Fall 2018

Volume 16, Issue 4

The Bulb Garden

~Gardening with Bulbs ~

What's Inside...

BOMAREA EDULIS

Carrie Tribble was a recipient of the Mary Sue Ittner Grant for Bulb Studies. She is a graduate student at University of California, Berkeley and her grant proposal combined evolutionary biology with ecology and ethnobiology on geophytic plants, specifically of the monocot Bomarea*, a neotropical genus with wide distribution.*

For two months in the late summer of 2018, I traveled through Central and Southern Mexico collecting *Bomarea edulis*, an enchanting climber with showy flowers found in moist forests of Central and South America that are closely related to the common horticultural crop Peruvian Lily (*Alstroemeria*). While the beautiful flowers attract the attention of many plant enthusiasts, it was the underground parts of *Bomarea* that drew me to the group for my PhD dissertation. All species of *Bomarea* have root tubers, and the tubers of a few species are edible, including those of *Bomarea edulis*. Funds from the Mary Sue Ittner Grant for Bulb Studies supported my fieldwork in Mexico, where I collected samples to investigate the effect of historic human consumption on this formerly cultivated plant.

With Mexico City as my home base, I collected tubers, flowers, and leaves from *Bomarea edulis* across its range in Mexico, including in the states of Querétaro, Morelos, Veracruz, Oaxaca, and Chiapas. This kind of trip would not have been possible without support from many local herbaria and research institutions, who provided invaluable local expertise on potential collecting localities, transport to the field, collection of supplies, and other resources. A huge thanks to the people from la Universidad Autónoma del Estado de Morelos, la Universidad Autóno-

***Bomarea edulis* is a tuberous and widespread vine. Photo: Jose Maria de Jesus-Almirante.**

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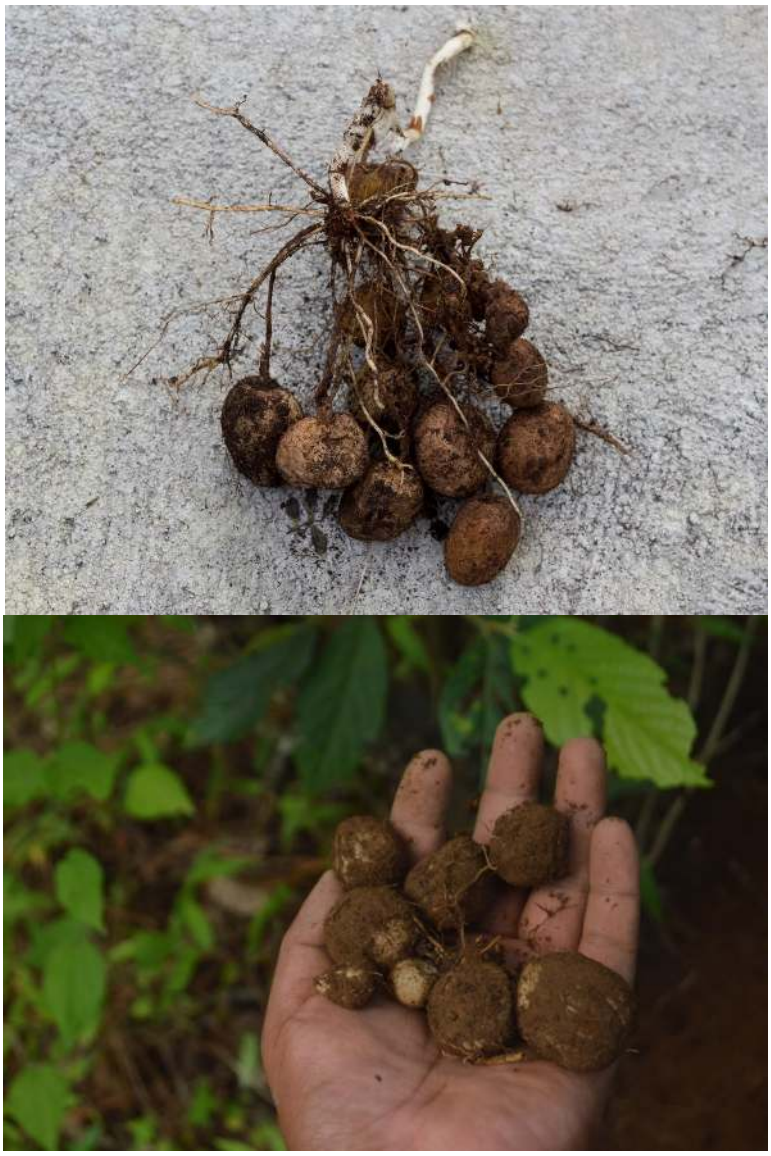
BOMAREA EDULIS *cont'd*

