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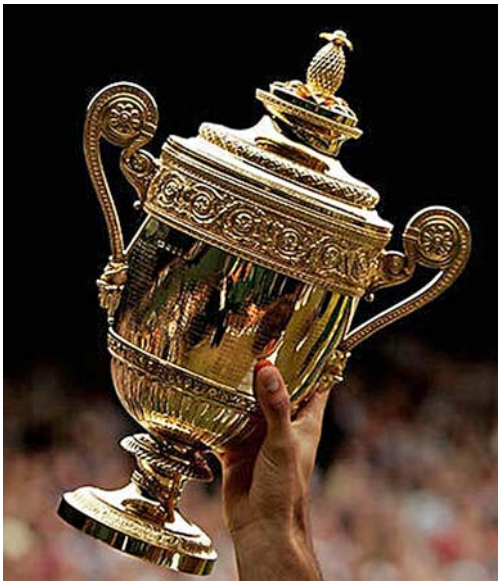
MORE PINEAPPLE TIDBITS

by Herb Plever

Many tennis fans have never noticed that on top of the trophy cup given to the winner of the annual Wimbledon Championship tournament stands a gold pineapple. This fact was brought to my attention by Barbara Black, editor of the newsletter of the East London Bromeliad Society in South Africa in response to our article on pineapples in the October issue of Bromeliana.



Wimbledon Trophy with pineapple atop

This trophy was first used in 1877; it replaced the earlier Field Cup. The reason why there is a pineapple on top of the trophy remains a mystery, but there are a number of theories. A spokesperson for the Wimbledon Museum told Express.co.uk that there are "very few facts" about the pineapple's origin, but they believe it dates back to the fruit's use as a symbol of "honour, welcoming and celebration".

The newspaper, The Wimbledon Guardian, decided to ask tennis fans about what they thought was the reason the pineapple was placed atop the trophy. Here are some of the answers:

"This is a bit far fetched but pineapples use to be a display of wealth because they use to be this really exotic thing that was difficult to get and so if you had a real-life pineapple in your home it was really like wow. Like as your centre piece on your table at a dinner party – it was like a real mark of wealth."

"I think it has something to do with the Heritage or the Commonwealth and the fact that someone bought Murray Mound/Henman Hill off the Earl of Kensington in 1946 and leased it to the New Zealand government."

"I guess it promotes hospitality – in the US the pineapple is a sign of hospitality and welcoming and so maybe it has something to do with that. You know maybe they should replace the pineapple with a strawberry come to think of it."

NEXT MEETING - **Wednesday, December 20th,** 2017 at 6:30 P.M. at the home of Michael Riley and Francisco Correal, 101 West 104th Street, corner Columbus Avenue**.** (Take the 7th Ave. #1 train or the Independent A, B, or C trains to 103rd St.)

HOLIDAY PARTY! - Once again Michael and Francisco have graciously offered to host our annual party in their beautiful home. The party is open to members and their spouses, families or significant others. Michael and Francisco will provide the main courses; please RSVP them at 212-666-2395 if you plan to attend. AND let him know if you will bring a side dish, salad, fruit or dessert. Michael has added new plants to his collection of bromeliads, orchids, aroids, ferns, etc. growing epiphytically on his living room walls.

"The pineapple has a symbolism in hosting – doesn't seem very British though so I am stuck really though."
"I am thinking did they grow pineapples here before Wimbledon – you know more than 100 years ago – some of the stately homes did grow fruits that we wouldn't think to grow in this country."
Brexit and Pineapples - The October 31st, 2017 NY Times Business Section featured an article on this topic:
"SITTINGBOURNE, England — Britain is increasingly grappling with the bewildering economic consequences of its pending departure from the European Union. For one company, Nim's Fruit Crisps, the impact is measured in the soaring cost of pineapple.
"Nim's dries fruits into snacks served up like potato chips, operating out of a former metal shop in this industrial enclave east of London. One of its best-selling varieties uses pineapple from Costa Rica that is shipped in by an Amsterdam-based trading company.
"The pineapple is priced in euros. Since Britain's decision to leave the European Union — widely known as Brexit — the British pound has surrendered nearly 14 percent of its value against the euro on fears that trade will be disrupted.
"Confronting higher prices for pineapple, the company's founder, Nimisha Raja, recently brought in a machine to replace three workers who used to peel fruit by hand. 'I had to cut costs somewhere,' she said. She could be speaking for all of Britain..."
Previously reliant on a supplier in Belgium for most of its fruits and vegetables, the company has in recent months found domestic suppliers for every needed variety except pineapple, limiting its exposure to the vagaries of exchange rates. Today, Nim's buys apples, parsnips, cucumbers and a range of other crops from British farmers.
"The fall in the pound has also made Nim's products cheaper outside Britain, bolstering its exports, which now make up more than half of total sales. Nim's snacks are sold in Germany, France, Italy, India, Israel and — soon — Saudi Arabia...
"Yet as she seeks to complete a deal putting her crisps on the shelves of a major British supermarket chain, Ms. Raja worries that the needed volumes will exceed the capacities of Britain. 'I suddenly have to find 100 tons of apples,' she said. She is scoping out farms in Poland, even as she worries about the value of British money in a world shaped by Brexit."

