

Orchid Survey of Ilha Grande, Angra dos Reis, RJ, Brazil.
- Final Report /July 2011 -

Introduction:

One of the objectives of “OrquidaRio Orquidófilos Associados” (the orchid society of Rio de Janeiro) is to work for the conservation and preservation of orchids in their environmental. With this in mind it was proposed to the members that we should take on a conservation project. This present project was submitted to the Conservation Committee of the San Diego County Orchid Society and approved in November 2008.

Our objectives, besides surveying and mapping the orchids that grow in the reserve, was to provide information so that the orchids can be used as additional material for the local environmental educational program, to make the orchids known in order for them to be included among the ecotouristic attractions of Ilha Grande State Park and to awaken the interest for conservation among the members of our society.

Area of Study:

Ilha Grande is located at 23°08’S and 044° 10’W, 150 km (93 mi) South from the city of Rio de Janeiro, being part of Angra dos Reis municipality, in the state of Rio de Janeiro. The island is 4.3 mi distant from the city of Angra dos Reis and at the entrance of Ilha Grande Bay. The geological formation is mainly Pre-Cambrian granite and the topography very mountainous, with altitudes above 900 m (= 2,950 ft): “Pedra d’Água” Peak (1011 m = 3,317ft) and “Papagaio” Peak (989 m = 3,245 ft) (Gomes da Gama *et al.*, 2009) The total area of the island is 193 km², covered by sub-ecosystems of the Atlantic Rainforest: sand dune vegetation (“restinga”), mangroves, low and intermediary and high altitude forests. These areas are in different stages of conservation, as they have been under distinct human pressure. Some parts of the island have been occupied for more the four centuries at the same time as some points of difficult access, at the central part, are still pristine. Our expeditions covered many trails and some river margins, mostly in the State Park of Ilha Grande (PEIG) and at the Biological Reserve of Praia do Sul (RBPS) (Fig. 1)

The average annual precipitation is of 2000 mm (= 79 in) and it increases with the altitude. The dryer period is from May to October and the monthly precipitation varies from 250 mm (= 10 in) in December and January to less than 100 mm (= 4in) in July and August. At sea level the average diurnal temperature is 27°C (= 81°F) during Summer and 20°C (= 68°F) during Winter. The month with higher average temperature is March: 30°C (= 86°F) and the lower average temperature is in July: 19°C (= 66°F), at sea level, decreasing with altitude (Salgado & Vásquez, 2009).

Methodology:

From January 2009 to February 2011 OrquidaRio members performed eleven expeditions to Ilha Grande, most of them with two days duration and one (July 2009)

that lasted three days. The size of our group varied from two (November 2010) to seven OrquidaRio's members (March and July 2009 and February 2011) and these groups engaged twenty two of our members, besides other people, including staff from the Ilha Grande State Park and researchers (Marta Moraes, responsible for the Orchid house at the Rio de Janeiro Botanical Gardens).

The expeditions planned to the second semester of 2009 were postponed by decision of the park administration. The work restarted after the project has received authorization from the State Environmental Institute (INEA), at the beginning of 2010.

The dates, number of participants and itineraries of the eleven expeditions were:

January 31st to February 1st, 2009 – six OrquidaRio members and the Park director - area around (no trail) “Bicão” stream and along the “Abraão” river;

March 14th – 15th, 2009 – seven OrquidaRio members and the Park director – trail from Abraão village to “Lopes Mendes” beach and trail to “Feiticeira” waterfall.

May 16th – 17th, 2009- Papagaio Peak trail – three OrquidaRio members – trail to “Papagaio” Peak (995 m altitude)

June 3rd - 5th, 2009 – six OrquidaRio members and the Park director – trail to Urubu Peak (174 m of altitude); trail crossing the island from “Longa” Beach to the Biological Reserve of “Praia do Sul” and “restinga” (sand dune vegetation) of “Praia do Sul”

January 23rd - 24th, 2010 – five OrquidaRio members and a park ranger – along “Perequê” River and trail from Abraão village to “Comprida” Beach.

