

LINDLEYANA

Visualizing Pleurothallids LANKESTERIANA

By Adam P. Karremans/Except where noted, images reproduced with permission of the journal *Lankesteriana*



THE BROADLY DISTRIBUTED and highly variable *Lankesteriana barbulata* (Lindl.) Karremans is probably the most well-known species of the group presented here. In Luer's subgeneric classification of genus *Pleurothallis* R.Br., *L. barbulata* and a few close relatives were placed in *Pleurothallis* subgenus *Specklinia* (Lindl.) Garay sect. *Muscosae* Lindl. (Luer 1986). Later on, they were transferred to *Anathallis* by Pridgeon and Chase (2001), based on DNA data of some species of that group. Luer (2006) segregated the species of *Pleurothallis* sect. *Muscosae* into *Panmophia* Luer, resulting in a genus of 73 highly heterogeneous species with "Specklinia-like habit and Anathallis-like flowers." However, their placement in *Anathallis* received wider acceptance (Pridgeon 2005), and Luer later realized that the variation within *Panmophia* graded into the concept of *Anathallis*, and therefore reduced his *Panmophia* to a synonym of the latter (Luer 2009). Analyses of molecular data by Stenzel (2004) showed that species of *Panmophia* (including the type) were indeed embedded within *Anathallis*.

Nevertheless, Luer (1986) had already noted that flowers of species of *Lankesteriana* (then treated as *Pleurothallis*) were more similar to some species of *Trichosalpinx* subgenus *Trichosalpinx* than to *Anathallis*. The molecular phylogeny of the Brazilian species of *Anathallis* described by Chiron et al. (2012) found that indeed *Anathallis* was a monophyletic genus with the exclusion of *Anathallis barbulata* (*Lankesteriana barbulata*). Finally, a broader molecular and morphological study of the *Anathallis/Lankesteriana* group proved that species of *Lankesteriana* are indeed closer to some *Trichosalpinx* and *Zootrophion* than to *Anathallis* and *Panmophia* and therefore best kept separate (Karremans 2014).

Species of *Lankesteriana* have very small growth habits, 0.2–1.2 inches (0.5–3 cm) tall (excluding the inflorescence); they are epiphytic or lithophytic and caespitose. The ramicauls are ascendant, shorter than the leaf, never proliferating, with 1–3 imbricating, tubular, glandular to microscopically glandular sheaths. The leaf is erect to prostrate. The inflorescence is elongate, frequently exceeding the leaves, successive, with one flower open at a time. The flowers are usually brownish-purple, with the sepals glabrous to ciliate. The ovary is trialate. The sepals are elliptic, acute, with the lateral ones fused to above the middle or least convergent, forming a synsepal. The petals are



[1] *Lankesteriana cuspidata* (Luer) Karremans (Bogarín 9619; JBL-spirit), one of the few widely distributed species, showing its typically caudate sepals.

[2] *Lankesteriana barbulata* (Lindl.) Karremans (Karremans 5187; JBL-spirit), a well-known and widely distributed *Lankesteriana* species.

lanceolate to ovate-elliptic, widest near the middle, obtuse or acute, to acuminate, sometimes caudate. The lip is oblong, to more or less pandurate, with a pair of basal suborbicular lobes, and with a deep linear middle depression. The column is winged, the androclinium fimbriate-dentate, the rostellum helmet-shaped, with prominent lateral lobes. The anther is helmet-shaped. The pollinia are in pairs, with reduced, granulose, whale-tail-shaped caudicles. Several of their particular morphological features are difficult to observe with the naked eye.

On one hand, *Lankesteriana* species are superficially similar to some *Anathallis*, but can be distinguished easily by the trialate ovary (vs. cylindrical), the bilabiate flowers with lateral sepals convergent and usually fused to above the middle (vs. sepals free and spreading), the deeply depressed midline of the lip (vs. not or superficially depressed) and the bilobed, helmet-shaped rostellum (vs. ligulate, not bilobed). Additionally, none of the known species of *Lankesteriana* have 1) a habit that exceeds 1.2 inches

(3 cm) tall (excluding the inflorescence), 2) ramicauls longer than the leaf, 3) multiple flowers open simultaneously on an inflorescence or 4) whitish to greenish flowers; all of which are commonly found in *Anathallis*. On the other hand, the purplish flowers with usually fused lateral sepals and an extremely sensitive lip are once again reminiscent of some species of *Trichosalpinx* subgenus *Trichosalpinx*. *Lankesteriana* species share with species of *Trichosalpinx* subgenus *Trichosalpinx* the fused sepals (with a few exceptions), the usually purplish-brown flowers, extremely sensitive linear lip with a pair of rounded lobes at the base and a midline depression, and the helmet-shaped rostellum. These traits suggest that both groups share a similar pollinator group. Species of subgenus *Trichosalpinx*, however, can be easily distinguished from those of *Lankesteriana* by the much larger plants, with long ramicauls covered with lepanthiform sheaths and the simultaneously multiflowered inflorescences.

As defined here, 22 species of

Lankesteriana are recognized: 18 that had already been included in the genus (Karremans 2014) and four species that are added here. Species belonging to the genus are distributed from southern Mexico through Central America, the Andes and all the way down to Bolivia and Brazil. The highest diversity is found in Costa Rica, Colombia and Ecuador. Species of *Lankesteriana* are notably absent from the Antilles. The species are known to occur between 920 and 9,200 feet (280 and 2,800 m) above sea level; the highest diversity is nevertheless found at midelevations.

