



Silybia strigari

Epidendrum cocoense

Text by Diego Bogarín/Watercolor by Sylvia Strigari

Tribe: EPIDENDREAE

Subtribe: LAELIINAE

Genus *EPIDENDRUM* L.

Epidendrum cocoense Hágsater, Icon. Orchid. (Mexico) 3: pl. 325. 1999. Type: Costa Rica. Puntarenas: Cocos Island, along brook flowing into Wafer Bay, on trees, 18 April 1930, H.K. Svenson 333 (holotype, AMES; Isotypes, AMES, BKL, F).

Plant epiphytic, pendent with terete, leafy stem up to 2.5 m long. *Roots* thick, up to 1–2 mm in diameter. Stem terete, branching, cane-like. *Leaf sheaths* tubular, enclosing the stem, to 3 cm long. *Leaves* many (to 30), distichous, distributed throughout the stem, lanceolate, elliptic–oblong, acute, with a bilobed apex, conduplicate, to about 5.0–14.0 × 1.5–2.7 cm. *Inflorescence* apical, racemose, distichous, 2–4 flowered, to 6 cm long, covered by imbricate foliaceous sheaths; pedicel inconspicuous, less than 0.5 mm long; floral bracts broadly ovate, longer than the ovary, scarious, conduplicate, acute, 2.5–3.3 × 1.5–2.0 cm. *Ovary* cylindrical, to 2 × 3 mm, scurfy. *Flowers* white–cream, about 1.7 cm in length. *Dorsal sepal* subequal to the lateral sepals, rectangular–ovate to elliptic, acute, 12 × 5 mm. *Lateral sepals* ovate, elliptic, acute, slightly mucronate, 10 × 5 mm. *Petals* rectangular–oblong, subacute, margins revolute, 10.0 × 2.5 mm. *Lip* triangular to slightly cordate, with basal rounded lobes covering the column apex, subacute, callus basal, oblong, with erose apex, adnate to the column, 1.0 × 0.7 cm. *Column* straight, slightly alate, with sinuose, thick wings, with minutely acute, triangular tooth on each side, 5 × 4 mm. *Anther* apical. *Stigma* ventral. *Clinandrium* very reduced, erose, sinuose. *Nectary* prominent, penetrating the ovary. *Pollinia* four, in two pairs, ovoid, with caudicles. *Anther cap* cucullate, four-celled. *Capsule* pyriform, 3.0 × 1.5 cm.

Isla del Coco, also known as Cocos Island, is an oceanic island in the southeastern Tropical Pacific (5°31'39"N 87°03'32"W), situated 550 km southwest of Puntarenas, the main port of Costa Rica on the Pacific coast. Nearby islands include the Galápagos archipelago (Ecuador), Isla Malpelo (Colombia) and Isla Coiba (Panama).

Cocos Island became part of Costa

Rica in 1869, when president Jesús Jiménez decreed it as national territory. Until that time, the island was uninhabited and had not been claimed by any other country. Its name was probably given as a misnomer of the original map made by the French cartographer Nicolas Desliens in 1541, on which the island appeared for the first time. In this document, the island was called “Ye Coques.” In French the word *coque* means eggshell or nutshell, and the name could have been applied in reference to the common fruit of the abundant endemic tree *Sacoglottis holdridgei* Cuatrec (Humiriaceae).

In 1978 the island was decreed a National Park and a zone of absolute protection. Administratively, the area belongs to the Area de Conservación Marina Isla del Coco (ACMIC) of the Costa Rican Ministry of Environment and Energy (MINAE) and its National System of Conservation Areas (SINAC). In 1997 the island became a UNESCO-designated World Natural Heritage Site in recognition of its exceptional biodiversity. In 2002, the World Natural Heritage Site designation was extended to include an expanded marine zone of 1997 km², thus protecting marine ecosystems, populations of sharks, rays, dolphins and other large marine species. In addition, in 1998 the island was included in the list of Wetlands of International Importance under the RAMSAR Convention.

