

## Rediscovery and Revalidation of *Encyclia sagraeana* (Richard) Soto Calvo, Esperon and Sauleda.

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### Abstract

*Epidendrum sagraeanum* Richard is established as a distinct Cuban species of *Encyclia* Hook. and transferred to the genus *Encyclia*. *Epidendrum sagraeanum* Richard is compared to the species with which it has been considered a synonym (*Encyclia fucata* (Lindl.) Britt. & Millsp.). The rediscovery of *Encyclia sagraeana* (Richard) Soto Calvo, Esperon & Sauleda on the Isla de La Juventud (Isla de Pinos), Cuba, is reported. The taxonomic history of this species is discussed.

Researching the small, yellow flowered Cuban epidendrums described by Richard in Flora of Cuba for Sagra's "Historia Física, Política y Natural de La Isla de Cuba", (Sagra, 1850) has resulted in the rediscovery of current populations of the species described by Richard: *Encyclia richardiana* Seijo, Esperon & Sauleda and *Encyclia hircina* Soto Calvo, Esperon & Sauleda. The rediscovery and revalidation of these species has been published in the series of nomenclatural notes: New World Orchidaceae – Nomenclatural Notes ([www.newworldorchidaceae.com](http://www.newworldorchidaceae.com)). The methodology used for the rediscovery and subsequent revalidation of these species of Richard was using the time proven procedures of classic taxonomy. These consist of first studying and understanding the type of all the described species for a taxonomic group (*Encyclia*) in a given area and then comparing them to the populations of live plants found in that area. The rediscovery of the current populations of *E. richardiana* and *E. hircina* and establishing the proper type of *Epidendrum affine* Richard and *Epidendrum hircinum* Richard, led to the

determination of the identity of these distinct species.

Once the true identity of these populations was established they were compared to live plants in populations previously identified as *Encyclia fucata* (Lindl.) Britt. & Millsp. This led to the obvious conclusion that they were distinct species. Most of the previous studies of this genus in Cuba did not attempt to locate the type of Richard's species in herbaria or the populations in the field. Using the above mentioned procedures, populations of another small, yellow flowered *Epidendrum* described by Richard was rediscovered, *Epidendrum sagraeanum*. *Epidendrum sagraeanum* was properly described by Richard in 1850 based on live material as were *E. affine* and *E. hircinum*. However, eleven years later *E. sagraeanum* was reduced to a synonym of *Epidendrum fucatum* Lindl. by Reichenbach in "Orchides, Walpers Annales Botanices" (Reichenbach, 1861) based on dry herbarium material.

All the authors treating this group copied Reichenbach's example and did not report

examining the type of *E. sagraeanum* in Paris (Grisebach, 1866; Ames, 1905; Urban, 1909; Schlechter, 1915; Acuña, 1938; Leon, 1946; Withner 1996; Llamacho & Larramendi, 2005; Vale, et al., 2014).

Nir (2000) obviously did not see the type specimen at Paris of *E. sagraeanum* because he indicates that “Type is the illustration l. c.” and Ackerman (2014) lists *E. sagraeanum* as a synonym of *E. fucata* but does not indicate that he has examined the type specimen to make this determination. In the latest treatment of the Orchidaceae of Cuba, Mújica & González (2015) state that they “acknowledge that there was no opportunity to examine types in foreign herbaria, for which they trust in those cited by authors with vast experience in the study of the orchid flora within Cuba”.

There are two specimens labeled TYPE of *E. sagraeanum* in Paris, specimen numbers P00410657 and P00410659 and in addition, there are three specimens in Paris of *E. sagraeanum* labeled as isotypes, all of them containing notes in the handwriting of Achille Richard and his signature. The number of specimens referred by Richard to *E. sagraeanum* is numerous compared to the specimens of his other Cuban species of *Epidendrum*. This is probably because several populations have been found.

The illustration of the column of *E. sagraeanum* included on the holotype leaves no doubt that the species is distinct from *E. fucata*, due to the prominent auricles that project beyond the tip of the anther. No other species of *Encyclia* in Cuba demonstrates this feature. The only doubt would have been if the type specimen corresponded to an aberrant form. However, the existence of several herbarium specimens with this feature implies that a population existed at the type locality because several live plants were collected and sent to Paris where they were cultivated and flowered.