***Lankesteriana* Karremans,
Lankesteriana 13(3):321–326. 2014.**

Type: *Pleurothallis barbata* Lindl. *Folia Orch. Pleurothallis* 40. 1859. Replaced name for *Pleurothallis barbata* H.Focke, *Bot. Zeitung* (Berlin) 11(13):227. 1853 (non *Pleurothallis barbata* Westc., *Phytologist* 1:54. 1841).

Etymology: The name honors both the Lankester Botanical Garden of the University of Costa Rica, and the homonymous scientific journal *Lankesteriana International Journal On Orchidology*.

***Lankesteriana abbreviata* (Schltr.) Karremans, *Lankesteriana* 13(3):326. 2014.**

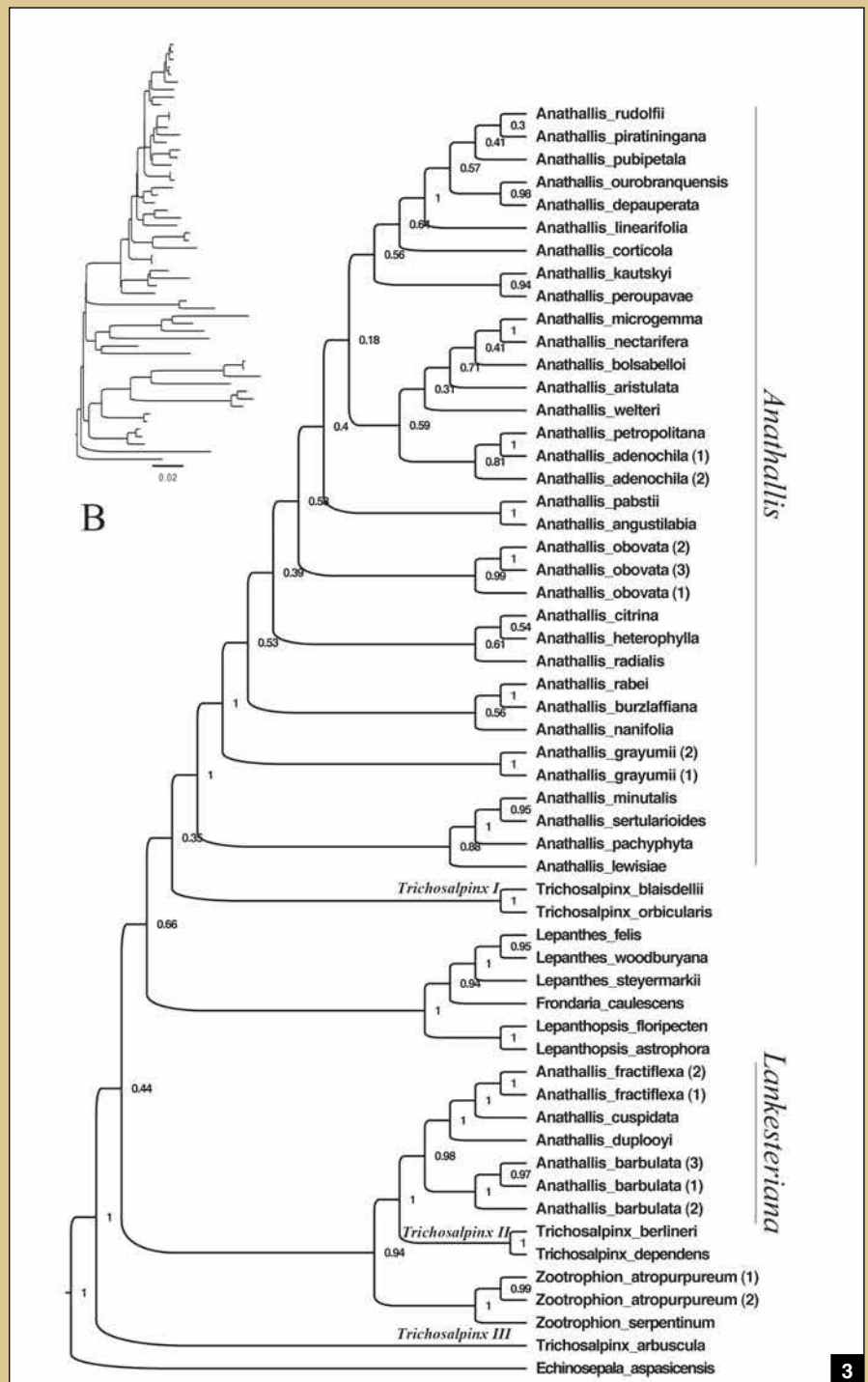
Bas.: *Pleurothallis abbreviata* Schltr., *Repert. Spec. Nov. Regni Veg.* 10:352. 1912.

With all the floral parts being less than 0.1 inches (3 mm) long, this is one of the smallest flowers in the genus. It was described in the early 20th century by Rudolf Schlechter based on material from Guatemala collected by Türckheim. It is apparently uncommon and only from Mexico and Guatemala.