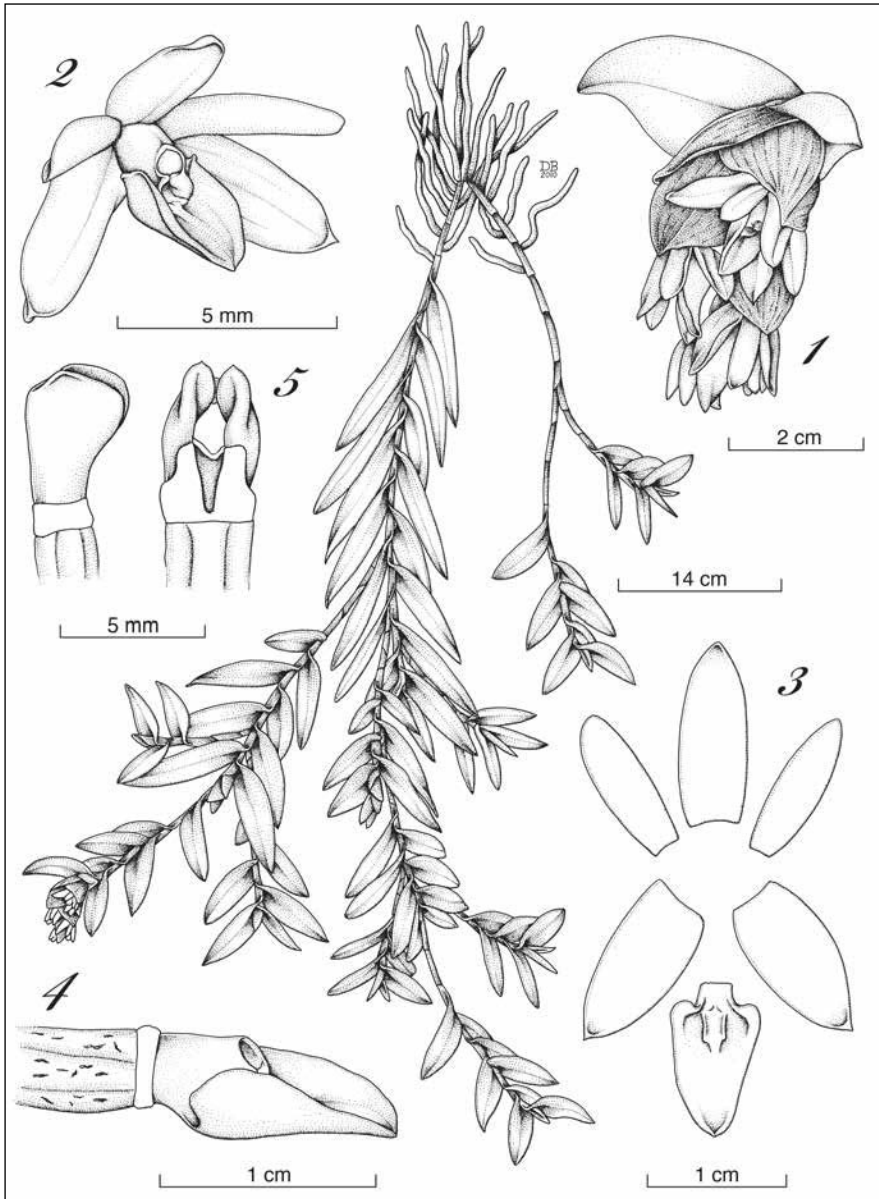
According to the most recent and detailed botanical treatment of the island by Trusty et al. (2006), the island harbors 262 species of plants, of which 37 species (about 14%) are endemics. Among the terrestrial fauna, there are 382 species of insects, five species of reptiles, one scorpion and 12 species of birds including the Cocos endemic finch, *Pinaroloxias inornata*. There is a low-elevation rain forest formed mainly by *Sacoglottis holdridgei*.

As a common feature of a volcanic island, Cocos Island emerged from the ocean through the volcanic activity of a submarine range called Cocos Ridge. Oceanic islands have high rates of endemism but sometimes are less diverse than those islands that emerge close to the continental mainland. The colonization process is difficult when an island emerges in midocean, far from mainland sources

of seeds or animals. Also, biodiversity is proportional to island size. There is a low probability for a colonizing organism to reach the island when it is far away and small. The orchid flora of Cocos Island is no exception to the rule. Only five species of orchids have been recorded there (Trusty and Blanco 2006). Three endemic species of *Epidendrum*: *Epidendrum cocoense*, *Epidendrum insulanum* and *Epidendrum jimenezii*; and two species formerly included under *Maxillaria*: *Camaridium micranthum* and *Ornithidium adendrobium*.