March 27th – 28th, 2010 - five OrquidaRio members, the curator of the Rio de Janeiro Botanical Gardens orchid collection and a park ranger – trail parallel to “Perequê” river up to the top of the waterfall and Papagaio Peak trail up to altitude 850 m.

June 26th - 27th, 2010 – four OrquidaRio members and the Biologist of the park - trail to “Papagaio” Peak (995 m altitude) and area (no trail) around “Bicão” stream.

July 24th – 25th, 2010 - six OrquidaRio members and a park ranger – along upper “Perequê” River and along the “Abraão” river.

September 11th - 12th, 2010 – six OrquidaRio members – “Dois Rios” village and “Andorinha” river and “Papagaio Peak” trail up to altitude 850 m.

November 4th, 2010 – two OrquidaRio members and Peter Tobias (OCA/SDCOS) – “Andorinha” river and “Jararaca” forest.

February 5th - 6th, 2011 – seven OrquidaRio members and the curator of the Rio de Janeiro Botanical Gardens orchid collection – Biological Reserve of “Praia do Sul”.

The different itineraries were chosen according to the necessity of surveying a large part of the island, the possibility of finding orchids in bloom, the transport available to reach

the beginning of the trails (boat in June, 2009 and January, March and July 2010) and the time available.

We have mapped, with a GPS Gamin™ 60C, all trails that we walked along, registering the orchids found. From January 2009 to January 2010, plants were only collected by the PEIG's staff members. Starting on March 2010, OrquidaRio received the authorization from INEA to collect two samples of each species found. Plants in flower have been pressed and deposited at the Herbarium Bradeanum (HB) of the State University of Rio de Janeiro. Some of the plants were identified by sight, without being collected. Some plants that were not in flower when first spotted are taken to the Orchid nursery at the "Instituto de Pesquisas Jardim Botânico do Rio de Janeiro" and are part of the live collection of orchids from Ilha Grande and will be identified when in bloom. The Live collection of Orchids from Ilha Grande is open for public visitation at the Orchid nursery, in the Rio de Janeiro Botanic Gardens and include around eighty plants, some donated by Renato Marques, OrquidaRio's member who lives at Ilha Grande.

The nomenclature we used followed basically Pabst & Dungs (1975-77), with a few exceptions. We opted by continuing to use the names of the "traditional" genera, as *Maxillaria*, *Oncidium* and *Pleurothallis*, in their "*sensu lato*". To avoid doubts about the taxa we are referring to, the names of the species listed are followed by their authors. The names of all species were confirmed at the site "Tropicos" (Missouri Botanical Garden) "Tropicos" (Missouri Botanical Garden) and, when another name is the presently accepted, it was included in the table of species found, as "observation". Some of the species found are still to be identified and are listed as *sp* or *spp*.

All orchid species previously collected at Ilha Grande by other researchers and deposited at Bradeanum Herbarium (HB) and at the Rio de Janeiro Botanical Gardens Herbarium (RB) are included in the present list.

Results and Discussion:

1) Species found and their distribution:

A Microsoft Excel™ table under the name of "Table of Species Found" presents the list of species found and their authors, sites where they were found, altitude range of occurrence, flowering month, life form, height on the trees, type of vegetation formation where they grow, various collecting registers and additional information about the species nomenclature.

The number of orchid species identified to Ilha Grande reached 155. Another nine species are still to be confirmed (cf.) and more than thirty are still to be identified. From this total, sixteen of them were collected in previous surveys or listed somewhere else and were not found during OrquidaRio survey. From those sixteen species, we did not find reference of material in herbarium for nine of them (Callado *et al.* 2009). And from these, *Liparis elata* Lindl. and *Maxillaria discolor* (G. Lodd. ex Lindl.) Rchb.f. were never recorded for Rio de Janeiro State. It is possible that, as plants from the Live

Collection bloom and are identified, we will find out that we have collected most of the orchids previously listed.

Considering the above numbers, the Orchidaceae family is represented at Ilha Grande by around two hundred species. We must remember that our group mostly surveyed along some trails, rivers and streams that were of easy access and there is a big area in the center of the island still to be visited. With the present results, Orchidaceae is the largest family in the local flora.

