

Fundación Ambiental Dapaviva
Kilómetro 10 Vía Dapa
Corregimiento Dapa Municipio Yumbo
Valle del Cauca
Colombia
N.I.T. 900244029-5



June 1, 2012

To: Ron Kaufmann
Conservation Committee

San Diego County Orchid Society
4155 Cole Way
San Diego, California, 92117 USA

Dear Ron Kaufmann and the esteemed Members of the San Diego County Orchid Society,

We proudly present to you the final report of the **“Community Building for the Conservation of Wild Orchids and Annotated List of Species Orchidaceae in the Tropical Cloud Forest of Dapa, Colombia”** project. It has taken some time as the investigators have been processing materials and we have been waiting on additional confirmation on some of the species found during the project. However, as you are aware this confirmation takes some time, so without further adieu, we present to you our report. As news comes available we will inform you of any updates. As you will observe in the final report, our investigation has uncovered 10 new species of orchids and three unrecorded orchid species for Colombain flora here in the Dapa cloud forest. Being involved in this discovery has proven to be an event beyond description. Imagine, in this day and age discovering not one, but ten new species and to have them right here in our cloud forest!!! I can only imagine what José Celestino Mutis must have felt on his royal botanical expedition through the forests of Colombia, being involved in this project and these discoveries have given us a hint of what that might have been like. We now enter our forest with very different eyes.

Our investigators have been exceptional with their professionalism and it has paid off. Oscar Alejandro Pérez is now working on his doctorate in Germany, after having been awarded a scholarship to study there. We miss him. Edicson Parra Sánchez is working towards his Masters degree in Biological Science, with a concentration in Biodiversity and Conservation in Bogota and will someday hopefully shape future environmental conservation laws in Colombia. We are very proud of them both.

Oscar, Edicson and I have also just recently received a letter from Dr. Alec Pridgeon at the Royal Botanic Gardens, Kew, informing us that our proposal to present our findings of this project together with Padre Pedro Ortiz Valdivieso, at the 4th scientific Conference on Andean Orchids, has been accepted and so we will be in Guayaquil presenting at this conference from October 31 to November 4th, 2012. Here, we will credit the San Diego County Orchid Society for your funding and support in helping to realize this project.

While the investigators are still studying the field samples, there are many, you will see that they have already shared some of their important findings with the scientific community as illustrated in *Campylocentrum palominoi* M.Kolanowska, O.Pérez & E.Parra. (see *Lankesteriana* XII (1) 2012, *Lepanthes ortiziana* O.Pérez, E.Parra & M.Kolanwska. (*Orquideología* XXVII (2) 2010), *Lepanthes dapaënsis* P.Ortiz, O.Pérez & E.Parra. (*Orquideología* XXVIII (1) 2011) and the first report of *Telipogon lankesteri* Ames-. (*Orquideología* XXVIII (1) 2011). The *Lepanthes ortiziana* and the *Lepanthesis dapaënsis*, were discovered in the field work performed for the Dapaviva Environmental Foundation prior to the actual project, however we include the articles so that you will have that information. Also, *Campylocnetrum palominoi* was discovered during a field trip of one of

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our investigators with a Polish doctoral student, Dra. Marta Kolanowska, (they are included in the ten new species discovered.) Many other new species found during this research project are *in press* or at least in the publication process. We will gladly keep you updated about these publications.

The community support for this project has been outstanding. Our two environmental fairs were huge successes and very well attended. The orchid workshops were an exceptional success as well as were the presentations, dialogues and guided walks with the teachers at both institutions. The teachers and administrators in our schools here in Dapa are motivated, as well as their students, as evidenced during your visit. One of the teachers has won an award due to her participation in this project.

An unexpected part of this project was having the honor of having you all actually come down and see what we have accomplished here in our cloud forest and see our orchids. It was very exciting and gratifying for us to have you all here and share our forest and its orchids with you. We feel and hope you agree with us that this project has been a total success. None of this would have been possible without your generosity.

As mentioned in the final report short, medium and long term goals need to be set into place in order to continue to conserve these treasures in our cloud forest. Due to the fragile state of our cloud forest, our foundation is exploring means with which to purchase land tracts where several of the new orchids have been discovered. We are working with private individuals, as well as with the municipality in order to obtain tracts of land which are for sale here in the cloud forest. We will also explore further funding for the next phases of conservation and work we need to accomplish as outlined in the section regarding conclusions and recommendations of our final report up here in our forest. We also recently wrote and submitted a reforestation project which will include tracts of land within Los Españoles and La Sonora Reserve, as well as the National Reserve “Dapa Carisucio”.

This project is part of a reforestation effort for the Ministry of Environment of Colombia. An additional part of this project is to build a nursery for native tree species which would be available for the community. We will continue to work towards these goals in order to protect the orchids as well as the other flora and fauna of the cloud forest. We have just received news that this project has been accepted!!

As we continue to explore other options we look forward to working with you in the future. Many saludos to all of our friends at the San Diego County Orchid Society from Dapa!! Thank you again for your support and generosity.

