

# ORCHID CONSERVATION NEWS

The Newsletter of the Orchid Specialist Group of the IUCN Species Survival Commission

Issue 1

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## V Orchid Symposium, Colombian Botanical Congress



**Editorial**

Orchid biodiversity conservation took a front seat at the Colombian Botanical Congress held in November 2022. The organizers, and members of the IUCN South American sub-group of the OSG has provided us with a richly illustrated report of the Orchid Symposium that was part of the Congress.

We learn how orchid floristic surveys are being conducted in collaboration with indigenous communities, and of participatory research and educational initiatives. We are part of biodiversity, not apart from it. We all benefit from increased knowledge and understanding of the natural world in which we, orchids and their partners of a complex ecosystem live and adapt in times of climate change.

*Marilyn H.S. Light, Editor*

Fig. 1. Participants in the V Colombian Orchid Symposium, 8-9 November 2022  
in the XI Colombian Botanical Congress,  
University of the Llanos, Villavicencio, Meta.  
Photo: J. Rosero-Toro.

### **V Orchid Symposium, Colombian Botanical Congress, November 2022.**

The V Colombian Orchid Symposium was held over two days, 8–9 November 2022, within the program of the XI Colombian Botanical Congress (7–10 Nov.) organized by the University of the Llanos in the city of Villavicencio, department of Meta, in the eastern plains region of Colombia. The Orchid Symposium is now a constant fixture within the bi-annual Colombian Botanical Congress, with numbers of participants steadily increasing. The theme of the XI Colombian Botanical Congress was ‘Biodiversity for peace and reconciliation in times of climate change’, and this was reflected through the presentations within the Orchid Symposium.

The V Colombian Orchid Symposium comprised 24 oral presentations, as well as several poster presentations, covering a broad range of topics including taxonomic treatments, floristic inventories, ecological research, conservation actions and genomic studies. The presenters ranged from established experts to undergraduate students, with a total of 55 authors and co-authors from 10 different Colombian institutions, as well as the Herbarium AMO, Mexico, and the Southern Illinois University, USA (Fig. 1: page 1). Sponsorship for the V Colombian Orchid Symposium 2022 was offered by the

Amaz-Orinoquia Orchid Association and Corporquidea in Villavicencio, who generously provided accommodation for participants and logistical support.

The eastern plains of Colombia, known as Los Llanos, stretch from the northern reaches of the Andean Cordillera across northeast Colombia to the Orinoco River and into Venezuela. This biome is characterized by natural seasonally flooding grasslands and gallery forest. Despite comprising 28% of the land area of Colombia, this bioregion is one of the least studied. Nearly 500 species of orchids are registered for the department of Meta, representing 12% of the orchid flora of Colombia. Colombian endemic species found here include *Cattleya schroederae*, *Epidendrum iangrondonii* and *Catasetum rectangulare*, and species such as *Cattleya violacea*, *Prosthechea crassilabia* and *Vanilla palmarum* (Fig. 2) are abundant.



Fig. 2. *Vanilla palmarum* Lindl, Meta, Colombia.

Photo: N. S. Flanagan

Within the V Orchid Symposium, taxonomic treatments were presented by several members of the Schultes Research Group: the genus *Andinia* presented by Sebastian Vieira-Urbe from the NGO Selvamontes; and *Prosthechea* presented by Felipe Espinosa-Moreno from the Pontificia Javeriana University, while Eugenio Restrepo from Caldas University presented examples of seed propagation and *ex situ* conservation of some Colombia endemic pleurothallids (Fig. 3). Eric Hágsater and Elizabeth Santiago-Ayala from the Herbarium AMO, Mexico, presented advances in their work on *Epidendrum*. Notably, Eric and Elizabeth had undertaken a field trip in the Llanos in the days prior to the symposium, and they shared confirmation of taxonomic novelties registered during this fieldwork.



Fig. 3. *Lepanthes trichocaulis* Luer & R.Escobar, a Colombian endemic species found at mid-altitude in the Western Andean Cordillera. This species is closely related to other endemics, including *Lepanthes obovata* and *Lepanthes cunicularis*.