CRYPTANTHUS REVISION

In August, 2017 a monograph by Elton Leme, Sascha Heller, Georg Zizka and Heidemarie Halbritter was published in Phytotaxa No. 318 with a "new circumscription of *Cryptanthus* and new Cryptanthoid genera and subgenera based on neglected morphological traits and molecular phylogeny." There are four genera in the "Cryptanthoid Complex": *Cryptanthus, Lapanthus, Orthophytum* and the recently reestablished *Sincoraea,* all endemic to eastern Brazil. The monograph contains a taxonomic key to the genera and subgenera of the "Cryptanthus Complex" which is reproduced on page 9.

This summary is restricted the changes in *Cryptanthus*.

Cryptanthus robsonianus (Leme)

Louzada's reestablishment of the genus *Sincoraea* and its acaulescent 11 species was published in Phytotaxa, the BSI Journal and in Bromeliana, and is incorporated in this Monograph. I intend to cover the revisions and status of *Orthophytum* and *Lapanthus* in the future .

For many years the research on these genera has been ongoing with extensive field work on live populations of species in different geographical regions. 78 of the 81 *Cryptanthus* species were collected to make ecological and morphological comparisons using 35 (!) different character traits. Molecular (genetic) laboratory tests using dna sequencing were conducted on 33 *Cryptanthus* species. The result is what you can

Hoplocryptanthus glaziovii

expect - the Monograph is thorough, detailed and logical.

A genus is a group of species with common characteristics. Ideally and for purposes of good taxonomy and understanding their evolutionary history, all these species should have only one recent common ancestor and should include all the descendents of that ancestor, ie., it is monophyletic. However, *Cryptanthus* was found to be paraphyletic because it did not include all descendents of that ancestor, or some descendants may have had more than one ancestor.

To attain monophyly, genus *Cryptanthus* was revised as follows:

1. Former *Subgenus hoplocryptanthus* was removed and separated from *Cryptanthus* and was elevated to full genus status with 8 species.
2. Two new genera were created: *Forzzaea* with 3 species and *Rokautzkyia* with 14 species all transferred from *Hoplocryptanthus*. (Note that there are photos of 3 new species of *Forzaea* on page 7 that have not yet been described and named.)
3. *Cryptanthus* remains with 55 species. (Note that former *Cryptanthus fosterianus* is no longer a valid species name - it is has been merged into *C. zonatus.)*

The proposed revisions are well supported by molecular/dna sequencing which included ancestral character reconstruction of the floral characters, and a "combination of geographical range, ecology and morphological characters (sex distribution, leaf succulence, sepal and petal size and connation, petal appendages, pollen and stigma morphology, fruit size, calyx persistency, seed size and number per fruit).

The ecological and biogeographical data are significant evidence to support the revisions that would be apparant even to an untrained observer. The new genera are clearly separate in distance and geography and are found in different ecological terrains. "*Cryptanthus* still has a large distribution area but is now restricted to lowland coastal habitats (to ca. 400 m elevation) associated with Atlantic Forest. The distribution ranges from Rio de Janeiro state to Rio Grande do Norte state, in some cases extend to areas of riparian forest and drier environments of Caatinga vegetation further inland.

