 15. Illustration coutesy of http://plant illustrations.org/illustration.php?id_illustration=46099

Begonia cucullata var. *hookeri* (opposite page). Illustration courtesy of Wikipedia from Botanical Magazine

Begonia Collection at the Fort Worth Botanic Garden

By Steve Huddleston and Deborah Garrett

Most botanic gardens are known for their collections of plants. Examples of such collections include elms, hollies, maples, oaks, palms, and so forth. Let's discover one of the little-known but outstanding collections at the Fort Worth Botanic Garden: the Begonia Collection, which includes the Begonia Species Bank.

The FWBG Begonia Species Bank recently received the distinction of being accredited by the North American Plant Collections Consortium (NAPCC) for its overall begonia collection. The NAPCC is a network of botanical gardens and arboreta working to coordinate a continent-wide approach to plant germplasm preservation and to promote high standards of plant collections management. NAPCC collections may serve as reference collections for plant identification and cultivar registration. Collection holders make germplasm available for taxonomic studies, evaluation, breeding, and other research. Participating institutions compare holdings with others to identify duplications and gaps. This makes efficient use of available resources, strengthening collections through combined collaborative activities. The NAPCC accreditation validates the FWBG's Begonia Collection, gives it national recognition, and sets goals for the FWBG to maintain and improve its collection. The FWBG is the only botanic garden in Texas to receive NAPCC accreditation and the only botanic garden in the United States to be recognized for a begonia collection.

In the early 1980's, Kelton Parker, a now retired greenhouse attendant/Begonia Curator and a lover of begonias, started collecting begonias for the tropical plant collection. In 1984 the American Begonia Society (ABS) held a convention in Dallas and traveled to Fort Worth to visit the newly constructed tropical conservatory and the begonias. This was the beginning. With the help of dedicated volunteers and the support of local and national ABS members who supplied seeds, cuttings and plants the collection began to grow. Thanks to Ed and Mildred Thompson, authors of *Begonias: The Complete Reference Guide* (1981), the begonia library was established. Ms. Thompson bequeathed to the FWBG her entire library consisting of thousands of files on species and hybrid begonias. Over the years the Collection has continued in spite of a fire, winds, hail, power outages, budget cuts, changes in staff, and other disasters and is now cared for by a group of enthusiastic and committed volunteers along with Begonia Curator, Deborah Garrett.

Presently, there are 370 species and 665 hybrids in the Begonia Collection at FWBG. The Begonia Collection is currently housed in a 140' X 50' fiberglass greenhouse located in the center of the garden. It contains both species and hybrids of begonias. Many of the hybrids are "heritage varieties" – older hybrids that cannot be reproduced again because the species parents have disappeared. The collection in the fiberglass greenhouse is closed to the general public but open to tours by appointment. Another greenhouse where various begonias are displayed for the general public is the "Begonia Exhibition Greenhouse" located adjacent to The Gardens Restaurant. This house is open, free of charge, to garden visitors 365 days a year from 8:00 am to 4:00 pm. You will also find begonias in the Tropical Conservatory and in various areas throughout the Garden, weather permitting.

All the begonias (except terrarium plants) are grown in Fafard #2 mix, a soilless potting medium which consists of peat, perlite, and vermiculite. Sometimes this mix is supplemented with lime for those begonias that are indigenous to limestone cliffs. Since begonias are heavy feeders, they are fertilized with Peters 15-5-15 Cal-Mag fertilizer almost every time they are watered.

Mealy bugs and thrips are the primary pests of the begonias in the collection. These are controlled by applying a systemic insecticide called Safari every three months. The begonias in the Exhibition Greenhouse and other public places are sprayed with Neem Py, which contains neem oil and pyrethrins and serves as a broad-spectrum insecticide, fungicide and miticide.

Fig1. From left to right: Carole O'Connel, Taddie Hamilton, Janice Raoul grooming rhizomatous for plant sale.
Fig 2. From left to right: Jean Harris, Candy Umberson, and Chris Senerote helping getting begonias staged for loading.
Fig 3. Karen Kologe and Bobbie Price checking out canes for plant sale.
Fig 4. Mickie Halaburt, Tisa Bellah, and Judy Jackson double checking the inventory.
Fig 5. Don Miller repotting a begonia in need.

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One view into the sales room at the Begonia Species Bank. Photo by Jim Landers

Begonia Collection at the Fort Worth Botanic Garden
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Vital to the maintenance of the FWBG Begonia Collection are volunteers. Presently, there is a core of twelve valuable volunteers that attend to the collection on a regular basis. Volunteers also conduct tours of the collection, present programs on begonias, and teach classes on propagation. They are involved in a lot of community outreach because education is very important to them as begonia volunteers and members of the ABS. Many of the volunteers are members of the Dallas/Mae Blanton branch of the Southwest Region of the American Begonia Society. This group meets at the FWBG every other month and in Dallas, usually at North Haven Gardens, the other months.

If you would like to join the dedicated group of begonia enthusiasts in caring for the collection, or if you would like to schedule a tour, or donate plant material, or request any other information, please contact begonia curator Deborah Garrett at FWBGBegoniaBank@fortworthtexas.gov or Deborah.Garrett@fortworthtexas.gov. Or by phone at 817-392-5510 or 817-392-5545. If you would like to contribute to the FWBG begonia collection, you may do so by sending a check to the Southwest Region of the American Begonia Society or to the Fort Worth Botanical Society, 3220 Rock Springs Road, Fort Worth, Texas 76107. Please note on the memo line for FWBG Begonia Bank.

If you have an interest in species and hybrids of begonias, plan a trip to the Fort Worth Botanic Garden to view its outstanding and award-winning collection. Give us a call to let us know you're coming at 817-392-5510 for a private tour. This is one collection you'll want to see!

Steve Huddleston is the senior horticulturist at the Fort Worth Botanic Garden, president of his own landscaping company, and co-author of *Easy Gardens for North Central Texas*.

