

The rediscovery of a rare orchid *Jumellea recurva* in native forest at Bel Ombre, Mauritius.

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March 2011

Rediscovery

During a field visit on Thursday 24th February 2011, a rare orchid *Jumellea recurva* considered extinct was found growing on the trunk of *Nuxia verticillata* (Bois maigre) on the border of the Rivulet Jacobie in L'exemple region (S -20.47021; E 57.43781) in Bel Ombre forest. The orchid "*Jumellea recurva*" has a white bloom. The size and the form of the spur was one of the important elements to confirm the species identification.

Mauritius

Mauritius was formed by a volcanic eruption 8-10 million years ago. The island has a surface area of 1865 km² and rises to 828 m above sea level at Piton de la Petite Rivière Noire.

Most of the species that colonised the island following its formation came from Madagascar, East Africa. Some species also originated from India and South-East Asian region.

The volcanic origins of Mauritius, along with the tropical climate, topography and over a million of years of isolation, resulted in the evolution of a diverse biota with a high degree of endemism, with around 47 per cent of all higher plants being endemic. When the first explorers discovered Mauritius in the 16th century, the island was covered with a luxuriant forest. After years of deforestation and development (Figure 1), our native forest has suffered from a severe fragmentation and the forest land is now considered to cover only about 30% of Mauritius. The area of good quality native forest (forest having more than 50% native plant cover) is found mostly in the South-East and today covers less than 2% of the island. The rest of the forested area consists of plantation forestry, deer-ranches or highly degraded vegetation that is invaded by alien plant and animal species.

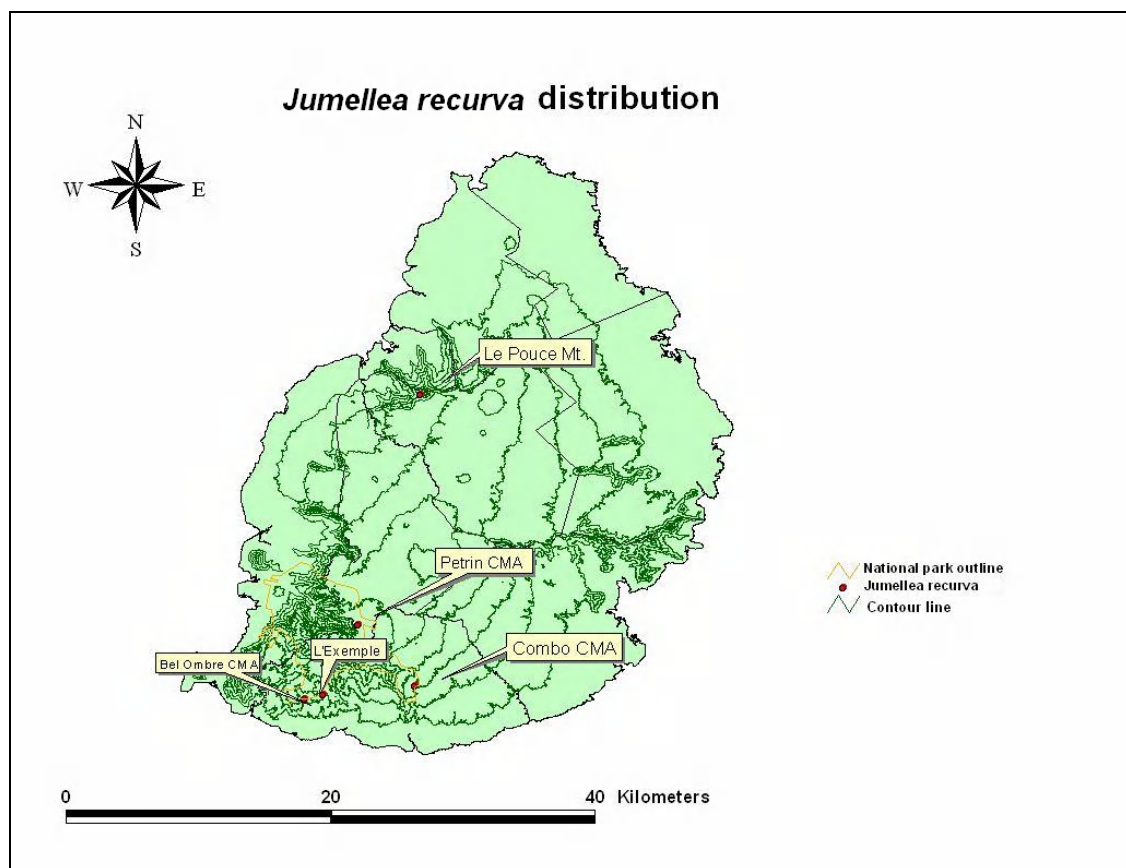
Background

Jumellea recurva is endemic to Mauritius and Reunion and is listed on the IUCN red list as D1 according because of the lack of information on the species.

On Reunion Island this epiphytic orchid is found in the South-East wet forest, between 250m and 600m altitude. It is found in clumps, or scattered at mid height on the trunks of native trees. The species is fairly common, with a population size of less than 1000

individuals (P. Bernet 2011). This orchid is known from 19 different observations at Entre-Deux, Langevin, Makes, Mafate, Dos d’Ane, L’Etang sale, La Possession, Saint Joseph. Its ex-situ propagation has proven difficult by the Conservatoire Botanique Nationale des Mascarin. (C. Laverne 2011).