Best wishes

Terry Lynn Gartelman-Gonzalez
Vice President of the Dapaviva Environmental Foundation

**Final Grant Report to the
San Diego County Orchid Society**

**“Community Building for the Conservation of
Wild Orchids and Annotated List of Species
Orchidaceae in the Tropical Cloud Forest of
Dapa, Colombia”**



Investigation team:

**Pedro Ortiz Valdivieso
Edicson Parra-Sánchez
Oscar Alejandro Pérez-Escobar**

Epidendrum nora-mesae Hágsater & O. Pérez

Dapaviva Environmental Foundation



Final Report of the Project “Community Building for the Conservation of Wild Orchids and Annotated List of Species Orchidaceae in the Tropical Cloud Forest of Dapa, Colombia”

**Presented by The Dapaviva Environmental Foundation and the GIRFIN Investigative Team Members:
Oscar Alejandro Pérez- Escobar I.A.
Edicson Parra-Sánchez I.A.**

**Presented to:
The San Diego County Orchid Society**

**The Dapaviva Environmental Foundation
Dapa, Colombia
The Cauca Valley
2012**

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I. SUMMARY

Below is the final report of the research project “**Community Building for the Conservation of Wild Orchids and Annotated List of Species Orchidaceae in the Tropical Cloud Forest of Dapa, Colombia**”, supported by the San Diego County Orchid Society. As a result of this research project 112 species distributed in 49 genera have been reported, twelve of which are new species, and three of which are new chorological reports for the department of el Valle del Cauca and the country of Colombia. To date several of these new taxonomic and chorological novelties have been published in “Orquideología”, and others are in the process of being published. In addition, we have included graphics and data concerning the most representative genus and habitats, photographs of some of the species recorded in the present study, as well as some illustrations of the new taxonomical and chorological novelties, as well as a “Galeria de Fotos” of the project for your enjoyment. We also include results and photos of the community and educational work conducted with the community of Dapa.

Key Words: Orchid Inventory, cloud forest, Orchidaceae.

II. INTRODUCTION

The Orchidaceae Juss. is one of the most diverse and complex families in the world, with more than 24,629 species and 950 genera (Hassler, 2001). Colombia possesses the greatest diversity of the species, with approximately 4,000 species and 232 genera. (Ortiz, personal communication, 2008). Unfortunately, phenomena including deforestation, increased land cultivation and the establishment of illicit cultivations, amongst others, have significantly contributed to the transformation of the natural habitats of Colombia, to such a point that vegetation and entire ecosystems are in danger of extinction. It is estimated that a third of the country’s land surface vegetation has been completely transformed (Rangel et al, 1997). These species and wild orchid populations are particularly threatened due to their complex ecological interactions. Since 1939, Pérez Arbelaez has advised that many orchids are endangered due to the destruction of forests, and formerly Fernandez Pérez and investigators began to systematically study the possible risk of extinction the species was exposed to (Calderon, 2007). Colombian orchids have been the subject of numerous floristic and taxonomic studies, among them those of Schlechter (1920 and 1024), Schweinfurt and Fernandez Pérez (1963, 1969), Fernandez and Sarmiento (1971), Fernandez Pérez and Schweinfurt (1985, 1995), Escobar (1990-1998) and Ortiz (1995, 2000a, 2000c); amongst regional studies, the only studies encountered are those by De Wilde (1995), Misas (2005) , and Pérez, Parra & Ortiz (Pérez et al, 2009) Unfortunately, in actuality not much is known about this biological resource in Colombia due to a lack of investigative projects that include field study, which includes the actual study of the flora. Consequently, it is very important to develop short term, midterm and long term conservation strategies. That way, this valuable resource will be conserved. It is very important to understand this resource and implement the necessary tools to understand the current state of the orchids. Taxonomic inventories constitute an important tool towards understanding this diversity, and thus an initial step towards conservation.

The Department of the Cauca Valley constitutes one of the most geographically biodiverse areas in the country due to the variety of ecosystems which are sheltered in the differing degrees of altitude, presenting the majority of vegetable formations as defined by Cuatrecasas (1958). The department also possesses a high diversity with many endemic specimens of Orchidaceae, as well as ecosystems in danger of extinction, as found in other regions of the country, due to interventions reflected in the fragmentation and disappearance of tropical forests. The municipality of Yumbo contains an important cloud forest in the high altitudes, where new chorological registers have been found, (*Ancianthera adeodata* P. Ortiz, O. Pérez & E. Parra) (Ortiz, et al, 2010) *Telipogon lankesteri* Ames (Pérez et al., 2010), and new taxonomic novelties (*Epidendrum nora-mesae* Hágsater & O. Pérez (Hágsater et al. 2010), *Lepanthes ortiziana* (O. Pérez, E. Parra & M. Kolanowska (Pérez *et al.*, 2011) and (*Lepanthes dapaënsis* P. Ortiz, O. Pérez & E. Parra *sp. nov.*) among others yet to be published, positioning the municipality as an important area of study of orchid flora within the department.

Here, we present the most outstanding results obtained during this investigation. In this report, we present a general overview of the specific diversity registered during field study with a compiled list of scientific names and geneses of species registered. Additionally, there are observations concerning the estimated abundance of the most representative species in the area studied, photographs and illustrations of the most important species reported during the study.

III. METHOD- INVESTIGATIVE PHASE

The team conducted field studies in the areas known as “La Champiñonera”, “El Condado Beverly” and “Los Españoles”. Field trips were made in areas where extensive search was conducted for the collection and photographic documentation of the plant material of each species found (**Figure 1**). One or two individual specimens per specie, depending on the abundance were collected for display in herbarium collections. For infertile species, only one specimen was collected for cultivation with the goal of obtaining reproductive structures for identification.