Callado *et al.* (2009) published a list with twenty one orchid species for Ilha Grande and ranked the family Orchidaceae as the eighth in number of species found on the island. According to the same authors, Bromeliaceae was the family better represented at Ilha Grande, with fifty six species found. Our results show a different situation.

In a previous project, “Vila Dois Rios Flora”, developed by Botanists of the State University of Rio de Janeiro, Araujo (2003) published a list with fifty nine orchid species, collected only around the Dois Rios Village, at the ocean side of Ilha Grande.

During the present survey two habitats stood out for the high number of orchid species found: one area of open high mountain forest, at 2,790 ft of altitude, along the trail to “Papagaio” Peak and the sand dune vegetation, in the Biological Reserve of “Praia do Sul”. In the Atlantic Rainforest of Southeast Brazil, it is known that altitudes between 2,650 and 3,950 ft are the richest in orchids (Miller *et al.*, 2006) and, there for, it was not a surprise to find a many species at 2,790 ft, in an area of open forest. On the other hand, the high number of species found at the sand dune vegetation, almost at sea level, shows the importance of preserving that rich environment, so much destroyed almost everywhere else along the Brazilian coast.

Our results showed that many species occur between sea level and 655 ft of altitude. This fact is probably related to the good conservation condition of most of Ilha Grande. Nevertheless, one must consider that only on very few trails our group reached altitudes higher than 655 ft.

From the orchids we found, only *Miltonia moreliana* A. Rich, *Miltonia regnellii* Rchb. f. and *Pleurothallis paranapiacabensis* Hoehne are recorded for the first time to Rio de Janeiro State. None of the species found during this survey are considered threatened by IUCN, although some of them, as *Rauhiella silvana* Toscano and *Promenaea ovatiloba* (Klinge) Cogn. are very rarely seen in nature.

2) Mapping:

The maps of the trails we walked along and the distribution of orchid species found are available for PEIG and INEA to use. OrquidaRio will not process the data into a geographic information system. Together with this report we present a simple GPS map of Ilha Grande, showing the sites we have visited (Fig.1).

3) Photographic material:

Photos of one hundred of the orchids found are organized into the pdf document: "Orchids of Ilha Grande_SDCOS".

4) Environmental Education and Ecotourism:

In May 2008 M. do Rosário de Almeida Braga gave a presentation about "Orchids" at the PEIG Visitors Center and residents of Abraão village were invited to attend. The talk was later publicized on the local newspaper.

The subject "Orchids of Ilha Grande" was chosen as the theme for the 2010 Autumn Orchid Show, at the Rio de Janeiro Botanical Gardens and our project was publicized in different ways. A Microsoft Power Point™ presentation was showing on a screen during the whole show. A poster about the project was created and shown at the main glass house, among the orchids on display. As part of our show program, Renato Motta presented a talk about the results we found so far during our survey, on Saturday, May 1st. A public of 10,000 visitors went to our show.

At May, 30th, 2011, as part of the celebrations of the "Environment Week", M. do Rosário de Almeida Braga and Renato Marques presented the results of this project in two talks, at the PEIG Visitors Center, at Abraão Village, Ilha Grande. The talks were attended by students of the local primary school (ages 10-13) and the park staff. Later the same day the talk was given at a community center of the village.

A new presentation is planned to happen next October, now to younger kids from the local school.

There will be a permanent display with the results of this project at the PEIG Visitors Center and we are waiting for the contact from the new administration of the park. A visual presentation of the results are being created and will be available to visitors.

BALANCE SHEET OF THE ACCOUNTS

In November 2008 OrquidaRio received from the San Diego County Orchid Society:

US\$2,860.00 (at the time it was changed for **R\$ 6.372,80** as in Nov. 2008 the exchange rate was down to: US\$1.00 = R\$2,23).

This is the budget that we presented at the time of our request:

ITEN	QUANTITY	TOTAL (US\$ and R\$)	
Excursions (car and boat)	-	US\$	R\$ (Ago/08)
Rio de Janeiro - Ilha Grande – Rio de Janeiro	06	920.00	1.316,00
Accommodation and meals	4 people, 24 days	1390.00	1.988,00
Equipments			
Camera FujiFilm FinePix S9600 9.0 Megapixels	01	740.00	1.058,00

Bouldrier "Big Wall, Juma (for climbing)	01	180,00	257,00
Static rope 11 mm (for climbing)	60 m	155,00	222,00
TOTAL	-	3,500.00	5.149,00

However, all equipment originally requested was acquired by the Ilha Grande State Park through another donation. Therefore all the money that we received is being spent on the expeditions. The PEIG has supported our Project with accommodation for the group on three expeditions and boat transport in the second and third trips.