The holotype of *E. sagraeanum* flowered in Paris on October of 1842. This is a flowering season distinct from all other small, yellow flowered Cuban encyclias described. *Encyclia fucata*, *E. oxypetala*, *E. richardiana* and *E. hircina* flower from spring to summer.

The flowering season of this species as found on the type was fundamental to the rediscovery of the populations of this species. A field search during the flowering season indicated on the type resulted in the discovery of the populations of this species. The unusual shape of the column and placement of the auricles as illustrated on the type led to the proper identification of this species.

On trips from October to December of 2017, the first author, found several abundant and stable populations of a mostly monofoliate *Encyclia*, that resembled *E. fucata*, near the southeast coast of Isla de la Juventud, Cuba. The plants are found growing on isolated tree islands along the Lanier Swamp and the ecotones adjacent to the northwest boundary of the wetlands.

Lindley described *E. fucatum* as a monofoliate species; Richard also described *E. sagraeanum* as a monofoliate species. However, in addition to the distinct flowering seasons, the column and callus of each species are totally different. The column of *E. fucata* does not have any signs of auricles, while the column of the *E. sagraeanum* found in these populations always has the prominent auricles projecting beyond the top of the anther as illustrated by Richard.

The callus of *E. fucata* is described by Lindley as two oblong fleshy processes while the detail of the callus of *E. sagraeanum* in Richard's illustration shows two parallel lacinias that appear to end abruptly leaving a wide pollinator canal between them. These differences would indicate different pollinators adding to reproductive isolation.

No other population of Cuban encyclias has been reported up to now with the auricles projected beyond the tip of the anther. The only reference to a column with those characteristics is the detail of the column of *E. sagraeanum* included on the illustration and the holotype of the species (P00410657). It is clear that the populations discovered by the first author correspond to *E. sagraeanum* as described by Richard in 1850.

The Cuban locality for the live specimens cultivated at Paris, which were used to describe this species, was not recorded. The holotype contains the reference “Cuba (Belot)”, Belot is also mentioned by Sagra (1850). According to

Sagra a Dr. Belot of Havana sent the live specimens at Paris to Richard, without further explanation as to the exact locality of the live plants.

Richard references the dominant color form of *E. sagraeanum* in the Latin description is “luteolis” or yellowish; and in a comment in Spanish about the differences of the three species he was describing, he specifies that the labellum is white with purple veins.

It is established here that *E. sagraeanum* is a distinct Cuban *Encyclia* and therefore, the following combination is made here:

***Encyclia sagraeana* (Richard) Soto Calvo, Esperon & Sauleda comb. nov.**

Basionym:

*Epidendrum sagraeanum* Richard, A. Rich., Historia Física Política y Natural de la Isla de Cuba, Botánica 11: 237. 1850.