ma de Querétaro, el Instituto de Ecología, la Facultad de Ciencias y el Instituto de Biología de la UNAM, the Eizi Matuda herbarium of UNICAC, and the Benemérita Universidad Autónoma de Puebla! This trip would not have been possible without their generosity and knowledge; one of the major benefits of this trip was forming professional connections with Mexican colleagues.

We found *Bomarea edulis* in disturbed habitats such as along roadsides, in altered forest patches, and growing along the sides of cultivated fields of coffee and corn, between 1000 – 2000 meters (3,300 to 6,600 feet) elevation. The vines seek direct light but often begin growing in shade. The vines will support themselves upon any shrub, tree, or fence nearby. The soil varied from rocky to moist humus; in one case several vines were growing in the compost pile of a carpentry shop among sawdust and fruit scraps. While very few people knew of its edible tubers, one man described eating raw tubers in the forest to quench his thirst.



Top: *Bomarea edulis* tubers. Photo: Carrie Tribble. Bottom: Close up of *B. edulis* tubers. Photo: Jose Maria de Jesus-Almirante.

One of the most exciting observations from the field was the differences in taste of tubers between different populations. Most of the tubers taste sweet and crunchy, like jicama. However, a distinct group of plants in southern Morelos was much more bitter. I am interested to see if this population is also distinct genetically. Different populations may have different tuber characteristics like bitterness or starch content due to human influence; people may have selectively bred plants that had desirable tastes or nutrients. By measuring the concentration of starch and sugars in the tubers, as well as sequencing the genes expressed in each tuber, I aim to detect differences between different populations that may be due to human influence.

Moving forward, I hope to expand my fieldwork to include plants from Brazil and other areas where *Bomarea edulis* grows. If I'm not able to visit these places in person, samples from preserved specimens in herbaria can be used as a substitute for some aspects of the project. However, the fascinating questions surrounding tuber evolution can only be addressed through fieldwork. I am incredibly grateful to the Pacific Bulb Society for this opportunity!

♣♣♣

WESTERN TRILLIUMS

Russell Graham is a retired nurseryman (Russell Graham, Purveyor of Plants) who lives in the northern Willamette Valley of Oregon and has been experimenting and hybridizing with trilliums for quite some time; he is a keen observer of differences and growing conditions and all things Trillium. Robin Hansen has a mail order nursery specializing in Cyclamen, native bulbs (including trillium) and other small bulbs for rock gardens and troughs. She is working more and more with native bulbs (but won't give up on Cyclamen!), becoming more adventurous as time and Russ's encouragement continue. All photos by Russell Graham unless noted otherwise.

One of the most familiar members of the family Melanthiaceae is our woodland trillium, a reliable and somewhat shy spring ephemeral, valued for its very early spring appearance and its delicate beauty, but seemingly at times downright finicky to grow. It favors shade and moisture for the most part although our western trilliums are used to dry summers. If carefully planted, it can prove to be tough and long-lived even surviving years as dormant rhizomes covered by out-of-control ivy or other such weeds or trees, only to burst forth when uncovered, as though patiently awaiting release from nature's prison.