***Lankesteriana barbata* (Lindl.) Karremans, *Lankesteriana* 13(3):326. 2014.**

Bas.: *Pleurothallis barbata* Lindl. *Folia Orch. Pleurothallis* 40. 1859. Replacement name for *Pths. barbata* H.Focke, 1853.

This well-known species is widely distributed through Central and South America. Judge Focke's original material came from Suriname, but it has been described by several other names across its distribution. In the early 1900s it was described twice from Central America, as *Pleurothallis abjecta* Ames and *Pleurothallis ciliilabia* Schltr. In the 1960s the name *Pleurothallis nubensis* Foldats was added, this time from Venezuela. Finally, very recently it was described again as *Specklinia pereziana* Kolan. from



[3] Phylogenetic tree showing the delimitation of *Anathallis* and *Lankesteriana*.

[4] Scanning electron microscopic images of the micromorphology of *Lankesteriana cuspidata* (Bogarín 9619; JBL-spirit). A-C. The flattened lip, showing the midline depression, the basal sub-orbicular lobes and the glandular hairs near the apex. D-E. illustrating how the petal narrows into a glandulous tail. F. Column ventral view showing the androclinium, anther cap, helmet-like rostellum and stigma. Published in part by Karremans (2014).

[5] Distribution map (in green) of the 22 known species of *Lankesteriana* Karremans. The highest diversity of the genus is found from Costa Rica to Colombia and Ecuador. Published by Karremans (2014).

Colombia.

I believe that a few different taxa may be separated from the synonymy of this species, nevertheless to do so requires a more comprehensive study of the complex in its whole distribution. *Pleurothallis minutissima* Luer, which was placed in synonymy with this species (Luer 2006) is, in my view, sufficiently different to be accepted as distinct.

Lankesteriana casualis (Ames) Karremans, *Lankesteriana* 13(3):327. 2014.

Bas.: *Pleurothallis casualis* Ames, Sched. Orch. 9:30. 1925.

This species was described in the early 20th century by Oakes Ames from a collection made by Paul C. Standley at La Hondura, not far from the center of San José, capital city of Costa Rica. It is unclear why Ames named the species *Pths. casualis*, Latin for “by chance.” It is likely that it refers to how the plant was unexpectedly encountered by the collector (nonetheless, as no one sets out to collect an unknown species at a specific location, they are always found by chance in my view). This species is somewhat similar to *Lankesteriana cuspidata* but can be distinguished by the dark reddish flowers and the nonacuminate sepals. The species is found uncommonly in Costa Rica and Panama.

Lankesteriana caudatipetala (C. Schweinf.) Karremans, *Lankesteriana* 13(3):327. 2014.

Bas.: *Pleurothallis caudatipetala* C.Schweinf. Bot. Mus. Leaf. 10:175. 1942.

This species was described by Charles Schweinfurth on the basis of a plant collected by C. Schunke in 1930 in the Chanchamayo Valley in Peru. Together with *L. barbulate* this seems to be one of the few species in the genus apparently widely distributed; it is reported to occur from Costa Rica to Peru and Bolivia.

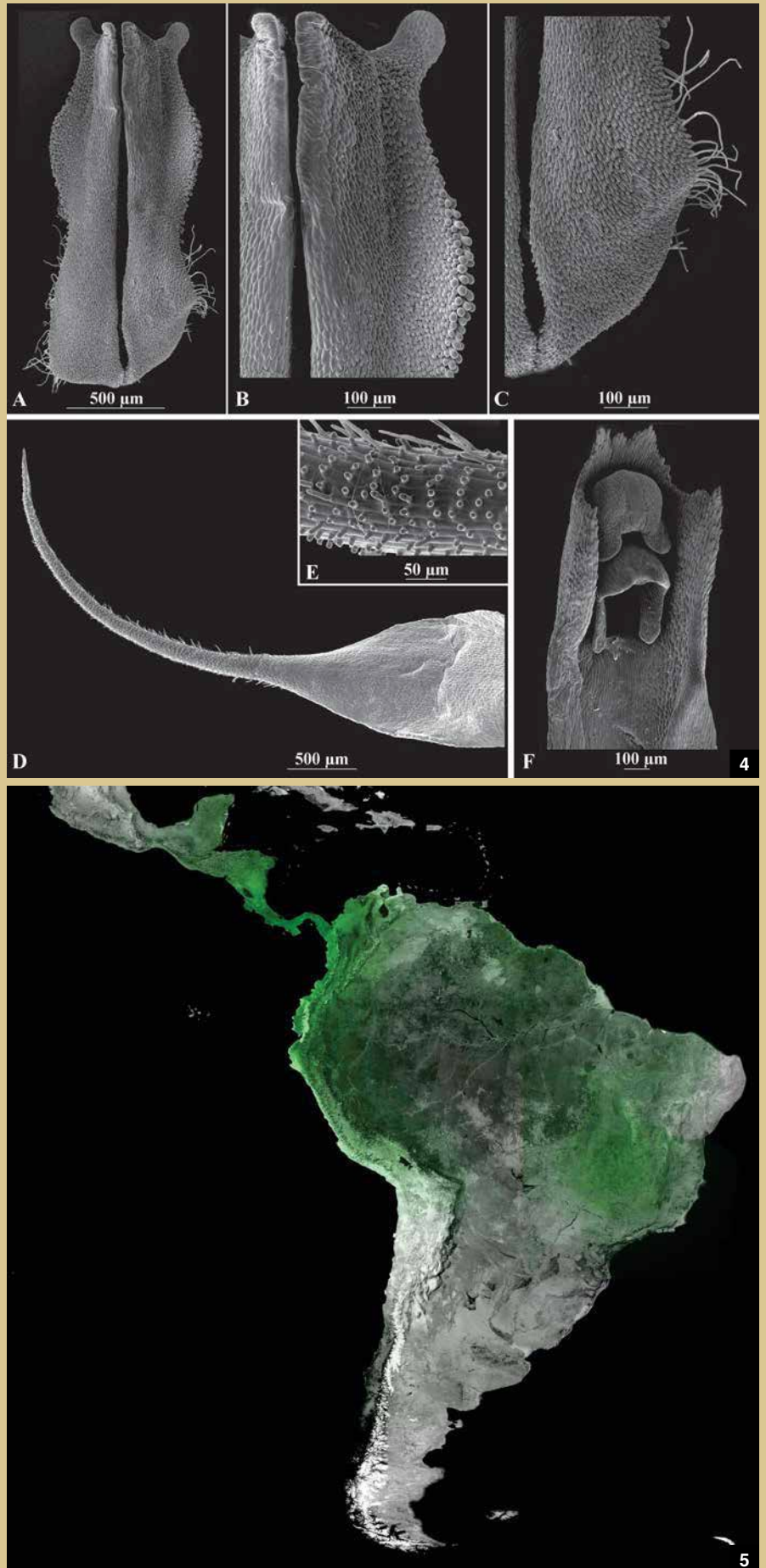
Lankesteriana comayaguensis (Ames) Karremans, *Lankesteriana* 13(3):327. 2014.

