

COLLECTOR'S ITEM

Neobathia grandidieriana by Brenda Oviatt and Bill Nerison

Is Yours Correctly Identified?



This photo does not do this beautiful orchid the justice it deserves! Photograph by Brenda Oviatt.

WHY THIS SPECIES? *Neobathia grandidieriana* are extraordinary plants, modest-sized, producing elegant flowers with long nectaries — worthy of inclusion in every good collection. When you see their blossoms, you want to have an assemblage of them because they are so graceful and lovely. You get caught up in their beauty (and sometimes the struggle of keeping them healthy and happy). And then, you find that your beautiful babies are incorrectly labeled and because you want to reproduce them (because most everyone that sees them wants one) you get caught up attempting to gain an understanding of the confusion between species in the genus. Then you start exploring it and end up finding an odd mistake. Finally, you decide you have to share all of this information and beauty. And there you have it.



Brenda Oviatt and Bill Nerison

One of the major challenges acquiring and reproducing rare and endangered angraecoids is ensuring the accurate identification of them. There are just six species of *Neobathia*,

but there seems to be great confusion between a couple of them (in the orchid trade), and our goal is to help growers learn to tell if their plant is correctly identified. We will only address the ones that are easily confused. As growers, we should realize we cannot always trust the tag that comes with our orchid and it is important to know how to identify our plants. Species identification is paramount. In hybridizing, if you do not begin with a correct identification, the mistake is compounded and it gets increasingly complicated by generation and the error metastasizes. It can be nearly impossible to remedy these errors.

In addition to errors that may occur with different names, even something as simple as a spelling error can complicate matters. We planned to write an article on *Neobathia grandidieriana*. Notice that spelling. While doing research we realized the information we gathered on line about this species had the name spelled differently than we had been using or was in our books; it all seemed to be *Nbth. grandidierana*. It was not in just a spot or two, it was even different on the World Checklist of Selected Plant Families! We contacted an expert, Johan Hermans, about it. He did further



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checking and replied, “I can confirm that *Neobathia grandidieriana* (with an ‘i’) is correct. I thought there was a rule in the code of nomenclature regarding people names ending with a vowel or ‘er’, then an ‘i’ has to be added, depending on the gender.” There are precious few reliable sources on line, but the World Checklist is one of them. Kew does not mess about; within hours of realizing the error, Rafaël Govaerts had it corrected on their website. The World Checklist is an invaluable source of information — now everyone else who relied on it for their information needs to make an update!

We will be honest; for many years we naively believed and did not question the identification tags of our orchids. This particular one was brought to our attention after an orchid show, because our plant received the “Best Plant of Other Genus” and was featured in a “place of honor,” and when we started investigating, we found that there are frequent mistakes with this species. The main confusion is between the species *Nbth. grandidieriana* and *Nbth. keraudrenae*. Some people may feel that the differences are not noticeable enough to matter; in the *Field Guide to the Orchids of Madagascar*, Cribb and Hermans (2009), even state that *Nbth. keraudrenae* “may be a local variant of *Nbth. grandidieriana*.” We feel that these subtle differences are what DO MATTER in the orchid world! Have you ever grown *Neobathia filicornu*? That is an old name. *Neobathia grandidieriana* takes priority because it was described (as *Aeranthes grandidieriana*) in 1885, more than 40 years earlier than *Nbth.*

- [1] Purchased as *Nbth. grandidieriana*, this is actually *Neobathia keraudrenae*. The “tell” is the blunt lip and the petals and sepals that are spatulate (they look like tiny spatulas). Sadly, orchid shows have proven detrimental to some of our special angraecoids. This plant (though mislabeled) turned out to be our only real *Nbth. keraudrenae*, and unfortunately it perished after our return from the orchid show. It is a hazard of living over a thousand miles from the show venue.
- [2] Our “subject plant” labeled *Nbth. grandidieriana* — but is it correct?

filicornu. Your tag should be updated to say *Neobathia grandidieriana*. But first, try to figure out if that is even the right name for your orchid. The main difference between these two are their flowers, and they are subtle compared to differentiation between other species. The most accurate printed key we have is reproduced in the sidebar on page 916. The first step is to look at the flower. If your plant has not bloomed or you do not have good photos of it in bloom, bloom it (see the culture section). Then come back to these steps.

