

Angraecum urschianum

By Brenda Oviatt and Bill Nerison

A Jewel Worthy of In Situ Conservation and Ex Situ Propagation

MANY PEOPLE, EVEN THOSE WHO do not grow orchids, are familiar with the genus *Angraecum*, particularly *Angraecum sesquipedale*, or Darwin's orchid, and the story behind it. It is truly a king. (See related story on page 41.) What they're not aware of is the great diversity within the genus *Angraecum*. Many angraecums are not in widespread cultivation due to their diminutive flowers but others are not available due to the scarcity of parent or stock plants with which to work. Another difficulty is that many angraecums can be reluctant breeders.



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One interesting aspect about angraecums is that most of their flowers are white and most are not fragrant during the day. They use nighttime fragrance to attract their pollinators, typically moths and crickets.

And at night, white shows up well. Many have long spurs or "nectaries" and the nectar they contain is a treat for their insect pollinator. We frequently observe the nectar in the spur, and yes, it does taste sweet. The genus *Angraecum* contains approximately 220 species and is currently divided into 19 sections. Seven of the sections have few if any species that are in cultivation. Only six of these sections contain species that are readily available. This begs the question — who decides which ones live and which vanish into extinction? All too often, their survival is based on the size or "beauty" of the flowers, as their only value to commercial growers.

The section *Perrierangraecum*, of which *Angraecum urschianum* is a member, is comprised of 36 species and is the largest section in the genus. What sets this section apart is that many of its species have relatively large flowers on small- to moderate-sized plants. It contains many choice species that deserve immediate attention by growers, breeders and conservationists. *Angraecum bicallosum* is one in section *Perrierangraecum* that Fred Hillerman wrote about in the 1980s. He said, "Once the germination secrets are learned and seedlings of these are available, there will be no reason for it not to be found in all good collections" (Hillerman and Holst 1986). That it isn't available speaks volumes about how difficult some of



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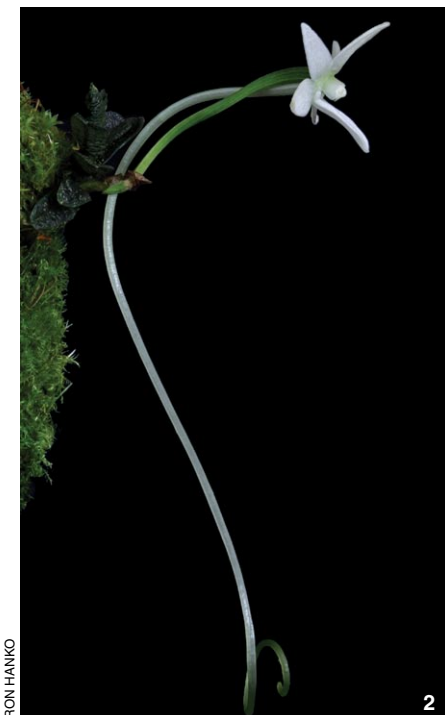
the angraecoids are to reproduce and how important propagation efforts are.

One species in the *Perrierangraecum* section that really stands out is *Angcm. urschianum*. You can see from the photographs in this article that it's an unusual little orchid. "Orchid" doesn't come to mind when most people see one out of bloom. They look more like a *Gasteria* or *Hawarthia*; quite succulent and verrucose. As they're tiny, they make a perfect choice for the lover of miniatures. Whereas a well-grown *Angcm. sesquipedale* can grow larger than its owner, the ultimate size of *Angcm. urschianum* is

[1] The flower of *Angraecum urschianum* dwarfs the plant. Its spur or nectary can be about 4½ inches (12 cm) long. The disproportionate bloom to plant size is endearing. Grower: Ron Hanko.

much smaller than one of the sepals on the flower of an *Angcm. sesquipedale*.

Angraecum urschianum is endemic to a small region in Madagascar. It was described and named in 1961 by Jeanne Toilliez-Genoud and Jean M. Bosser in the French periodical *Adansonia: revue périodique d'observations botanique*. It



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was named for Eugène Ursch (1882–1962), a French botanical collector and director of The Tsimbazaza Zoological Botanical Garden in Antananarivo, Madagascar. Apart from the type collection there are not many herbarium records of *Angcm. urschianum*.