Bas.: *Pleurothallis comayaguensis* Ames, Bot. Mus. Leaf. 4:31. 1936.

This species was described by Ames from a plant collected by J.B. Edwards at Minas de Oro in Comayagua, Honduras. It is recognized by the tiny prostrate plants, with broad leaves that overlap and a short inflorescence. It is apparently uncommonly found in Guatemala and Honduras.

Lankesteriana cuspidata (Luer) Karremans, *Lankesteriana* 13(3):327. 2014.

Bas.: *Pleurothallis cuspidata* Luer,



Selbyana 3:282. 1977.

This species was described by Luer in the 1970s from a plant collected on Cerro Hornito in Panama. *Lankesteriana cuspidata* somewhat similar to *L. casualis* but can be distinguished by the purplish flowers and the acuminate sepals. It is known to occur from Costa Rica to Ecuador.

Lankesteriana duplooyi (Luer & Sayers) Karremans, *Lankesteriana* 13(3):327. 2014.

Bas.: *Pleurothallis duplooyi* Luer & Sayers. Rev. Soc. Bol. Bot. 3:48. 2001.

This species was described just over a decade ago from Little Quartz Ridge Camp, Toledo District, Belize, where it was found by B. Sayers in the year 2000. Since then it has been reported by Karremans et al. (2012) from around Taus, on the Caribbean watershed of the Talamanca mountain range in Costa Rica. There it was found growing on the twigs of abandoned *Macadamia integrifolia* trees. It is likely that this tiny species will also be eventually found in the countries in between Belize and Costa Rica. *Lankesteriana duplooyi* can be recognized by the prostrate habit and the unusual free lateral sepals.

Lankesterianaescalarensis(Carnevali & Luer) Karremans, *Lankesteriana* 13(3):327. 2014.