A Visit to the Begonia Collection at FWBG

By Ken Fuchs, Temple, TX; Photos by Jim Landers

On Saturday, February 7, 2015, Jim Landers (Austin Area Begonia Society) visited the Begonia Collection (which includes the Begonian Species Bank) at the Fort Worth Botanical Garden. He was impressed with the extensive collection housed in the large greenhouses. Of special interest were the many varied terrariums and hanging baskets. Of particular interest was a large, unnamed, thick-stemmed begonia which was identified by Freda Holley as *B. reniformis* from Brazil. Jim was especially pleased with the plants for sale.

Continued on next page

Begonia 'Baby Down' (top) *Begonia* 'Bunny Hug' (bottom), two plants purchased from the Begonia Species Bank at the Ft. Worth Botanical Garden.

B. reniformis (above);
Begonia phuthoensis (opposite page, top); *Begonia* 'Red Bluff' (opposite page, bottom)

They cost $5.00 each, and he returned home with four beautiful plants: *B.* 'Baby Down', *B.* 'Bunny Hug', *B. phuthoensis*, and *B.* 'Red Bluff".

Begonia 'Baby Down' is a rhizomatous heirloom variety that has green fuzzy foliage with brown striping around the edge and upright pink flowers.

Begonia 'Bunny Hug' is a medium-sized, silver rhizomatous with textured, sparsely hairy leaves that have a slight pink hue. It has white flowers on long petioles in spring.

Begonia phuthoensis is a rarely grown species native to Vietnam. It has an interesting veining pattern and an iridescent sheen along with a reddish blush on the backside of the leaf. The newly emergent leaves are also an attractive reddish color. The flowers are white. It needs warm, reasonably humid conditions and moist but well-drained soil.

Begonia 'Red Bluff" grows from a creeping rhizome. The foliage features large, smooth, lobed leaves. The flowers are pale pink and bloom winter through spring. Ideally the soil should be moist and the plant likes humidity.

Identifying the Organisms Found in Simple Ecological Communities Associated with Begonias Growing in Terraria

Article and photos by Ms. Haylee Kraushaar and Dr. Mark Tebbitt
California University of Pennsylvania, PA

This past fall I was looking for a research opportunity at California University of Pennsylvania. Being in the Secondary Education Department with a Biology content area, I was looking for a way to stand out when applying for teaching jobs in western PA. After speaking to my former botany professor, Dr. Tebbitt, he instantly had the perfect idea for my research. Dr. Tebbitt has been studying begonias throughout his career and from growing a range of begonias in terraria he had noticed that occasionally, odd-looking growths occurred in the terraria in which some of his begonias were growing. Sometimes the growth was green and slimy and was found on the glass (Fig 1), other times it resembled a cobweb-like covering over the surface of the potting soil (Fig 2). After an online search, we found that he was not the only begonia grower who had terraria with these growths, but no one seemed to know what they were. Thanks to the financial support of a Morris Mueller Student Research Scholarship from the ABS, I was able to undertake a research project with Dr. Tebbitt and identify these organisms. In fact, through my research, I identified a whole mini community of organisms that I had not expected to find (Fig 3).

The first part of the research involved isolating the unknown species composing these growths, growing them on nutrient media on Petri dishes, and then separating the different growth forms so that each Petri dish ultimately contained just one kind of species (Fig 4). Isolating the organisms took several attempts and to do this, we used three different growth media so that we could find one that each organism thrived on. Once the organisms were isolated, we stained them with the chemical dye, lactophenol cotton blue, so that their structures would show up more