We present below the actual balance sheet of the accounts for the project:

Expeditions: transport, accommodation and meals	Number of Participants	TOTAL	
		R\$	US\$ *
January 2009 (accommodation: PEIG)	05	600,00	333.00
March 2009 (accommodation and boat: PEIG)	06	632,00	351.00
May 2009 (accommodation and meals in the house of R. Motta)	03	145,60	81.00
July 2009 (accommodation and boat: PEIG)	07	616,00	242.00
January 2010 (part of accommodation: R.Motta)	05	600,00	333.00
March 2010 (accommodation and boat: Project)	05	759,75	422.00
June 2010 (accommodation: PEIG)	04	337,70	188.00
July 2010 (accommodation: members; boat: Project)	06	400,00	220.00
September 2010 (accommodation: members; car: PEIG)	06	350,00	194.00
February 2011 (accommodation and boat: members)	08	450,00	250.00
Total Costs in Expeditions		4.891,00	2,614.00
Amount Available for printing		1.481,80	925.00**

(*) US\$1 = R\$1,80. The exchange rate for the US\$ has varied from UU\$1 = R\$1,70 to R\$2,25 between Jan 2009 and February 2011) All meals and transport expenses from and to the continent were paid by the project and have not been specified.

(**) in July 2011 US\$1=R\$1,60.

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Rio de Janeiro, August 22nd, 2011.

Maria do Rosário de Almeida Braga.
OrquidaRio Orquidófilos Associados
Conservation Committee.
orquidario@orquidario.org



Fig. 1 – GPS map of Ilha Grande with trails and sites visited by OrquidaRio.

Orchids of Ilha Grande

Angra dos Reis, RJ



Final Report of the Project “Survey and Distribution of the Orchids of Ilha Grande, Angra dos Reis, RJ”, undertaken by OrquidaRio, in partnership with the “Parque Estadual da Ilha Grande” and sponsored by San Diego County Orchid Society.

Starting the “work”

Abraão Village, Renato Marques' house, May 2008



Alexandre Mesquita and Renato Marques,
Members of OrquidaRio.





Pressing the collected plants, February 2011.

Showing microrchids to students of local school, May 2011.