"The distribution of *Cryptanthus s.str*. species seldom overlaps with that of the other closely related Cryptanthoid genera. *Forzzaea, Hoplocryptanthus,* and *Rokautskyia*, here segregated from *Cryptanthus*, also display distinct biogeographical patterns. *Rokautskya* is endemic to the mountainous part of the Atlantic Forest with elevation above 500 m, in Espírito Santo State. *Forzzaea* is found exclusively in the Campos Rupestres of the western-northeastern portion of the Meridional Plateau of the Espinhaço Range in Minas Gerais state, known as Diamantina Plateau, while *Hoplocryptanthus*, another dweller of the Campos Rupestres, is endemic to central-southeast of Minas Gerais state, growing mostly in the Iron Quadrangle region."

Hoplocryptanthus species "are epilithic or saxicolous, usually growing on accumulated organic material in rock crevices or on shallow soils usually on quartizitic (pg. 8, figs. 9 B, E, F) or sometimes on iron-rich rocky oucrops (e.g., *C. ferrarius*), in areas ranging from 500 to 1834 m elevation. They live

Forzzaea Leopoldo Horstii

Rokautzkyia sanctaluciae

exclusively in Campos Rupestres vegetation (fig. 9 A), as heliophytes or rarely in partially shaded sites (e.g., *H. vidaliorum, H. tiradentesensis*). Most grow in well drained conditions, but there are examples of species well adapted to at least periodically wet soils (e.g., *H. lavrasensis, H. schwackeanus*)."

The main distinguishing character trait between *Cryptanthus* and *Hoplocryptanthus* is that *Crypthanthus* plants are andromonoecious (it has some flowers that have both male and female parts **and** some flowers that have only male parts), in contrast to all *Hoplocryptanthus* flowers that are homogamous with both male and female parts. *Hoplocryptanthus, Forzzaea* and *Rokautzkyia* differ in the degree their flowers are connate, the number of

Rokautzkyia caulescens - photo by Larry Giroux

Forzzaea warasii photo by Chris Nguyan (fcbs)

flowers, the size of their stamens and other traits, but it is apparent to me that the main distinguishing factors are their different ecological habitats and their substrates and their distant and restricted geographical locations.

For full details of the morphological differences between the four genera see the genera key on page 9 and and download and read the full report in Phytotaxa 318 using the link below:

https://www.dropbox.com/s/1r0exwjkzl2d131/Phytotaxa%20318%20%281%29%202017%20Monograph%20Cryptanthoid%20Complex.pdf?dl=0 .

Also see habitats and inflorescences of *Cryptanthus* on page 5, of *Hoplocryptanthus* on page 6, of *Forzzaea* on page 7 and of *Rokautzkyia* on page 8. On page 9 the key to the genera of the Cryptanthoid Complex is reproduced, and on page 10 there is a list of the species name changes in this Monograph compiled by Derek Butcher. ❑

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FIGURE 8. Habitat and inflorescence of *Cryptanthus*. **A.** Atlantic Forest on low elevated region (tablelands) north of Espírito Santo state. **B.** *Cryptanthus walkerianus* (*Leme 8749*). **C.** *Cryptanthus tabuleiricola* (*Leme 8014*). **D.** *Cryptanthus robsonianus* (*Leme 8895*). **E.** *Cryptanthus lacerdae* (*Leme 200*). **F.** *Cryptanthus robsonianus* (*Leme 8895*). **G.** *Cryptanthus brevifolius* (*Leme 3841*). **H.** *Cryptanthus burle-marxii* (*Leme 6195*). **I.** *Cryptanthus colnagoi* (*Leme 5144*).