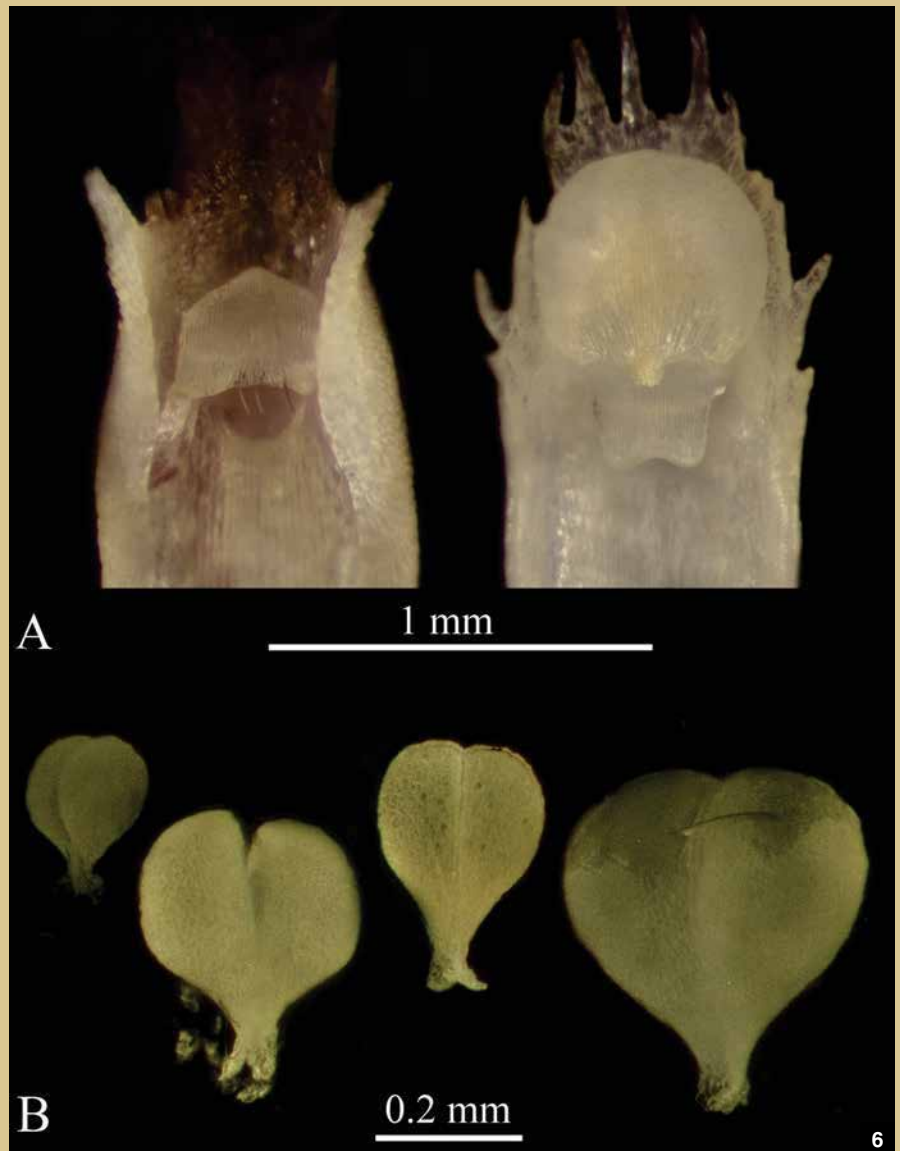
Bas.: *Pleurothallis escalarensis* Carnevali & Luer, Novon 13:414. 2003.

This species was described by Germán Carnevali and Carl Luer in 2003 based on a plant collected by the first author between El Dorado and Santa Elena de Uairén in Bolívar, Venezuela. The name comes from the Spanish La Escalera, “the stairway,” in reference to the mountainside where the type specimen was found. The species is apparently restricted to the lowland of northeastern Venezuela, and can be recognized by its small habit and loose, subflexuous inflorescence which eventually exceeds the leaf and its oblong-trilobed lip with erect, oblique, marginal lobes below the middle (Luer 2006).

Lankesteriana fractiflexa (Ames & C.Schweinf.) Karremans, *Lankesteriana* 13(3):327. 2014.

Bas.: *Pleurothallis fractiflexa* Ames & C.Schweinf., Sched. Orch. 10:26. 1930.

This species was described by Oakes Ames and Charles Schweinfurth in the 1920s based on a plant collected by Paul C. Standley and Juvenal Valerio in San Isidro de Heredia, Costa Rica. It was again described as *Pleurothallis corynophora* Luer in 1984, based this time on a plant from the cloud forest above Guadalupe



in Chiriquí, Panama. Each specific epithet alludes to the most distinctive morphological characters of this species: the long, fractiflex, inflorescence and the clubbed, apically hirsute petals.

Lankesteriana gehrtii (Hoehne & Schltr.) Karremans & Luer, comb. nov.

Bas.: *Pleurothallis gehrtii* Hoehne & Schltr., Arch. Bot. São Paulo 1(3):214. 1926.

Type: Brazil. Sao Paulo: Estação Biologica do Alto da Serra, fl. June 1921, A. Gehrt 5539.

Distribution: Known only from Brazil.

Syn. nov.: *Lankesteriana edmeiae* (F.J. de Jesus, Xim. Bols. & Chiron) Karremans, *Lankesteriana* 13(3):327. 2014. Bas.: *Anathallis edmeiae* F.J. de Jesus, Xim. Bols. & Chiron, Richardiana 13:296. 2013.

This little-known species was overlooked when *Lankesteriana* was



proposed (Karremans 2014). It was described by Frederico Carlos Hoehne and Friedrich Richard Rudolf Schlechter from a plant collected by A. Gehrt in Sao Paulo, Brazil. I believe *L. gehrtii* is an earlier name for *L. edmeiae*, which was also found in Sao Paulo and was not mentioned in the description. Both can be recognized by the long, lax inflorescence,

the lateral sepals fused to up to the middle, the progressively caudate, apically hirsute petals and the lip with a pair of subtriangular basal lateral lobes and a larger rounded, marginally hirsute, midlobe.

Lankesteriana haberi (Luer) Karremans, *Lankesteriana* 13(3):327. 2014.

Bas.: *Pleurothallis haberi* Luer, *Selbyana* 23:36. 2002.

This rare species was described by Luer from a plant collected by William Haber and Erick Bello in Monteverde. The Costa Rican plant shown here might be the only known specimen of this rare species apart from the type. That illustrated and described by Solano and Soto Arenas (2003) from Mexico is, in my view another species, more closely related to *L. caudatipetala*. Exclusion of those doubtful Mexican collections would makes *L. haberi* a Costa Rican endemic. Its most distinguishing feature is the abrupt narrowing of the petals above the middle.

Lankesteriana heloisae (F.J. de Jesus, R.Miranda & Chiron) Karremans, comb. nov.