In Mauritius this species was believed extinct and has recently been rediscovered. On its rediscovery a population of 10 individuals was found in one location (JCS- 1st March 2011). Further field work done in different ares was beneficial in locating this species, three plants was found in Petrin forest (JCS and al.) on 17th March 2011 growing on *Gaertnera psychotrioides*; S -20.40742, E 57.46904 and two plants were located on Le Pouce mountain (JCS and al.) on 18th March 2011 growing on *Erythrospermum monticulum* var. *monticulum*; S -20.19965, E 57.52489. Two populations were also found in Combo forest and at Bon Courage forest Bel Ombre (JCS) and these orchids need to be followed during the flowering season to confirm the identity of the plants.



Historical information

In Reunion, the orchid was first described as *Angreacum recurvum* by Thouars in 1822, *Aerobion recurvum* by K. Sprengel 1826, *Aeranthus recta* var. *recurva* by S. Moore in 1877, *Angorchis recurva* by O. Kuntze in 1891, *Macroplectrum recurvum* by A. Finet in 1907 and the last taxonomy of the orchid was revised by R.Schlechter in 1915 in *Jumellea recurva* (Patrice Bernet 2010).

The botanist Wenceslas Bojer arrived in Mauritius in 1821 and dedicated all his life to the study of the island's flora over 35 years on the island. He mentioned in the Hortus Mauritanus: 316 (1837) this species as *Angraecum recurvum* described by Thouars in 1822 and *Aerobion recurvum* described by K. Sprengel 1826.

Read below an extract from the Hortus Mauritanus by Bojer.

“Bojer, Hortus Mauritanus : 316 (1837).

4. *Angraecum recurvum*. Pet. Th. Orch. t. 56. *Aerobion recurvum*. Spreng. ibid Pat. Iles Bourbon et Maurice. Croit parasite sur les arbres et sur les rochers dans les endroits sombres des forets épaisses, situées vers le centre de l'île.

(nom vulg. Fahame batard). Pérenniale. Fl. Février, Mars.”

(Source from The Mauritius Herbarium, MISIRI, Réduit)

Description

The epiphyte *Jumellea recurva* is 10 to 20 cm high attached to the trunk by adventurous roots. The leaves are rigid and the brilliant white bloom is 10 cm wide and the anther cap is remarkable by the brownish spot in the middle of the flower. The long spectacular pale green spur reach up to 12 cm and the spur is twisted at the base.

Habitat of new location

In the site of rediscovery *Jumellea recurva* is found in a humid and mossy canopy forest and grows near the rivulet bank of Jacobie. The Bel Ombre vegetation ranges from dry lowland forest to wet upland forest, a transition forest which includes a number of species found in both lowlands and uplands of grade 1 to grade 4 (Page and D'Argent, 1997). The canopy is closed with an average height of 15m, although occasionally the canopy emerges up to 20m in height. On the ridges and in exposed parts, the vegetation is more or less dwarf, reaching 5-6m in height. The dominant native plants species include: *Diospyros tesselaria* (bois d'ébène noir), *Cassine orientalis* (bois d'olive), *Labourdonnaisia glauca* (bois de natte), *Canarium paniculatum* (collophane), *Protium obtusifolium* (collophane batard), *Sideroxylon boutonianum* (bois de fer), *Nuxia verticillata* (bois maigre), *Homalium integrifolium* (Bois cyclone), *Cordemoya integrifolia* (bois de Pigeon) and *Callophyllum eputamen* (Takamaca)

The native understorey consists of species including several *Eugenia* spp. (bois clou), *Ochna mauritiana* (bois bouquet banané), *Warneckea trinervis* (bois canne), *Tambourissa peltata* (bois tambour), *Erythrospermum monticolum* (bois manioc) and some 'Vacoa' *Pandanus eydouxia* and *Pandanus barklyii* growing on the edge of some rivers. The high rainfall allows numerous epiphytes to grow on trunk of the canopy trees and the ground flora is often rich in orchids, ferns, mosses and lichens.

The region surrounding the good quality forest is now badly infested with exotic alien species; *Hiptage benghalensis* (liane cerf), *Rubus alceifolius* (framboise marronne), *Ravenala madagascariensis* (ravenale), *Psidium cattleianum* (goyave de chine), *Ligustrum robustum* (privet), *Tabebuia pallida* (tecoma) and *Syzygium jambos* (jambos). These species are considered to be the worst invasive species in Mauritius.

Recommendations for conservation

The rediscovery of the *Jumellea recurva* reinforces the importance of the Conservation Project of the forest at L'Exemple site. We recommend two actions at the site, these will help protect the species in its natural habitat, and monitor its survival.

a) Weeding and control of alien species will be required in the reserve. However, it may require a special approach to avoid changing the humid climatic conditions within this area.

b) The rediscovery will benefit the Eco-Tours project where passionate visitors will have the chance to admire this rare orchid. The walking track for visitors will have to be redesigned to ensure that there is little disturbance of the orchid population.

Finally, to date propagation of this species has proven difficult, and, further collaboration with local and international institution may be required if this is to be achieved successfully.

Acknowledgement

I thank the staff of Mauritian Wildlife Foundation; Mrs Lone Raffray and Miss Asha Poonyth and the Bel Ombre Domaine staff; Mr François Baudot, Mr Yoahn Rouillard, Mr Dominique Edouard for the contribution of this discovery. The close collaboration from The Bel Ombre management to have enable me to prospect the L'Exemple site in Bel Ombre forest. and the contibuion of Dr Nicolas Zuël Fauna Manager (MWF) and Dr Rachel Atkinson for the text and mapping.

Thank to Mr. Mario Allet and Mr. Atmah Toocaram Park Rangers from the National Park Conservation Services (NPCS). My special thanks to Mr Kersley Pynee officer from the Mauritius Herbarium, MSIRI for his close collaboration and help in the past document in the Herbarium data. Thanks also to my friends and collaborators from Reunion for their input and precious identification; Mr. Christophe Laverne, Mr Patrice Bernet and Mr Jean Maurice Tamon.

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