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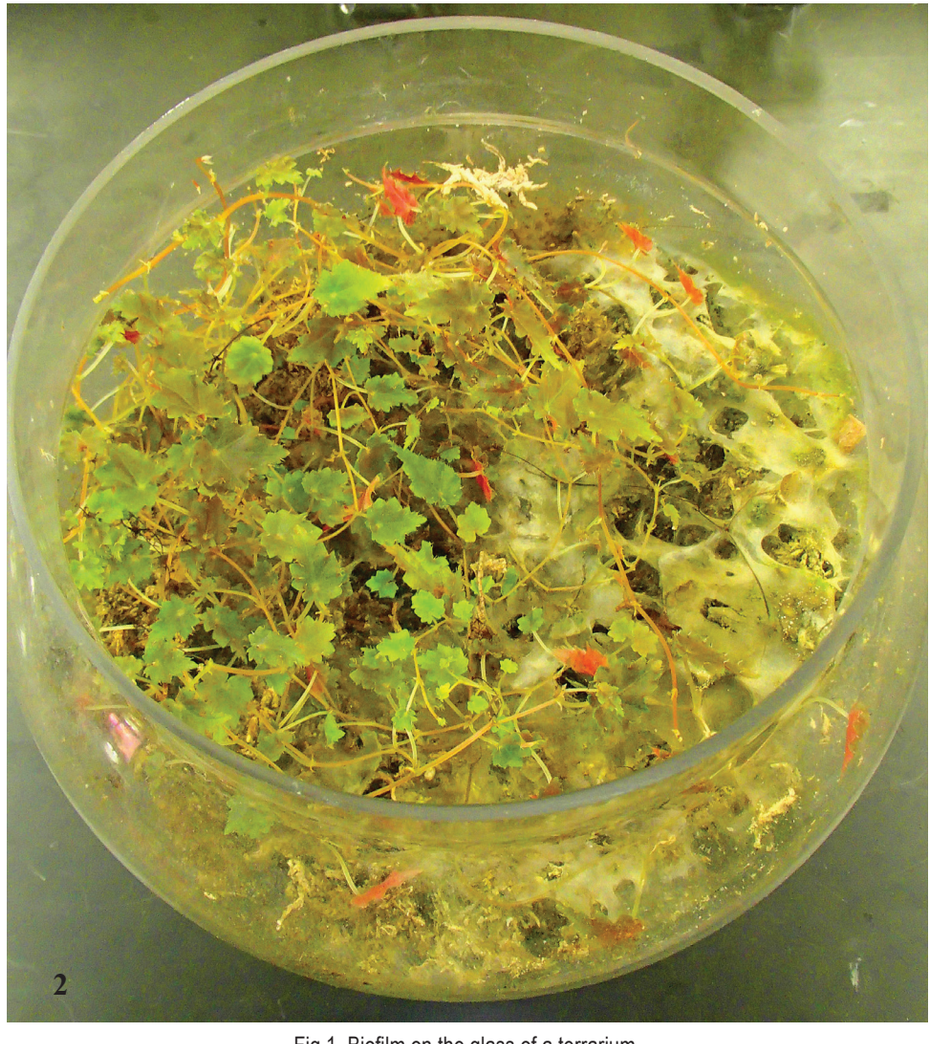
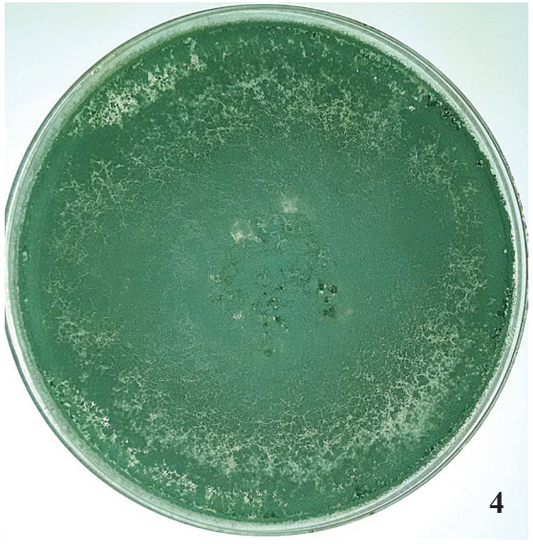
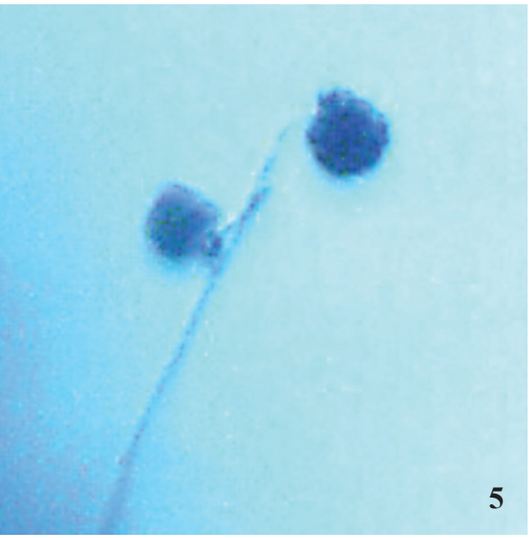


Fig 1. Biofilm on the glass of a terrarium.
Fig 2. Fungus, with a cobweb-like appearance, growing on the potting soil of a terrarium.





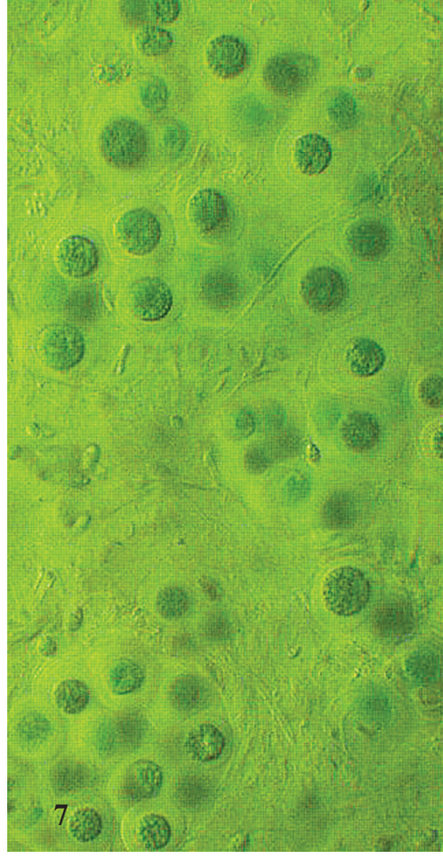


Fig 3. A close up view of the community of organism making up the biofilm (400x magnification).