The habitat of *Angcm. urschianum* is in the eastern rainforest area of Madagascar at an elevation of 3,280–3,940 feet (1,000–1,200 m). This area is approximately 20° south latitude (for reference, Hawaii and the Yucatán Peninsula of Mexico are at 20° north latitude). In rough numbers, the average annual temperature stays in the 70s F (21–26 C), mean relative humidity is 75 percent and annual rainfall is 80 inches (2 m). Our efforts to find a photograph of one in situ (as it grows in nature) have been unsuccessful. Johan Hermans of Suffolk, United Kingdom, reported to me, “I’ve been unable to get a picture of it as it grows in nature, but I once found plants on small twigs on the ground where they had fallen from a medium-sized tree” (Hermans, pers. comm.). He describes the environment as primary forest being eroded at its edges with a canopy of larger trees and very large *Pandanus*. The understory is of semievergreen scrub and ferns with a very thick covering of moss on all surfaces, the mountain side riddled with small streams and rivulets.

The plant shown with the collection tag to the right is another *Angraecum* species from the same geographic area. Notice the moss growing around the plant. Tahiana Andriananjamanantsoa, who is currently working on his PhD degree on *Angraecum* at the University of Montreal, tells us that



TAHIANA ANDRIANANJAMANANTSOA

- [2] The plant of *Angcm. urschianum* is a charming thing for a collection and when in bloom, can put a smile on your face. Grower: Ron Hanko.
- [3] The flowers of *Angcm. urschianum* are primarily white, with just a touch of

green, and glisten as though they have diamonds infused beneath the surface. Grower: Ron Hanko.

- [4] Another *Angraecum* species photographed in situ from the same area where *Angcm. urschianum* grows.



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often he will find several species of *Angraecum* and other orchid genera such as *Bulbophyllum* on the same branch. Keep this image in mind as we describe its culture later in this article.

It is doubtful that *Angcm. urschianum* is as widespread as noted when discovered in 1961. Sadly, Madagascar is notorious for its environmental degradation and deforestation (this has been going on there since humans arrived 2,000 years ago). Although 3 percent of the land mass has been designated national park or reserve and is deemed protected, many of those areas are no longer safe nor protected. Since the political coup there in 2009, illegal logging of rosewood and other exotic wood is occurring at an alarming rate, and most is taken from these

“protected” areas. Our Malagasy contacts refer to the situation there as “desperate” and as a “crisis.” Madagascar is a country of extraordinary biological diversity, with plants and creatures that exist nowhere else on earth. The combination of “tavy” (slash-and-burn agriculture), exploitation of natural resources (i.e., mining, logging) and the overcollection of plants and animals continues to deplete the environment. To protect them in situ will require education, improved infrastructure and alternative economic development. If any species (plant or other creature) can generate a profit for someone somewhere, it can be purchased. That’s why ex situ conservation is so important. If people can buy a species — one that is threatened in nature — at a lower price because it is raised ex situ, most will. That alone can take some pressure off the native populations. In a perfect world, the plants and animals that are removed for trade in Madagascar would be raised there, and the profits would remain with the Malagasy people. Until such time (and there are only a few such efforts underway) it’s important to reproduce as many ex situ as possible.

Currently, about the only way to acquire an *Angcm. urschianum* is to import collected specimens with the appropriate paperwork. This is not an endeavor for the faint of heart, nor for those watching their pennies. It also contributes to the depletion of the populations in Madagascar. It’s a fine-edged sword . . . at this point, sometimes the only way to reproduce them is to extract a few from their natural habitat. At Botanica Ltd., we have acquired a few plants as breeding stock and currently have seedlings in flask for future distribution. Another positive aspect to ex situ propagation is that plants one generation or more from nature are hardier and easier

[5] “Orchid” does not come to mind when most people see *Angcm. urschianum* out of bloom. It looks like a *Gasteria* or *Hawarthia*: succulent and verrucose. Grower: Botanica Ltd.


[6] The authors love watching the flowers of *Angcm. urschianum* ‘Marisa’s Jewel’, CHM/AOS open. The spur begins tightly coiled and over the course of several days “relaxes.” Grower: Botanica Ltd.

to grow.