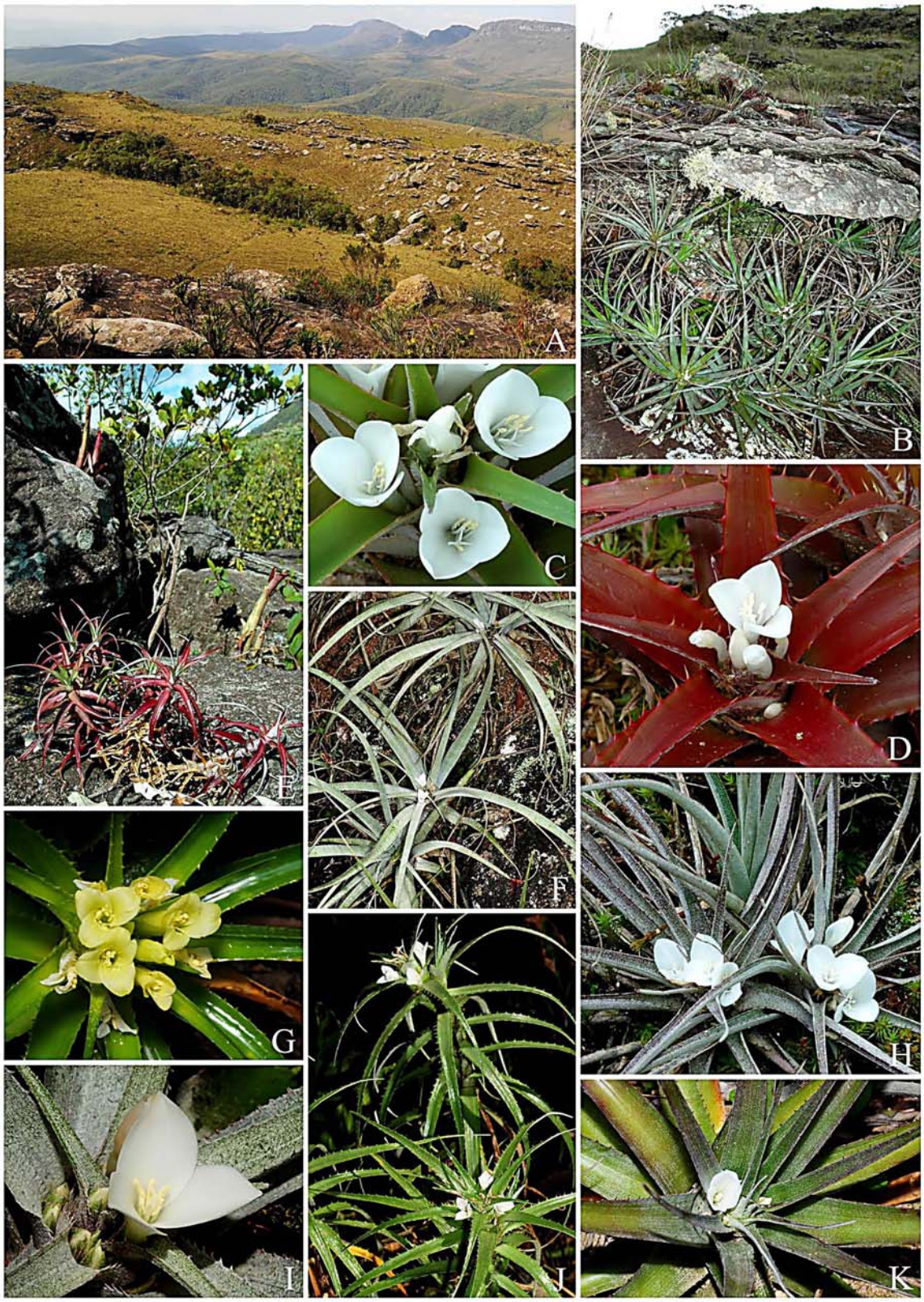

FIGURE 9. Habitat and inflorescence of *Hoplocryptanthus*. **A.** General view of the Campos Rupestres in Serra do Capanema region, Iron Quadrangle, Minas Gerais state. **B.** *Hoplocryptanthus regius*, in São Tomé das Letras region, Minas Gerais state (*Leme 7265*). **C.** *Hoplocryptanthus ferrarius* (*Leme 6544*). **D.** *Hoplocryptanthus schwackeanus* (*Leme 4250*). **E.** *Hoplocryptanthus glaziovii* in Caraça region (*Leme 1545*). **F.** *Hoplocryptanthus caracensis* in Caraça region (*Leme 1853*). **G.** *Hoplocryptanthus vidaliorum* (*Leme 7606*). **H.** *Hoplocryptanthus tiradentesensis* (*Leme 5819*). **I.** *Hoplocryptanthus caracensis* (*Leme 1853*). **J.** *Hoplocryptanthus glaziovii* (*Leme 4348*). **K.** *Hoplocryptanthus lavrasensis* (*Leme 7620*).

