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Studies of the *Baracoffea* : Malagasy coffee trees growing on the West Coast of Madagascar

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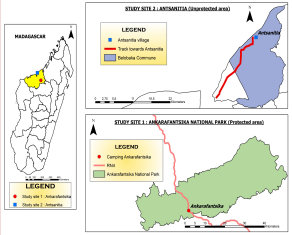
Introduction

Currently, the world is facing the problem of global warming, the main cause of which is anthropogenic activity. In Madagascar, deforestation and other anthropogenic activities have caused a strong fragmentation of the forest and considerably modified natural forest ecosystems. One of the direct consequences is that nearly 75% of Malagasy coffee tree species are classified as vulnerable, threatened or highly endangered according to the IUCN list. Among these coffee tree species is the *Baracoffea* group (*Coffea* subgenus).

Objective : to characterize the diversity of species of the *Baracoffea* group in the western region of Madagascar in view of its IUCN status, particularly in the town of Mahajanga, and to characterize their ecological requirements in order to be able to give recommendations for its conservation.

Materials/Methods

Study sites

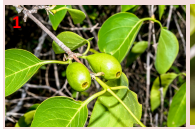


Study Methods

An ecological study has been carried out, which includes: (i) floristic inventory; (ii) analysis of vegetation cover; (iii) numerical abundance; (iv) associated species and (v) study of the distribution of these species.

Biological material

Family : Rubiaceae; Genus : *Coffea*; Sub-genus : *Baracoffea*
Species : ***C. boinensis*** (1) F. Leroy Ex A.P.Davis & Rakotonas ; ***C. bissetiae*** (2) A.P.Davis & Rakotonas ; ***C. ambongensis*** (3) F. Leroy Ex A.P.Davis & Rakotonas.

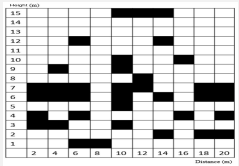


Results

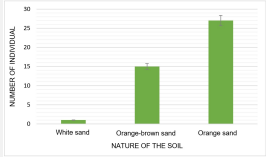
Floristic list and population characteristics

Species inventoried	Ankarafantsika National Park									Antsanitia			
	C. boinensis				*C. bissetiae*					*C. ambongensis*		*C. bissetiae*	
Number of population	4				6					2		2	
	A	B	C	D	A	B	C	D	E	A	B	A	B
Number of individuals per population	8	45	36	>50	165	10	23	37	12	3	3	4	1

Vegetation cover



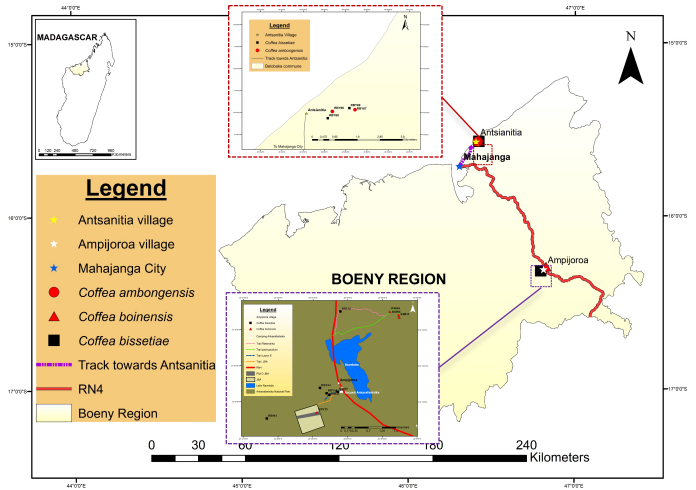
Numerical abundance



Associated species

Most associated family	Most associated genus	Most associated species
ANNONACEAE (25,95%)	*Xylopia* (12,98%)	*Xylopia sp.* (12,98%)
FABACEAE (16,79%)	*Terminalia* (5,34%)	*Dalbergia greveana* (8,40%)
RUBIACEAE (16,03%)	*Dalbergia* (8,40%)	*Strychnos vacacoua*
	Strychnos (5,34%)	(5,34%)
	Grewia (5,34%)	*Grewia sp.* (5,34%)
	Mussaenda (9,16%)	*Mussaenda arcuata* (9,16%)

Distribution map of *Baracoffea* in the Boeny region, Mahajanga



Discussion

- In total, three species of *Baracoffea* were inventoried in Ankarafantsika and Antsanitia, Boeny region. This correspond to the results obtained by Davis and *al*., 2008, by performing a taxonomic revision on *Baracoffea*.
- Specific dominance is higher in protected areas compared to unprotected areas. The most evident explanation is related to the nature of the substrate (Christian and *al*., 2013; Casper and Jackson, 1997; Blancaneaux, 1973) between these two localities and the importance of protected areas in the conservation of vulnerable or threatened species (Gansaonré, 2018 ; Traoré et *al*., 2020)

Conclusion and Recommandation

We can also deduce that the most favorable habitat for these species is the dense deciduous semi-deciduous forest with a semi-open cover, resting on a ground of sandy nature with orange sand. The *ex-situ* collection (protected area) of these species is strongly recommended for their conservation.

References

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Davis A.P. et Rakotonasolo F. 2008. A taxonomic revision of the *baracoffea* alliance: nine remarkable Coffea species from western Madagascar. *Botanical Journal of the Linnean Society*, 158, 355-390.
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