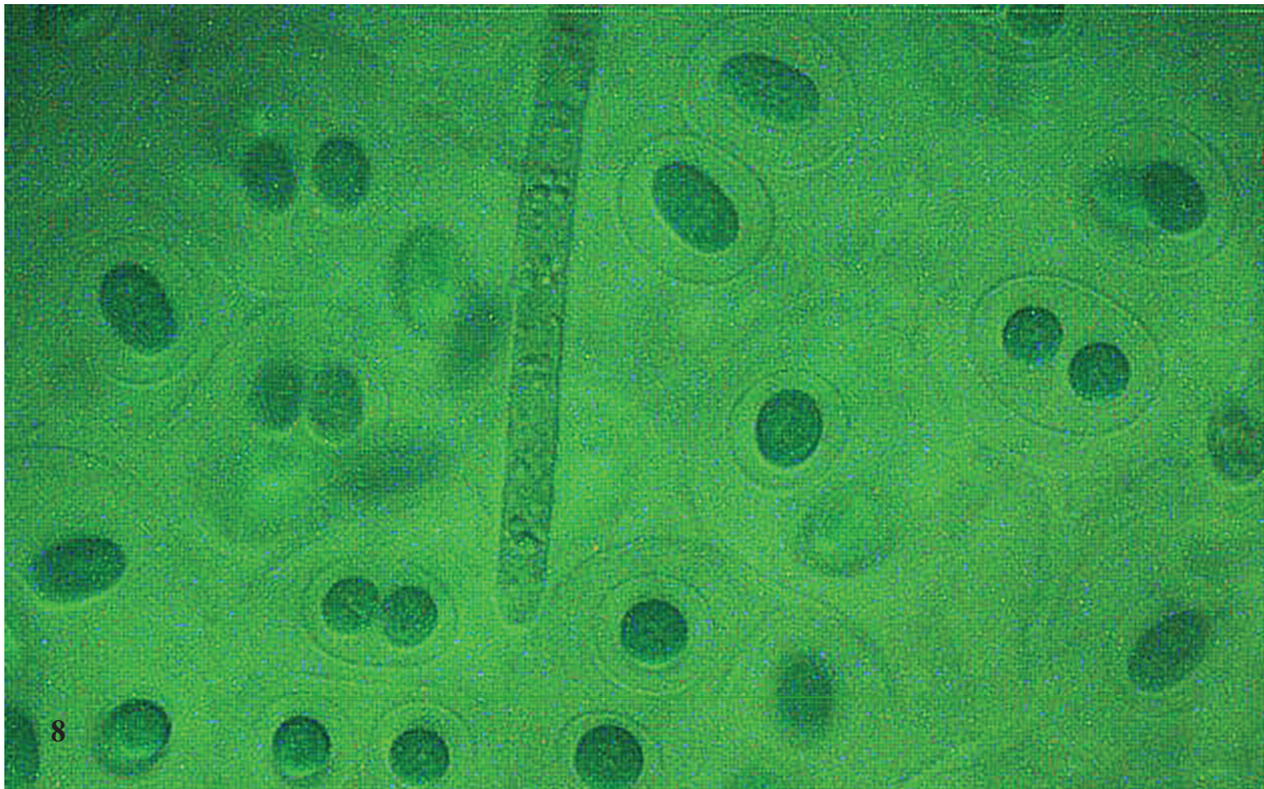
Fig 4. Petri dish with isolated fungus, the green color coming from billions of green spores produced in this nutrient rich environment.

Fig 5. The tree-like reproductive structures of this fungus helped us identify it as a member of the genus *Trichoderma.*

Fig 6. Reproductive spores of a fungus from the genus *Ulocladium* stained with lactophenol cotton blue (1000x magnification).

Fig 7. Close up of the colonial green algae *Asterococcus* (1000x magnification).

Fig 8. The cyanobacteria *Gloeocapsa* forms colonies that resemble frogspawn (1000x magnification).



clearly. Lactophenol cotton blue is primarily used to stain fungi, which we assumed the cobweb-like organism was. We then viewed the samples under a compound light microscope. This allowed us to take photographs of the organisms that could be used to help identify them. To identify the various organisms, we used field guides, online searches, and the help of two additional professors.

The cobweb-like growth was identified as consisting of two different kinds of fungi, one of which was much more common than the other. Thanks to help from microbiology professor Dr. Boehm and mycology professor Dr. Meiss, the most abundant of these fungi was identified as the genus *Trichoderma*, which is a close relative of *Penicillium*. The most distinct characteristics of this organism were the green-tinged growth (Fig 4), vegetative hyphae that consisted of long chains of cells joined end to end, and the distinctive rounded reproductive cells called spores that occurred in characteristic branched structures that looked like tiny trees (Fig 5). The second fungus species was tentatively identified as a species of *Ulocladium* (Fig 6). Now that we have visually identified these organisms to their genera, we plan to extract their DNA and then sequence them to genetically identify which particular species they are.

The green slime that coated the glass of certain begonia terraria was a complete surprise. To view this slime, we used a technique called oil immersion that allowed us to view the organisms at 1000x magnification under the compound microscope. By doing this, we were amazed to find six different organisms all living together in a mini ecosystem called a biofilm. The most abundant species in the biofilm was a single celled organism called *Asterococcus* (Fig 7). This genus of colonial unicellular green algae occurred in the biofilm in huge numbers. Each of the minute cells was surrounded with a thick mucus sheath, which resulted in the slimy, jelly-like consistency of the biofilm. This slimy coating is important, as it protects the algae from drying out. Algae are usually found in freshwater or marine habitats, so this mucus sheath is important in keeping the algae from drying out in the begonia terraria. A similar slime coating was observed in a second species in the biofilm, the cyanobacterium *Gloeocapsa* (Fig 8). This is a kind of bacterium that gets its energy from photosynthesis just as a plant or a green algae does, so it is at the base of the food chain in this mini community. It has tiny round cells that are each covered in protective slime giving a colony of these cells the appearance of a mass of frogspawn. Another two cyanobacteria were also identified from the biofilm slime. Both were very different in appearance from *Gloeocapsa* and consisted of long green chains or filaments of cells, lacking a mucus sheath. These were *Oscillatoria* (Fig 9) and an unidentified member of the family Nostocaceae. In addition to these cyanobacteria, we also found a small number of unicellular yellowish-green algae with distinctive red eyespot towards one end of their single cells (Fig 10). We believe that this eyespot allows them to move through the slime towards the light where they can photosynthesis at maximum capacity, in a way similar to the common lab organism *Euglena*. The biggest surprise and the largest organism we found was a predatory, nematode worm (Fig 11). We observed two of these microscopic animals slithering through the biofilm like tiny snakes, feeding on the other organisms.

Now that we have identified these eight organisms, we have been able to learn about their biology and see if they are likely to have a negative impact on begonias. It appears that none except *Ulocladium* are likely to cause any harm to the begonias by parasitizing or otherwise feeding on them. The genus *Ulocladium* contains some species that are known plant pathogens. This might explain why, in areas of the terraria where the fungus was particularly dense, the begonias' growth did obviously suffer. The biofilm does not appear to be causing any harm to the begonias. This is, in part, because it mostly is found on the glass of the terrarium and also because these organisms do not feed on plants. One future direction I would like to take this research is to obtain more samples of the biofilm from begonia growers across the country and determine if the species composition found within these simple communities is consistent in different terraria.