CULTURE Let us preface the culture information by saying that *Angcm. urschianum* is not an easy-to-grow orchid. It is, however, a rewarding and delightful plant to have in your collection when grown well. When Brenda travels and speaks about angraecoids, an underlying theme of the talk is roots. Orchid roots can tell stories. Learn about the roots of your orchids and then watch their progress. This, of course, applies to all orchids. Let the roots be your plants’ line of communication with you. The roots tell you what the plant needs (or does not need) and how it’s doing. *Angraecum urschianum* is an understory plant with fine, delicate roots of miniature stature. Its roots have little storage capacity for water, nor does the plant itself, unlike an orchid with pseudobulbs. In nature, it is accustomed to consistently high humidity and is endemic to an area where even the dry season is not really dry. It cannot go long without moisture. Therefore, when you’re growing it, high humidity and/or regular watering is extremely important. Although we’ve not seen one grown potted, we do not doubt that it’s possible. Most are grown on a mount (we use cork) with the addition of a moisture pad, like coir or moss. We place the plant directly on the mount, then add

Angraecum Section Perrierangraecum

<i>aloifolium</i>	<i>kraenzlinianum</i>
<i>ambrense</i>	<i>lecomtei</i>
<i>ankeranense</i>	<i>letouzeyi</i>
<i>bicallosum</i>	<i>liliodorum</i>
<i>borbonicum</i>	<i>litorale</i>
<i>breve</i>	<i>longicaule</i>
<i>chimanimaniense</i>	<i>obesum</i>
<i>clareae</i>	<i>oblongifolium</i>
<i>compactum</i>	<i>palmicolum</i>
<i>compressicaule</i>	<i>peyrotii</i>
<i>cucullatum</i>	<i>pseudodidieri</i>
<i>curnowianum</i>	<i>rigidifolium</i>
<i>curvicalcar</i>	<i>rutenbergianum</i>
<i>didieri</i>	<i>sambiranoense</i>
<i>dollii</i>	<i>stella-africae</i>
<i>drouhardii</i>	<i>urschianum</i>
<i>dryadum</i>	— Compiled by
<i>elephantinum</i>	Brenda Oviatt and
<i>equitans</i>	Bill Nerison.
<i>imerinense</i>	



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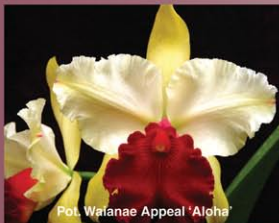
Phal. Brother Peptide 'Carmela'



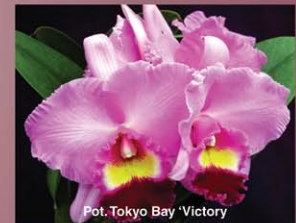
Pot. (Chyong Guu Sun x Wendy's Redstone) 'Hawaii'



Lc. Final Blue 'Royal Purple'



Pot. Waianae Appeal 'Aloha'



Pot. Tokyo Bay 'Victory'

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the moisture pad. This allows the plant's roots to attach more easily to the mount. Our oldest plants have tended to grow two or three leaves and then drop as many bottom leaves. Most have between six and 12 leaves at a time. In previous years, ours have bloomed regularly in April–May (in situ, in the Southern Hemisphere, September is their bloom time). This year not a single one bloomed, but several branched for the first time, getting second growths.

For those of you who want to grow *Angcm. urschianum*, education and good information can help you keep your plant alive. We know what works for us; we grow all of our angraecums in a greenhouse in western Montana. Because your growing conditions could be different, we've contacted six people that we know have grown them, and with their help, have compiled some general culture guidelines. The growing environments are diverse and include greenhouses, a Wardian case (vivarium), windows with supplemental lighting and outdoors. The locales include western Washington, western Montana, northern California, southern California, Oklahoma, Texas and New York. It's evident from both our personal experience and those that we have contacted that the two conditions to avoid are overdrying and excessive heat.

Light Intermediate light levels appear ideal, though there was a fairly wide range given the different growing environments. The range is 1,000–3,400 foot-candles (indoors under lights to midday in greenhouse). Outdoors in east light with 50 percent shade cloth and 12–15 hours under T4 high-output fluorescent bulbs or a combination 400w metal halide/400w high-pressure sodium lamps. It is interesting to note that those using exclusively artificial light make monthly adjustments (½ hour per month) to mimic outdoor day length.

Temperature A temperature range of 55 F (13 C) as the lowest nighttime winter temperature, and 85 F (29 C) as the warmest daytime summer temperature seems best. Those with extended periods of time in the 90s F (32–37 C) and 100s F would do well to use a combination of air movement and misting to prevent overheating. With heat, other problems can occur. More than one grower experienced crown rot or leaf drop exclusively during times of extreme heat.