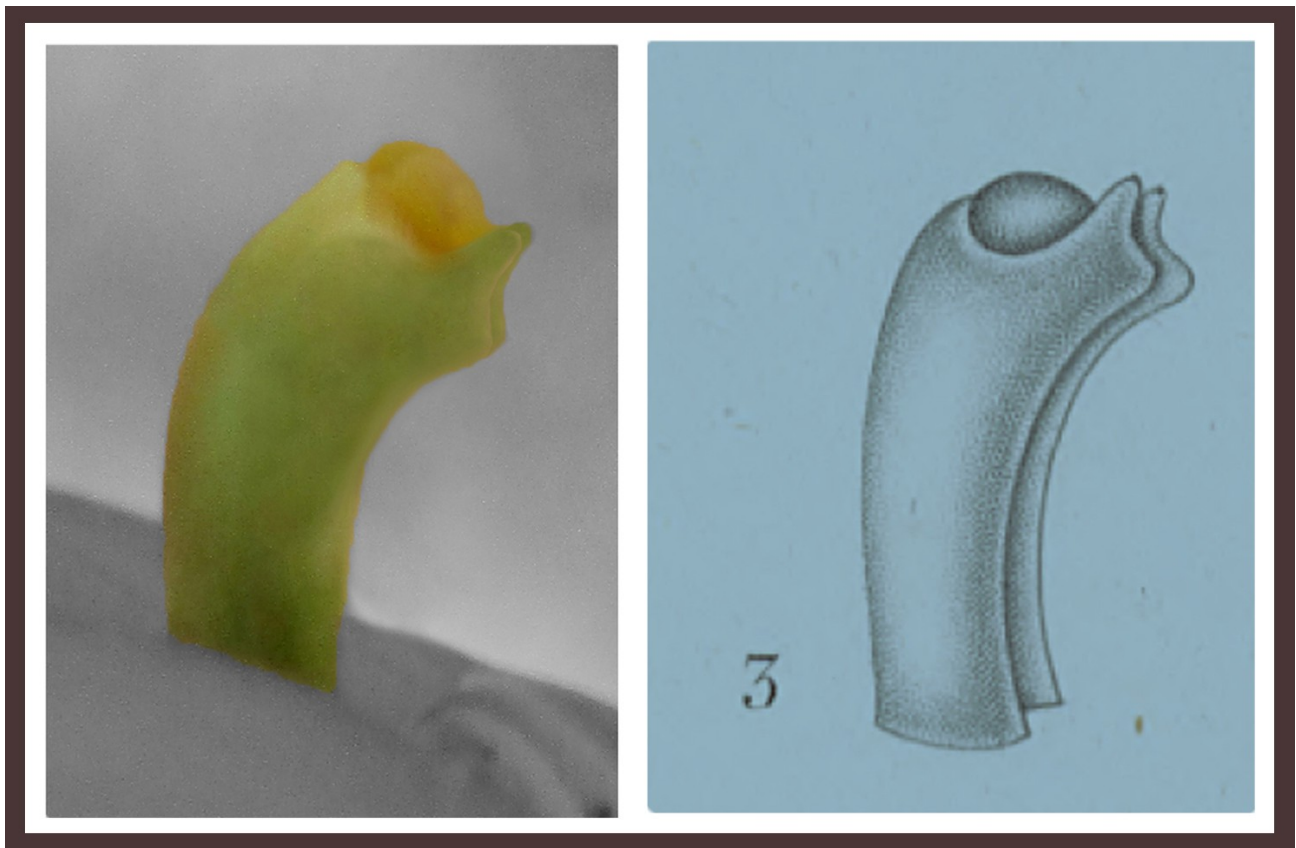
HOLOTYPE: Herbier Museum Paris, P00410657, *Epidendrum sagraeanum*, Cuba. This is the specimen used by Richard since it contains the illustration of the distinctive column and corresponds to the description in the protolog.

OTHER SPECIMENS LABELED AS

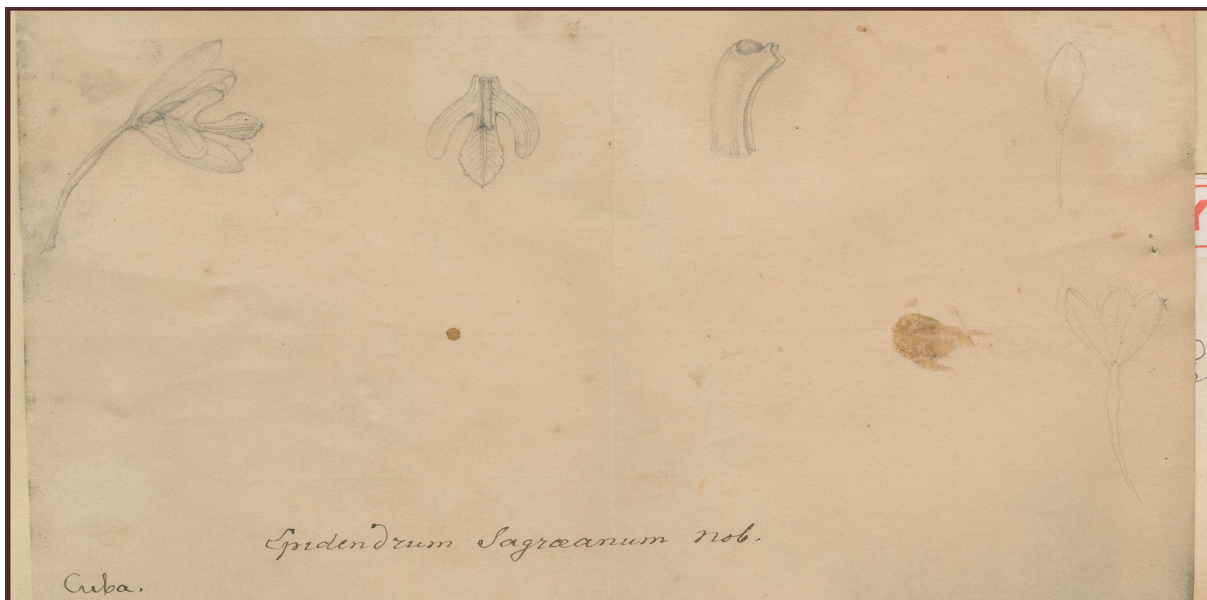
ISOTYPES: Herbier Museum Paris P00410658, P00410660, P00410661, *Epidendrum sagraeanum*, Cuba. These specimens are labeled as isotypes. An additional specimen, P00410659, labeled TYPE is also extant.