With a beautiful plant in bloom, we decided it would be a good exercise to sit down and document how to identify a plant for inclusion in this article. It certainly helps if you know the genus to which yours belongs. There are identification keys for most (if not all) orchid genera. We used the key (sidebar) from the *Field Guide to the Orchids of Madagascar* (Cribb and Hermans 2009). This book



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even contains a series of keys to the orchid genera in Madagascar to narrow it down to the right genus. If you have not used a key before, it is an interesting step-by-step process; this specific one is quite simple and short. With this particular key, the first step is to examine the lip of the flower. Is it entire (an even margin, without teeth or divisions) or trilobed? Clearly our subject plant has no lobes on the lip, so that means we proceed to Step 2. Now we need to measure the leaves. On our subject plant, there is quite a variation among the leaves; from 5×2.7 cm) to 7.5×2.7 cm, which is considerably larger than either option on the key! Our orchid is treated with tender loving care in the kindest growing environment; that likely accounts for the large leaf size. Next look at the flower color. Are they white or greenish white? This is where an abbreviated key can cause confusion. If we look to the taxonomic descriptions of the species, the flower of *Nbth. grandidieriana* is described as “flowers are mostly white, column is green, and the lower third of the sepals and petals is green” which is in conflict with the key and matches our plant to a T. Now, finish with Step 2 by looking at the sepals and petals; are they lanceolate or spatulate? Without a doubt, these are lanceolate. Another thing not mentioned in this key, but is in a taxonomic description, is that *Nbth. keraudrenae* has a blunt lip and *Nbth. grandidieriana* has a pointed lip. The subject plant’s lip comes to a point. We feel quite certain that it is correctly labeled as *Nbth. grandidieriana*.

If that was not complicated enough, realize that in the time since this key was published, a new species, *Neobathiea*

Key to species of *Neobathiea**

1. Lip, entire.....2
1. Lip, three-lobed.....3
2. Leaves $4-4.8 \times 0.8-1.2$ cm; flowers white; sepals and petals lanceolate.....*Nbth. grandidieriana*
2. Leaves $5-5.6 \times 2-2.5$ cm; flowers greenish white; sepals and petals spatulate.....*Nbth. keraudrenae*
3. Spur more than 7 cm long; lip side lobes ovate, acute, much smaller than midlobe.....*Nbth. perrieri*
3. Spur less than 5 cm long; lip side lobes obovate, midlobe obovate to obtriangular.....4
4. Stem short; leaves $5-8.5 \times 1.5-1.8$ cm; inflorescence 13–20 cm long; flower green with a white lip; sepals 15–18 mm long; lip three-lobed, lobes obovate or subrectangular, the midlobe larger than the laterals; spur incurved, 3–3.2 cm long.....*Nbth. hirtula*
4. Lithophyte or epiphyte; stem 3–21 cm long; leaves $2-3.5 \times 1-1.5$ cm; inflorescence 2.5–8 cm long, 1–7 flowered; flowers white; sepals spatulate, 12–14 mm long; lip deeply three-lobed, side lobes obovate, midlobe narrowly obtriangular; spur 4–5 cm long.....*Nbth. spatulata*

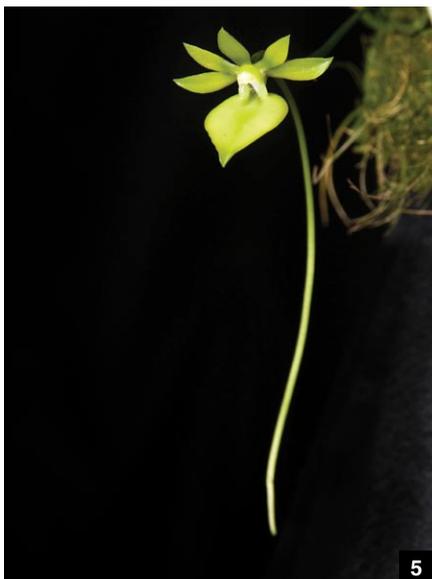
* Reproduced from Cribb and Hermans’ *Field Guide to the Orchids of Madagascar* (2009)

comet-halei has been described! We have not found a key including it, but Johan Hermans tells us (pers. comm.) that compared to *Nbth. grandidieriana* and *Nbth. keraudrenae*, *Nbth. comet-halei* is “smaller and much more star-shaped.”