Photo: E. Restrepo.

Our understanding of orchid diversity in Colombia forges ahead, with previously little-characterized regions now being more thoroughly explored. From the department of Huila in the upper reaches of the Magdalena River valley, Jeison Rosero-Toro, Juan David Medina Gonzalez, Daniela Guzmán-Vivas and Edwin Arrigui-Torres from the University Surcolombiana, the Corporación Universitaria Minuto de Dios – UNIMINUTO and the Herbarium SURCO presented studies of orchid floristic diversity and ethnobotany from a range of Andean and high Andean (Paramo) ecosystems. These studies over recent years have yielded, to date, three new species of *Epidendrum* (Fig. 4) with a further *Epidendrum* and two *Pleurothallis* species to be published.

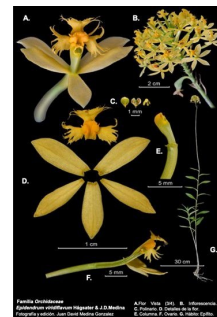


Fig. 4. Composite photographic plate of *Epidendrum viridiflavum*, a new species described by Juan D. Medina and E. Hágsater in the department of Huila, Southern Colombia.

Plate prepared by Juan D. Medina.

This ongoing research in Huila has a strong focus on community participation and science communication.

Amongst several publications under preparation is a guide to the orchid flora of the farm El Manantial, part of the El Cedral Association of Private Nature Reserves in San José de Isnos, Huila (Fig. 5).



Fig. 5. Cover and example page of the guidebook to the orchid flora of the farm El Manantial, part of the El Cedral Association of Private Nature Reserves in San José de Isnos, Huila, a product of

a research collaboration between the University Surcolombiana and the Corporación Universitaria Minuto de Dios – UNIMINUTO led by Jeison Rosero–Toro.

Participatory research with local communities and for their benefit is flourishing across the country. Orchids are being increasingly recognized as important elements for inclusion in nature tourism activities, as a sustainable option for improving rural livelihoods. In the northern Amazon region in the Department of Guainía, researcher Lizzie Cerón from the SENA-Guainía Institute, presented the results of an orchid floristic inventory undertaken together with local indigenous communities. This study has yielded several new reports for Colombia of species previously known from the east of the Orinoco River, including *Cyrtopodium glutiniferum* and *Paphinia cristata*, and forms the basis for developing *in situ* orchid ecotourism ventures in the region. Juan Camilo Ordoñez from the Bogota Botanical Gardens also presented a model case of *in situ* orchid tourism in the high-Andean paramos of the Cundinamarca Department.

Orchids as flagship species also offer important opportunities for promoting awareness of biodiversity and the threats it faces. Miguel Bonilla from Corporquidea in Villavicencio explained how orchids are being used in the Llanos region as a case study for environmental education in schools within the inspirational initiative - Network for Educational Scenarios with Orchids (REPO) (Fig. 6A,B).

Fig. 6A. Activities in the Network for Educational Scenarios with Orchids (REPO) of Corporquidea, Villavicencio, Meta

Carolina Aguirre giving a talk on orchid conservation to high school students.



Fig. 6B. Miguel Bonilla leading a practical workshop with primary school children.



With new species still frequently being described, it is understandable that much attention is still focused on orchid taxonomy in Colombia. Nonetheless, with the impact of climate change ever more visible, there is a pressing need to further understand the ecology of the unique Colombian orchid flora. Yudy Alejandra Gallego from the University of Antioquia presented a detailed study of the relationship between orchid flora and their phorophytes in high-Andean Forest fragments. Studies of pollinators and reproductive biology were also presented in *Teliopogon antioquianus* by Julian Zapata-Zea also from the University of Antioquia, and in *Cattleya quadricolor* by Valentina Rosero. We hope orchid pollination studies will continue to proliferate.