*Encyclia sagraeana* is found growing epiphytical-

ly in isolated tree islands along the Lanier Swamp, surrounded by swamp grasslands or mangrove; and in the ecotones adjacent to the Northwest boundary of the wetlands. The vegetation of the tree islands can be semi-deciduous forest, evergreen swamp forest or coastal scrubland mixed with mangrove elements. The vegetation of the ecotones along the boundary of the swamp and mangrove includes also elements of pine forests and gallery forests. The fact that several stable populations with the distinct floral characters were found along an extension of more than 25 km parallel to the SE coast of Isle of Pines demonstrates that this is a valid species, probably a local endemic as with most species of *Encyclia* in the Cuban Archipelago. Only a few species of *Encyclia* have an extensive distribution on Cuba. This species as with the other species of encyclias recently described from Pinar del Rio (*Encyclia bocourtii* Múj. Benítez & Pupulin, *Encyclia rosariensis* Múj. Benítez, R. Pérez & Pupulin, and *Encyclia cajalbanensis* Múj. Benítez, Bocourt & Pupulin) appears to be a local endemic. Another Cuban species *Encyclia havanensis* Bello, Esperon & Sauleda is also a local endemic that also grows in tree islands along the north coast of Cuba. In many cases hybridization and introgression has occurred where two or more species are sympatric. This tends to make it appear that the species blend. However, the distinct species that Richard and other authors described from Cuba, with proper field studies, can still be found and identified.