Rudolf Schlechter (1872–1925) intended this genus to be named *Bathiea* in honor of Joseph Marie Henry Perrier de la Bâthie (1873–1958), a French botanist who had done much work investigating and documenting the plants

[3] *Neobathiea comet-halei* is the newest species to be described (2014). It is distinguished from the other two species in the genus with an entire lip (see No. 1 in the key) being smaller in all regards, and with reflexed sepals and petals.

[4] This new species is probably threatened because of its limited range and the loss of habitat from logging, burning and shifting agriculture.



of Madagascar. Many species, not just orchids, bear his name. However, that genus name had previously been used (16 years earlier) for a tree in Madagascar. Thus the Neo (new) was added giving us the current name *Neobathiea*. This genus is rather closely related to *Aeranthes*, *Jumellea* and, in some respects, *Cryptopus* and *Oeonia*. The type species, *Neobathiea perrieri*, was originally described as *Aeranthes perrieri*, and two former species of *Neobathiea*, *Neobathiea gracilis* and *Neobathiea sambiranoensis*, have both been reclassified as *Aeranthes schlechteri*. The species name *grandidieriana* is named for the French naturalist and explorer Alfred Grandidier (1836–1921). As Grandidier came from a very wealthy family, he was able to travel the world and devoted years of his life to the study of Madagascar. During his explorations he crossed the island three times, travelling 1,875 miles (3,000 km) in the interior and 1,560 miles (2,500 km) along the coast. He made observations that resulted in the production of a map of the island used in future expeditions. Reptiles, plants and even a mineral were named in his honor. In addition to the name *Nbth. filicornu*, this species has also been called *Angraecum* and *Mystacidium grandidierianum*, though thankfully there seems to be no use of those two names to confuse growers further.

Eight awards have been given to *Neobathiea* species by the AOS; three to *Nbth. perrieri*, three to *Nbth. filicornu* (now *Nbth. grandidieriana*) and two to *Nbth. keraudrenae*. One of the awards to *Nbth. keraudrenae* was to our plant, which we now know to be *Nbth. grandidieriana*. We think the interesting part, though, is the



fact that it was described as “lime green and darker proximally.” Although the buds of *Nbth. grandidieriana* are green, the flowers open and quickly change to white (often with a bit of green remaining in the center of the flower). The flower of this blooming remained very green throughout its entire bloom cycle.

As of this writing, there is just one registered hybrid using *Neobathiea*, *Neobatopus Perelat*, which is *Cryptopus elatus* × *Nbth. perrieri*. Jean-Bernard Castillon, who made and registered the hybrid in 1985, lived on the island of La Reunion.

As Charles Darwin predicted, the orchids in Madagascar with the longest nectaries are pollinated exclusively by hawkmoths. There are many species of these long-tongued moths there. One species, *Panogena lingens*, is the most

[5] Awarded as *Neobathiea keraudrenae* ‘Tristan’s Chameleon’, HCC/AOS in 2010, this is in fact *Nbth. grandidieriana*. Described as “lime green”, this odd one remained green the entirety of its life.

[6] It is unusual for the flower to remain green. The buds are brilliant green and as the flower opens, the color shifts to white.

[7] At the apex of blooming, this is a prime example of *Nbth. grandidieriana*.

[8] The hawkmoth *Panogena lingens*, responsible pollinator of *Neobathiea grandidieriana* (this is a male). Photograph courtesy of the Natural History Museum, London.



This is the typical growth pattern of a mature *Neobathia grandidieriana* — inflorescences (sometimes two per node) opposite the leaves. Photograph by Brenda Oviatt.

commonly recorded pollinator. It has been observed carrying pollinia of no less than six orchid species, including *Angraecum arachnites* (you can find a photo of this pollination on line), *Angraecum compactum*, *Neobathiea grandidieriana*, *Jumellea teretifolia*, *Aerangis fuscata* and *Aerangis ellisii*. Studies have shown a high degree of specialization between long-spurred angraecoid orchids and their hawkmoth pollinators. However, in these specialized pollination schemes it seems that the orchids are much more dependent on the moth (for reproduction) than the moth on the orchid (for food). It is interesting to note that *Panogena lingens* is endemic to Madagascar and the Comoro Islands as is *Neobathiea grandidieriana*.