As befitting its long-lived status, trilliums can take from three to nine years before flowering when grown from seed. They can also skip flowering for a year or more if someone foolishly picks the flower (The someone can include quadrupeds, just so you know…) With only three leaves to rely on for building a food supply during its short appearance aboveground each year, picking can deprive trilliums of food needed to leaf and bloom in following years.

There are more than forty species of trilliums, nearly all of which are endemic to North America. The western species such as *Trillium ovatum, T. kurabayashii* and others are mostly adapted to dry summers with plenty of moisture in winter and spring, and are the focus of this article. The eastern species are adapted to moisture year-round and will be considered at a later time. It's important to note that much of the literature on growing trilliums is focused on the bulk of species which grow in the eastern part of the United States, and not on the western trilliums. Although eastern species will nearly all do well in the western U.S., most eastern gardeners will often struggle with western species. However, the western species do well in the United Kingdom and in Europe.

Most western trilliums vary in hardiness from Zones 5 to 9, but as with any plant, sudden onsets of extremely cold weather in fall or early winter without slow gradual cooling can be deadly if grown in containers, while trilliums planted out have thick roots which can pull the rhizomes deeper down into the soil to protect themselves against unusual dryness or cold. This is an adaptation particularly well-suited to the western United States.

***Trillium ovatum* just opening and aging to pink. Photos: Robin Hansen.**

Trilliums have a fairly wide range of flower color from white to yellow, pink or red, with some such as *Trillium ovatum* opening white and turning shades

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Western Trilliums *cont'd*

of red as the flowers age. Some trilliums do have distinctive mottled leaves, and some have speckles in the throats of the flowers. The amount of sun or shade exposure will affect leaf coloration and this will also vary from season to season. *Trillium rivale* can occasionally open pink instead of white and may have lovely sil-

Above: *Trillium kurabayashii,* North Bank Road, Smith River, California (CA). Below: *T. kurabayashii*, Eckerdt selection. Note leaf color variation.

vered veins. Occasionally I've seen a very rare overall silvery sheen to this species as well. The intensity of the mottling can vary quite a bit as illustrated by photos of *T. kurabayashii* and this is true of other sessile species (those with stemless flowers which sit directly on the leaves).

As for maintaining or selecting the best coloration, marking and collecting seed from the best plants is a good but not consistent or always reliable way to increase well-colored forms. As has been mentioned, mottling of leaves and petal color can vary and yellow does not seem to be dominant in transferring to seedlings. Crosses of *Trillium kurabayashii* vary a lot at least in the first generation and Russ is not aware of any second generation plants. I find myself highly skeptical of so-called tissue culture forms claiming to be the latest and greatest. In an attempt to save rare forms, some tissue culture is used but I'd avoid these in favor of your own or your friends' efforts at growing from seed where you will often be surprised at the variety seedlings show. The economics of production and availability of large markets do not support the efforts to introduce mass-produced trilliums, as is true of a number of other uncommon or difficult to grow plants.

Russ grows *Trillium* 'Volcano', a form introduced from New Zealand some years ago, which in theory is tissue-culture propagated (meaning all 'Volcanos' should be the same clone), but for him it seems to vary taxonomically from year to year and within the growing season. This variation taxonomically has caused confusion for others as Heronswood Nursery introduced it as ses-

***Trillium* 'Volcano', a clone from New Zealand, pictured in the Seabright Garden, Salem, Oregon (OR).**

sile but later listed it as *T. chloropetalum* (a non-sessile species). In addition, the O'Byrnes (Ernie and Marietta, Eugene, Oregon) and others suggest the plant never sets seed, but Russ has been growing seedlings from his plants. The seedlings vary so much Russ considers the plant a hybrid,

Continued on next page

Western Trilliums *cont'd*

Above: *Trillium* 'Volcano' in the Ernest & Marietta O'Byrne garden, Eugene, OR. Below: Seedlings of *T.* 'Volcano' grown by Russ Graham.

but is not certain as to what the cross might be.