Cattleya forbesii



Cattleya guttata



Encyclia osmantha

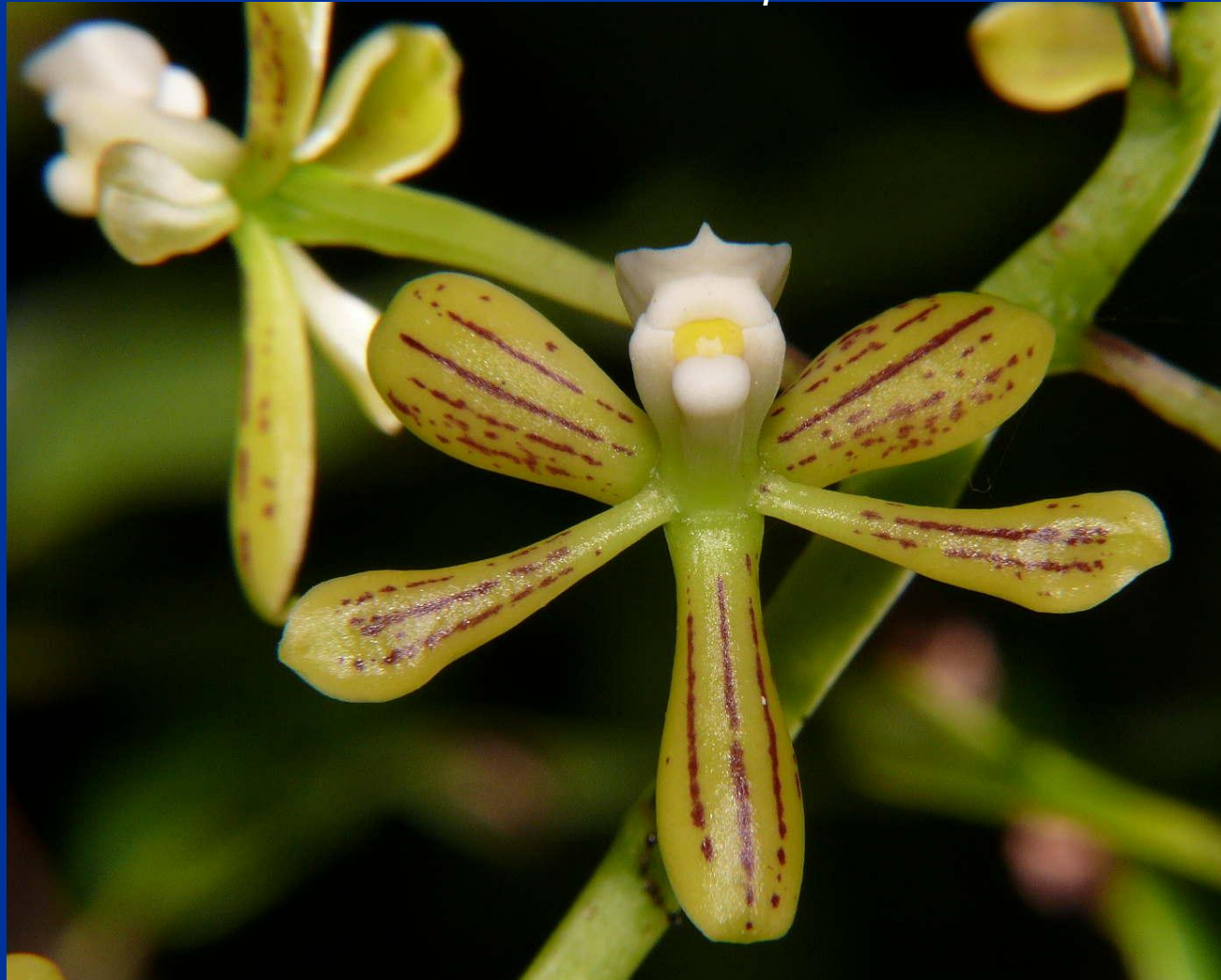


Prosthechea pachysepala



Encyclia sp

Prosthechea vespa





Prosthechea fragrans

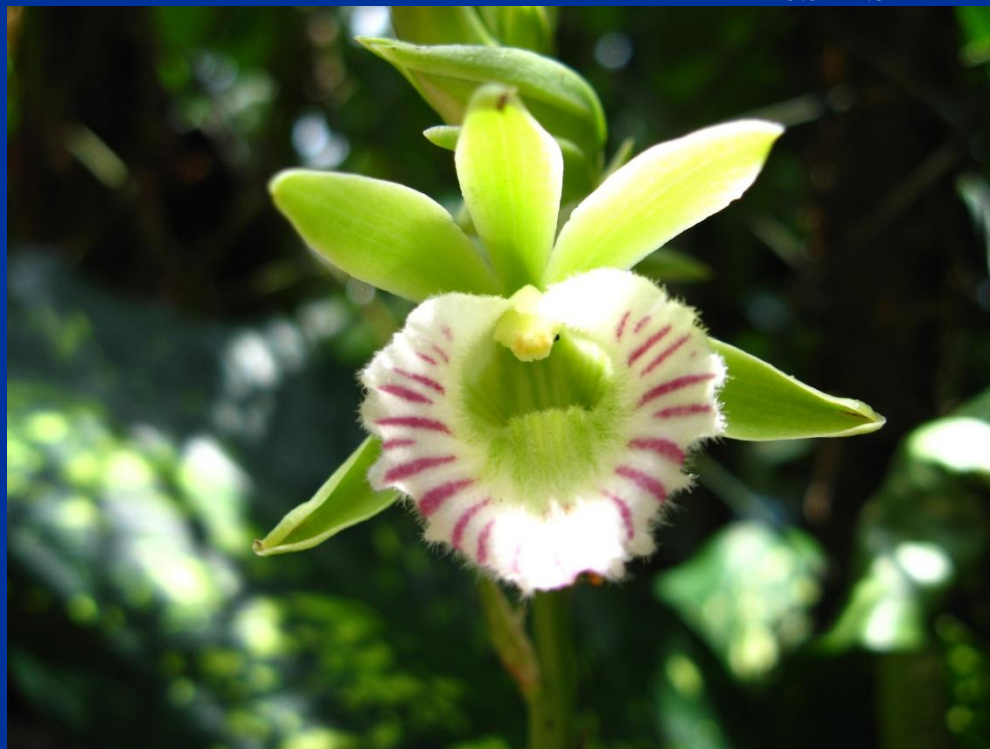


Prosthechea bulbosa



Galeandra beyrichii

Photo: Tito





Huntleya meleagris



Bifrenaria tetragona



Bifrenaria racemosa



Cochleanthes wailesiana



Maxillaria picta