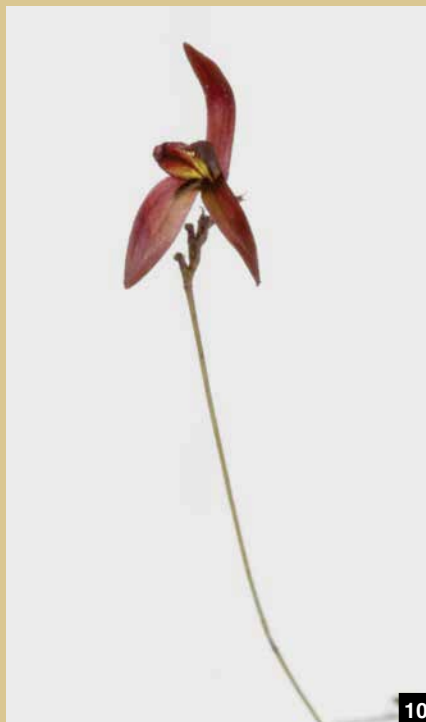
Bas.: *Anathallis heloisae* F.J. de Jesus, R.Miranda & Chiron, *Richardiana* 14:151–154. 2014.

This species was described just after the publication of *Lankesteriana* (Karremans 2014) and was therefore not included. It was collected by Francisco José de Jesus and Josué Rodrigues Gomes in Sao Paulo, Brazil. *Lankesteriana heloisae* was originally compared with *L. barbulata*; however, I believe that *L. rudolfii* (Pabst) Karremans, which shares the tiny, prostrate habit, sessile leaves and acute lip, is the closest relative. In fact I would have considered the two names synonymous were it not for the fused lateral sepals and lanceolate petals of *L. heloisae*.

Lankesteriana imberbis (Luer & Hirtz) Karremans, *Lankesteriana* 13(3):327. 2014.

Bas.: *Pleurothallis imberbis* Luer & Hirtz, *Lindleyana* 11:163. 1996.

This species was described for the first time in 1996 based on a plant collected by Alexander Hirtz and others in Cordillera del Cutucú, Morona-Santiago, Ecuador. It is similar to other species in the group but can be easily recognized by the glabrous sepals, petals and lip, and by the short, broad petals. It is known from the Amazonian lowlands of Ecuador, Venezuela and Brazil. The Brazilian *Lankesteriana rubidantha* seems to be very closely related to this species, and



- [6] Micrographs taken with a Leica stereo microscope. A. Apex of the column in ventral view, from left to right, of *Lankesteriana cuspidata* (Fernández 695; JBL-spirit) and *Anathallis polygonoides* (JBL-28237; JBL-spirit). B. Pollinaria, from left to right, of *Lankesteriana cuspidata* (Fernández 695; JBL-spirit), *Anathallis polygonoides* (JBL-28237; JBL-spirit), *Anathallis lewisae* (Bogarín 1056; JBL-spirit) and *Trichosalpinx blaisdellii* (Pupulin 1092; JBL-spirit). Published by Karremans (2014).
- [7] *Lankesteriana barbulata* (Lindl.) Karremans. Herbarium sheet kept at Kew with the type illustration of *Pleurothallis barbata* H.Focke - K00007987.
- [8] *Lankesteriana barbulata* (Lindl.) Karremans (Karremans 5447; JBL-spirit), showing a lighter colored variety found in Costa Rica.
- [9] *Lankesteriana casualis* (Ames) Karremans (Karremans 6190; JBL-spirit), a dark-reddish colored species distinguished from *L. cuspidata* by the non-acuminate sepals. Photograph by M. Muñoz, reproduced with the kind permission of Bosque de Paz Reserve.
- [10] *Lankesteriana duplooyi* (Luer & Sayers) Karremans (Bogarín 7382; JBL-spirit), a rare species with prostrate plants easily recognized by its free lateral sepals. Photograph by D. Bogarín.
- [11] *Lankesteriana fractiflexa* (Ames & C.Schweinf.) Karremans (Bogarín 8988; JBL-spirit), a species recognized by its elongate, lax inflorescences.

might be conspecific. *Pleurothallis aondae* Carnevali & G.A.Romero is considered by Luer (2006) a synonym of this species.

Lankesteriana inversa (Luer & R.Vásquez) Karremans, *Lankesteriana* 13(3):327. 2014.

Bas.: *Pleurothallis inversa* Luer & R.Vásquez, Rev. Soc. Bol. Bot. 3:50. 2001.

This species is apparently endemic to the Cochabamba lowlands in central Bolivia. It is quite similar to both *L. imberbis* and *L. rubidantha*, and aside from the nonresupinate flowers there are few characters that distinguish them.

Lankesteriana involuta (L.O. Williams) Karremans, *Lankesteriana* 13(3):327. 2014.

Bas.: *Pleurothallis involuta* L.O.Williams, Bot. Mus. Leaflet. 12:239. 1946.

Syn. nov.: *Anathallis greenwoodii* Soto Arenas & Salazar, Icon. Orchid. (Mexico) 5–6:t. 519. 2002 [2003].