The most commonly available western species are *Trillium ovatum*, *T. rivale*, *T. kurabayashii*, and *T. albidum* and its subspecies *T. album* ssp. *parviflorum*. *Trillium chloropetalum* has been subsumed in *T. albidum* ssp. *albidum*, *T. albidum* ssp. *parviflorum* and *T. kurabayashii*, at least according to the Flora of Oregon, Vol. 1, 2015, published by the Oregon Flora Project. I've grown both *T. chloropetalum* and *T. kurabayashii* and can't decipher even the most minute of differences. (Keep in mind I'm not a botanist, just an enthusiastic nursery grower and gardener.) Just to confuse you further, Jepsen Manual, Vascular Plants of California, Second Edition, lists *Tt. angustipetalum* and *chloropetalum* as separate species! Additionally Jepsen II does not acknowledge *T. kurabayashii* despite J. D. Freeman having collected the type specimen in California.

Russ comments that there is a lot of lore, myth and confusion regarding trilliums in general and the growing of plants from seed in particular and concludes that it is a large challenge to distinguish between the two: myth and fact. Much of his time has been spent in attempting to confirm truth and

***Trillium rivale* near Selma, OR.**

dispel myths regarding the length of time required from seed to bloom, which doesn't seem to be a big concern for very many people, and so is not a large part of the literature. Also at issue is that available trilliums are still frequently wild collected rhizomes, especially the eastern species, even from supposedly reliable sources. Some western species from Oregon may be suspect as well. Even seed can be misrepresented: Alplains Seed in Colorado acknowledged to one contact that seed currently listed as *Trillium rivale* coming from silver-veined plants is not from the source listed. Additionally, Russ is unaware of any commercial source of *T. chloropetalum* that is positively this species except Bay Natives in San Francisco, California, although perhaps occasionally other California nurseries offer it from time to time.

Our erratic weather, very dry summers, and occasional very wet ones, can have a significant impact on production of seed from none to plenty.

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Western Trilliums *cont'd*

While mostly self-fertile, hand-pollination can increase seed set; most of us, however, are unlikely to let nature take its course, preferring to hurry things along as much as we can. I address seed-sowing in detail because often we cannot afford to buy trilliums or they are simply not available as plants and for many of us, our only choice is to grow them from seed, especially if we want a large variety of them.

All trilliums have seed capsules full of fleshy seeds that attract insects such as ants or deer or yellow jackets when ripening, so keep a daily watch (or sometimes more frequent) on the pods when they are becoming soft and are changing color to a lighter yellow-green or tan. At this point, harvest, press the pods open and let them dry for a few days in an open container so that separating the individual seeds makes sowing them easier. There's nothing like trying to separate a sticky clump of seeds when you're sowing them…just don't let them dry out completely. You may even want to put a bit of paper around the seed pods or if in a container put the plant up on a bench which makes them far less accessible to involuntary harvest. And even that may not work. I've had *Asarum* capsules disappear without a trace two hours after putting the plants on a potting bench.

***Trillium* seedlings from a single sowing. Note wide range of sizes.**

Seed should not be refrigerated if you personally collect it but it can be kept in the capsule or cleaned as long as capsules or cleaned seed are kept moist. If mold is seen, rinse with a strong stream of water in a kitchen sieve. While technically "germination" is the emergence of the root from the seed and emergence of the cotyledon is the second step, for practical purposes we both consider this term to mean the appearance of a cotyledon. Furthermore, the appearance of the cotyledon does not necessarily occur two years after sowing, but is often less than one year, or may even appear the following spring. Premature harvest of seed, provided it is not too premature works, and in emergency situations where the stem is damaged, using duct tape as a splint or putting the broken stem in water may save the day.