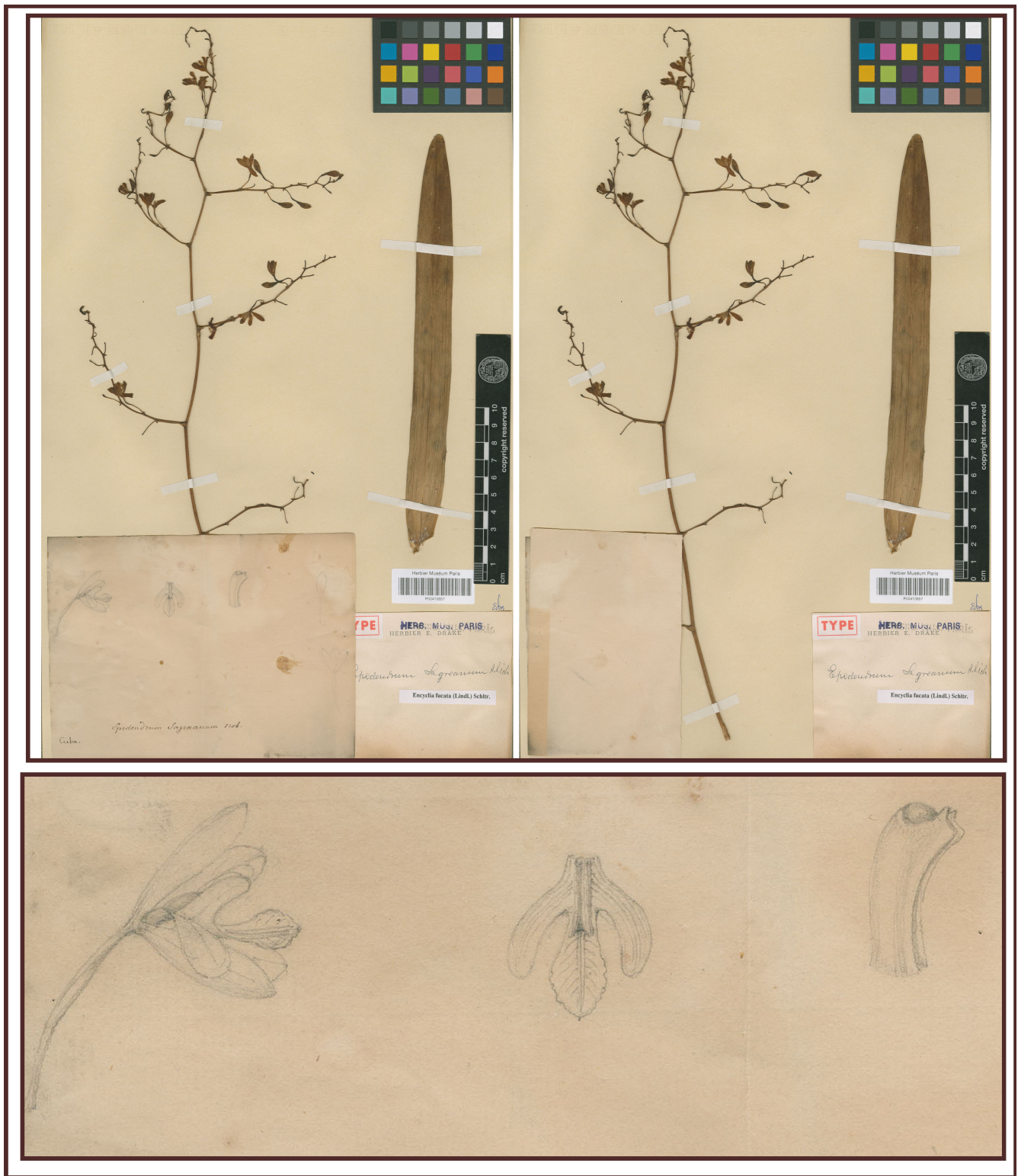


*Encyclia sagraeana* (Rich.) Soto Calvo, Esperon & Sauleda column compared to detail on Richard's illustration.



Richard's sketch of the flower, labellum and column on holotype stating the name of the new Cuban species to be published. The plant flowered in Paris in 1842.