This species was described by Louis Otho Williams based on a plant collected by Otto Nägel in Michoacan, Mexico. *Lankesteriana involuta* and the very closely related *L. comayaguensis* can be recognized by the tiny plants with repent habits that eventually form large masses of thick, overlapping leaves. The differences between *L. comayaguensis* and *L. involuta* are few; those between *L. involuta* and *Anathallis greenwoodii* are even less. The latter, which was overlooked when *Lankesteriana* was published (Karremans 2014), is here placed in synonymy with *L. involuta*. It was described by Miguel Ángel Soto Arenas and Gerardo Salazar about a decade ago on the basis of a plant collected by the authors around Ixtlán in Oaxaca.

Lankesteriana millipeda (Luer) Karremans, *Lankesteriana* 13(3):327. 2014.

Bas.: *Pleurothallis millipeda* Luer, Orquideología 20:216. 1996.

This is an extraordinary species known apparently from a single collection made by Lehmann, possibly from Colombia. Its most characteristic feature is the very long, narrow, densely long-ciliate lip, which reminded Carl Luer of a millipede. Although the lip is undoubtedly important in the pollination process, I do not agree that it is actually “disguised as a millipede to lure the pollinator.”

Lankesteriana minutissima (Luer) Karremans, comb. nov.

Bas.: *Pleurothallis minutissima* Luer, Orquideología 20:218. 1996.

This species was described by



Luer from Colombia based on material collected by Consul Lehmann close to Las Juntas del Dagua in the 1800s. Luer (2006) placed it in synonymy with the variable *L. barbulate*; however, aside from its extremely small size, it can be consistently distinguished from the latter by the white [?] flowers, suborbicular, obtuse petals and lanceolate and apically spiculate lip fringed all along the margins.

Lankesteriana minima (C.Schweinf.)

[12] *Lankesteriana muricaudata* (Luer) Karremans, a species found in Colombia, distinguished by the minutely pubescent sepals. Photograph by Sebastian Vieira.

[13] *Lankesteriana haberi* (Luer) Karremans (Bogarín 8606; JBL-spirit), possibly the only existing photograph of this little known species.

[14] *Lankesteriana imberbis* (Luer & Hirtz) Karremans. Type illustration of *Pleurothallis aondae* Carnevali & G.A.Romero by G. C. K. Dunsterville. Reproduced with the kind permission of the Orchid Herbarium of Oakes Ames, the Harvard University Herbaria.

[15] *Lankesteriana rudolfii* (Pabst) Karremans. Type illustration of *Pleurothallis lasioglossa* Schltr. ex Hoehne (= *Pleurothallis rudolfii* Pabst) published in the Boletim do Museu Nacional de Rio de Janeiro 12(2): 23. 1936.

Karremans, *Lankesteriana* 13(3):327. 2014.

Bas.: *Pleurothallis minima* C.Schweinf., Bot. Mus. Leafl. 3:82. 1935.

This is yet another species of *Lankesteriana* described originally by Schweinfurth. It was based on a plant collected on the Barima–Barama road in Guyana in 1896. The species has now been also reported from French Guiana and Venezuela, but seems to be rare. It can be distinguished from *L. barbulata* in its tiny habit and secund inflorescence, which is much longer than the leaf.

Lankesteriana muricaudata (Luer) Karremans, *Lankesteriana* 13(3):327. 2014.

Bas.: *Pleurothallis muricaudata* Luer, Selbyana 7:119. 1982.

This species, known from Panama, Colombia, Ecuador and Bolivia, is one of the few *Lankesteriana* species known to be widespread in the Andes. It was described by Luer in 1982, based on a plant from the cloud forest above Chiriboga in Pichincha, Ecuador. *Lankesteriana muricaudata* can be recognized by the long flexuous inflorescence that exceeds the leaves, the minutely pubescent sepals and the petals that are abruptly contracted at the middle, forming a filiform, pubescent tail.

Lankesteriana rubidantha (Chiron & Xim.Bols.) Karremans, *Lankesteriana* 13(3):327. 2014.

Bas.: *Specklinia rubidantha* Chiron & Xim.Bols., Richardiana 9:125. 2009.

This species was described a few years ago by Guy Chiron and Renato Ximenes Bosanello based on a specimen collected by the second author in Biriricas, Municipality of Domingos Martins, Espírito Santo, Brazil. The species was compared with *L. barbulata*; nevertheless I believe it is actually closely related to *L. imberbis*, if not conspecific. Even if considered distinct from *L. imberbis*, *Pleurothallis aondae* Carnevali & G.A.Romero could also be an earlier name for this species. *Lankesteriana rubidantha* can be recognized by its caespitose habit, short ramicaul, inflorescence that conspicuously exceeds the leaves and the glabrous sepals, petals and lip. The species is endemic to Brazil.

Lankesteriana rudolfii (Pabst) Karremans, comb. nov.

Bas.: *Pleurothallis rudolfii* Pabst, Arch. Jard. Bot. Rio de Janeiro 14:19. 1956. Replacement name for *Pleurothallis lasioglossa* Schltr. ex Hoehne, Bol. Mus. Nac. Rio de Janeiro 12(2):23. 1936 (non *Pleurothallis lasioglossa* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 8:59. 1921).

Type: Brazil. Sao Paulo: Iguape, Morro das Pedras, A.C. Brade 8057.