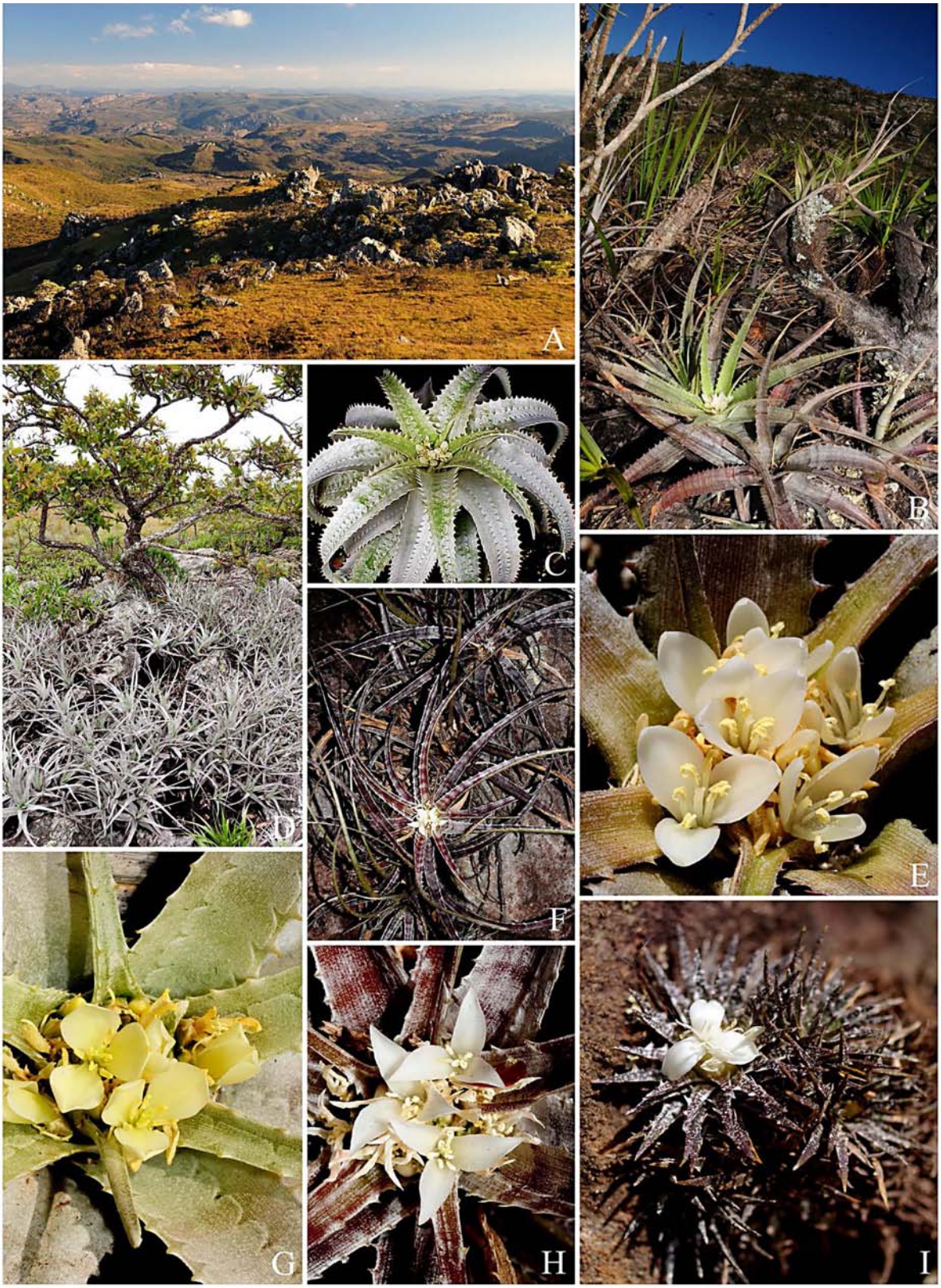

FIGURE 11. Habitat and inflorescence of *Forzzaea*. **A.** Campos Rupestres habitat in Biribiri State Park, Diamantina, Meridional Plateau of the Espinhaço Range (Diamantina Plateau), Minas Gerais state. **B.** *Forzzaea leopoldo-horstii* (*Leme 9084*). **C.** *Forzzaea warasii* in cultivation (*D.Cathcart s.n.*). **D.** *Forzzaea sp. nov.* (*Leme 9085*). **E.** *Forzzaea leopoldo-horstii* (*Leme 8427*). **F.** *Forzzaea sp. nov* (*Leme 9082*). **G.** *Forzzaea sp.nov.* (*Leme 9085*). **H.** *Forzzaea sp.nov.* (*Leme 9082*). **I.** *Forzzaea micra* (*P.Viana s.n.*). Photo: **C**, D. Cathcart; **I**, P. Viana.