The highly endemic and endangered species, *C. quadricolor*, was the focus of several further talks by students and researchers from the Pontificia Javeriana University in Cali. Nhora Helena Ospina shared the not so good news of likely extinctions of known populations predicted from demographic studies, while Gabriela Torres-Torres described the results of ecological niche

modelling under predicted climate change scenarios. Erica Ramirez-Bejarano presented her undergraduate thesis results on the isolation and identification of potential orchid mycorrhizal fungi. This multi-pronged research approach aims to provide the evidence base for an integrated strategy of population conservation, restoration and assisted migration for this species, which can be used as a model for conservation action of other endangered Colombian orchids.

Further presentations by undergraduate students from the Javeriana University included Anne Ñuscua-Otero's study of population demography of *Masdevallia racemosa*, participatory research undertaken together with local community members in the indigenous territory of Purace, southern Colombia, and Maria de los Angeles Rodriguez-Salamanca's study of orchid mycorrhizal associations in *Vanilla* species, developed in collaboration with researchers from the Inkaterra Association, Madre de Dios, southern Peru.

Taking a more biotechnological approach, native *Vanilla* species were also the subject of a talk by Ana Teresa Mosquera-Espinosa from the Pontificia Javeriana University, who described disease progression caused by *Fusarium* fungi in different *Vanilla* genotypes. Camilo Andres Cárdenas-Burgos from the Bogota Botanical Gardens presented the results of his research into novel approaches for *in vitro* propagation of orchids for conservation.

Finally, two talks shed light on genomic processes in orchid evolution. Janice Valencia from the Southern Illinois University shared her results on genomic structure and rearrangements in the mitochondrial genomes of orchids. Natalia Pabón-Mora from the University of Antioquia presented fascinating insights into the genetic control of flowering in neotropical orchids (Fig. 7).

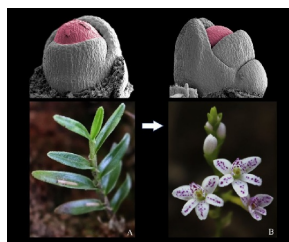


Fig. 7. Reproductive transition in *Epidendrum fimbriatum*. A. Vegetative stage. Bottom: full plant.

Top: Shoot apical meristem (SAM) false colored in pink forming flanking leaves. B. Reproductive stage. Bottom: full plant. Top: Inflorescence meristem (IM)

false colored in pink forming flanking bracts with axillary floral buds.

Photos: N Pabón-Mora & Y. Madrigal.

The full program of the symposium and the conference can be found here:

<https://xiccb.asociacioncolombianadebotanica.com/programacion/>

### Organizing Committee, V Colombian Orchid Symposium 2022.

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### The VII Scientific Conference on Andean Orchids, Cusco, Peru, 27 – 29 November 2023.

We are very happy to announce the VII Scientific Conference on Andean Orchids, to be held in Cusco, Peru, 27<sup>th</sup> - 29<sup>th</sup> November 2023. This event is the principal orchid meeting in Latin America, bringing together orchid researchers, conservationists, growers and enthusiasts to showcase the spectacular orchid diversity from across the continent. Organization of the VII conference is being led by Inkaterra Association, the

National University of Saint Anthony the Abad in Cusco, and the Sociedad Peruana de Orquídeas, with sponsorship from the well-known orchid growers at Ecuagenera. The conference aims to cover broad themes, including orchid diversity and systematics, ecology, conservation and horticulture.

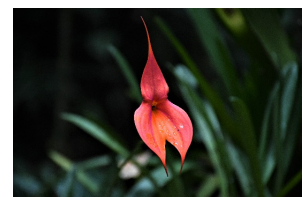
Following on from previous conferences in Colombia and Ecuador, the 2023 conference now offers an unparalleled opportunity to experience the magnificent orchid diversity of Peru. The three-day Scientific Conference in Cusco is programed to follow on from the Lima Orchid Society Show (Nov 24<sup>th</sup> through 26<sup>th</sup>). Post conference events will include the opportunity to visit the Citadel at Machu Picchu, and the extraordinary Orchid Garden at Inkaterra Machu Picchu Pueblo Hotel, which will be blooming with orchids including from the genera *Anguloa*, *Dichaea*, *Elleanthus*, *Masdevallia*, *Sobralia* and *Sudamerlycaste*, as well as many regional endemics. Single-day and multiple-day tours will be available with expert guides, providing excellent prospects to see and photograph a diversity of spectacular orchids *in situ*. This is an orchid event not to be missed.