The first visit to Cocos Island was recorded in the year 1526, when the Spanish explorer Joan Cabeças reached the island. Mariners and pirates have known the island for a long time. Cocos Island became popular through traditional stories of treasures supposedly buried there. As the legend goes, two treasures are hidden on Cocos Island. The pirate Bennett Graham (Benito Bonito) of the Relámpago, who looted several cities around South America, supposedly eventually hid his treasure in an unknown place on the island. The treasure of Lima, from Captain Thompson of the Mary Dear, is also thought to be on Cocos. If so, it would contain priceless gold pieces and jewels from Peru. Following those tales, people looking for treasure have carried out more than 400 expeditions to the island; hence Cocos is also well known as the “treasure island.”

In spite of those hundreds of expeditions, plant collections only started in 1836 when the English collector George W. Barclay visited Cocos Island as part of the exploration of the Pacific coast aboard the H.M.S. Sulphur, commanded by Captain Sir Edward Belcher. However, in this botanical treatment they did not record or describe any orchids. After Barclay's expedition, the marine zoologist and oceanographer, Alexander Agassiz, collected plants during the last years of the 19th century (1888 and 1891). Aboard the Albatross, he visited Cocos Island on his way to the Galápagos. He found *Epidendrum insulanum* (later described in 1918 by R. Schlechter), the first orchid specimen collected on the island. In 1898, Anastasio Alfaro and Henry Pittier, sponsored by the Costa Rican government, visited the island aboard the Poás vessel



Epidendrum cocoense. The plant, 1) Segment of the inflorescence, 2) Flower, 3) Dissected perianth, 4) Column and lip, lateral view, 5) Column, lateral and front views. All drawn by D. Bogarín from D. Bogarín 2767 (JBL-Spirit).

and collected plants and animals. Four years later, on a second trip in 1902, Pittier collected two specimens of *Epidendrum*. One of them was the type specimen of *Epi. insulanum*. Also, Pittier collected at least two specimens of *Epidendrum cocoense*, undescribed at the time.

Epidendrum cocoense was described by Hágsater (1999) in *Icones Orchidacearum*. The specimen was found along a brook flowing into Wafer Bay by Henry Knute Svenson (1897–1986), who was the curator of the Brooklyn Botanical Garden, New York. He collected plants on Cocos Island as the chief botanist for the Vincent Astor Expedition to Galápagos Island in 1930. The third endemic *Epidendrum* was collected during an expedition led by Alfonso Jiménez, the former director of the Museo Nacional de Costa Rica in 1965.

Among Cocos Island orchids, *Epi. cocoense* is the largest species, with pendent plants up to 2.5 m long. It can be distinguished from *Epi. insulanum* and *Epi. jimenezii* by the longer main stems, the conspicuous broad floral bracts to 2 cm wide and the scurfy ovary to 5 mm in diameter. The leaves are wider and longer, up to 2.7 cm wide and 12.5 cm long. It differs from *Epi. insulanum* in the inflorescence with 3–4 white flowers, the column with two apical teeth on each side and the lateral lobes of the lip covering the column apex when seen from the side. Compared to *Epi. jimenezii*, it differs by the less conspicuous teeth at the apex of the column, the subacute lip and the broader floral bracts covering the ovary. Although they are closely related, the three species of *Epidendrum* probably colonized or evolved independently on the island. No evidence of sympatric speciation as has been found (Igea et al. 2015).

Epidendrum cocoense is the most common orchid in the rain forest of Cocos Island. Plants are easily found on *S. holdridgei* trees where they flower from December to August. *Epidendrum cocoense* grows hanging on branches or from the main tree trunk at 2 m or less above the ground in shady understory conditions. Plants are best grown on slabs, as they need to hang down as they do in their natural ecosystem. They can be grown under moderate shade or in bright conditions. Nevertheless, plenty of water should be provided year round, and good air movement is required for healthy development.

References

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