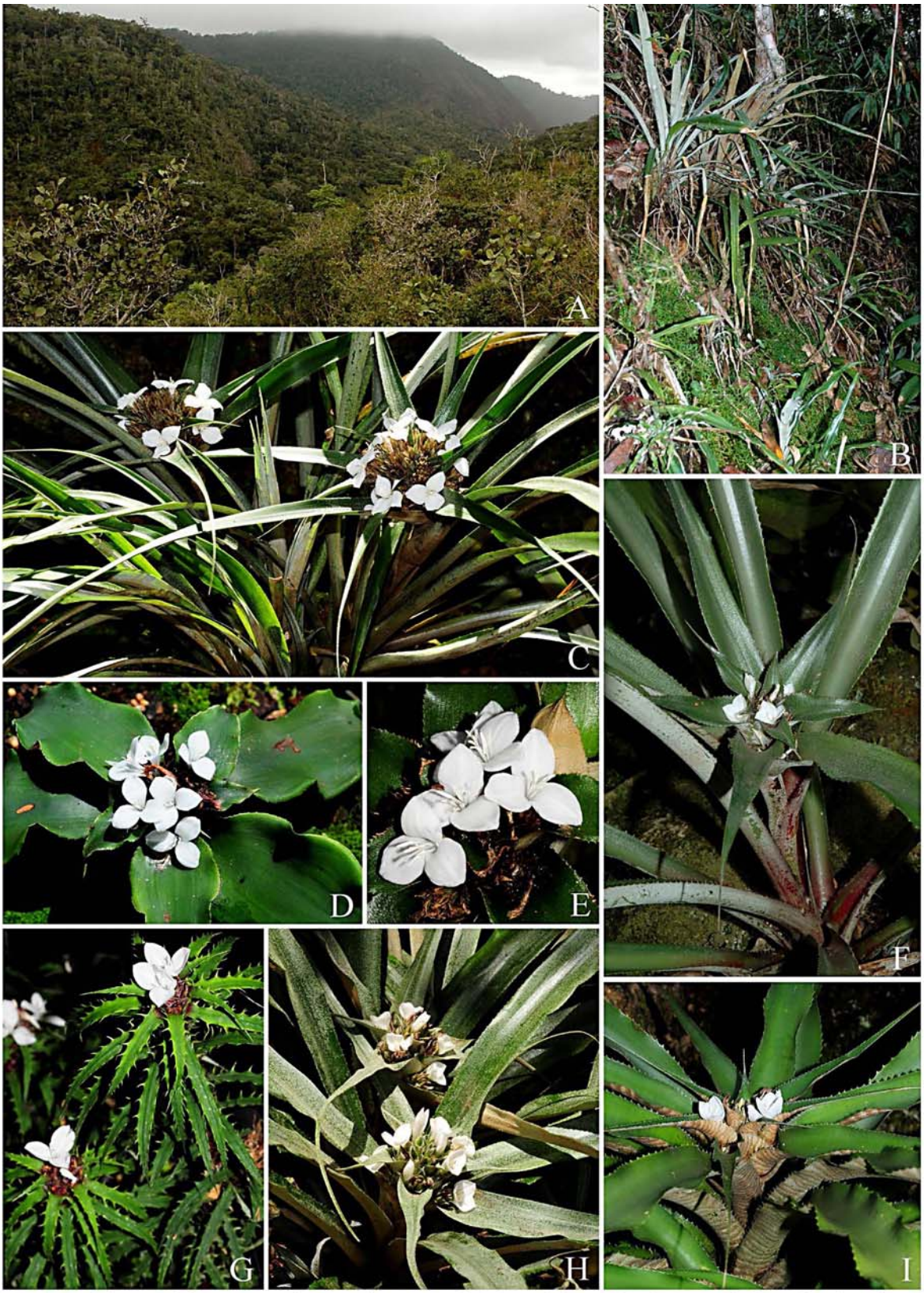

FIGURE 12. Habitat and inflorescence of *Rokautskyia*. **A.** Typical hygrophilous Atlantic Forest, habitat of *Rokautskyia*, in the mountainous region of Santa Teresa, Espírito Santo state. **B.** *Rokautskyia sanctaluciae* at the type locality, Santa Teresa, Espírito Santo state. **C.** *Rokautskyia scaposa* (*Leme 5214*). **D.** *Rokautskyia latifolia* (*Leme 5220*). **E.** *Rokautskyia pseudoscaposa* (*Leme 5217*). **F.** *Rokautskyia sanctaluciae* (*Leme 6947*). **G.** *Rokautskyia microglazioui* (*Leme 1619*). **H.** *Rokautskyia whitmanii* (*Leme 5209*). **I.** *Rokautskyia roberto-kautskyi* (*Leme 5210*).

Key to Cryptanthoid genera and subgenera

1 Plants andromonoecious with perfect flowers in the basal fascicles and the staminate ones concentrated in the central/api- cal portion of the inflorescence; pollen sulcus completely covered by a net of exine elements; stigma conduplicate-patent, without papillae or inconspicuously and sparsely papillate; fruits 12–20 mm long, with the distal portion of the persistent sepals soon decaying and their proximal remnants 2–4 times shorter than the fruit; seeds 3.5–5 mm long ..... **Cryptanthus**

1* Plants homogamous; pollen sulcus only covered by small and sparse exine elements never forming a net; stigma other than conduplicate-patent or if conduplicate-patent then densely papillate; fruits 4–10 mm long, with persistent sepals, these slightly shorter to 3.5 times longer than the fruit; seeds 1.2–3 mm long. 2

2 Petals without appendages, but at most with well developed longitudinal callosities. 3

2* Petals with well developed appendages 7

3 Petals connate at the base, usually white; or rarely free but then the petals greenish-yellow in their visible parts . . . 4

3* Petals free, white or lilac-rose 6