Acknowledgments: I want to again thank the ABS for funding this research. I would also like to thank Dr. Tebbitt for this opportunity and for providing the guidance that made this research a success, Dr. Meiss (Professor of Mycology) and Dr. Boehm (Professor of Microbiology) for helping to identify the organisms, and Liz Steger-Hartzman for assistance with the photographs.

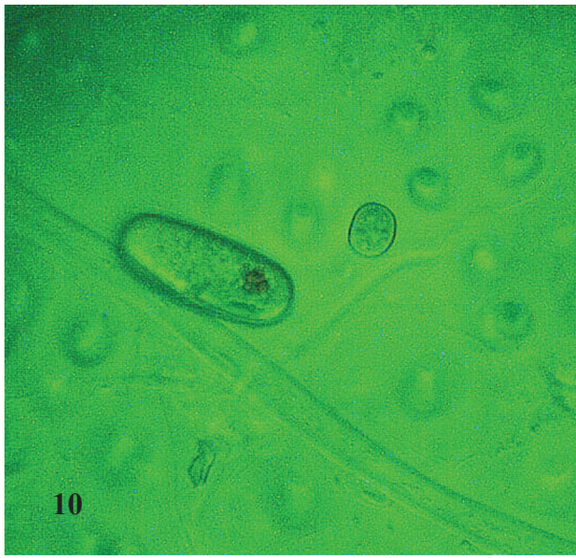


Fig 9. Long filaments of the photosynthetic cyanobacterium *Oscillatoria* (1000x magnification).
Fig 10. Large single-celled green algae with a red eyespot (1000x magnification).
Fig 11. Nematode worm, the top predator in the simple biofilm community (400x magnification).

In the Mailbox

by Greg Sytch, Horticultural Correspondent

In the past week, I was honored to have been invited to visit the Sacramento Branch in California to present a program. In preparing for this program, I had to realize that their climate is vastly different than my climate. Sacramento has cooler, wetter winters and a long, very dry summer season. Here in Tampa Bay, winters are mild with a few cold spells, usually a little drier, and we have long, hot, wet summers. So, how to advise them on my experience, if I have never grown in their climate or under their conditions?

First, I summarized what it is I do to grow, and how I grow. I utilized information regarding diseases, fertilizing, repotting, to the recommended products that I use and have available. Not all products are available in each location around the country. I did, however, stress the following:

1. I spray for diseases year round, at least once per month. I do not wait until disease shows.
2. Time-release fertilizer works best during the warmer season.
3. If you have grown, and killed, a variety on several occasions, move on. It obviously does not like your conditions! Plus, if that variety easily stresses, it can bring diseases or viruses to your collection.
4. Fun with terrariums! Many at the Joan Coulat Branch grew these clear bubbles, and now I want to try them, too. The members showed me where to get the clear bubbles, and I filled my suitcase up for the return trip home.
5. Introduced some of my past hybrids, to see if anyone in Sacramento could identify them, and if they were growing them. That is a good barometer as to the success of the hybrid - that they are successful in many climates.

Online Growing - If you are not familiar, there is a Facebook forum called PlanetBegonia where you can see, share and meet new Begoniacs!

They share pics, get identifications to begonias, and share ideas. It is a great place to join!

Have a wonderful growing season!

Peduncle v. Petiole?

On this *B. prismatocarpa,* is the arrow pointing to a peduncle or a petiole?
Photo by Jacky Duruisseau

Watch for the answer in your next *The Begonian* brought to you by A Word With You!

Last month's answer to Picture Quiz

March/April issue, page 48 - *B. kenworthyae* and *B.* 'Crestabruchii'

Rhizome v. Tuber?

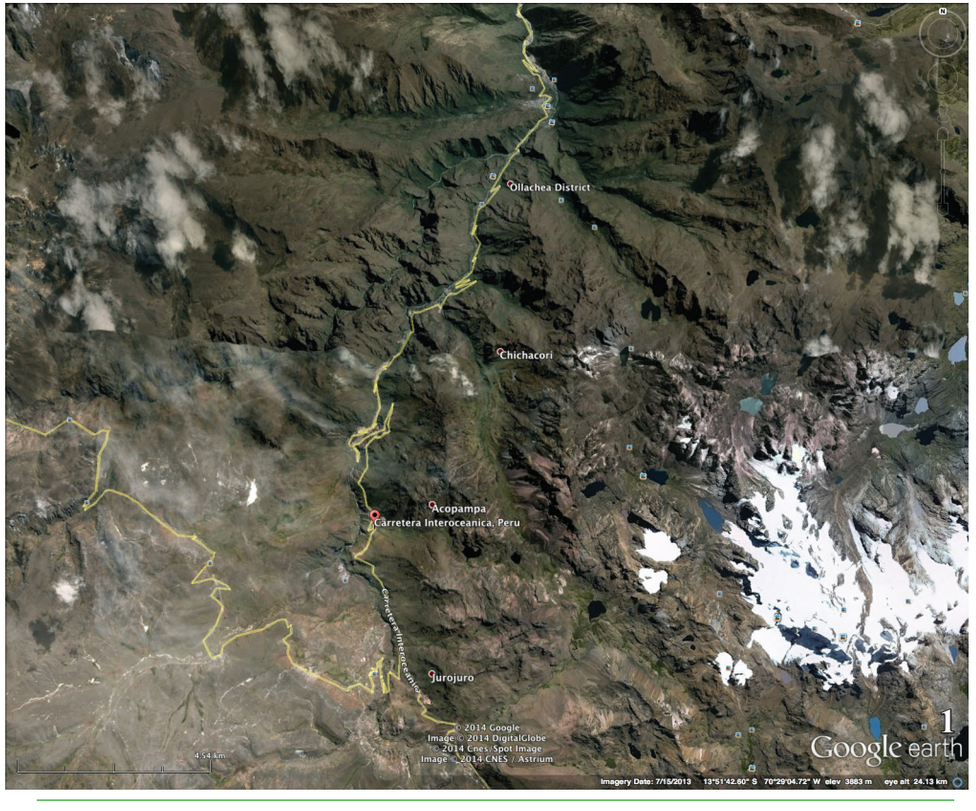
Answer – RHIZOME. Mark Tebbitt defines rhizome as "a persistent horizontal stem bearing roots and leafy shoots." Jack Golding says tubers are "enlarged irregularly rounded underground stems." See *The Begonian* November/December 2013, p. 224–225.

