

# The Desert and Rock Pavement Vegetation on the Inselberg Slopes of the 4-Gebroeders Mountains, the Great Granite Plate and the isolated Boulders within the Sipaliwini Savanna Area.

By Oldenburger, F.H.F. & Norde, R.\*

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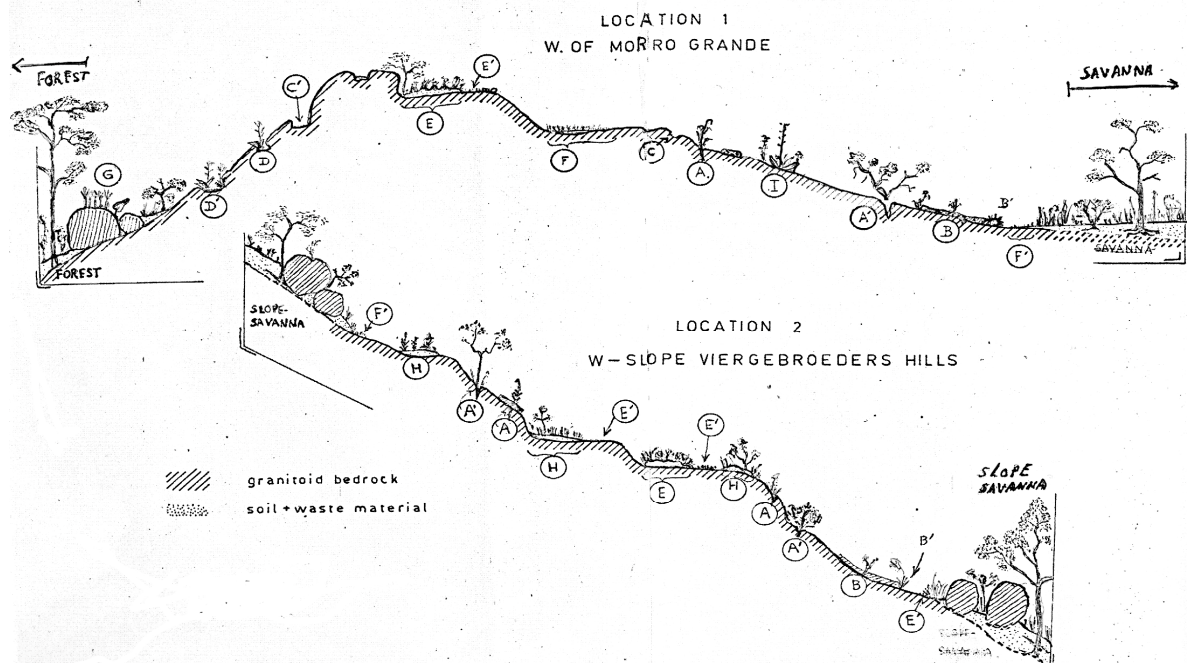
\*Correspondence author. Email: [reinoud.norde@gmail.com](mailto:reinoud.norde@gmail.com)

A special study of the spectacular flora on the granitic outcrops was delegated to Dr.J.P.Schulz, co-botanist and leader of the expedition. In a joint effort with Dr.J.van Donselaar he had decided to compile all his botanical records of granitic outcrops and Inselberg summits in the interior of Surinam, with special emphasis on those of the Wilhelmina Mts (Lucie River expedition 1963), the Voltzberg and finally the Sipaliwini Savanna area.

This resulted in an unpublished manuscript entitled "On the flora and vegetation of granitic exposures in the Voltzberg region (Surinam), with notes on similar areas in Surinam" by Dr.J.vanDonselaar and Dr.J.P.Schulz, 1973.

By courtesy of Dr.J.P.Schulz we had a draft of the last chapter p.53-67 at our disposal, containing the Sipaliwini part of the manuscript including figures, a survey map of the location, a climate diagram of the extreme hot years 1968-69 and a very illustrative transect profile diagram of the situation at the Great Granite Plate and the Western Slope of the 4-Gebroeders Mts. As sanctioned by Dr.J.vanDonselaar recently, we will now use some details of this study for our online-publication.

Meanwhile it remains regrettable that the full study was never published. The description of some 15 micro-habitats and their associated vegetation (diagram below) in particular would have been an important contribution to our knowledge and understanding of the rock pavement habitat(s). But who knows?





During the 1968-69 expedition our focus was on the savanna vegetation sensu stricto. We didn't have the time and means for detailed ecological research on the vegetation of the granitic outcrops, although we did visit them, collected plants, made notes and took a large number of photographs.



*Hippeastrum puniceum*

We like to distinguish TWO groups of plant species growing on rock pavements.

A. Plants that grow directly on rock with all its micro-niches like hollow basins ('bath tubs', temporarily filled with water during the wet season), crevices containing some erosion debris, oriçangas, opferkessels etc. (see Riezebos, 1974). Those species reminded us of "stinzen" plants (Stinz = 'stone castle' in the Frisian language).

Succulents and xerophytic grasses belong to this category.

B. Plants bordering the 'desert' formation (A). Within this group one may find some spectacularly flowering species like *Furcraea foetida* (Amar.), *Cyrtopodium andersonii* (Orch.), *Hippeastrum puniceum* (Amar.), *Eugenia puniceifolium* var. *brachypoda* (Myrt.), *Rechsteineria incarnata* (Gesn.), *Neurotheca loeselioides* (Gent.) and *Mimosa plumaeifolia* (Mim.), *Mandevilla scabra* with its bright yellow flowers and grasses like *Ctenium cirrosum* and *Thrasya petrosa* but also shrubs like *Clusia panapanari* & *Clusia leprantha* (Gutt.), especially where a little humus accumulation occurs.

