Contributions to a reassessment of Costa Rican Zygopetalinae (Orchidaceae). 2. A reconsideration of Chondrorhyncha estrellensis Ames

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As first noted by Fowlie (1966a), the genus Chondrorhyncha Lindl. has long served to botanists to accommodate members of the Zygopetalinae which did not fit any of the most easily definable genera in the tribe. When Lindley (1846) described Chondrorhyncha on the basis of his C. rosea from Venezuela, he did not mention among the diagnostic features of the new genus the shape of callus, and the interpretation of the generic limits in the alliance has subsequently been largely misinterpreted (i.e., Allen 1949). In his realignment of Zygopetalum Hook., Reichenbach filius (1861) mantained Chondrorhyncha on the basis of its distinct column foot connivent with the lateral sepals, the laminar callus at the middle of the disc and the 3-dentate rostellum. A similar approach was followed by Garay (1969) in his revision of the Chondrorhyncha alliance, who characterized Chondrorhyncha for the ecarinate column with a prominent foot forming an acute mentum and the concave lip with a fleshy callus in center of disc. The need of a better circumscription of the generic limits of Chondrorhyncha was pointed out by Dressler (1983) with the creation of the sect. Chondroscaphe to accommodate the species presenting a second thickening in front of the basal callus and a pollinarium with a prominent stipe, including C. bicolor Rolfe and the allied C. eburnea Dressler. Eventually, Senghas & Gerlach (1993) erected Chondroscaphe to a separate genus, transferring to it some of the South American Chondrorhyncha species, but maintained in Chondrorhyncha the Mesoamerican taxa close to C. bicolor as well as the species of the C. picta group and the C. albicans group (sensu Dressler 2000). A preliminary report based on comparison of DNA sequences for the Zygopetalinae (Dressler 2000) shows that the C. bicolor complex must be included in Chondroscaphe, and points out the need of generic recognition for the C. albicans and C. picta groups.

The latter group includes plants provided with small but distinct pseudobulbs and a narrow basal callus of the lip ending with 2 to 4 teeth. Besides Chondrorhyncha picta (Rchb.f.) Senghas, Dressler (2000) assigned to this group C. lendyana Rchb.f. and C. lankesteriana Pupulin (corresponding to the species close to C. picta indicated in Dressler’s cladogram as W672; see Pupulin 2000), but another obvious member of the group should be C. helleri Fowlie (1971).

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Revising the Costa Rican species of the Chondrorhyncha complex, I had the opportunity to study the type of *C. estrellensis* Ames, a species usually considered conspecific with *C. bicolor* (Fowlie 1966a; Dressler 1983; Dodson & Dodson 1989). An examination of the type at AMES revealed it must be accepted as a good species which shows no affinities with *Chondroscaphe*, but it is rather close to *C. lendyana* and *C. lankesteriana*.

*Chondrorhyncha estrellensis* Ames, Sched Orch. 4: 54. 1923. TYPE: COSTA RICA. Estrella de Cartago, January 10, 1923, C.H. Lankester & Alfredo Sancho 396 (Holotype: AMES, photo!). Fig. 1.


**Plant** epiphytic, erect, cespitose, to about 25 cm tall, each shoot provided with a small pseudobulb and 3-4 leaves and 2-3 acute, triangular bracts at the base. **Roots** flexuous, glabrous. **Leaves** linear-lanceolate to oblanceolate, acuminate, membranaceous, 25 cm long, 3.5 cm wide, narrowing at the base into a conduplicate petiole to 3.5 cm long; basal cataphylls with erose hyaline margins. **Inflorescences** 1-4, each a slender, erect, solitary flower; peduncle terete, slender, to 15 cm long, with 1-2 ovate-oblong, acute bracts. **Floral bracts** in pairs, membranaceous, the outer one broadly ovate, cucullate, acute, about 8 mm long, 6 mm wide, the inner one linear, acuminate, 7 mm long, 2.5 mm wide. **Ovary** subclavate, conspicuously winged, 2.5 cm long including the pedicel. **Flowers** large, with sepals and petals very pale creamy-yellow, the lip with burnt-lake to red-violet radiating lines, callus finely spotted and washed dark yellow to red-brown. **Dorsal sepal** lanceolate to narrowly oblong, acute, concave at the base, to 25 mm long, 7 mm wide. **Lateral sepals** lanceolate to narrowly oblong, acute to subacuminate, concave, deflexed, appearing falcate in natural position, 27 mm long, 7 mm wide. **Petal** broadly elliptic-lanceolate, oblique, obtuse, distal margins undulate, 25 mm long, 10 mm wide. **Lip** with a very short cuneate claw, broadly ovate, distally obscurely 3-lobed, obtuse to subretuse, concave toward the base, 25 mm long, 20 mm wide, the basal margins clasping the column, the apical margins undulate; callus subbasal, membranaceous, bilobed, partly free plate, 2- to obscurely 4-toothed at apex. **Column** semiterete from a narrow base, with a foot about 5 mm long, slightly arcuate, 12 mm long, 4.5 mm wide at the middle, the rostellum with 3 teeth, the central one longer. **Anther cap** cucullate, ovate, compressed, rounded at apex, 1-celled. **Pollinia** 4, linear-oblong, in 2 unequal pairs.

**Etymology:** from the region of La Estrella, in the high basin of río Grande de Orosi in Costa Rica, where the species was discovered.

