

CARPE III

Quarterly Report

Missouri Botanical Garden activities FY08

July – September

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Missouri Botanical Garden

SUMMARY

During Y08Q4 Missouri Botanical Garden (MBG) was engaged in CARPE III activities for Conservation International (CI):

1) carrying out a botanical expedition in the SE corner of the Monts de Cristal section of the landscape, validating the “séries de conservation montagnaise de Mt Mekie” in the logging concession of Rougier.

Habitat or environment classification

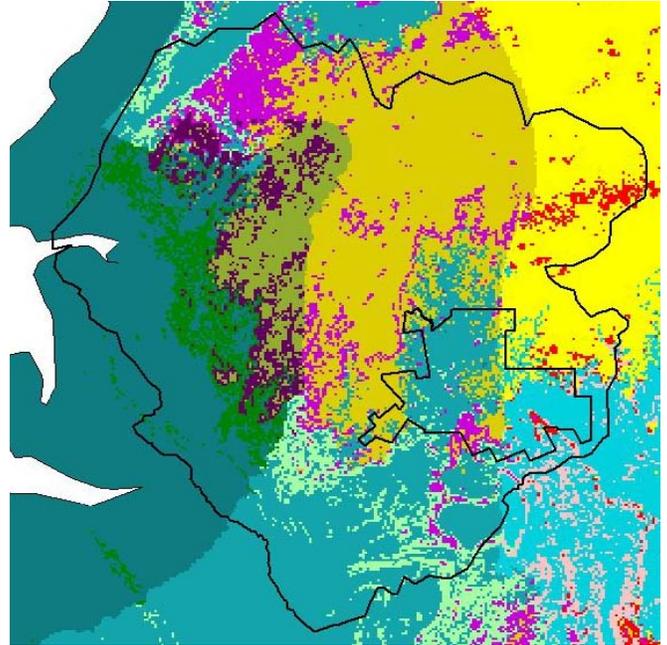
The MAMCI landscape has a high habitat or environmental diversity because of the steep gradients in rainfall and altitude, and the mosaic in relief.

The landscape is divided in three large band of rainfall: 1) mean annual rainfall >2500mm, 2) 2500mm> mean annual rainfall >2000mm, 3) 2000mm> mean annual rainfall.

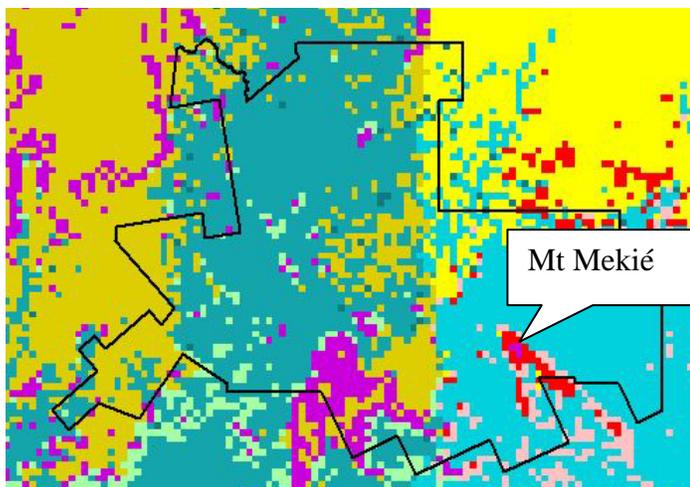
Topographically the landscape can also be classified in three land-units: 1) lowland little relief, 2) transitional zone with strong relief and high altitude, 3) interior plateau with little relief.

