

The orchid shade house network in Central-Eastern Madagascar, an effective *ex-situ* conservation tool

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Since 2011, the Missouri Botanical Garden and its collaborators have extended our Central African orchid shadehouse network to Madagascar. Four shadehouses situated in Ambatovy (two), Antananarivo and Vohibe are currently active. They have facilitated botanical inventories and *ex-situ* conservation of species found on the Ambatovy mining concession and in nearby protected areas on the eastern escarpment rainforests between 750 m and 1,100 m elevation. We have also started sampling forests at higher elevation (1,400-1,600 m) on the High Plateau. The shadehouses, currently house about 7,534 living orchid plants (around 14,500 replicates) and have yielded: 4,276 flower samples preserved in alcohol and 7,597 photographs, greatly facilitating the identification of species. Samples and living plants have been identified in more than 310 species (35 genera) of which about 80% are epiphytic orchids, 6% are facultative epiphytes and 14% terrestrial. Many orchids are threatened by deforestation and degradation of natural habitats. Rapid Red Listing based on the information available in Tropicos, the Missouri Botanical Garden's (MBG) online database, has shown that as many as 73% of Malagasy orchid species could be threatened. With new data provided by our shadehouse network, threat assessments of 160 orchid species are underway.