Neither of us is inclined to believe the "myth" of double dormancy, having enough experience to believe that it's a bit of hand-me-down pass-along advice. According to Russ, double dormancy does not explain the reality that all seed does not germinate at the same time in many seed trays: that is, some might germinate "immediately" and some may wait for years. One grower reported waiting seven years for seed to germinate. As the photograph at left shows, seed has not all germinated at the same time as the size of the rhizomes varies considerably.

Russ recommends sowing in ziplock bags using various mixes such as perlite, vermiculite, soil mixes, compost or garden soil. Keep some bags warm, around 60° F (15° C), for at least 90 days before any cool period. Norman Deno in his Seed Germination Theory and Practice seems convinced gibberellins are essential for successful germination, but we are not convinced this is true from our own experiences. Our attitude is why wait two years when it's possible to get germination within a few months to a year? Double dormancy is a good concept, except not one that can be applied across the board with all trillium,

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Western Trilliums *cont'd*

nor has double dormancy proven to be required. Below are some of the ways we sow trillium seed and how we transplant and grow them on.

Method 1: Sow the fresh seed in a standard, good draining container mix, placing seeds about ¼ inch down and either covering with more soil mix or ¼ inch of ¼ 10 gravel. Russ uses #2 chicken grit over seed trays because it is inert and does a great job (as does ¼ 10) of slowing growth of all bad things on the surface of the seed trays. Pumice floats too much and I no longer use it as a topping. Put the pots outdoors or in a cold greenhouse and protect from diggers and roaming cats. Keep moist year-round for at least two to three years as germination can be slow and erratic.

***Trillium rivale* near Selma, OR. Photo: Russ Graham.**

Method 2: Clean the fresh seed and place in a ziplock bag, without the addition of any media. Keep at 60° F (15° C) until germination is seen. Watch out for mold; if it occurs, wash with a stream of water and briefly rinse with hydrogen peroxide. As previously mentioned, do not allow seed to get too dry. Once germination occurs, sow in seedling mix and set out for natural cool stratification.

Method 3: Seed exchange seed – soak for several days, then follow Method 2. Sowing thin is better than sowing thick and transplanting early is better than later. Even when seedlings are tiny, the roots are few, white and thick enough to do so easily. When transplanting trillium seedlings, put several in a three to four-inch pot, using a pencil or a small tent peg as a dibble; add bone meal or a minimal amount of a slow-release fertilizer such as Apex (best for cool climates on the coast). Osmocote or an equivalent fertilizer may be more appropriate in areas with warmer spring and summer temperatures.

Depending on how thickly you've sown your pots, once germinated (showing cotyledons) either leave for another year or transplant. I will either put one seedling into a two-inch pot or three or four into a three- to four-inch pot. Seedlings seem to do better when sharing a pot and don't dry out as quickly. Add fertilizer at very reduced strength when transplanting and continue to either freshen the soil or transplant each year which encourages more rapid healthy growth. If using non-organic fertilizers, it's probably best to wait two or three weeks before applying to newly transplanted seedlings. The seedlings will not necessarily go dormant in summer when young and you want to encourage continued growth by keeping the pots moist, as the longer you keep them growing the sooner they will bloom.

As an example of above methods, I received four batches of seed from Russ this fall, two of *Trillium albidum* and two of *Trillium kurabayashii*. The seed was germinating in ziplock bags when I received it. It was collected in late July 2018 but Russ did not receive it until early August. All the capsules were desiccated and some were quite dry as the weather was warm (in West Salem, Oregon where Russ lives), The seeds were soaked and washed in two batches each of the two species. One batch was very dry and the other less so. The elaiosomes (fleshy parts of seed) disappeared in the process. The seeds were finished with a brief soak in hydrogen peroxide. Damp seed, very moist but with no obvious liquid, went into two ziplock bags, batches kept separated, the driest in one bag, the less dry in another, for each species. The seed was checked periodically for mold and kept between 65-75° F (18-24° C). It was assumed the two driest batches would not survive, but six weeks later what appeared to be mold

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Western Trilliums *cont'd*

was roots emerging in both bags, dry and less dry. At which point four bags were sent to me and I planted them using Method 1.