Maxillaria consanguinea



Maxillaria rufescens

Maxillaria marginata





Maxillaria valenzuelana



Maxillaria bradei



Maxillaria rigida





Maxillaria robusta



Maxillaria parviflora

Promenaea ovatiloba



Lockhartia lunifera



*Masdevallia
infracta*



Dryadella cf. edwallii

Dryadella cf. edwallii





Dichaea pendula



Dichaea cogniauxiana

Octomeria grandiflora

Octomeria spp

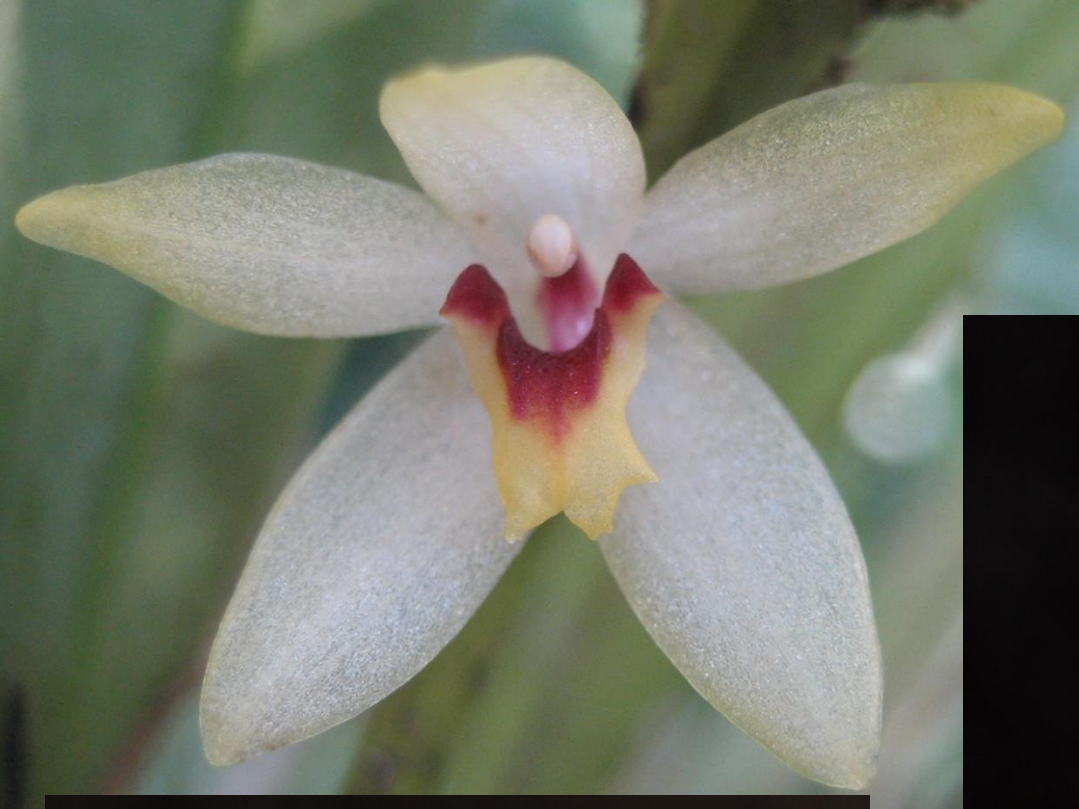




