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# From the herbarium back to the forest: a successful collection of wild robusta coffee (*Coffea canephora*) in Guinea

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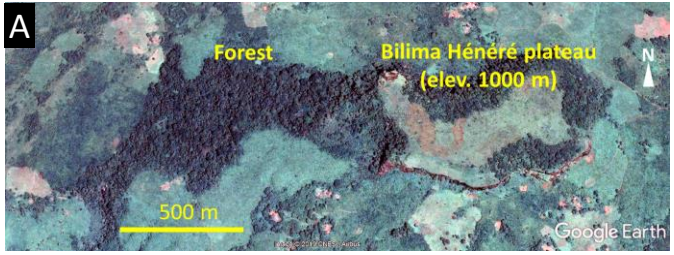
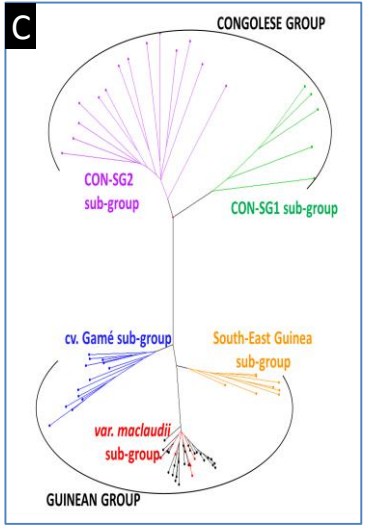
***Introduction:*** In Guinea, a few endemic populations of *Coffea canephora* are threatened by deforestation, global warming, and the massive introduction, from the beginning of the 20th century, of robusta germplasm from Central Africa. We focused on a population described by Chevalier[1] in 1905 as *C. canephora var. maclaudii* and located in a forest island on the slope of the Bilima Hénéré plateau near Mamou, Moyenne-Guinée (fig. A).








This work was undertaken by the partners of FOGEFO-PLUS, a project of the SEP2D programme (2019-2021) http://sep2d.org

***Materials/Methods:*** We undertook an inventory of the forest vegetation. DNAs were extracted from 53 coffee trees and genotyped with 21 nuclear SSR. For comparison, we added DNAs of old herbarium specimens, from a previous study[2], including Chevalier's type (fig. B), as well as samples of other genetic groups. Genotyping data were analyzed using factorial analysis (PCoA) and NJ method.

***Results:*** The average density of coffee trees per ha (with Ø> 5 cm) is 177, and some of them can reach more than 10 m in height. Genotyping data analyses showed that all the coffee samples taken from the forest (fig. C, black dots) have close relationship with the herbarium samples (red dots) collected from the same place as early as 1905. Within the Guinean group, *C. canephora var. maclaudii* is characterized by a low level of admixture with other sub-groups due to its geographical isolation and distance from the main areas of coffee cultivation.

***Conclusion:*** This coffee population is considered vulnerable to drought, fire, and crop extension and a priority target for conservation. Coffee seeds and cuttings were collected and transferred to the genebank of Sérédou Research Center for *ex situ* conservation and use in a future breeding programme. This will be complemented by measures for *in situ* conservation and sustainable use of the forest resources with the participation of people of neighboring villages.

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**References:** [1]Chevalier 1905. Les caféiers sauvages de la Guinée française. *Cr Hebd Acad Sci.*. [2]Labouisse *et al*. 2020. *Plant Ecol Evol.* doi: 10.5091/plecevo.2020.1584. **More details** in: Labouisse et al. 2021. In: *Biodiversité végétale et développement durable.* Marseille. IRD Editions (In print)