**VII Scientific Conference on Andean Orchids Organizing Committee**

INKATERRA, Inkaterra Association, National University of Saint Anthony the Abad, Cusco, Peruvian Orchid Society, American Orchid Society, Pontificia Universidad Javeriana-Cali.

More information can be found on the event website: <https://www.inkaterra.com/inkaterra-asociacion-org/conferencias/>

The webpage for the conference is still under development, so please check back often. We very much look forward to seeing you there. Don't miss it!!



**Figs. Upper left:** *Brachionidium carmeniae* Luer  
Photo: Carmen Soto;  
**Lower left:** *Stanhopea marizana* Jenny Photo: Daxs Coayla  
**Lower right:** *Masdevallia veitchiana* Photo: Daxs Coayla

**MARK YOUR CALENDAR**  
**The VII Andean Orchid Conference, Cuzco, Peru,**  
**27–29 November, 2023**

**IOCC VIII, Perth, Australia, 11–16 September,**  
**2024** Details to follow.

**TAKE NOTE**

**The VI Colombian Orchid Symposium will be held during the XII Colombian Botanical Congress, 2024, Popayan, Southern Colombia.** We hope to see the broad range of orchid research in Colombia continue to develop, and we extend a warm welcome to all those interested in neotropical and Andean orchids. See you there! Details to follow.

## Food for Thought

Bennett, A.E. and A.T. Classen (2020). Climate change influences mycorrhizal fungal–plant interactions, but conclusions are limited by geographical study bias. *Ecology* 101: 1–11, e02978  
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Esposito-Alonzo, M. (2023). Understanding local plant extinctions before it is too late: bridging evolutionary genomics with global ecology. *New Phytologist*. doi: 10.1111/nph.18718

Gegenbauer, C. *et al.* (2023). Exo- and endophytic fungi enable rapid transfer of nutrients from ant waste to orchid tissue. *New Phytologist* doi:10.1111/nph.18761

Kolanowska, M., Michalska, and Konowalik, K. (2021). The impact of global warming on the niches and pollinator availability of sexually deceptive orchid with a single pollen vector. *Science of the Total Environment* 795 148850  
<https://doi.org/10.1016/j.scitoenv.2021.148850>

Li, T., Wu, S., Yang, W., Selosse, M.-A., and Gao, J. (2021). How mycorrhizal associations influence orchid distribution and population dynamics. *Frontiers in Plant Science* 12: 647114. doi: 10.3389/fpls.2021.647114

Ospina-Calderón, N.H., Tremblay, R.L., Torres, A.M., and Flanagan, N.S. (2023). The effect of habitat transformation on a twig epiphytic orchid: Evidence from population dynamics. *Frontiers in Ecology and Evolution*. 11:1135316. doi: 10.3389/fevo.2023.1135316

Steidinger, B.S. *et al.* (2019). Ectomycorrhizal fungal diversity predicted to substantially decline due to climate changes in North American Pinaceae forests. *Journal of Biogeography* 47: 772–782. doi: 10.1111/jbi.13802

Usman, M. *et al.* (2021). Mycorrhizal symbiosis for better adaptation of trees to abiotic stress caused by climate change in temperate and boreal forests. *Frontiers in Forests and Global Change* 4: Article 742392  
doi: 10.3389/ffgc.2021.742392

## Changes to contact information?

To maintain effective communication, we need to know of any changes in contact information.

Please inform the OSG Co-Chairs, Mike Fay and Amy Hinsley ([M.Fay@kew.org](mailto:M.Fay@kew.org) and [aehinsley@gmail.com](mailto:aehinsley@gmail.com))

## Call for conservation news

Members are invited to provide news of their recent conservation activities for publication in the OSG Conservation News.

Please submit material in Microsoft Word, and illustrations, if any, as separate jpeg files. If applicable, please include suggested captions and photographic credits. Send news to Marilyn Light, Editor, ([milight@distributed.net](mailto:milight@distributed.net))