



SAN DIEGO COUNTY ORCHID SOCIETY

APPLICATION FOR CONSERVATION
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“Jewels of the forest”, an introduction to orchids at the
Guapiaçu Ecological reserve (REGUA)

Atlantic Rainforest, SE Brazil.

Nicholas John Locke,
Reserva Ecológica de Guapiaçu
Fazenda Serra do Mar, CP 98104 Cachoeiras de Macau, RJ, Brazil CEP 28680 000
aregua@terra.com.br **55 21 2745 3947

Title of the project:

“Jewels of the forest” is the name a new project that introduces orchids to the public at REGUA. Its aim is principally to remove the unfortunate stigma that orchids are “parasitic”, feeding off trees by offering an opportunity to show visitors that they only need trees for support, hence “epiphytic”. The orchid house is a large outdoor conservatory that offers space to house various epiphytes, orchids, bromeliads and other precious flowering plants endemic to the forests at REGUA to provide an enriching experience to all those visiting. It is especially designed to spark off an interest in botany for them to understand that these plants form a pillar of the ecosystem and need our efforts for their conservation. REGUA is a conservation project and receives many guests both international and local. It also has a two decade old well-attended education programme with the purpose of raising awareness to those visiting that a greater respect for Nature is needed. The Rio de Janeiro Botanical gardens are well known and there can be found an orchid house open to the general public. We were influenced by the purpose of this collection and inspired to the

The project consisted of building an orchid house at the REGUA project to maintain a collection of endemic orchids found locally. The aim was to present them in a attractive visual context thereby offering visitors an opportunity to recognize the species that are present locally and provide information on their abundance and importance. The outputs of this project consisted of the orchid house, a collection of orchids, signage, and web site information. The expected outcome was a greater understanding of the importance of orchids in nature. The impact would be a greater respect and an understanding of the exuberance of the forests found within the Atlantic Rainforest hotspot as a whole.

The project started in January 2018 and finished in January 2020. Once the structure was completed, we started collecting fallen orchids from the forest floor. The collection is not complete and our friends of the Rio de Janeiro Orchid society are needed to provide accurate identification and the signs as yet. We are working to install an automatic irrigation system.

Various notes on its progress were uploaded on to the Facebook and Web site. Unfortunately, Covid 19 epidemic reached REGUA in March '20 and we have been unable to receive the general public

Outputs:

We were very influenced by the orchid house in Rio de Janeiro’s Botanical gardens.



Fig.1. We were inspired by the RJ Botanical gardens and it permitted us to understand orchid demands

REGUA is located in a very humid part of the world with a steep altitudinal gradient, and the challenge for any collection is to recreate the natural conditions tolerable to the widest range of orchids possible. Our mentor was orchid specialist Helmut Seehawer who has ample experience and expertise and gave us the basic guidelines in recreating a habitat that was suitable for a wide range of orchids. We wanted to include the orchid house as part of the walking circuit open to the public. The current visitor’s trail around the wetlands ends at the nursery located close to the orchid house. So we planned the trail that could include this structure without making it obligatory.

Though the installation of an irrigation system needs to be completed, the structure of the Orchid house has by and large terminated. It measures 10m by 30m by 4,5m in height. It is open to the public, but it can be closed for it has two doors with padlocks to permit access. It is a resistant metallic structure with an axis that is east west. The structure was built taking advantage of gentle slopes that reduces accumulated water, facilitating drainage.

The lower part of the structure's wall offers a wire mesh that permits air circulation whilst the higher part of the structure is covered by a 70% sun filter. The base of the orchid house is composed of three longitudinal raised clay plant beds to help water to drain as REGUA is located in an area that receives much rainfall. We brought in many large rocks offering irregular stony surfaces, producing an array of microclimates and niches. A circular gravel path helps REGUA's visitors to walk through the orchid house to take impact of the visitors not letting their shoes to get dirty.