The plant material collected was processed and is being included in the herbarium collections of Jose Cuatrecasas Arumi (VALLE), and Luis Sigifredo Tascon Espinal (CUVC) (**Figure 2**). These collections were also revised during determination of material collected, in order to include the greatest amount of possible registers of species collected in the inventoried areas. Specialized literature and dichotomous keys were consulted for these specimens. These species were determined under the supervision of national, as well as international authorities well known in Orchidaceae taxonomy including Dr. Eric Hágsater, Elizabeth Ayala, Luis Sanchez Saldana, Rolando Jimenez Machorro (AMO Herbarium) and Pedro Ortiz Valdivieso S.J. (Pontificia Universidad Javeriana).

Spelling and authorship of all the scientific names of the reported species was consulted using the TROPICOS database of the Missouri Botanical Gardens (US).

New taxonomic novelties found during this study have been described according to the standards established by specialized scientific journals where they will soon be published.



Figure 1. Plant material collected during field study. *Maxillaria brunnea*. Lindl. & Rchb.f. (right) collected during field study and inventory. Photo: Pérez & Parra, 2011

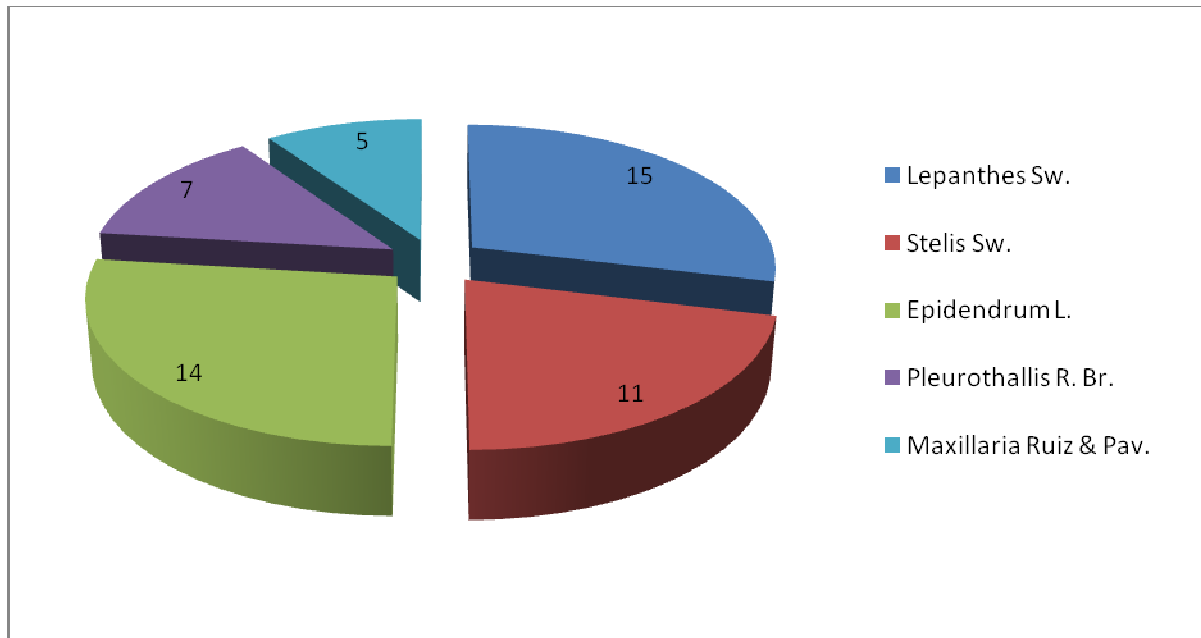


Figure 2. Plant material collected during field study and the morphometric study for determination of the species or botanical descriptions. Photo: Pérez & Parra, 2011

IV. RESULTS- INVESTIGATIVE PHASE

One hundred and twenty species represented by fifty three genera were reported (**Table 1**). The genera with the greatest number of species were the *Epidendrum* L., (15 species), *Lepanthes* Sw. (14) and *Stelis* Sw. (11) (**Graph 1**). Also, the genera with the greatest

abundance were the *Epidendrum* L, *Oncidium* Sw. and *Pleurothallis* R. Br.. Among the most abundant species (estimated abundance) found were: *Acianthera sicaria* (Lindl.) Pridgeon & M.W. Chase, *Oncidium crysomorphum* Lindl. and *Scaphosepalum odontochilum* Kraenzl.



<i>Lepanthes Sw.</i>	15
<i>Stelis Sw.</i>	11
<i>Epidendrum L.</i>	14
<i>Pleurothallis R. Br.</i>	7
<i>Maxillaria Ruiz & Pav.</i>	5

Shared Habitats	19	15.8
Borders of the forest tracts	43	35.8
Interior of the tracts	58	48.3
	120	100

Abundant		
Occasional	28	23.3
Rare	43	35.8
	49	40.8

Graph 1 Graph of genus with the greatest number of registered species in field study.

The rarest species included (estimated scarcity) were the *Dracula andreettae* Luer, *Epidendrum humeadorensense* Hágsater & Dodson, *Lepanthes dapaënsis* P.-Ortiz., O. Pérez & E. Parra, *Lepanthes elizabeth-ayalae* P. Ortiz, O. Pérez & E.-Parra *sp. nov.* and the *Lepanthes nematostele* Luer. According to field observations among the orchid species populations it was determined that 23% are abundant in the studied area, 36% are occasionally found and 40% are rare. Additionally, we found that 48% of the total reported species grow within the parcels of inventoried forest, 36% along the outer boundaries of the forest and 16% share both habitats.