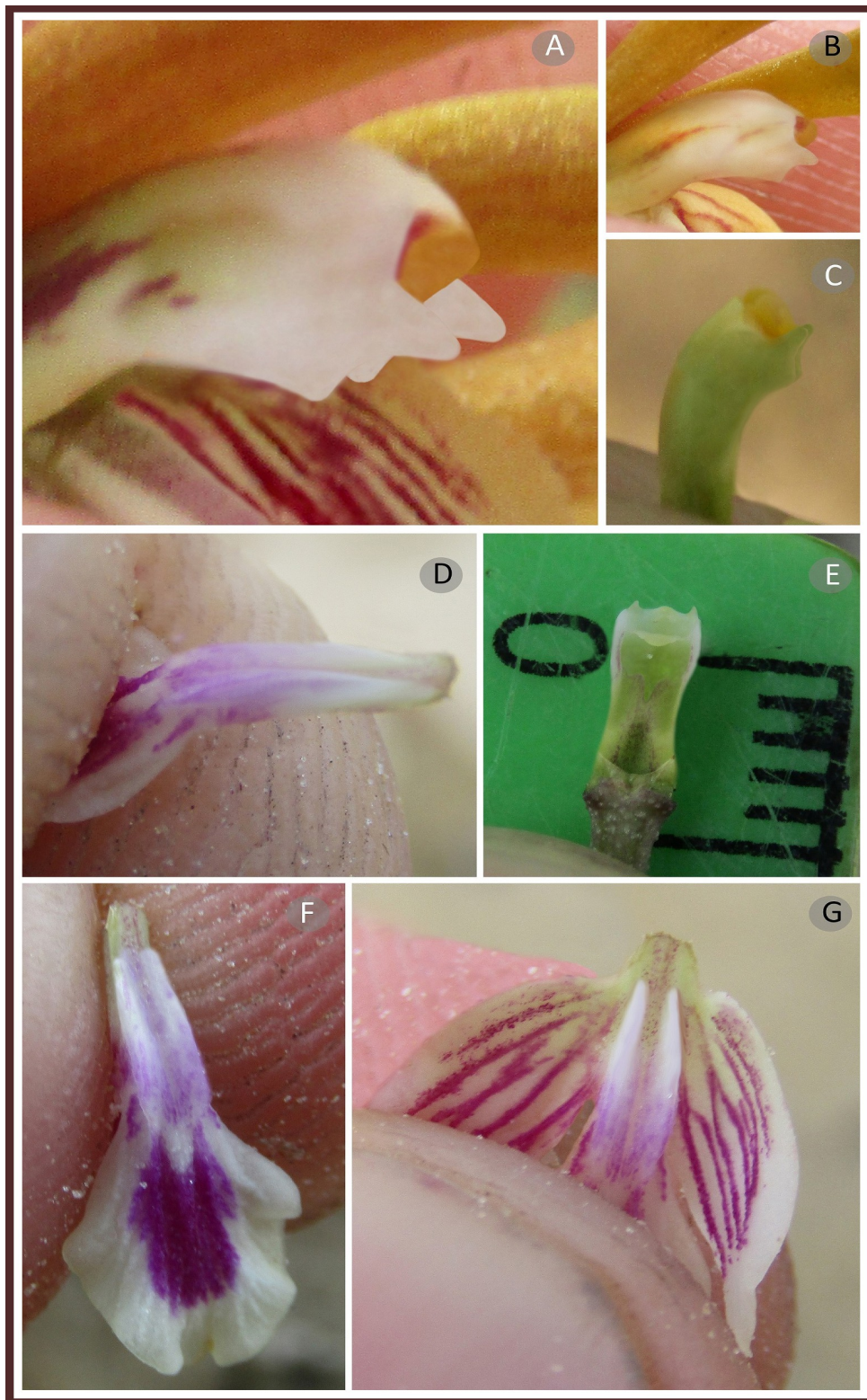
Holotype of *Epidendrum sagraeanum* Richard at Paris (specimen P00410657). Includes sketch of the flower, labellum and column, drawn by Richard on type when the plant flowered in Paris. The wide pollinator canal is better illustrated on the original sketch..