CULTURE *Neobathiea grandidieriana* is found in Madagascar at elevations of 3,300–4,900 feet (1,000–1,500 m) and in Anjouan and Grande Comore. They grow in humid, evergreen lichen-rich forests, and from this information we can deduce that it generally wants intermediate temperatures and light levels. Of course there are extremes in any natural setting, and they are somewhat adaptable in “captive” environments. One of our books states that “*Neobathiea* roots are usually poorly developed.” This is not true in our greenhouse! We suspect this has to do with the method of growing. We have had great success growing them on cork plaques with a coconut husk fiber pad. As the roots of ours grow off their mount, they are always surrounded by Spanish moss (*Tillandsia usneoides*). Our subject plant could have suffered great damage if we had removed it to photograph; its roots travel far above and below it, attaching to other plant mounts along the way. Granted, this is a happy, well-established plant; the description of *Nbth. grandidieriana* says they carry 5–7 leaves. This one has 17.

On a lovely October afternoon, our light meter registers 8,920 foot-candles of light on the patio in front of our greenhouse. The shade cloth has been removed for the winter and the immense passion vine (*Passiflora*) that we use for shade in the greenhouse (particularly above the neobathieas) has had a major trimming. The meter reads 1,542 foot-candles at the blooming *Nbth. grandidieriana*. This is the most exposed this group of plants is to the light. We are heading into a season of cloudy days, typical of the west slope of the Continental Divide. We maintain that between our shade cloth and passion

vine, this location does not get a great deal more light in the summer. The plants we keep here are those that suffer during our hot dry summer days. Extreme heat coupled with a lack of humidity and too much light are what has killed our plants in the past, and we are determined not to let it occur again. Bill will often mist the plants in this location three times a day in the heat of the summer. We will just naturally cut back on the water because of our shortening days, but have never given these plants the severe dormancy that some angraecoids require.

The temperatures at this location have a diurnal swing, but not as dramatic as other parts of the greenhouse. This spot in our greenhouse has extreme winter lows of 58 F (14 C) and summer highs of 96 F (36 C). As described, we keep it well-shaded (and well-ventilated) here, and frequently hydrated, so that the heat does not damage the plants.

For us, reverse-osmosis (RO) purified water or rainwater is essential, especially for orchids grown mounted. We use RO water because our well water contains approximately 250 ppm of total dissolved salts (TDS) and the pH can be as high as 8.0 during some times of the year. Technically we would want our TDS to be 50 or less and the pH closer to 7.0. A small collection of orchids can be cared for with distilled water that has nutrients added. Try to test the water you use on your plants and remove some of the guesswork in growing. We use half-strength fertilizer and periodically “flush” with clean water. We rotate fertilizer formulas and always provide micronutrients.

HOPE FOR SURVIVAL Everyone “needs” a *Neobathiea grandidieriana* in their collection. This species (along with *Nbth. keraudrenae* and *Nbth. perrieri*) seems to be available in the orchid trade for a very short time and then they are gone! It becomes a real challenge to find them for sale. We do not understand why because we regularly get inquiries for them. We will try to make the species we have available (it is on our to-do list). This genus has not yet been assessed for the IUCN Red List and it is rather unclear what its status is in situ. *Neobathiea grandidieriana* is the geographically most widespread species in the genus, so that can help its survival rate. We feel that as orchid growers, we owe it to these special plants to help keep them *all* alive and protected; both in situ and ex situ. We hope to have seed capsules on the “subject plant” of this article and then to have these lovely orchids available in the

future. For now, we encourage everyone to share pollen, seed and information!

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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 33 years and in that time have grown in many settings. For the last 13 years, their orchid growing has focused on the ex situ propagation of endangered Angraecoids and the education of hobbyists and growers (botanicaltd.com).*