On the other hand, taxonomic novelties were found, pertaining to the genera *Campylocentrum* Benth (1), *Epidendrum* L. (3), *Lepanthes* Sw (3) and *Stelis* Sw. (1). Noteworthy taxonomic discoveries are: *Campylocentrum palominoi* M. Kolanowska, O. Pérez & E. Parra (Kolanowska et al., 2012), *Epidendrum giraldo canasii* Hágsater, O. Pérez & E. Santiago *sp. nov.*, *E. yumböense* Hágsater, O. Pérez & E. Santiago *sp. nov.*, *E. weerakitium* Hágsater, O. Pérez & E. Santiago *sp. nov.* and *E. x kolanowskiae* Hágsater, O. Pérez & E. Santiago (Hágsater et al, in press), *Lepanthes dapaënsis* P. Ortiz, O. Pérez & E. Parra (Ortiz et al, 2011), *Lepanthes elizabeth-ayalae* P. Ortiz, O. Pérez & E. Parra *sp. nov.* (Ortiz et al., in press) *Lepanthes ortiziana* O. Pérez, E. Parra, & M. Kolanowska (Pérez et al., 2011) and the *Stelis adeodata* O. Pérez, E. Parra & Solano (Pérez et al., in press). Two have been published in the scientific journal “Orquideologia”, and recently a fourth one was published in the journal *Lankesreriana* (see Kolanowska et al. 2012). The remaining species are in the process of being published in specialized scientific journals. Additionally, two chorological novelties for the the Department of Valle del Cauca and the country have been found. These are the *Lepanthes nematostele* Luer (Pérez et al., in press) and the *Telipogon lankesteri* Ames (Pérez et al., 2011), only found exclusively to date in Ecuador and Costa Rica, respectively. According to the above mentioned results and in accordance with the low quantity of new registers for the locality in the last field studies, the remaining field studies were not realized as programmed in the project chronogram. The time destined for this purpose was instead invested in the actual study of the large amount of plant material collected in previous field studies.

In order to amplify the registers of species for the area of study, the Orchidaceae collections at the “Jose Cuatrecasa Arumí (VALLE) and the “Luis Sigifredo Espinal-Tascon” (CUVC) herbariums which are two of the most outstanding and most representative herbariums of the area of study, were reviewed and studied. A total of 1560 samples were studied, of which, less than 10% corresponded to the registers collected in Dapa, and others pertaining to the municipality of Yumbo (Figure 3). This reflects the lack of floristic inventories for this locality and this type of important ecosystem which is so important for Colombian biodiversity, that of the cloud forest.

Lastly, the plant material collected during field studies, is being processed, studied and included in the CUVC and VALLE herbariums. (Figure 3). To date approximately 400 herbarium specimens have been processed, which will be included in reference collections of the herbariums.



Figure 3 Examples of specimens deposited in the CUVC and VALLE Herbariums, displayed and collected during the realization of the field studies of the project: *TYPE specimen of Epidendrum x kolanowskiae* Hágsater, O.-Pérez, et E.Santiago sp.nov (Pérez 821 CUVC).

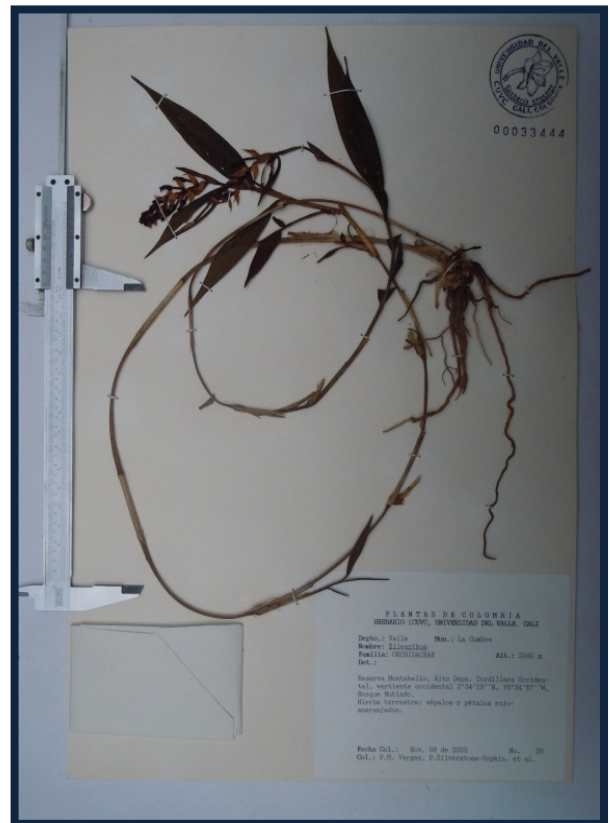


Figure 4 Study samples from the collections of the CUVC and VALLE herbarium collections: *Epidendrum nora-mesae* Hágsater & O.Pérez sp. nov. (Pérez 256 VALLE) (right); *Elleanthus* sp. (Vargas *et al.* 20 CUVC)