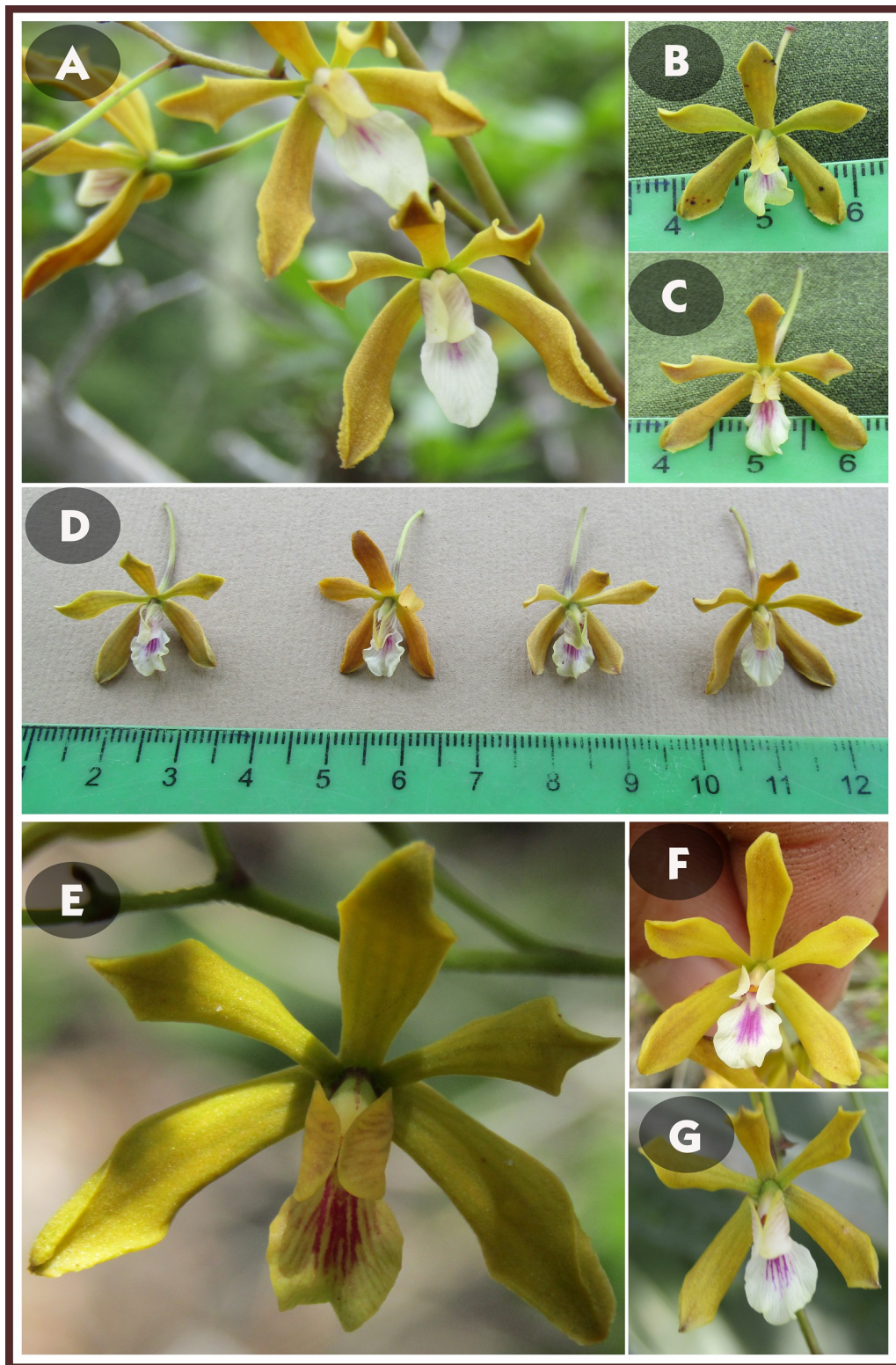


Additional specimens of *Epidendrum sangraeanum* Richard at Paris (P00410658, P00410658, P00410660, P00410661).



*Encyclia sagraeana* (Rich.) Soto Calvo, Esperon & Saulea. A-C and E details of column. D, F and G shows details of wide pollinator canal.





A-G, variation in *Encyclia sagraeana* (Rich.) Soto Calvo, Esperon & Saulea on tree islands along Lanier Swamp.



Comparison of the distinct species of Richard to *Encyclia fucata* (Lindl.) Britt. & Millsp. (D); 1. flower, 2. labellum, 3. callus and 4. Column. A. *Encyclia sagraeana* (Rich.) Soto Calvo, Esperon & Saulea. B. *Encyclia hircina* (Rich.) Acuña. C. *Encyclia richardiana* Rodriguez Seijo, Esperon & Saulea. D. *Encyclia fucata* (Lindl.) Britt. & Millsp.





*Encyclia sagraeana* (Rich.) Soto Calvo, Esperon & Sauleda in situ.





*Encyclia sagraeana* (Rich.) Soto Calvo, Esperon & Sauleda in situ.



*Encyclia sagraeana* (Rich.) Soto Calvo, Esperon & Sauleda habitat. Swamp areas around the tree islands.

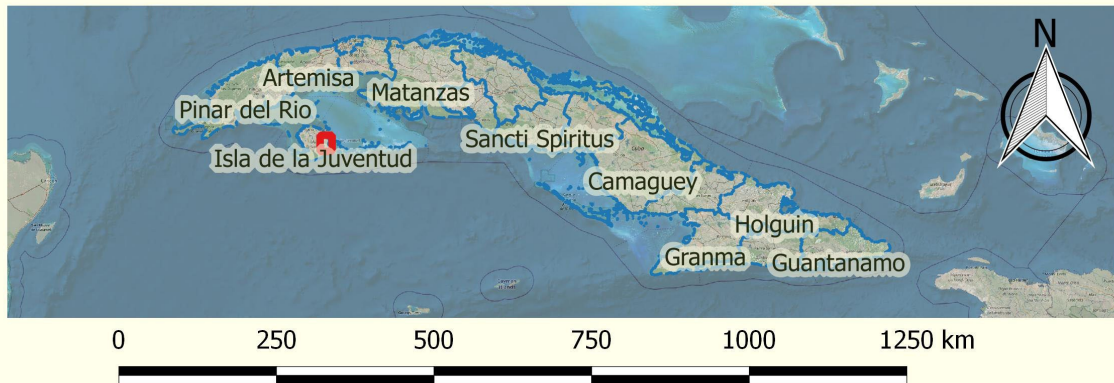




*Encyclia sagraeana* (Rich.) Soto Calvo, Esperon & Sauleda habitat.