The following is a list of western species commonly available both as plants and/or as seed from seed exchanges. If seed from exchanges is not moist-packed (a trend I strongly encourage), soak the seed for several days before planting. Most trilliums have some fragrance – it can be elusive, non-existent or obvious depending on one's sense of smell and temperature. I won't attempt to describe the fragrance; suffice to say, one man's honey scent is another's eau de skunk.

***Trillium kurabayashii,* yellow form.**

Trillium rivale is our smallest western trillium, growing about four to six inches high with white flowers usually speckled with dark spots in the throat; flowers may also have a pink tinge. The leaves may be green to silver-veined and occasionally a plant will appear to be coated with a light silver wash. Seed matures more quickly to blooming size, in three to four years, and the plants can be divided easily. Rhizomes form fairly quickly and these offsets will be somewhat different in appearance compared to other trilliums. It is suitable for troughs, pots and moist shady areas in the garden but keep it where you'll see it easily. Russ has several reports of *T. rivale* growing well in full sun in nature and in gardens, as long as moisture is consistent. This trillium is often the first to bloom for me.

Trillium kurabayashii is the most vigorous and reliable of the western trilliums and follows *T. rivale* closely in blooming sequence, sometimes ahead of or with *T. ovatum*. The leaves are mottled with a dark pattern which can vary in intensity depending on amount of shade, and the flowers vary from yellow to dark red. Even after much study there is still disagreement about its name as mentioned previously, so don't bother with names and just try to grow the various color forms. It is decidedly easier for me than *T. ovatum*.

Trillium ovatum is the white trillium most people are familiar with in the west and the most commonly seen but in our experience is also more difficult to grow. I thought at first it was just my lack of ability but after so many years, I've heard any number of gardeners say much the same; however, none of us really knows why it is the crankiest of trilliums. There is a dwarf form, *T. ovatum* ssp. *hibersonii*, opening white but occasionally pink, for which I now have seed so we'll see how that one grows. Russ strongly believes that *T. hibersonii* is unique and not a subspecies of *T. ovatum*, and says that it never sticks around more than three or so years for him no matter how he cares for it. He is nearly convinced that it is too hot and dry where he lives in the west hills of Salem, but says it germinates readily.

Trillium ovatum opens white and fades to a dull pinky red. As with other trilliums, fresh seed germinates readily, sometimes within two or three months of sowing if kept moist, but may take anywhere from three to nine years to bloom. Often seen along trails, sheltered by shrubs and growing through low-growing groundcovers, occasional clumps may be many years old. *Trillium ovatum* tolerates dry summers well. Unfor-

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Minutes

October 28, 2018
PACIFIC BULB SOCIEY
Conference Call Board Meeting

Present: President Nhu Nguyen, Secretary Kathryn Andersen, Treasurer Arnold Trachtenberg, Director Jane McGary, Director and SX/BX Coordinator Albert Stella, Director and Co-editor Jennifer Hildebrand, Editor Robin Hansen. Director Jane McGary was not present but her comments after the meeting are included.

President Nguyen called the meeting to order at 12:32 p.m. EDT.

Minutes of July 29, 1018 Meeting: Hildebrand moved to accept the minutes as sent out. Second by Trachtenberg. Motion carried.

Treasurer's Report: Trachtenberg reported a balance of $37,308 in the UBS account. Two grant awards totaling $1250 were made, and slightly more was spent than budgeted on the Rod and Rachel Saunders Memorial issue. The second quarter is usually low with an upswing for the third quarter when the BX is most active.

SX/BX – Stella reported that the BX has been very busy with many donations. He has two more offerings to go. Trachtenberg indicated that the BX activity is far ahead of the payments, with a great deal of activity.

Membership: McGary said that paid up membership stood at 347 which is typical for this time of year.