This little-known species was overlooked when *Lankesteriana* was published (Karremans 2014). It was originally described by Frederico Carlos Hoehne as *Pleurothallis lasioglossa*; however, the name was already used and was therefore replaced by *Pleurothallis rudolfii* by Guido Frederico João Pabst. The type specimen was collected at Morro das Pedras, Iguape in Sao Paulo, Brazil. I am unaware of any additional known specimens of this species.

The habit and lip of *L. rudolfii* are very much like those of *L. heloisae*. However, Brade's illustration of this species shows free lateral sepals and truncate petals. Both characters are highly unusual in the genus, raising the question of whether the illustration is accurate (Hoehne's description being based on it). The species is endemic to Brazil.

Lankesteriana steinbuchiae (Carnevali & G.A.Romero) Karremans, *Lankesteriana* 13(3):327. 2014.

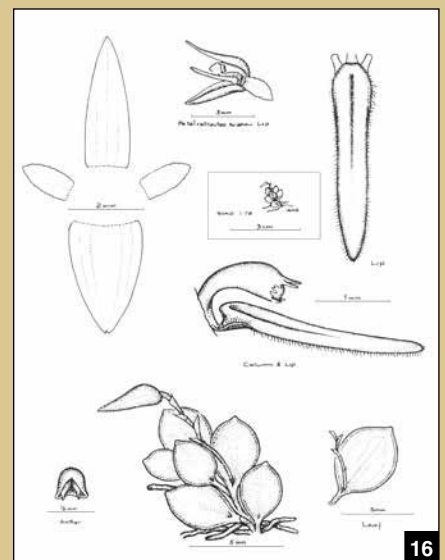
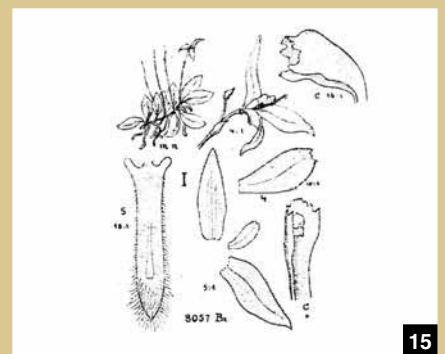
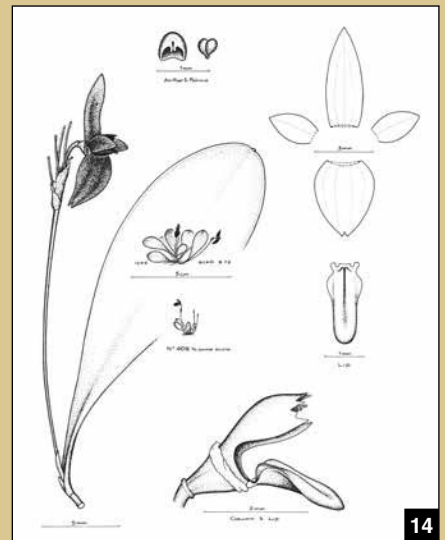
Bas.: *Pleurothallis steinbuchiae* Carnevali & G.A.Romero, Novon 4:90. 1994.

This Venezuelan endemic was described by Germán Carnevali and Gustavo Romero based on a plant from Cerro Guaiquinima in Bolivia. The species can be recognized by its shortly repent habit, broadly elliptical to rounded, more or less overlapping leaves and the narrowly oblong, minutely ciliate lip.

I concur with Luer (2006) in considering *Pleurothallis hilariana* Carnevali & G.A.Romero a synonym of *Lankesteriana steinbuchiae*. It comes from a close-by locality and is distinguished only by a few differences in the habit and lip shape (both within the expected variations).

Final Thoughts

Wide species diversity and many cases of convergence and parallelism make the systematics of the Pleurothallidinae quite hazardous. Morphological features are often congruent with phylogenetic hypotheses based on DNA data, but homoplasy can occur in morphological traits; similar morphological features may not always reflect a similar evolutionary history. Molecular data provide an independent data set that can be used to evaluate morphological homoplasy. Several modifications to the traditional generic concepts in the Pleurothallidinae have become necessary to maintain monophyletic groups. In order to make *Anathallis* monophyletic, the species



[16] *Lankesteriana steinbuchiae* (Carnevali & G.A.Romero) Karremans. Type illustration of *Pleurothallis hilariana* Carnevali & G.A.Romero by G. C. K. Dunsterville. Reproduced with the kind permission of the Orchid Herbarium of Oakes Ames, the Harvard University Herbaria.

treated here need to be segregated into a distinct, also monophyletic, generic concept. *Lankesteriana* is a well-supported and defined genus of some 22 species. They are widely distributed in the New Tropics with the noteworthy exception of the Antilles. The genus is phylogenetically closely related to some species of *Trichosalpinx* and *Zootrophion*; however, the tiny plant habit with an extremely reduced caudex, adpressed inconspicuous sheaths and relatively long, successively single-flowered inflorescences resembles species of *Anathallis* and *Specklinia* much more closely.

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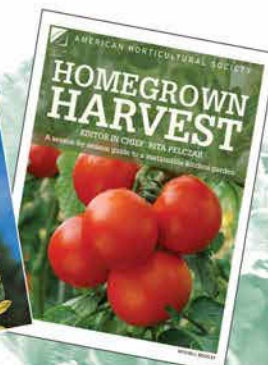


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