# POPULATIONS OF *ENCYCLIA SAGRAEANA* ISLA DE LA JUVENTUD, CUBA



## Legend

### *Encyclia sagraeana*

- Populations
- ▭ Populations Area

### *Vegetation By Population*

- ▭ Ecotones adjacent to mangrove
- ▭ Ecotones adjacent to swamp
- ▭ Marsh Tree Islands
- ▭ Semideciduous Forest
- ▭ Swamp Evergreen Tree Islands

### *Base Map*

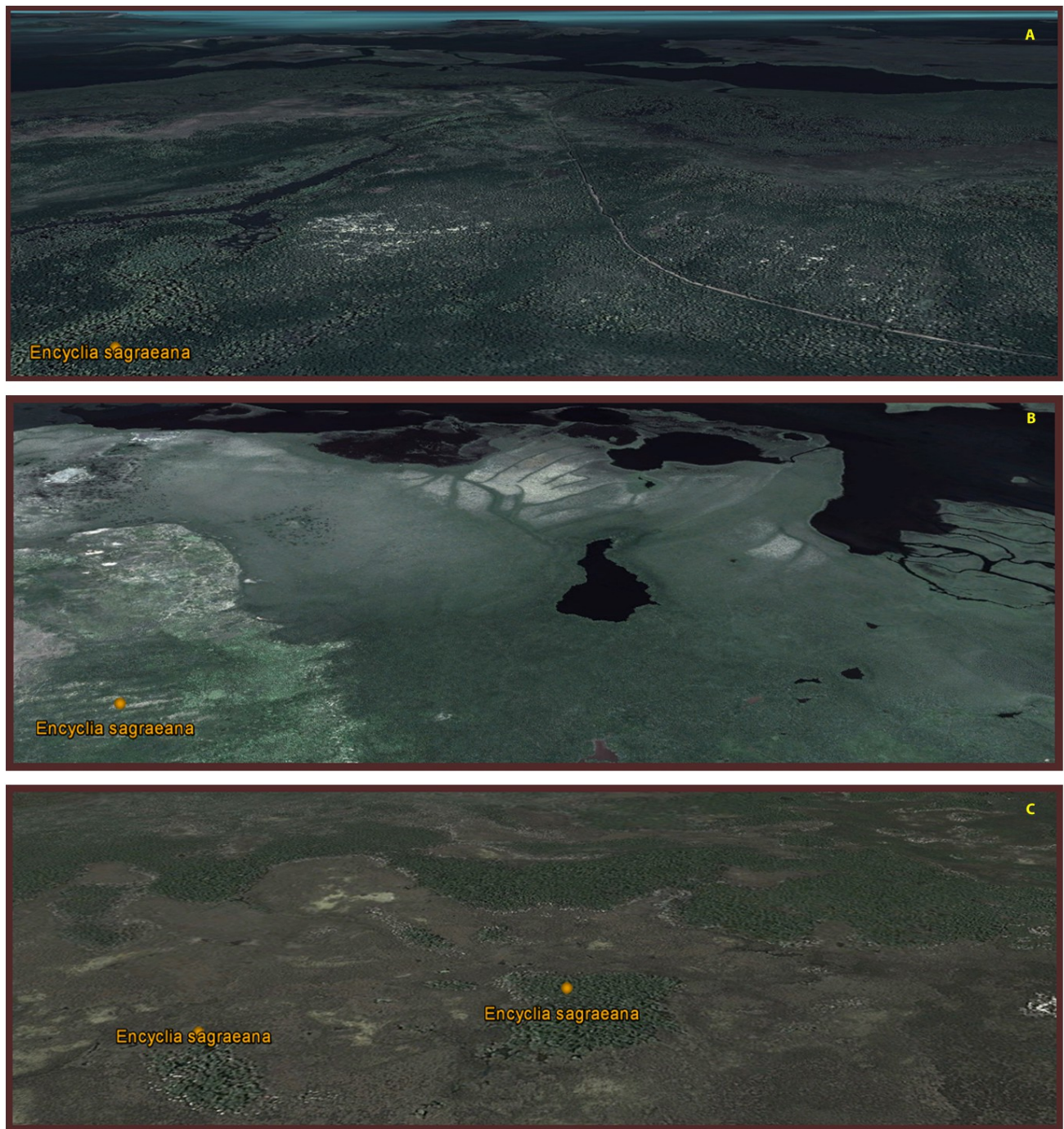
- Rivers
- ▭ Lanier Swamp Protected Land Boundary
- ▭ Province Limits

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Esri Imagery







Oblique imagery of landscapes where current populations of *Encyclia sagraeana* (Rich.) Soto Calvo, Esperon & Saulea occurs. A. Transitional communities with elements of mangrove, swamp and gallery forest. B. Ecotones along the boundaries of mangrove, coastal scrublands and pine forests. C. Tree islands surrounded by swamps and marsh.

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