The Bulb Garden: Notice of the memorial issue has generated many responses. Reports from the two grant recipients, Christian Valdes Ibarra and Annika Smith will appear in later issues. Thanks to Hansen, the Memorial issue is linked to the website. Trachtenberg asked if the membership directory would be inserted in the next issue of *The Bulb Garden.* Notice of grants will appear in a future issue.

Mileage Reimbursement: Trachtenberg proposed reimbursement for some mileage expense. President Nguyen posted Standard Operating Procedure for obtaining reimbursement. Hildebrand move to accept this procedure. Second by Trachtenberg. Motion carried.

Hippeastrum Book: The printer needs options for printing. Trachtenberg will ask for possible quotes and discuss size. It is 136 pages long with some black and white photos, some in lovely color and maps. We want a little better than a spiral binding. In a post after the meeting, McGary specified that coated paper is necessary for good photo reproduction and should be heavy enough to withstand use in the field. The cover stock should be paper with a laminated finish for use in the field and to make it more acceptable to libraries. For this quality the book should sell for $30-$35 a copy. She suggested "The Random House Book of Bulbs" by Phillips & Rix as a model for quality.

The meeting was adjourned at 1:25 p.m. The next meeting was set for 12:00 noon EST. January 20, 2019.

Respectfully submitted,
Kathryn S. Andersen,
PBS Secretary

Treasurer's Report for Fiscal Year 2018

JAN. 1, 2018	**$ 42,528.74**
U.S. Members	**$ 4,580.00**
Overseas Members	**$ 4,350.00**
BX Receipts	**$ 5,694.16**
Interests Dividends	**$ 1,248.07**
Hippeastrum donation	**$ 1,500.00**
	$ 17,372.23
BX/SX Postage	**$ (4,557.50)**
BX/SX Supplies	**$ (2,301.80)**
BX Helper	**$ (62.80)**
Board Conference call	**$ (203.23)**
Hippeastrum design	**$ (2,850.00)**
MSI Grants	**$ (1,250.00)**
Accountant fees	**$ (500.00)**
Treasurer's Supplies	**$ (370.00)**
Publications	**$ (6,690.00)**
Publication postage	**$ (2,628.77)**
PayPal expense	**$ (675.34)**
Market value	**$ (1,153.84)**
Bulb Garden editing	**$ (2,800.00)**
Web registration	**$ (49.00)**
	$ (26,092.28)
DEC. 31,2018	**$ 33,808.38**

Western Trilliums *cont'd*

tunately, deer eat them on occasion, perhaps more as a source of curiosity than as a general treat.

Trillium albidum and its subspecies *parviflo-*

rum are white-flowered species needing moisture, with plain to heavily mottled leaves. *Trillium albidum* has not been especially vigorous for me but ssp. *parviflorum* does very well, blooming the latest of all. It is not as impressive as other species but I do believe as does Russ that *T. parviflorum* is a separate species. However, time will tell. The one eastern species I grow is *Trillium cuneatum*, slow to make offsets, but with the most interesting greenish flowers, best viewed closely. The leaves have their own very distinct color and pattern of mottling, not much like the westerners at all. It blooms later than most of the others and does vary in flower color, not always being the green mine are.

It's important to plant trilliums where they can remain undisturbed but if you must move them, dig deeply and include a large clump of because the rhizomes may be down twelve inches or more. If you buy a pot of trilliums, you can sink the pot in the soil up to the pot rim and then transplant when dormant, in mid- to late fall depending on your weather and climate. Given the appropriate position and correct amount of moisture, trilliums are known to live for up to 50 years, and will gradually formed fair

Top left: *Trillium albidum* clump near Medford, OR. Left: *Trillium albidum* growing nearby showing much darker leaf coloration. Above: *Trillium cuneatum* with green flower. Photo above: Robin Hansen.

-sized clumps if left undisturbed.

The Pacific Bulb Society Wiki has many excellent photos of trilliums, both our eastern and western species, showing the range of colors and giving more specific information for each one.