Google® Street View as a Fieldwork Tool

Article and photos by Dr. Mark C. Tebbitt, California University of Pennsylvania, PA

Maps have always fascinated me. I remember, as a young child, having a large world map on the wall of my bedroom. Each night I would stare at it from my bed and think about all the places I would like to travel one day. These days there is still a world map on the wall of my home but I am more likely to spend my evenings sitting at a computer screen looking at virtual maps on Google® Earth. This computer application provides a detailed, three-dimensional virtual view of the earth's surface features derived from satellite images, aerial photography, and GIS data (Fig 1). My work involves documenting the diversity of wild begonias and like many other botanists I often use this tool to map and analyze the distributions of the plants that I am researching. Prior to an expedition to Peru in January 2015 I used this application in a different way and one that may not have been attempted previously. In the comfort of my home I travelled in search of a particular wild begonia.

The plant that I was hunting for was *Begonia rosiflora*. This species was described in 1867 from a cultivated plant. The plant had been collected as a tuber in an undisclosed location in the Andean mountains of Peru. This location was probably intentionally not reported because the English nursery company Veitch and Sons used this species in the breeding of the first tuberous begonia hybrids and they would not have wanted their competitors to have access to the material that they had collected. Their breeding program was a great success and today the characteristically large flowers of this original parent plant can still be seen in the hybrid tuberous begonias commonly grown in gardens. However, *B. rosiflora* itself was soon lost from cultivation and has not since been reported from the wild.



When a new species is described today, a dried herbarium specimen must be made as a permanent record of what the species looks like. In 1867 this was not a requirement and no such specimen was made for *B. rosiflora*. Because of this and the fact that the species was lost from cultivation, the only surviving record of what *B. rosiflora* looks like is the very short original description of the species and a painting that accompanies that description. The painting (Fig 2) shows a stemless plant with large pink flowers, and symmetrical funnel-shaped leaves that are deeply puckered on their upper surfaces. While the original description of this species does not state where in Andean Peru the plant had been collected, a few years ago I found two unnamed dried specimens in a museum, which looked like they might be this species. Fieldwork was needed though to confirm that these were indeed the same plant as depicted in the painting of *B. rosiflora,* and, if they were, to determine the full extent of this plant's distribution.

As I prepared for an expedition to this region of Peru I used Google® Earth to help plan where I would travel. One useful features that Google® Earth provides is Google® Street View. This feature gives the user the ability to view panoramic street-level views that have been taken along certain roads via a camera mounted on the top of a car. Currently these images are typically only available for the more densely populated parts of the world but a few images are just becoming available from more remote parts of the planet. One such place is the Ollachea road in the Peruvian Andes (Fig 1). I suspected that *B. rosiflora* might occur along this road because parts of it were only about

Fig 1. Image of Ollachea road in Peru, from Google® Earth.
Fig 2. Original painting of *Begonia rosiflora* from Tab. 5680 of Curtis's Botanical Magazine.

50 miles from the location where the two herbarium specimens I had tentatively identified as this species had been collected. And anyway, at the time that I was planning this expedition this was the only road in Andean Peru for which Google® Street View was available, so I didn't have any other choices.

So, on September 15, 2014, four months before I physically visited this part of Peru, I travelled along the length of this mountain road via Google® Street View looking for a begonia species that might have been collected along a different road 50 miles away! Such is the level of detail shown on Google® Street View that after only an hour of searching I located a population of begonias with the general characteristics of *B. rosiflora* (Fig 3). Unfortunately, the images were captured at a time of year when the plants were not in flower, but even so I was lucky

because these tuberous plants go dormant for months on end, and, as suggested by the reddish color of their leaves, the ones pictured were in the process of doing just that. But images of the begonia's leaves had been captured and because Google® Earth provides both GPS and altitude data I now had an exact location where I could look for this species when I visited Peru.

Three months later, armed

Fig 3. Google® Street View image of a wild population of begonia in Peru.
Fig 4. Handheld GPS device, with collecting location in background.
Fig 5. Photograph taken in Peru of the same population of begonias as previously found on Google® Street View.
Fig 6. Close up of the begonias.

7

8

with a handheld GPS device (Fig 4), I visited this location. And there, as expected, I found the plants (Figs 5 and 6). In fact locating them was easy as not only did I have an exact GPS location but I also knew, based on the images I had seen on Google® Street View, that the plants were located a short distance from a prominent green street sign (Fig7).

I did have one unexpected find at this location. Growing in this large population of plants was a single individual with double male flowers (Fig 8), the only double-flowered begonia that I have ever found in the wild. To my even greater surprise, a week later a local botanist showed me a photograph he had taken of this species elsewhere in Peru and

continued on next page→

Fig 7. This large green street sign provided a useful landmark for locating the begonias.
Fig 8. Begonia with double male flowers.