Water and Fertilizer Reverse-osmosis or rainwater is essential, along with ½-strength or less fertilizer and a periodic “flush” with clean water. Some growers (including us) are giving a slightly drier winter rest, while others are giving consistent care throughout the year. Both

treatments are resulting in success. We rotate fertilizer formulas and always provide micronutrients.

A CHALLENGE TO YOU We have chosen to focus our conservation efforts on the angraecoid alliance. We sell a limited number of the rare angraecoids that we raise but our primary objective is their survival. Will they be reintroduced into nature? Perhaps, though areas must first be unequivocally protected. If the habitat continues to suffer loss from encroachment, reintroduction is futile. *Angraecum urschianum* is not unique to the effects of habitat loss. As orchid growers, we urge you to pick a threatened species that you like and put forth an effort to protect it — whether protecting it in situ (in its environment) or ex situ (away from its native environment). Experienced growers can keep them alive in their collections, and share pollen, seed and expertise. The novice can strive to observe, learn and help protect the species in situ. We encourage everyone to share pollen, seed and information.

References

- Butler, R. 2012. *Wild Madagascar.org: Exploring Madagascar, a Land of Cultural and Biological Richness*. www.wildmadagascar.org/. Accessed December 8, 2012.
- Climatemps. 2012. *Madagascar*. www.madagascar-climatemps.com. Accessed December 8, 2012.
- Hillerman, F.E., and A.W. Holst. 1986. *An Introduction to the Cultivated Angraecoid Orchids of Madagascar*. Timber Press, Portland.
- Plant List, The*. 2010. Version 1. www.theplantlist.org. Accessed December 8, 2012.
- Stewart, J., J. Hermans and B. Campbell. 2006. *Angraecoid Orchids Species from the African Region*. Timber Press, Portland.

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Brenda Oviatt is an artist and Bill Nerison is an architect. They live on the Clark Fork River in Missoula, Montana (a corner of paradise) with their daughter Marisa, son Tristan and an assortment of animals. They've been growing orchids together for 29 years and in that time have grown in many settings. For the last 10 years, their orchid growing has focused on the ex situ propagation of endangered angraecoids and the education of hobbyists and growers. (website www.botanicaltd.com).

Learning More about Angraecoids

THE ANGRAECOID ALLIANCE The Angraecoid Alliance is a new nonprofit dedicated to the in situ conservation and ex situ cultivation of angraecoid orchids. Its objectives are (1) to increase the number of plants cultivated ex situ in order to increase the likelihood of species survival; (2) to foster the in situ conservation of angraecoids by establishing a free-trade orchid nursery in connection with a conservation reserve; and (3) to educate experienced and novice angraecoid growers to improve the cultivation of these orchids, according to its president, Sarah Waddoups, Rogers, Arkansas. Over the summer, The Angraecoid Alliance announced its Ex Situ Conservation Project. Members donate pollen or seed of angraecoid orchids. This seed is flaked and ultimately the seedlings are distributed to individuals who are committed to cultivating the species in their collection for conservation purposes. By artificially propagating rare angraecoid species, the demand on wild populations is reduced and the number of plants conserved via ex situ conservation is increased. More information about The Angraecoid Alliance and the ESC Project can be found at www.angraecoids.org.

ADDITIONAL RESOURCES

Little-Known Angraecums Part I: The Genus in Central Africa with a Focus on Two Sections, by Murielle Simo, Bonaventure Sonké, Vincent Droissart and Tariq Stévant. *Orchids* 79(12):690–695, December 2010.

Little-Known Angraecums Part II: The Genus in Central Africa with a Focus on Sections *Conchoglossum*, *Angraecoides* and *Arachnangraecum*, by Murielle Simo, Tariq Stévant, Bonaventure Sonké, Porter P. Lowry II and Vincent Droissart. *Orchids* 81(2):110–116, February 2012.

WildMadagascar.org (<http://www.wildmadagascar.org/>)

Orchid Conservation in Madagascar (<http://www.kew.org/plants/orchids/madagascar.html>)

Missouri Botanical Garden (<http://www.mobot.org/MOBOT/Research/africaprojects.shtml>)

Omaha's Henry Doorly Zoo and Aquarium, Department for Plant Conservation (<http://www.omahazoo.com/conservation/>) — *Compiled by Brenda Oviatt and Bill Nerison.*