Género	Especie
<i>Acianthera</i> Scheidw.	<i>Acianthera adeodata</i> P. Ortiz, O. Pérez & E. Parra
	<i>Acianthera sicaria</i> (Lindl.) Pridgeon & M.W. Chase
<i>Acronia</i> C. Presl	<i>Acronia cordata</i> (Ruiz & Pav.) Luer
	<i>Acronia</i> aff. <i>scabrilinguis</i> (Lindl.) Luer
<i>Ada</i> Lindl.	<i>Ada euodes</i> (Rchb. f.) D.E. Benn. & Chirstenson
<i>Anathallis</i> Barb. Rod.	<i>Anathallis</i> cf. <i>muricaudata</i> (Luer) Pridgeon & M.W. Chase
<i>Ancipitia</i> (Luer) Luer	<i>Ancipitia crocodiliceps</i> (Rchb. f.) Luer
<i>Barbosella</i> Schltr.	<i>Barbosella prorepens</i> (Rchb. f.) Schltr.
<i>Baskervilla</i> Lindl.	<i>Baskervilla colombiana</i> Garay
<i>Bollea</i> Rchb. f.	<i>Bollea coelestis</i> Rchb. f.
<i>Campylocentrum</i> Benth	<i>Campylocentrum</i> aff. <i>micranthum</i> (Lindl.) Rolfe
	<i>Campylocentrum palominoi</i> M. Kolanowska, O. Pérez & E. Parra sp. nov.
<i>Comparettia</i> Poepp. & Endl.	<i>Comparettia falcata</i> Poepp. & Endl.
<i>Cranichis</i> Sw.	<i>Cranichis</i> cf. <i>antioquensis</i> Schltr.
	<i>Cranichis wagneri</i> Rchb. f.
<i>Crocodelanthe</i> Rchb. f. & Warsz.	<i>Crocodelanthe galeata</i> (Lindl.) Luer
<i>Crossoglossa</i> Dresler & Dodson	<i>Crossoglossa</i> sp.
<i>Cryptocentrum</i> Benth.	<i>Cryptocentrum inaequisepalum</i> C. Schweinf.
	<i>Cryptocentrum</i> aff. <i>latifolium</i> Schltr.
	<i>Cryptocentrum</i> cf. <i>lehmannii</i> (Rchb. f.) Garay
<i>Cyrtochilum</i> Kunth	<i>Cyrtochilum williamsianum</i> (Dodson) Dalström
<i>Dichaea</i> Lindl.	<i>Dichaea</i> cf. <i>pendula</i> (Aubl.) Cogn.
	<i>Dichaea morrissii</i> Fawc. & Rendle
	<i>Dichaea richii</i> Dodson
<i>Dracula</i> Luer	<i>Dracula andreettae</i> (Luer) Luer
	<i>Dracula chimaera</i> (Rchb. f.) Luer
	<i>Dracula</i> aff. <i>wallisii</i> (Rchb. f.) Luer
<i>Elleanthus</i> C. Presl	<i>Elleanthusaurantiacus</i> (Lindl.) Rchb.f.
	<i>Elleanthus aureus</i> (Poepp. & Endl.) Rchb. f.
	<i>Elleanthus lancifolius</i> C. Presl.
	<i>Elleanthus virgatus</i> (Rchb. f.) C. Schweinf.
	<i>Elleanthus</i> sp.

<i>Epidendrum</i> L.	<i>Epidendrum escobarianum</i> Garay
	<i>Epidendrum farallonense</i> Hágsater
	<i>Epidendrum humeadorensense</i> Hágsater & Dodson
	<i>Epidendrum carchiense</i> Hágsater & Dodson
	<i>Epidendrum</i> aff. <i>jajense</i> Rchb. f.
	<i>Epidendrum giraldo-canasii</i> Hágsater, O. Pérez et E. Santiago <i>sp. nov.</i>
	<i>Epidendrum lacustre</i> Hágsater & Dodson
	<i>Epidendrum</i> aff. <i>nocturnum</i> Jacq.
	<i>Epidendrum nora-mesae</i> Hágsater & O. Pérez <i>sp. nov.</i>
	<i>Epidendrum pachyphyton</i> Garay
	<i>Epidendrum pazii</i> Hágsater
	<i>Epidendrum rostratum</i> Garay & Dunst.
	<i>Epidendrum yumböense</i> Hágsater, O. Pérez et E. Santiago <i>sp. nov.</i>
	<i>Epidendrum weerakitianum</i> Hágsater, O. Pérez et E. Santiago <i>sp. nov.</i>
	<i>Epidendrum</i> x <i>kolanowskiae</i> Hágsater & O. Pérez <i>hybr. nat. nov.</i>
	<i>Epidendrum</i> sp.
<i>Exalaria</i> Garay & G.A. Romero	<i>Exalaria parviflora</i> (C. Presl.) Garay & G.A. Romero
<i>Erythrodes</i> Blume	<i>Erythrodes</i> cf. <i>peruviana</i> (Garay) Dodson
<i>Gomphichis</i> Lindl.	<i>Gomphichis</i> sp.
<i>Habenaria</i> Willd.	<i>Habenaria repens</i> Nutt.
<i>Jacquiella</i> Schltr.	<i>Jacquiella globosa</i> (Jacq.) Schltr.
<i>Kefersteinia</i> Rchb.f.	<i>Kefersteinia</i> cf. <i>tolimensis</i> Schltr.
<i>Lepanthes</i> Sw.	<i>Lepanthes acarina</i> Luer
	<i>Lepanthes aciculifolia</i> Luer
	<i>Lepanthes calimae</i> P. Ortiz
	<i>Lepanthes</i> cf. <i>planadensis</i> Luer & R. Escobar
	<i>Lepanthes dapaënsis</i> P. Ortiz, O. Pérez & E. Parra <i>sp. nov.</i>
	<i>Lepanthes elata</i> Rchb. f.
	<i>Lepanthes elizabeth-ayalae</i> P. Ortiz, O. Pérez & E. Parra <i>sp. nov.</i>
	<i>Lepanthes manabina</i> Dodson
	<i>Lepanthes nematostele</i> Luer
	<i>Lepanthes ortiziana</i> O. Pérez, E. Parra & M. Kolanowska <i>sp. nov.</i>
	<i>Lepanthes posadae</i> Luer & R. Escobar
	<i>Lepanthes quadricornis</i> Luer & R. Escobar
	<i>Lepanthes satyrica</i> Luer & Hirtz.
	<i>Lepanthes</i> sp. 1
	<i>Lepanthes</i> sp. 2
<i>Lepanthopsis</i> (Cogn.) Ames	<i>Lepanthopsis acuminata</i> Ames
<i>Lockhartia</i> Hook.	<i>Lockhartia longifolia</i> (Lindl.) Schltr.
<i>Macroclinium</i> Barb. Rodr.	<i>Macroclinium escobarianum</i> Dodson ex Pupulin
<i>Malaxis</i> Sol. ex Sw.	<i>Malaxis</i> aff. <i>crispifolia</i> (Rchb. f.) Kuntze