**Distribution:** Costa Rica and Nicaragua. **COSTA RICA:** only known from the type collection. **NICARAGUA:** Jinotega: Mt. Kilambe, hill East Santa María de Ostuma, 4600 ft., April 1966, A.H. Heller 10097 (type of *C. helleri*, LA); Cerro Saslaya, 20 km al Oeste de Sinua, 1100-1400 m, 5 Mayo 1977, D. Neill 1850 (HNMN n. 05979!).

**Habitat and ecology:** Epiphytic in premontane wet to cloud forest, on large mossy trees at 1400-1500 m altitude. Flowering in January-May.

**Discussion:** *Chondrorhyncha estrellensis* was described on the basis of a single collection from the high basin of río Grande de Orosi, along the Atlantic drainage of Cordillera de Talamanca in central Costa Rica (Ames 1923). Ames compared the new species with *C. endresii* Schltr. and *C. reichenbachiana* Schltr., from which it may be sepa-
rate for the disc smooth in front of the callus and
the bilobed callus which does not extend to the
margins of lip, respectively. In his treatment of the
Orchidaceae for Standley's *Flora of Costa Rica*,
Ames (1937) still reported *C. estrellensis* as
known only from the type collection, and the spe-
cies has never been collected since 1923.

In his revision of the Central American spe-
cies of *Chondrorhyncha*, Fowlie (1966a) reduced
*C. estrellensis* in synonymy under *C. bicolor*, an
interpretation followed by Dressler (1983) and
Dodson & Dodson (1989). Due to its misidentifi-
cation with *C. bicolor*, *C. estrellensis* is not inclu-
ded in the treatment of the genus proposed by
Dressler (1993) in his guide to the orchids of Cos-
ta Rica and Panama. However, the shape of the lip
and the basal 2-dentate callus, as well as the notes
provided by Ames (1923) about the color of flo-
wers (radiating lines of the labellum burnt-lake,
sepalas and petals very pale barytate-yellow, callus
of the labellum empire-yellow) leave no doubt
about the distinctness of this taxon.

Allen (1949) placed *C. estrellensis* in syn-
onymy under *Warszewicza caloglossa* Schltr.,
creating the new combination of *Chondrorhyncha
caloglossa* (Schltr.) Allen., but both Fowlie (1969)
and Dressler (1980) consider *W. caloglossa* cons-
specific with *Warszewicza picta* Rchb.f. The ge-
neric assignment of *W. caloglossa* to *Chon-
drorhyncha* is supported by Schultes & Garay
(1954), who expressly exclude Schlechter's ta-
xon from their wide concept of *Cochleanthes* Raf.,
even though *W. picta* is included in *Cochleanthes*
by Garay (1957). Fowlie (1966a) considered
*Chondrorhyncha caloglossa sensu* Allen a misap-
plied name for *C. bicolor*, but Allen's (1949) re-
ference to the reticulated pattern of the lip, as well as
the list of cited specimens, do not support this in-
terpretation and provide a clear indication about
his concept of the Panamian species.

*Warszewicza caloglossa* is based on two
Panamian collections by H. Pittier and W.R. Ma-
xon from cerro de la Horqueta (Schlechter 1913),
but no type or lectotype are conserved and the in-
terpretation of Schlechter's concept is somewhath
difficult. Contrarily to the statement by Fowlie
(1969), Schlechter did not overlook the *W. picta* of
Reichenbach, which is expressly mentioned in
the short commentary to the protologue. However,
the concave and deflexed lateral sepalas, the rhom-
bic lip with quadrate midlobe, the basal position of
the callus and the lip completely covered with pur-
ple veins recorded by Schlechter in the protologue
seem to be consistent with the diagnostic charac-
ters of *W. picta*. Also the comparison that Schlech-
ter did of the new species with *W. discolor* Rchb.f.
and with *C. lipscombiae* Rolfe (Schlechter 1913)
agrees with the overall appearance of *W. picta*. On
the basis, I consider *W. caloglossa* a later synonym
of *W. picta*, a taxon well distinct from *C. estrellen-
sis*.

The occurrence of a supposedly still undescri-
bled species from Nicaragua, close to *C. reichen-
bachiana* Schltr., was first reported by Fowlie
(1966b) under the name of *C. helleri* Hort. A for-
mal description of the new species was provided
by Fowlie in 1971, where *C. helleri* was compared
with *C. lendyana* on the basis of the presence of
small pseudobulbs, and to *C. albicans* Rolfe for
the broad and erect foliage. Both the detailed des-
cRIPTION and the botanical plate provided by Fow-
lie are indistinguishable from the diagnostic fea-
tures of *C. estrellensis*.

Another Nicaraguan collection determined
by Hamer as *C. helleri* has been examined (Zela-
aya: along new road from río Blanco to río Copalar,
ca 31 km E of río Blanco, approx. 12°50-55' N
85°00-05' W, 200-400 m, 13 Feb. 1979, W. Dou-
glas Stevens 12097, HN MN n. 03788!, but the
sterile specimen shows a very large plant, pro-
bably referable to a species of Cochleanthes or Warszewiczella. A collection from Cerro Saslaya in Nicaragua (David Neill 1850, HNMN!) was determined by Hamer as Chondrorhyncha lendya-
na on the basis of the dissection of an immature bud. However, the narrow petals, the ovate lip and
the shape of the callus seem to be consistent with the characters of C. estrellensis.

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Figure 1. *Chondrorhyncha estrellensis* Ames. A: habit; B: flower; C: dissected perianth; D: callus; E: column and lip, lateral view (the lip longitudinally sectioned); F: column, abaxial view; G: pseudobulb; H: pollinarium and anther cap. Illustration vouchers: A, E-H, redrawn from Fowlie (1971); B, from a photograph; C-D, from the holotype at AMES (No. 23733).