Book Review:

A Guide to Begonias of Borneo

By Ruth Kiew, Julia Sang, Rimi Repin, and Joffre Ali Ahmad

First published in April 2015. Publisher: Natural History Publications (Borneo), Kota Kinabalu; Size: 8.5 x 6 inches (Portrait format); Extent: 304 pages; ISBN 978-983-812-160-6; Price: RM80.00 (US$22.00) Softcover; RM140.00 (US$39.00) Hardcover. Prices are excluding postage; available from www.nhpborneo.com

Reviewed by Joanne Tan Pei Chih
Research Officer from Forest Research Institute Malaysia (FRIM)

Located in the humid tropics, Borneo is a wonderland for begonia species. The Bornean begonias are of great conservation importance, not only for their astonishingly pretty leaves, but due also to all encountered begonia species in Borneo being endemic and since 80% of these are restricted to a single locality. A few attractive Bornean begonia species, i.e. *Begonia chlorosticta* and *B. amphioxus*, have been widely cultivated by avid begonia growers, but little is known about the wild begonias that occur in Borneo.

After producing the monograph for *Begonias of Peninsular Malaysia* in 2005, Dr. Ruth Kiew, joined local botanists, Julia Sang from Sarawak, Rimi Repin from Sabah and Joffre Ali Ahmad from Brunei, to travel extensively on Borneo Island searching for wild begonias. Recent efforts so far have confirmed that Borneo has the richest begonia flora in SE Asia with total of 194 species presently described. This number will, however, presumably increase as there are still many unbotanize areas that will harbor species yet to be collected and described.

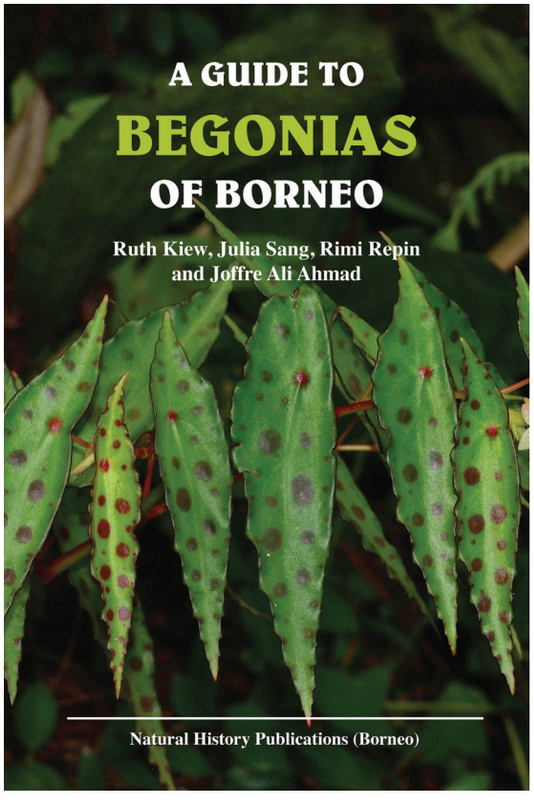
This is a handy, concise guide consisting of full-page, color photographs on nearly every page. The guide is well structured with two main sections. It starts with a comprehensive introduction that provides an overview of botanical information on the

continued on next page→

GPS ...continued

which similarly showed a plant with double male flowers. This is intriguing given that the cultivated tuberous begonia hybrids today typically have double-flowers but the original *B. rosiflora* did not. Perhaps this species is genetically predisposed to produce such mutant flowers and this characteristic ultimately led to the success of the tuberous begonia hybrids? As you ponder this I invite you to make your own online search for wild begonias. Now that more images of the world's remote regions have become available on Google® Street View, photographs of species unknown to science are probably awaiting your discovery.

Acknowledgments:
This expedition was made possible by the generous financial support of the ABS, as well as several ABS members. I also wish to thank Aniceto Daza Yomona and Carlos Augusto Reynel Rodriguez of the Universidad Nacional Agraria La Molina, Lima for facilitating my fieldwork.



begonia family, consumption of begonias by local people, a detailed explanation of climate in Borneo that creates species richness, the history of begonia study in relation to the horticultural trade, species diversity, pollination and dispersal, scientific groupings, habitats and unique natural conditions for Bornean begonias, threats causing extinction, and scientific work waiting to be done.

The introduction is followed by a section comprised of 124 Bornean begonia species in alphabetical order. Every species is described concisely for notable characteristics, accompanied by distribution, habitat and etymology, and is illustrated by a full-page photo of growth habit and flowers.

The guide provides a brief explanation of every species name, which explains the meaning of given Latin names in relation to notable characteristics, collected locality, and/or the name of the person honored for their distinctive contribution or achievement.

This is a nicely produced and illustrated *Guide for Begonias of Borneo* based on the authors' extensive botanical expeditions and scientific journal publications. It ends with the latest checklist of begonias in Borneo listed according to area, a bibliography of publications on Bornean begonias, and an index of names. It is a wealth of information for future research work for plants in Borneo.

The contents are written in an easy-to-read style with beautiful illustrations presented in a delightful layout. Indeed, the guide book is recommended to everyone with an interest in tropical plants, especially to begonia admirers.

How Do *Your* Begonias Grow?

Send your tips, tricks, successes and failures, photos, or questions to *The Begonian*!

Email your submissions to: begoniaskc@yahoo.com

Bunnies and Begonias

Article by Mike Flaherty, Santa Barbara, CA; Photos by Gary Hunt

My Easter display was the centerpiece for the Easter buffet at the country club near my nursery.

I used Hiemalis begonias and the cane *B.* 'Hazel's Front Porch'. Other plants used were tulips, hydrangea, iris, and the large yellow bloom is *Aeonium*. The bunny bike road had Irish moss for the curb and strawberry plants for the shrubbery. I made a park-like setting with many different trees including oak, olive, quince, pine, and maple.

The tunnel was an old Styrofoam pot lined with moss. A mirror below reflected the light. The Easter display is my favorite because of the plant material I can use. I *always* include begonias.