4 Basal flower fascicles with (5–) 6–15 flowers; pollen 50–55 µm; stigma simple-imbricate; plants from the Atlantic Forest of Espírito Santo ...../////////////////..... **Rokautskyia**

4* Basal flower fascicles with 2–5 (–6) flowers or the inflorescence simple; pollen 40–50 µm; stigma not simple-imbricate; plants from Campos Rupestres of Minas Gerais 5

5 Leaves coriaceous, not succulent; petals connate at the base to 1/3 of their length, or rarely free but then the petals greenish-yellow in the visible parts; anthers always straight at anthesis; pollen ca. 50 µm; stigma cylindric-distent; persistent sepals slightly shorter to equaling the fruit length or rarely 1.4 times as long; seeds 35–75 per fruit..... ..... **Hoplocryptanthus**

5* Leaves thick-coriaceous, succulent; petals connate at the base to 1/7 of their length; anthers usually strongly recurved to spirally coiled at anthesis; pollen ca. 40 µm; stigma simple-erect or simple-patent with tendency to simple-dilated; persistent sepals up to1.5 times as long as the fruit; seeds 2–8 per fruit..... **Forzzaea**

plants stemless; leaves thick-coriaceous, succulent; inflorescence with inconspicuous, to 6-flowered fascicles; stamens subequal in length; anthers usually strongly recurved to spirally coiled at anthesis; pollen ca. 40 µm ..... **Forzzaea**

6* Plants distinctly caulescent; leaves coriaceous, not succulent; inflorescence with conspicuous, up to 9-flowered fascicles, stamens distinctly unequal with the antepetalous ones much shorter than the antesepalous ones; anthers straight; pollen 40–45 µm..... **Orthophytum subg. Orthocryptanthus**

7 Petals with laminiform appendages; stigma conduplicate-patent ..... **Lapanthus**

7* Petals with appendages other than laminiform; stigma simple-dilated or with tendency to simple-patent or conduplicate-spiral Inflorescence sessile and petals neither obtuse-cucullate nor forming a clavate or subclavate corolla 11