	<i>Malaxis excavata</i> (Lindl.) Kuntze
<i>Masdevallia</i> Schltr.	<i>Masdevallia anachaeta</i> Rchb. f.
	<i>Masdevallia molossus</i> Rchb. f.
	<i>Masdevallia nidifica</i> Rchb. f.
	<i>Masdevallia picturata</i> Rchb.f.
<i>Maxillaria</i> Ruiz & Pav.	<i>Maxillaria acuminata</i> Lindl.
	<i>Maxillaria brunnea</i> Linden & Rchb. f.
	<i>Maxillaria</i> aff. <i>longicaulis</i> Schltr.
	<i>Maxillaria longissima</i> Lindl.
	<i>Maxillaria meridensis</i> Lindl.
	<i>Maxillaria</i> sp.
<i>Microchilus</i> (<i>Erythrodes</i>) C. Presl	<i>Microchilus</i> sp.
<i>Myoxanthus</i> Poepp. & Endl.	<i>Myoxanthus uxorius</i> (Luer) Luer
<i>Oncidium</i> Sw.	<i>Oncidium adelaidae</i> Königer
	<i>Oncidium chrysomorphum</i> Lindl.
<i>Penducella</i> Luer & Thoerle	<i>Penducella</i> sp.
<i>Platystele</i> Schltr.	<i>Platystele alucitae</i> Luer
<i>Pleurothallis</i> R. Br.	<i>Pleurothallis brachiata</i> Luer
	<i>Pleurothallis chloroleuca</i> Lindl.
	<i>Pleurothallis mancosa</i> Luer & R. Escobar
	<i>Pleurothallis</i> cf. <i>platysepala</i> Schltr.
	<i>Pleurothallis ruscifolia</i> (Jacq.) R. Br.
	<i>Pleurothallis</i> sp.
	<i>Pleurothallis</i> sp.
<i>Prescottia</i> Lindl.	<i>Prescottia stachyodes</i> (Sw.) Lindl.
<i>Ponthieva</i> R. Br.	<i>Ponthieva villosa</i> Lindl.
<i>Prosthechea</i> Knowles & Westc.	<i>Prosthechea</i> cf. <i>vespa</i> (Vell.) W.E. Higgins
<i>Restrepia</i> Kunth	<i>Restrepia</i> aff. <i>antennifera</i> Kunth
	<i>Restrepia fritillina</i> Luer & V.N.M. Rao
Restrepiopsis Luer	<i>Restrepiopsis tubulosa</i> (Lindl.) Luer
	<i>Restrepiopsis</i> sp.
<i>Scaphosepalum</i> Pfitzer	<i>Scaphosepalum odontochilum</i> Kraenzl.
<i>Scaphyglottis</i> Poepp. & Endl.	<i>Scaphyglottis punctulata</i> (Rchb. f.) C. Schweinf.
<i>Schlimmia</i> Planch. & Linden ex Lindl.	<i>Schlimmia trifida</i> Schltr.
<i>Sigmatostalix</i> Rchb. f.	<i>Sigmatostalix cuculigera</i> (Schltr.) Garay
<i>Sphyrastylis</i> Schltr.	<i>Sphyrastylis ecuadorensis</i> Garay
<i>Sobralia</i> Ruiz & Pav.	<i>Sobralia crocea</i> (Poepp. & Endl.) Rchb. f.
	<i>Sobralia virginalis</i> F. Peeters & Cogn.
<i>Stelis</i> Sw.	<i>Stelis adeodata</i> O. Pérez, E. Parra & Solano <i>sp. nov.</i>
	<i>Stelis alba</i> Kunth
	<i>Stelis argentata</i> Lindl.

	<i>Stelis flexuosa</i> Lindl.
	<i>Stelis cf. lanceolata</i> (Ruiz & Pav.) Willd.
	<i>Stelis lankesteri</i> Ames
	<i>Stelis</i> sp.
	<i>Stelis</i> sp.
	<i>Stelis</i> sp.
	<i>Stelis</i> sp.
	<i>Stelis</i> sp.
<i>Telipogon</i> Kunth	<i>Telipogon andinus</i> Dodson
	<i>Telipogon lankesteri</i> Ames
<i>Trichosalpinx</i> Luer	<i>Trichosalpinx chamaelepanthes</i> (Rchb. f.) Luer
	<i>Trichosalpinx intricata</i> (Lindl.) Luer
<i>Xylobium</i> Lindl.	<i>Xylobium leontoglossum</i> (Rchb. f.) Rolfe

Table 1 List to date of reported species collected during the field studies and revision of the collections of the CUVC and VALLE collections. (New taxonomic and chorological discoveries made during the field studies are highlighted in green.)