ABS Bookstore

NEW: *Begonia Hybridizing: By The Hybridizers* edited by Freda Holley, published through the Millie Thompson Publication Fund, March 2013.
This great new book by Freda Holley is filled with articles written by some of our most famous, prolific and successful hybridizers. It is a philosophy of hybridizing divided into three parts and includes articles by Ross Bolwell, Walter Dworkin, Freda Holley, Gregory Sytch, Chuck Ades, Brad Thompson, Patrick Worley and Rudolf Ziesenhenne. The pictures are many and stunning.
Domestic: $21.00
International $26.00. Includes postage.

NEW: *Tuberous Begonias and How to Grow Them* by the late Howard Siebold, 1998, published with the support of the ABS Millie Thompson Publication Fund. Library of Congress Catalog Card No. 98-74824 ISBN: 0-9628251-2-3 $15.00

NEW: *Unidentified Species Listing*, Update, August 2012
by Mary Bucholtz & Charles Jaros, Co-Directors
Second Edition includes U Numbers 001 through 621. Looseleaf format for easy addition of new material. Notebook not included.
Domestic: $33.00
International: $42.00

B. U604–621 to add to the August, 2010 Unidentified Species Listing
$7.00

Raising Cane: Experiences in Growing the Species Cane Begonias
by Freda M. Holley
A wonderful work on the cane species with color photographs.
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Note Cards from the Jack Golding Collection
Eight cards with envelopes, each card a different begonia species. This collection of botanical illustrations is part of a series of renderings by Jack's daughter, Marilyn Golding White. The cards were used as Jack's Season's Greetings cards to his friends and associates.
$15.00

Begoniaceae, Edition 2, Part I: Annotated Species List, Part II: Illustrated Key, Abridgement & Supplement
Jack Golding & Dieter C. Wasshausen, 2002, Smithsonian Institution, Volume 43: 1-289
$55.00

Seeing Begonia
by Jack Golding
2003, Revised 2005. Jack Golding's last work. "…dedicated to the many who look at their Begonia but do not see the details."
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Begonia Hybridizing: A Primer
by Freda M. Holley, 2007
An invaluable source book for the beginning or advanced begonia hybridizer.
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Begonia Notes
by Rudolf Ziesenhenne
Reissued by the Thelma O'Reilly Reprint Fund. Originally printed in the Santa Barbara Branch, La Begonia Barbareña.
$15.00

***Begonias* – 1984 Update**
by Mildred L. Thompson
Reissued 2009, "An addendum for particular portions of *Begonias: The Complete Reference Guide* (Times Books, 1981). Includes species and hybrids and many pictures.
$18.00

continued next page →

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For questions and availability, email or call Book Store Chairman Janet Brown, tenajbegonia@gmail.com; 310-670-4471

Clayton M. Kelly Seed Fund

The Margaret Lee Branch
San Diego County, CA

The seed fund is a service to members only. It is a privilege of your membership. Please self-pollinate your species begonias, collect the seeds and send them to the seed fund. We depend on your contributions of seeds to make a wider variety of species available to the members. The Seed Fund now offers a PayPal option. This option is available through the ABS Website. Go to the Seed Fund Page and select the link "Current Seed Listing pay with PayPal". There is a small PayPal fee plus the shipping and handling fee to cover the cost of using PayPal. Choose the fee amount in the drop down menu at the bottom of the page as with the shipping and handling drop down menus.

By policy, new seed fund additions and the PayPal option are made after they are first published in *The Begonian* and it is received by mail by coordinator. It is updated as supplies vary with filling orders. The Website is the best source for the current available seed list or request from coordinator.

Packets of seeds are $2.00. Very rare, limited or newly collected seeds will be $3.00 or more per packet when noted. California residents please add 8.75% sales tax. All orders must be accompanied by check or money order, payable in US funds ONLY to the Clayton M. Kelly Seed Fund.

NOTICE: Orders may take 4 weeks to process; we are volunteers not Amazon.com, thank you for your patience.

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DISCLAIMER: The seeds distributed by the seed fund are identified as received from the donors. The species names (in italics) reported here are correct based on the latest information from *BEGONIACEAE, Ed. 2*; Golding, and Wasshausen. Hybrid names are made consistent with the *ABS Check List of Begonia Hybrids* edited by Howard Berg dated 9/13/2005.

Ballots must be received by July 22!

The ABS Bylaws Article VII – Elections Section 5 state: "The Committee shall invalidate any ballot containing any writing other than the marks necessary to register votes for candidates nominated under the procedures provided for under these Bylaws…"
The Ballot Counting Committee reminds members that the ballot is voided if personal remarks or additions are made on the ballot. Comments may be made on a separate sheet of paper. Ballots should be returned to reach the Ballot Counting Chair no later than July 22, 2015. Photocopied ballots will be accepted from households with two or more members receiving only one *Begonian*.

2015 ABS Slate of Officers

Please see pages 44 and 45 of *The Begonian* May/June 2015 for officer bios.

Mail to:
Ballot Counting Chair
Ingeborg Foo
1050 Melrose Way
Vista, CA 92083-6504
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Article IV – Committees Section 6
The Publication Committee shall consist of the Chairman, appointed by the President, the Business Manager, the Nomenclature Director, the First Vice President and two others nominated by the Chairman and appointed by the President. The Chairman shall submit applications or requests to the Committee for consideration as may be required. The Chairman shall, under the direction of the Board of Directors, prepare and issue such publications, as the Board of Directors shall require. If the development of a special publication were required, the Chairman may with approval of the Publications Committee, appoint an ad hoc assistant. The appointee shall serve on the Publications Committee during the period that the special publication is in progress. The Chairman shall administer the Millie Thompson Publication Fund and the Thelma O'Reilly Reprint fund and submit recommended applications to the Board of Directors for approval.

☐ **Yes** ☐ **No**

B. 'Sophie Cecile' grown by Jean Jones. Photo Ted Johnson

Palos Verdes Begonia Society presents its

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Unusual begonias on display by club members as well as sale plants from members' collections and specialty vendors.

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For more information contact
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Check inside front cover for details.

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