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Notes on the Conservation Status of *Asterogyne yaracuyense* in Venezuela

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Cerro La Chapa, a fine example of the cloud forest of the Venezuelan Coastal Mountain Range, is found in the state of Yaracuy, Venezuela. This is the habitat for the palm *Asterogyne yaracuyense*. In 1979, due to the great ecological and floristic value of this cloud forest, Steyermark proposed its inclusion within the so-called "Nirgua Refuge." This area kept its vegetational cover during the drastic climate changes of the Pleistocene period, in particular during extremely arid phases, even though neighboring areas became grassy plains.

The first botanical explorations were carried out during the decade of the 1960s, by botanists such as J. Steyermark, G. Bunting, and Jean G. Wessels Boer, who visited the forest making numerous collections of plants. On repeated occasions subsequently, it was visited by Steyermark and botanists such as R. Liesner and A. Henderson who found two new palm species there in 1985. Recently Winfried Meier, a student from the Freiburg University, Germany, carried out several visits to the area as part of his intensive studies on cloud forests in the Venezuelan Coastal Range. From his first visits to the area, W. Meier recorded evidence of rapid deterioration in the area; his worries and comments motivated later visits with botanists from the Herbario Nacional de Venezuela who made a series of collections of plants with the purpose of improving floristic knowledge of this forest.

Although taxonomic studies are limited, they nevertheless reveal astonishing results about the floristic composition. Species unknown to science have been discovered. The existence of six endemic species for Cerro La Chapa is registered to date: *Asterogyne yaracuyense* (Palmae), *Froesia venezuelensis* (Quinaceae), *Dichorisandra diderichsanae* (Commelinaceae), and three species of Rubiaceae—*Ladenbergia buntingii*, *Psychotria yaracuyensis*, and *Rudgea buntingii*.

Materials and Methods

Study site. Cerro La Chapa is situated just 5–6 km to the north of Nirgua City, in the state of Yaracuy. Starting from Nirgua, there is a road that allows one to reach the summit of Cerro La Chapa. The forest occupies a small portion of Sierra Santa Maria between 1000 and 1300 m asl and extends between 10°11'47"–10°12'31" north latitude and 68°34'41"–68°35'56" west longitude.

Methods. For this work different virgin zones of the cloud forest, as well as areas affected by human activities, were visited during the months of December 1996 and April 1997. Based on walks through the area, an estimate of the population of *Asterogyne yaracuyense* and an inventory of the rest of the observed palms were made. Herbarium samples were placed in VEN.

Results

Comments on the taxonomy of Asterogyne in Venezuela. After the publication of Wessels Boer (1968, 1988) there have been few additional efforts to try to understand the taxonomy of this small genus. Venezuela has three of the five species of the genus accepted by Henderson et al. (1995): *A. ramosa* from the montane cloud forest, 760–1000 m asl, state of Sucre; *A. spicata* from the low montane wet forest, 200–700 m asl, state of Miranda, and *A. yaracuyense* from the montane cloud forest, 1200–1400 m asl, state of Yaracuy. All three of them are endemic to small areas in the northern part of the country. Even if *A. yaracuyense* is fairly close to *A. ramosa*, differences in the rachis, number and length of rachilles, and number of stamens and staminodes have been observed by Henderson and Steyermark (1968). Nevertheless, Wessels Boer (1988) does not admit the differences in the staminate flowers and number of rachillae, and suggested that populations from Sucre and Yaracuy,

both from cloud forest, match *A. ramosa* taxonomically.

Alteration of its natural habitat. On recent visits to Cerro La Chapa a great alteration of the forest due to agricultural and cattle-farming activities has been observed. A system of small plots that systematically has taken possession of the cloud forest has been developed in order to promote the following activities: cultivation of bananas, coffee, and tubers under rudimentary agriculture practices; cattle raising of low intensity and precarious system, where the animals graze in the forested areas and have to be forced into the surrounding cloud forest to access other pasture grounds; constructions associated with human activities such as houses, water tanks for irrigation, fences to separate plots and roads; uncontrollable alteration of the physiognomy and floristic diversity of the cloud forest.

Present population of the species. The present population of *A. yaracuyense* is roughly between 200 and 300 individuals and the possibility for survival is low for the individuals that have managed to succeed in those very disturbed environments. This disturbed area shows a drastic decline in the environmental and edaphic humidity, together with solar radiation not concordant with the demand of the palms of the cloud forest. The restricted distribution of *A. yaracuyense* is very peculiar as this palm cannot be found in the neighboring cloud forest of Salom in the same Sierra Santa Maria.

Palm richness. Cerro La Chapa has an exuberant cloud forest almost comparable to the Rancho Grande forest in Henri Pittier National Park, Venezuela. Palms are very well represented in La Chapa with 11 species: *Asterogyne yaracuyense*, *Bactris setulosa*, *Chamaedorea pinnatifrons*, *Dictyocaryum fuscum*, *Euterpe precatória* var. *longevaginata*, *Geonoma interrupta* var. *interrupta*, *Hyospathe elegans*, *Prestoea carderi*, *Socratea exorrhiza*, *Wettinia praemorsa*, and a probable new subspecies of *Geonoma spinescens*. This high diversity is almost unique for any cloud forest of the Venezuelan Coastal Range.

Discussion and Conclusions

Though *A. yaracuyense* was originally proposed by Johnson (1996) as a species of vulnera-

ble status, recent observation suggests it should be regarded as an endangered species due to the drastic and systematic alteration of its habitat. The presumption of De Granville (1988) is reaffirmed with this study because of the destruction of the natural habitat. The development of agriculture and farming is permanent and reducing the area occupied by the cloud forest, and additionally, is altering neighboring areas that have not yet been considered for agriculture. This advanced degree of intervention is already affecting the floristic diversity and the survival of the endemic species of this cloud forest. *Asterogyne yaracuyense*, especially, will disappear very soon if urgent measures to protect this forest are not immediately taken. In addition, it must be mentioned that the Cerro La Chapa cloud forest gives rise on its southern slopes to three different rivers of the municipality of Nirgua; consequently the present transformation will suppress the flow of water for human consumption and agricultural irrigation in the Nirgua Valley.

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