V. RESULTS - EDUCATIONAL PHASE

As we all know, a very important part of any conservation efforts is the involvement of the community. Without community involvement, most conservation efforts may fail. Dapaviva passionately believes that the children are the seeds of our future.

During the duration of the grant, the Dapaviva Environmental Foundation has held two Environmental Fairs for the community called “Verde es Vida” (Life is Green). Invitations were sent out. Fliers were posted all over the village and banners were strategically placed on the main road leading to Dapa. A total of 56 institutions and over twenty members of the community were invited to participate in the event.

On April 17th, 2011, Palm Sunday, and April 1st, 2012, Palm Sunday, the first and second annual the environmental Fairs “Verde es Vida” or “Life is Green” were held. Over 2000 community members attended. Local farmers and artisans attended the fairs and sold their products. There were stalls of fresh flowers, fruit and vegetable products and local restaurants catered the event. There were guided environmental walks in The Samuel Alvarez Eco-park scheduled throughout the day. There were native seed and plant trades.

Greenpeace of Colombia gave a discourse on being proactive. Other environmental workshops and discussions were held. Local musicians and a cellist from Germany gave a concert, students from the Universidad Javeriana,, who form a group called Perfusion, played instruments made out of recycled materials, played for the community emphasizing the importance of recycling and taking care of our planet. A member of Dapaviva and another prominent artist from Dapa made and dedicated a sculpture called Pachapapa, made out of collected discarded native wood from the area during the ceremony. We hope to locate this sculpture at the entry to Dapa at the Dapa Small Center with a dedication which will include a description of the cloud forest and its importance so as to educate all who come to Dapa the importance of the cloud forest.

A puppet show, with puppets and background made with recycled materials was performed by local school children. The play was entitled “How the animals saved the cloud forest” featuring “Oscarcita”, the orchid, and was presented to the children and community.

Local students modeled clothing made of recycled materials. The preschool children dressed up with sandwich boards made out of recycled materials with environmental messages to the community, and presented the song “Que canten los Niños” by Jose Luis Perales.

The children of the four satellite schools of Dapa participated in a drawing contest each year, which communicated messages concerning the environment to the community of the importance of our cloud forest. Famous local artists of Dapa and Cali were on hand to judge and award the prizes. Prizes were given by a local grocery store of \$50.00 coupons for the families of the first, second, third, and fourth prize winners. One thousand three hundred native seedlings were given out to the community members attending both Palm Sunday Masses and the local priest blessed the trees, which will be planted here in Dapa.

A highlight of the fairs were two educational workshops for the community about orchid care, conservation, adoption and reproduction, were given at both fairs, by Vicente Perdomo, member of the Asociación Vallecaucana de Orquideología, and Leticia Abdala, President of the Asociación Vallecaucana de Orquideología.

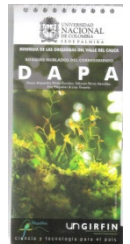
Over eighty members of the community attended the workshops. Prior to the workshops, participants were instructed to participate in an informal survey which evaluated their present knowledge of the orchid family and the cloud Forest of Dapa. Dapaviva’s President, Terry Gonzalez, began both workshops by announcing the award of the San Diego County Orchid Society grant project. A presentation of the grant and its components was made and was received by the community. Much of the workshop’s emphasis was centered on the importance of the care and conservation of orchids here in the cloud forest.

Our third annual calendar 2012 was available for sale. This calendar, which features the local flora and fauna of the region, this year also featured two pages of pictures of our wild orchids. A

new Dapaviva tee shirt has been designed in order to promote community pride and ownership towards Dapa, this was also available for purchase.



Also available for purchase was our first mini guide to the orchids of the Cloud Forest of Dapa, published in collaboration with the GIRFIN investigative group and the Universidad Nacional Palmira, prior to funding by the San Diego County Orchid Society. The guide features several orchid species found in Dapa.

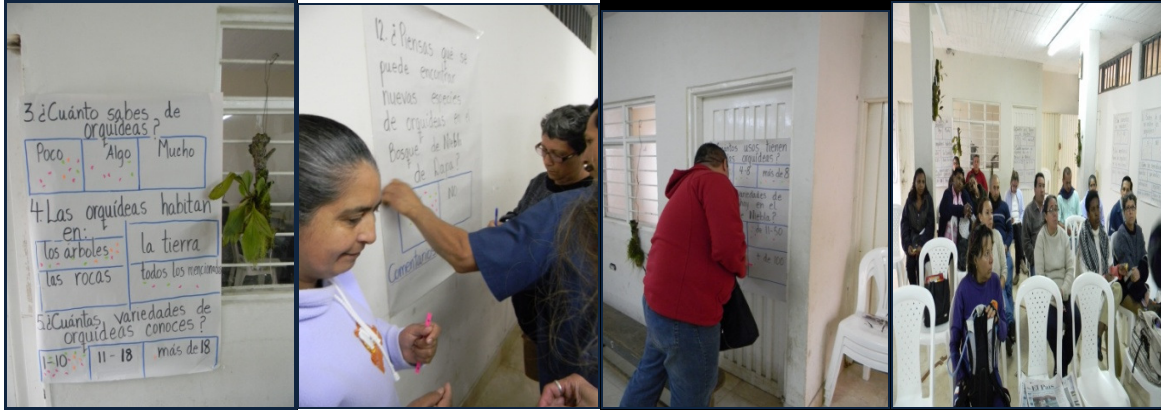


These community events with their cultural, artistic, and environmental demonstrations exhibited typical elements of the region. The flora, handicrafts using recycled and local materials, symbols, songs, music, plays, writings and other elements, captivated the community's attention and communicated to the community the importance of the cloud forests of Dapa and orchid diversity and conservation. Both environmental fairs were extremely successful. Our main goal is to create a community where cultural, scientific, educational and environmental sustainability are a way of life and a source of identity and financial resources for the community. The environmental fairs helped to accomplish this goal.

