

distance of 60 km. This exploration produced the most complete list of orchids ever made in this territory, with a total of 70 species belonging to 41 genera. This list exceeds the previous record by 37 species (112%) and represents 1.74% of the total of orchid species reported for Colombia. Several new regional records were found, as well as at least three endemic species and probably one local extinction. We detected five centers of high orchid concentration (“regional hot spots”), each with 21–29 species. We found that total species richness of this bioregion (70 species in 421,000 hectares) is 842 times

lower than the much smaller Yotoco forest adjacent to this area (69 species in 500 hectares). Possible explanations might be that plant diversity decreases when rainfall is low, and this is valid for orchids as well. However, other factors such as 130 years of habitat destruction (only 2% of dry forest remains) lead us to think that extinction has occurred. At the same time, an illustrated guide of these species was printed to increase public awareness of the importance of orchid conservation. Also, a digital high-resolution bank of images of the orchid flora of the department of Valle del Cauca was begun.

The orchid flora of Chorogo Wildlife Reserve, Puerto Armuelles, Chiriquí, Panamá

ZULEIKA SERRACÍN-HERNÁNDEZ^{1*}, RAFAEL RINCÓN¹, EYVAR RODRÍGUEZ-QUIEL¹
& DIEGO BOGARÍN^{1,2}

¹Herbario UCH, Universidad Autónoma de Chiriquí, P.O. Box 0427, Chiriquí, Panamá; ²Jardín Botánico Lankester, Universidad de Costa Rica, P.O. Box 302-7050, Cartago, Costa Rica; *correspondence: zuleika06887@hotmail.com

We performed a preliminary taxonomic study of the orchid flora of Chorogo Wildlife Reserve, Chiriquí, Panama. Chorogo is located 11 km west of Puerto Armuelles along the Panama-Costa Rica border and protects about 1,000 ha of lowland tropical wet forest with elevations of 344–572 m, average annual temperature of 27 C, and 226.5 mm of precipitation. Samples were collected at different sites of the reserve during three field trips. The material was cultivated and documented electronically by photographs and botanical plates with stereoscope, digital camera, and scanner. Specimens are kept in the reference collection of dried specimens, living plant collection, and spirit collection at the UCH herbarium. Identification was made by comparing the

specimens with types and protologues. The information is available free online at the website Epidendra (www.epidendra.org). Composite plates, distribution, descriptions, ecology, etymology, synonymy, taxonomy, and photographs are provided for each of the 15 species belonging to 11 genera recorded. Of these, seven are new records for the province of Chiriquí. *Epidendrum coronatum* and *Mormodes fractiflexa* are considered vulnerable by national conservation criteria. Together with studies conducted in the Pacific of Costa Rica, this project aims to strengthen the understanding of the orchid flora protected by both countries on the Pacific lowlands. It also represents the beginning of the study of the orchids of the protected areas of Panama.

What delimitation for *Stelis* should be used?

RODOLFO SOLANO^{1*} & GERARDO SALAZAR²

¹Centro Interdisciplinario de Investigación para el Desarrollo Integral Regional unidad Oaxaca, Instituto Politécnico Nacional, Oaxaca, México; ²Instituto de Ecología, Universidad Nacional Autónoma de México, México D.F., México; *Author for correspondence: solanogo@yahoo.com.mx

The use of DNA sequences for the phylogenetic reconstruction of subtribe Pleurothallidinae has led to a new delimitation of *Stelis*, and the genus now includes several groups that are morphologically

heterogeneous (*Stelis* s.l.). Some authors do not accept this broader delimitation and recognize *Stelis* in its narrow sense (*Stelis* s.s.), raising to generic level those related groups (*Crocodelanthae*, *Dracontia*,

Effusiella, *Elongatia*, *Lalexia*, *Mystacorchis*, *Niphanta*, *Physosiphon*, *Physothallis*, *Rhynchopera*, *Salpistele*, *Talpinaria*, and *Unciferia*). Based on analyses that have evaluated the phylogenetic relationships of *Stelis*, in this work we compare and discuss both proposals. The concept of *Stelis* s.l. encompasses a monophyletic group with variable morphology among its members but with strong support. Against this, it has been argued that there are no morphological synapomorphies that define the group and, hence, it is preferable to divide it. However, this consideration forgets the fact that morphology is not the only criterion useful in

delimiting a taxonomic group. On the other hand, following this approach leads to taxonomic inflation and complicates a classification system that otherwise would be easier to learn and use. Some groups segregated from *Stelis* s.l. are not monophyletic (*Dracontia*, *Effusiella*); others are monotypic and defined by autapomorphies (*Lalexia*, *Mystacorchis*). Furthermore, more phylogenetic work is necessary to evaluate the position of some species previously transferred to *Stelis* s.l. that seem to be more closely related to *Pleurothallis* (e.g. *Stelis quadrifida*, *S. restrepioides*).

A newly recognized clade of *Pleurothallis* with Mesoamerican distribution

M. WILSON^{1*}, F. PUPULIN², F. L. ARCHILA-MORALES³, A. DAMON⁴ & R. SOLANO-GOMEZ⁵

¹Biology Department, The Colorado College, Colorado Springs, CO 80903, USA; ²Jardín Botánico Lankester, Universidad de Costa Rica, Cartago, Costa Rica; ³Estación Experimental de Orquídeas de Guatemala, Cobán, Guatemala; ⁴El Colegio de la Frontera Sur (ECOSUR), Tapachula, Chiapas, Mexico; ⁵Instituto Politécnico Nacional, Centro Interdisciplinario de Investigación para el Desarrollo Integral Regional unidad Oaxaca, Santa Cruz Xoxocotlan, Oaxaca, Mexico

*Author for correspondence: mwilson@coloradocollege.edu

Phylogenetic studies of *Pleurothallis sensu lato* have revealed a previously unrecognized clade of *Pleurothallis* species, including to date: *Pleurothallis aurita*, *P. bitumida*, *P. bogarinii*, *P. cobriformis*, *P. dorotheae*, *P. excavata*, *P. nitida*, *P. saccatilabia*, *P. sanchoi*, *P. scaphipetala*, *P. simulans*, and two as yet undescribed species. These species were previously considered part of *Pleurothallis* subgenus *Pleurothallis* section *Macrophyllae-Fasciculatae*, but this section was segregated from *Pleurothallis* by Luer and along with *P.* section *Pleurothallis* subsection *Acroniae* was raised to generic level as *Acronia*. In an alternate interpretation by Szlachetko *et al.*, *P.* section *Macrophyllae-Fasciculatae* was alone segregated from *Pleurothallis* as genus *Zosterophyllanthos*. The aforementioned species, with the exception of *P. bogarinii*, are listed under these alternate genera in the World Checklist of

Selected Plant Families, but the names are considered synonyms of *Pleurothallis*. Samples of these species were obtained from collections in Costa Rica, Guatemala, Mexico, Panama, and the U.S. Analyses of nuclear ITS and plastid *rpoB* and *matK* sequences for these species reveal a well-supported clade which can be interpreted as either sister to or part of the *Pleurothallis sensu stricto* clade but which is distinct both from the clade containing the other species of *P.* section *Macrophyllae-Fasciculatae* and from the clades containing species of *P.* section *Pleurothallis* subsection *Acroniae*. These phylogenetic data, differences in floral and foliar morphology from other species in *P.* section *Macrophyllae-Fasciculatae*; and, as far as we know, an exclusively Mesoamerican distribution (Costa Rica, Guatemala, Mexico, and Panama), strongly indicate that a new subgenus of *Pleurothallis* is warranted for the clade.