RESOURCES:

http://botu07.bio.uu.nl/Trillium-L/

https://www.pacificbulbsociety.org/pbswiki/ index.php/PhotographsAndInformation

trillium-l@lists.science.uu.nl

http://www.srgc.net/forum/

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MISCELLANEOUS

Saunders' Field Guide to Gladioli

Progress is being made in the plans to publish Rod and Rachel Saunders' book on Southern African Gladioli. As many of you know, Rod and Rachel Saunders had spent considerable time before their deaths working on a field guide to *Gladiolus* species, In addition to field work, their search involved archives and histories, with help from botanists, keen hikers, wilderness people and local plant lovers, sometimes venturing far from South Africa to find information about the whereabouts of the plants. For example, they eventually found *Gladiolus symonsi,* one of the last they photographed, by tracking down an elderly librarian in Scotland.

They had found all but one of the Gladioli before their tragic deaths, and Rachel had begun to write the Guide. In fact she had been writing text for more than a year before she and Rod died.

Family and friends have requested the work to continue, and have asked that the Guide be published without the final *Gladiolus* species, in honour of their lives.

Consequently, Rachel's text plus the extensive archive of notes, pictures and text have been collated by a small working committee and several highly respected botanists will help with the finer details of fact-checking, etc. In addition, a professional publisher is interested in publishing the Guide and fundraising has begun for a publication subvention, which will make it possible to produce a specialist book in a niche market.

Please consider a contribution towards publication of this very important work. A website has been established to keep everyone apprised of progress:

http://www.saundersgladiolusguide.com/

Contribution instructions are on the website; please be sure to email info@silverhillseeds.co.za also so they will have a record. (Information above condensed from the website.)

Gladiolus orchidiflorus

ATTENTION PBS Members

CALL FOR APPLICATIONS

FOR THE 2019 MARY SUE ITTNER GRANT FOR BULB STUDIES

This grant is set up to support anyone interested in learning more about bulbs. It may be used to support any type of research, including field-work, and education. It is available to paid PBS members world-wide, and you may apply for membership when you submit your application.

Last year we awarded two grants for study of "Floral diversity and dynamic evolutionary processes in three Chilean species of *Tropaeolum*" and "Richness and geographic distribution of *Zephyranthes* (Amaryllidaceae) in Mexico". You will find the reports of these studies in future issues of *The Bulb Garden*. For more information, visit the link to the grant page below.

The award amount is $500 USD.
The deadline for this year is May 15, 2019.
The complete announcement, conditions, and additional information are found here:

http://www.pacificbulbsociety.org/grant.html

Don't forget to renew for 2019!

We appreciate your support—we would hate to lose you!

Renewing is easy. You can renew **ONLINE** ($20 U.S., $25 international) via PayPal. Just use the button on our membership page, http://www.pacificbulbsociety.org/membership.html.

You can also mail in your renewal. Please direct it to Arnold Trachtenberg, 140 Lakeview Avenue, Leonia NJ 07605

Whether renewing online or by mail, please contact Jane McGary (janemcgary@earthlink.net) if any of your contact information has changed.

Thanks again for your continued support of the Pacific Bulb Society!

Arnold Trachtenberg
Pacific Bulb Society
140 Lakeview Avenue
Leonia NJ 07605

www.pacificbulbsociety.org

Pacific Bulb Society, *The Bulb Garden*, Volume 16, No. 3

Gardening with Bulbs

Fragrant hand-pollinated cross *Trillium albidum* x *kurabayashii* made by Russell Graham.

Inside This Edition:

The Bulb Garden is the newsletter of the Pacific Bulb Society (PBS). It is published, if enough articles are submitted, around the third week of each quarter and is available to PBS members. This newsletter provides gardening or bulb related articles, news of interest to members, and announcements of the PBS organization.

Editor: Robin Hansen, robin@hansennursery.com; Co-Editor: Jennifer Hildebrand

Visit us online! www.pacificbulbsociety.org