On April 26th, as an additional part of the educational phase of the grant, 25 teachers from Institución Educativa Rosa Zarate de Peña, as part of their institutional day, were given by members of the Dapaviva foundation, conservation workshops to increase education and awareness about the conservation of orchids, the cloud forest, and endemic species.

Through informal surveys, a baseline diagnosis was created about the relationship between the school community and the environment in the area, especially cloud forest zones as well as staff's knowledge concerning orchids.

A presentation was given regarding environmental awareness for the teachers. Then, a guided walk through the forest was given to the teachers in the surrounding ecosystems (selected for topography and biology) and teachers were treated to information concerning the biodiversity, botany, ethno-botany and organic materials of the forest.



The guided walk also strengthened concepts, goals concerning the integrity of the botany of orchids, forest conservation, while emphasizing the importance of tropical cloud forests. Through use of dialogue we were able to establish background knowledge for the teachers and discuss ideas for the teachers to use with their students.



Throughout the walk conversations were held with the teachers in order to establish a baseline and identify social perceptions of the tropical cloud forest, botanical knowledge about orchids and local environmental problems in the region.

One of the team investigators led the group on the field trip and helped to identify wild orchids in the area. The teachers were amazed at the findings in the forest. Researcher Oscar Pérez identified many wild orchid species such as the *Sobralia*, *Anguloa*, *Maxillaria*, *Epidendrum*, *Stelis*, and *Pleurothallis*.

On the following Thursday, the same presentation was given to the teachers of the Instituto Técnico Agropecuario Policarpa Salavarrieta and twenty teachers attended. A representation of specimens of some of the wild orchids with blooms was presented in the forest and was shared with the teachers. Another survey was completed by all.

Discussions were held and the national elementary environmental program (PRAES) which was a part of the agenda, thoughts were given by the teachers as to how we could strengthen their program. The teachers were all very appreciative of the workshop.

Recently the Director of the Instituto Técnico Agropecuario Policarpa, Johanna Peña, received the “Director of the Year Award” from the mayor of the city of Yumbo, and the Alto Dapa satellite school, with whom Dapaviva has worked hand in hand with the “Annotated List of Species Orchidaceae in the Raincloud Forest of Dapa in the Department of the Cauca Valley, Colombia” project, received awards for their PRAES project. Administrators thanked the Environmental Foundation Dapaviva for all of the hard work we have done with both schools to make this possible.

In lieu of the fact that our schools here in Dapa are changing their annual school calendar, and the schools are currently under scrutiny concerning their academic national testing scores, as well as other logistics, it has not been possible for the team to actually take the students into the forest. So, members of the Dapaviva Environmental Foundation planned other activities and thus we involved the students in our environmental fairs. As explained, students participated in activities creating paintings, drawings, diagrams, literary writings as well as songs, riddles and plays based on observations and sensitivity towards the territory that represents biological diversity in the tropical cloud forest. Students from the various schools also participated in the production of the puppet show entitled “La carrera contra el reloj para salvar a una orquídea”, (“The race against time to save an orchid.”) which was presented at our schools, as well as for the San Diego County Orchid Society members during their trip to Dapa.

VI. CONCLUSIONS AND RECOMMENDATIONS

In comparison to the abundance of other similar previously studied ecosystems in other localities, where the number of species registered is similar or in some cases even inferior, the wealth of the encountered species and their estimated abundance, the cloud forest which we studied is an ecosystem of abundant and high diversity and hosts an important number of endemic Orchidaceae for our country. (See Pérez et al., 2009.)

Unfortunately, this ecosystem is extremely fragile and is constantly endangered due to the pressure of the surrounding community which controls it. During the inventory, we observed many kinds of common disturbances such as indiscriminant logging of shrubs and trees which inhabit the borders of the forest and the forest itself, as well as the illegal extraction of plant material and top soil, for their economic and ornamental value or to be used in handicrafts by the residents of the community. This phenomenon has a very large negative direct impact on the Orchidaceae species, since these activities totally modify or destroy their habitat while at the same time affect other components of the ecosystems in which they interact.

For these reasons, it is necessary to begin to formulate short term, midterm and long term conservation strategies immediately, in order to assure the continuity of the Orchidaceae species and other taxonomies which live there. Such measures should include environmental awareness days for the community associated with the threatened environment, reforestation of the affected areas of the forest and protection of said forest by the neighboring community. It is important to dedicate special attention to those species of orchids which due to size and colors of their flowers are very appealing to those who illegally extract them, as well as those that grow in the limits of the forest, especially to those that resulted in new taxonomic or chorological species or which have a level of very reduced abundance, since they are exposed to practices that will eventually lead to extinction.

Finally, it is important to begin studies which will evaluate the diversity and abundance of species of Orchidaceae which are found in these tracts of forest, since this will complement even more the present list of actual species which have been found thus far, while additionally giving us a closer approximation of the state and vertical distribution of the population of species which live in these tracts of forest. This will contribute to the determination of the categories of plant's vulnerability within the ecosystem, giving priority to these which are distributed in the primary vertical stratus of the plant community, since they are most exposed to extinction due to illegal extraction.

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