Photo: Beto Campos

Pleurothallis colorata

Pleurothallis saundersiana

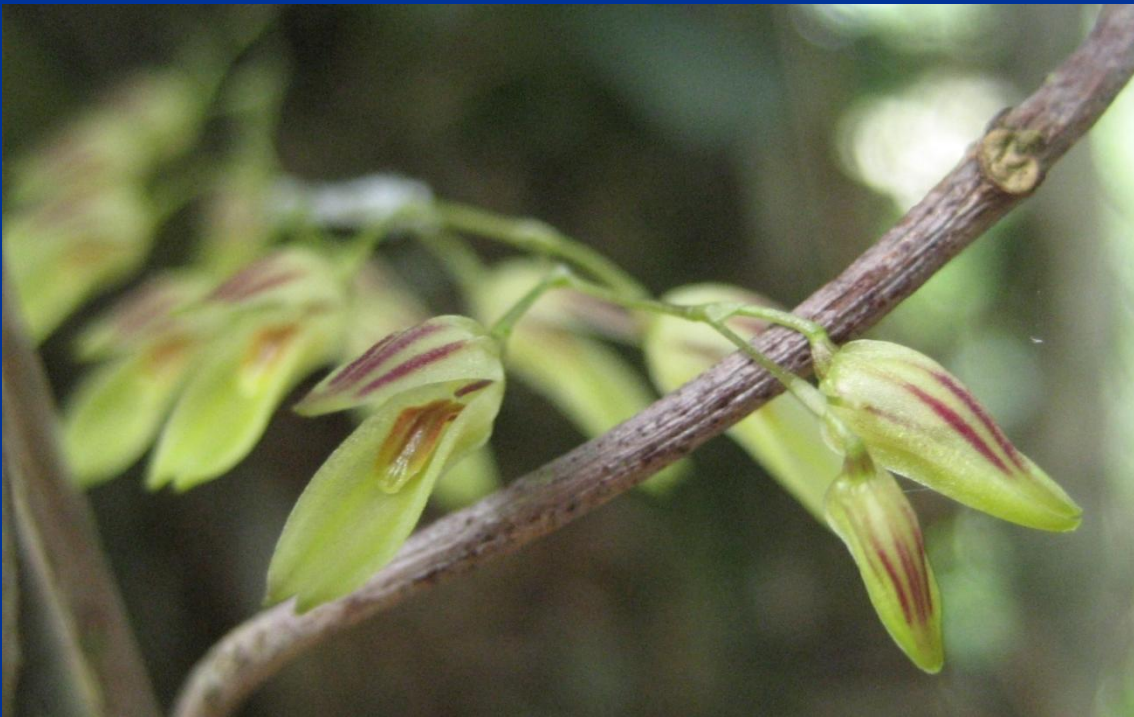


Pleurothallis af.saundersiana



Pleurothallis hypnicola

Pleurothallis grobyi



Pleurothallis aphthosa



Myoxanthus punctatus



Pleurothallis sp

Pleurothallis ephemera





Zootrophium schenckii



Pleurothallis saundersiana





Stelis sp



(first occurrence to RJ State)