Herbs and shrubs from the neighbouring savanna formation like *Byrsonima crassifolia* and *Curatella americana* may be found where some more soil is available. Schulz and Van Donselaar refer to these species as 'vicinists'. In fact they argue that the rock pavement vegetation is a gradient or gradual transition from savanna to forest, an ECOTONE, as indicated on the diagram above.

Obviously they registered the same (amount of) specific rock species as we did, but came to quite another conclusion.

In our view this rock pavement vegetation is a lot more xerophytic, existing under quite different microclimatic conditions. That's why we prefer the term EDAPHIC DESERT. Extreme temperatures and prolonged dry circumstances are reflected in specialised LIFE FORMS, chosen by us as the diagnostic species of this formation (see Beard, 1944, who advises to select the most adapted physiognomic groups for this purpose).

Succulents like *Melocactus neryi*, *Cereus* sp. (Cact.), *Ernestia blackii* (Melast.), *Portulaca sedifolia* (Port.), *Pitcairnia geyskesii* (Brom.) are among these diagnostic species as well as small xerophytic grasses like *Panicum pyrularium*, *Paspalum parviflorum* and *Aristida setifolium*.

It is interesting to note that Bews, 1958, *The World's Grasses*, calls *Sporobolus*, *Aristida* and *Mesosetum* phylogenetically advanced desert grasses, representing a progressive strain of development. For in many respects the first steps in plant succession in bunch grass savannas are similar to the final stages of (semi) deserts where we find the most advanced species of all (Bews, 1958). So the great grass lands of the world are none of them 'primitive'. This certainly applies to the Sipaliwini bunch grass savanna as well.

Our list of additional diagnostic species now follows:

*Schwenckia americana* (Sol.), *Paepalanthus fasciculatus* & *P. subtilis* (Erioc.), *Aristida capillacea* & *Axonopus ramosus* (Gram.), *Mandevilla tenuifolium* (Apoc.), *Evolvulus filipes* (Conv.), *Cyperus capillifolius* (Cyp.), *Philodendron acutatum* (Arac.), *Mimosa plumaeifolia* (Mim.), *Turnera ulmifolia* (Turn.), *Sauvagesia pulchella* (Ochn.), *Stylosanthes guianensis* (Pap.), *Borreria splitgerberi* (Rub.), *Waltheria indica* (Sterc.) and last but not least *Jatropha urens* (Euph.).



*Axonopus ramosus* is a very characteristic species, a tussock grass, well adapted to dry conditions. Could it also be a survivor of colder climates during 'ice' ages or interpluvial times?

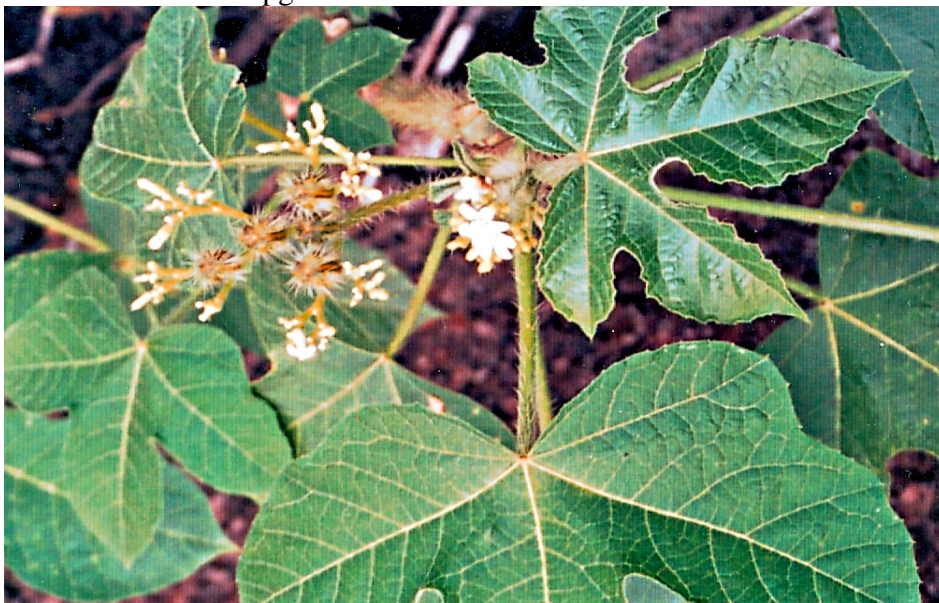
*Cyperus capillifolius* thrives during wet periods, growing in 'basins'.

*Philodendron acutatum* Forms long roots in crevices which are filled up with some soil. Also grows on boulders.

Near boulders we found *Zornia diphylla* (Gram.) and *Hippeastrum puniceifolium* (Amar.)

Along the forest edge ferns like *Anemia ferruginea*, var. *ahenobarba*, *A. oblongifolia*, *A. tripinnata* and *A. villosa*.

For an exhaustive species list go to tab 'Vegetation' and click on 'Ecological Investigations on the Vegetation of the Sipaliwini Savanna Area in Southern Surinam, 1973' The list is on pg 44 – 46.



*Jatropha urens*

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