Overlapping the three set of environmental parameters results in 12 land-units:

<i>altitude</i>	<i>relief</i>	<i>rainfall</i>		
		wet (2500mm)	humid (2000mm< <2500mm)	dry (<2000mm)
lowland (500m>)	no	Dark blue	Medium blue	Light blue
	strong	Dark green	Light green	pink
highland (500m<)	no	brown	Light brown	yellow
	strong	Dark purple	Medium purple	red



Almost all the land-units of this classification have been ground-truthed, i.e. Monte Mitra (land-unit:dark purple), Nfaman summit (land-unit: light brown), Ngol (land-unit: brown), Mt Mbilan (land-unit:dark green), Mt Mbilan Plateau (land-unit: dark green), Mvé Lakene (land-units:dark green/brown).



Mt Mekié represents the red land-unit, characterized by high altitude, strong relief and low rainfall. Objective of this mission was to ground-truth this land-unit by measuring the biodiversity and endemism

at the highest summit and its lower slopes.

Map Mt Mekié in the land-unit classification

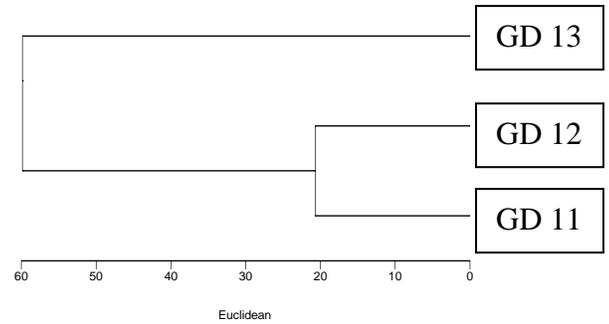
Biodiversity and Endemism

In total 90 species were recorded on 3 transects. On average 37 species were present on a transect and differences between the 3 transects were mainly between the transect on the summit GD13 and the other two transects on the lower slopes (GD11, GD 12).

	GD11	GD12	GD13
altitude	360m	390m	940m
individuals	85	75	131
species	49	43	21
endemics	29	25	15
end %	59.2	58.1	71.4

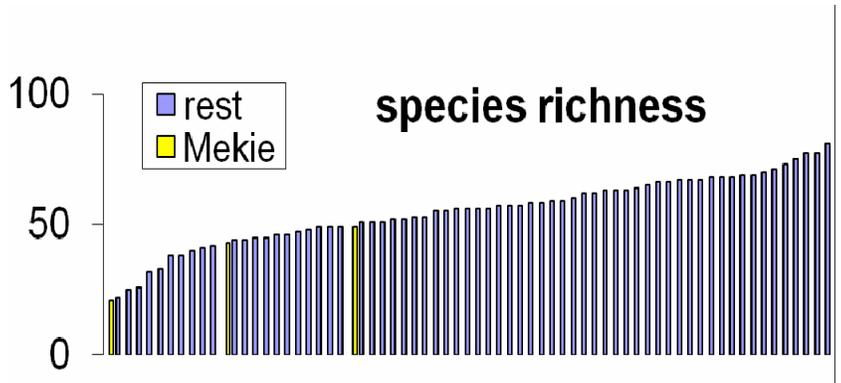
The summit transect is very different in the sense that it is species poor (21 species) with many individuals (131). Especially, *Garcinia smeathmanii* was very abundant (56 individuals). Species restricted to a single transect (endemic) was lowest on the summit transect (GD13) with only 15 species, but in terms of percentage it had the highest value (71.4%). This is mainly because the other two transects on the lower slope shared 15 species and only 4 species with summit transect.

The similarly analysis also clearly shows that the summit transect is very different from the two transects on the lower slopes, a similar observation was done in the Belinga Mountains. But more transects are needed to be able to have more detail on how species composition changes with altitude.



In terms of species richness Mt Mekié is below the average and the summit transect is at the lowest end of the spectrum. Mt Mekié is classified as having a strong relief and altitude and low rainfall.

A preliminary conclusion is that the relatively low rainfall may limit the level of biodiversity on this mountain range.



In terms of endemism, the species only present on the summit transect are not uncommon tree species for Gabon. Full identification of the specimens collected is still in process and another mission to Mt Mekié will be done in November to collect more data to be able to come to some more robust conclusions.