Pleurothallis paranapiacabensis



Pleurothallis strupifolia

Lankesterella ceracifolia





Campylocentrum cf. robustum

Eurystyles actinosophila





Aspidogyne kuczynskii

Terrestrial orchids

Cyclopogon aff. *elegans*





Precottia sp

Terrestrial orchids



Cyclopogon variegatus

Terrestrial orchid



Pelexia aff. *maculata*

Terrestrial orchid



Aspidogyne argentea

Terrestrial orchids

Prescottia cf. stachyodes



Psilochilus modestus



Malaxis parthonii



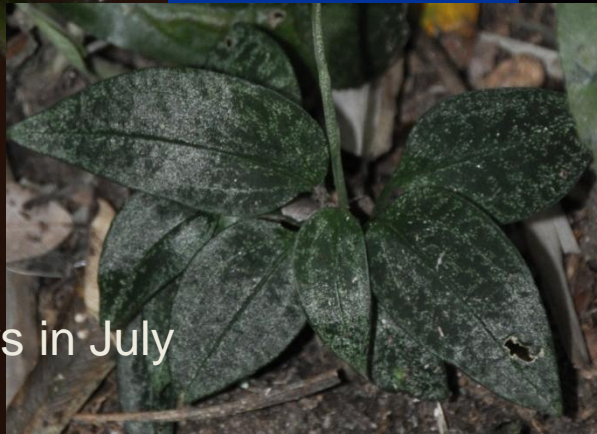


Eltropectris janeirensis



Eltropectris calcarata

Cyclopogon sp – flowers in May/
June



Cyclopogon sp - flowers in July



Pelexia sp





Liparis nervosa



Prescotia oligantha



Photo: Beto Campos

Terrestrial orchids

Erythrodes arentina



Cyclopogon warmingii

Orquídeas
terrestres



Habenaria leptocera



Cleistes calantha





Epidendrum spp

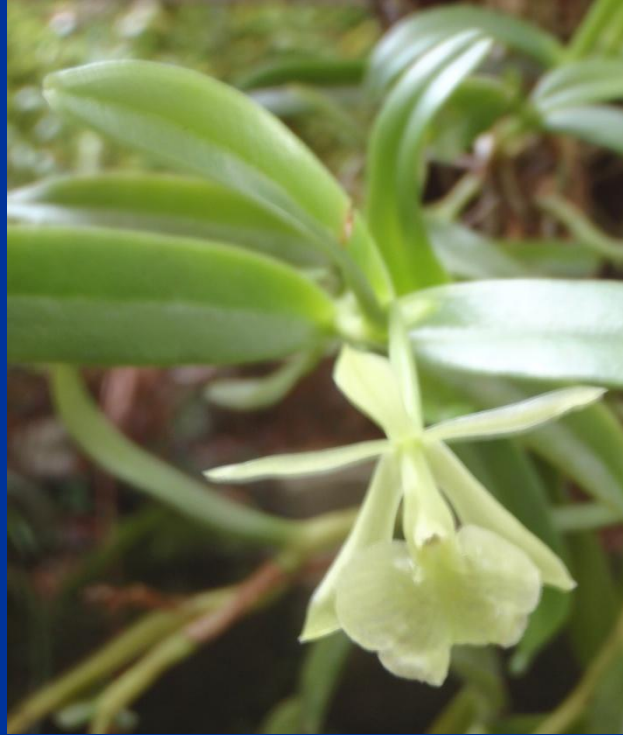


Epidendrum fulgens



Epidendrum filicaule

Photos: Beto Campos



Epidendrum difforme



Epidendrum rigidum



Sophronitis cernua



Sophronitis coccinea



Vanilla bahiana

Laelia crispa





Schomburgkia crisper



Catasetum hookerii



Scaphyglottis modesta



Rodriguezia bracteata (*Rodriguezia fragrans*)



Oncidium flexuosum



Oncidium sarcodes



Oncidium sp



Oncidium ciliatum

Oncidium hians



Oncidium croesus





Miltonia candida

Miltonia moreliana



(First occurrence to RJ Sate)



Miltonia spectabilis



(first occurrence to RJ Sate)

Miltonia regnellii



Miltonia flavescens



Cyrtopodium flavum



Trichocentrum fuscum



Gongora bufonia



Cirrhaea dependens



Notylia lyrata



Rauhiella silvana

Rodrigueziella handroi





Xylobium variegatum

Species? Genera?

- possibly *Prescottia*...

Around 30 taxa still not identified,



“Survey of Orchids of Ilha Grande”

Species identified up to July 2011: 155 (16 of them not collected by OrquidaRio) + 9 *cf.* = 164

Species still not identified: 31 (as *sp* or *spp* in the list)

Expected Total number of orchid species: 200

(Including exsicata deposited at Herbarium Bradeanum + Herbarium of Rio de Janeiro Botanical Gardens + published informations)

Aknowledgments:

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- to INEA – to the staff of Ilha Grande State Park, for accomodation and transport.
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(still more to be done)