We put in random large wooden posts on which to fix the larger epiphytes at different heights, some vertical and some inclined and we transplanted several tree ferns *Cyathea corcovadensis* (Raddi Domin) growing locally to offer a good base on which to tie Pleurothalids micro-orchids, found at higher elevations of the reserve. Larger orchids have been tied to these wooden stakes.



Fig 2. Construction started in Aug 2018. Helmut Seehawer provided sound advice on where to locate the Orchid house



Fig 3. The tubular construction provided a sturdy structure in March 2019



Fig 4. Tractors were hired to install the rocks May 2019



Fig 5. The 70% sun filter mesh took a long time to sew together. June 2019



Fig 6. Helmut Seehawer tying up the first orchids on his visit in Feb 2020



Fig.7. The tall tree ferns, mulch and timber structures provides support for the epiphytes Sept 2020

Outcome:

The outcome of this project is showing orchids found at the REGUA reserve and provoking the viewer in understanding the botanical diversity. Through the ready access of the Orchid house, a clear message that orchids are to be found in the forest at various altitudes and form part of the ecosystem. This focuses attention and produces a clear message to be understood by all those visiting that orchids they are not parasitic. This leads to a greater understanding of this family of plants, highlighting the variety and their diversity just within the REGUA reserve itself.

David Miller and Helmut Seehawer claim that the Serra dos Órgãos mountains within the Serra do Mar range that form the Atlantic Rainforest ridgeline or continental divide is one the planet's richest areas for orchids. The authors of the "Orchids of the Serra de Órgãos" catalogued 800 species in an area less than 1000km². The Atlantic rainforest biome is a World Biosphere Reserve (1988) and indicated as one of the 8 most threatened 'biodiversity hotspots' of the world by Conservation International and listed as an IBA (Important Bird Area) by Birdlife International. Hotspots and eco-regions are defined as areas having high levels of endemism together with habitat loss.

The first orchid survey was undertaken by the Rio de Janeiro orchid society revealed 86 species in the REGUA reserve. (See <http://www.requa.co.uk/specieslists/requaorchidlist.pdf>) A further six expeditions to distant and inaccessible regions of the REGUA reserve areas, an area less than 100km² has led to an extensive list of **349** species on the list plus a dozen unidentified like Vanilla, Sobralia or Cleistes.

The list is attached and we are await the visit by the Rio de Janeiro Orchid Society to identify the orchids and place their plastic i.d cards once the Covid pandemic is more under control.



Fig.8 Orchids are epiphytes and tying them to wooden stakes makes for easy viewing



Fig.9 Orchids reproduced from seeds of plants collected at REGUA during OrquidaRio's orchid survey were donated by Rosário Braga to our project.

C : Impact

The Guapiaçu Ecological Reserve Association, REGUA, was established in 2001 with a mission to protect the Guapiaçu watershed, an area of 450km² of which 60% is forested in Atlantic rainforest. In partnership with local landowners committed to protect forests areas of the Guapiaçu section of the global "Hotspot" Serra do Mar mountain range, it recruited forest rangers to stop the hunting and extraction of forest plants. Visitors approved and supported REGUA's work by donating funds to acquire the land that today forms 7400ha of protected land. A broad education programme was introduced to offer young members of the local communities a chance to understand that the surrounding forests were important and to be respected.

REGUA is already a known tourist destination and therefore an accessible platform in their awareness building. The visitation by local and international visitors expected post the current Covid crisis at the orchid house is one means to an interest in the complexity of this Atlantic rainforest ecosystem. The orchid house with the appropriate signage is the perfect tool and opportunity to help visitors understand this message

In the name of all those working at the Guapiaçu Ecological Reserve, I wish to thanks the San Diego Orchid Society for the generous donation that has made this possible.



Nicholas John Locke (Project director)

Cachoeiras de Macacu/RJ /BRAZIL 22/09/2020

2. Location of the REGUA project. Source www.regua.org

3. Attached the latest list of orchid species