8* Inflorescence on a short to elongate peduncle, if sessile then the plants long caulescent, and with the basal portion of the central leaves and the primary bracts turning reddish or bright red, forming a colorful ring around the inflorescence, petals obtuse-cucullate and forming a subclavate corolla 9

6. Plants long caulescent and the basal portion of the central leaves and primary bracts turning reddish or bright red, forming a colorful ring around the inflorescence, if short caulescent or stemless then the petal appendages of the cupuliform or sac- ciform type; pollen 35–40 µm in diameter..... **Orthophytum subg. Capixabanthus**

9* Plants stemless or nearly so, sometimes pseudocaulescent but then without a distinct leaf rosette; appendages of the echinatiform or scutelliform type, rarely with tendency to cupuliform or sacciform; pollen 40–60 µm in diameter 10

7. Flower fascicles subflabellate-pulvinate; petals obtuse-cucullate, erect and forming a clavate corolla not exposing the sta- mens; petal appendages scutelliform or rarely sacciform; plants from the central-northern Espinhaço Range in Minas Gerais state ..... **Orthophytum subg. Clavanthus**

10* Flower fascicles usually strobilate; petals acuminate, acute or rounded, erect except for the suberect to recurved distal por- tion, exposing the stamens; petal appendages echinatiform; plants with much broader geographical range, but mostly not encompassing the Espinhaço Range in Minas Gerais state..... **Orthophytum subg. Orthophytum**

8. Plants long caulescent; primary bracts green, not contrasting in color with the leaves; sepals 2.5–3.5 times the fruit length; petals broadly spathulate from a very narrow base, blades suborbicular, rose-lilac to lilac-puple, spreading at anthesis and flaccidescent afterwards; stamens deeply included and not visible; stigma conduplicate-spiral .....**Orthophytum subg. Krenakanthus**

9. 11* Plants stemless; primary bracts and the basal portion of the inner leaves turning white, yellow or red, forming a colorful ring around the inflorescence in contrast with the color of the distal portion of leaves; sepals about equaling the fruit length; petals narrowly spathulate, blades ovate to obovate, white, erect to recurved at anthesis, not flaccidescent and remaining erect or nearly so afterward; stamens visible at least in part; stigma simple-erect with tendency to simple-patent ..... **Sincoraea**

Old Name		New Name	
Cryptanthus	- - - - - - - - >	*Forzzaea*	*leopoldo-horstii*
Cryptanthus	- - - - - - - - >	*Forzzaea*	*micra*
Cryptanthus	- - - - - - - - >	*Forzzaea*	*warasii*
Cryptanthus		*Hoplocryptanthus*	*caracensis*
Cryptanthus		*Hoplocryptanthus*	*ferrarius*
Cryptanthus	- - - - - - - - >	*Hoplocryptanthus*	*glaziovii*
Cryptanthus		*Hoplocryptanthus*	*lavrasensis*
Cryptanthus		*Hoplocryptanthus*	*regius*
Cryptanthus	- - - - - - - - >	*Hoplocryptanthus*	*schwackeanus*
Cryptanthus	- - - - - - - - >	*Hoplocryptanthus*	*tiradentesensis*
Cryptanthus		*Rokautskyia*	*aracruzensis*
Cryptanthus		*Rokautskyia*	*caulescens*
Cryptanthus		*Rokautskyia*	*exaltata*
Cryptanthus		*Rokautskyia*	*fernseeoides*
Cryptanthus		*Rokautskyia*	*latifolia*
Cryptanthus		*Rokautskyia*	*leuzingerae*
Cryptanthus		*Rokautskyia*	*microglazioui*
Cryptanthus		*Rokautskyia*	*odoratissima*
Cryptanthus		*Rokautskyia*	*pseudoglazioui*
Cryptanthus		*Rokautskyia*	*pseudoscaposa*
Cryptanthus		*Rokautskyia*	*roberto-kautskyi*
Cryptanthus		*Rokautskyia*	*sanctaluciae*
Cryptanthus		*Rokautskyia*	*scaposa*
Cryptanthus		*Rokautskyia*	*whitmanii*
Laptanthus		*Hoplocryptanthus*	*vidaliorum*