CEPF Final Completion and Impact Report

Organization's Legal Name:	Missouri Botanical Garden
Project Title:	Caractérisation de la flore menacée de São Tomé et Príncipe.
Grant Number:	CEPF-104130
Hotspot:	Guinean Forests of West Africa
Strategic Direction:	3 Safeguard priority globally threatened species by identifying and addressing major threats and information gaps
Grant Amount:	$227,643.39
Project Dates:	May 01, 2019 - November 30, 2021
Date of Report:	January 28, 2023

IMPLEMENTATION PARTNERS

Missouri Botanical Garden (MBG), Central African Program
The MBG was the leading institution and was involved in the following tasks: relationships between the different partners, financial reporting, field work, specimen curation, activities reporting, writing publications, communication, and training. In addition to the PI of the project, one MBG staff based in Gabon went to Sao Tomé to train the project's team on Red Listing activities, while a Gabonese consultant associated with MBG, trained the local team on tree identification.

Institut de Recherche pour le Développement (IRD)
The IRD was involved as Research Partner in the project through the involvement of a co-PI of the project. IRD activities and responsibilities in the project were: field work, specimen's collecting, plots and GIS databases, specimen's identification, training, communication, activities reporting, and publications writing.

University of Coimbra (UC)
The UC was represented by the local Project Manager in São Tomé coordinating all activities in this island, including training and supervision of the local team, comprising two full-time students and several part-time technical assistants during field campaigns. UC was also involved in the following specific activities: Red Listing, workshops, maintaining relationships with São Tomé stakeholders.

The UC Herbarium (COI) was also involved in specimen processing in Coimbra, Portugal, and training of two students from the ST team and one student from FP team in Coimbra University, but these activities were delayed because of the Covid and took place after the project closure with additional fundings.

Flora and Fauna International (FFI)
FFI was involved in the project as technical consultant, representing and supervising the work in Príncipe through a designated Project Manager hosted in the local NGO, Fundação Príncipe (FP).

CONSERVATION IMPACTS

Planned Long-Term Impacts: 3+ years (as stated in the approved proposal)

Impact Description	Impact Summary
Une (1) approche pilote avec un premier cas d'application des standards ZCB à la flore tropicale africaine menacée pourra garantir sur le long terme la réussite et l'efficacité d'autres projets similaires. Le développement et le partage des scripts et fonctions R sur une page github facilitera l'application de la méthodologie à d'autres flores tropicales.	The first step of this method consisted of defining an updated endemic flora of the archipelago and assessing which species were threatened. The distribution data were compiled in a database and were analyzed to identify which proportion of the species distribution were situated in each supposed KBAs. Then, the list of species was used to identify which ones can trigger KBAs. The method was used for the KBA workshop that took place in October 2021 allowed testing this approach for applying KBA standard to floristic data. These analyses remain preliminary because such approaches remain pioneer. At this stage, the methodological framework we developed is not sufficiently mature to be shared, but it remains a solid base that will be used for the KBA project in Gabon. The acquired experience will thus be highly valuable for similar workshops that will be organized (some already took place in Gabon and more are coming, co-organized by the MBG).
Cinq (5) lois (RDSTP Lei No 05/2001, RDSTP, Lei No 06/2006, RDSTP Lei No 10/1999, RDSTP Lei No 11/1999, Decreto N.º 37/1999 30-11-1999) pourront être modifiées et une (1) loi sur la protection de la flore (Lei n.º11/99 LEI DE CONSERVAÇÃO DA FAUNA, FLORA E DAS ÁREAS PROTEGIDA) complétée grâce aux acquis du projet (données quantitatives et spatiales) sur les écosystèmes critiques et les espèces menacées de l'archipel et leur besoin de protection effective.	All the data needed to update these laws were integrated into the Red List data book that we prepared for this project (https:// https://github.com/gdauby/saothreath_book/blob/main/MAQUETTE%20Familles%2010_compressed.pdf/). The book will be made available to all stakeholders so they can use it to update the annex linked with these laws. We also published two chapters in the book on biodiversity of the islands of the Gulf of Guinea that contain critical information about plant and ecosystems diversity, see ttps://link.springer.com/content/pdf/10.1007/978-3-031-06153-0.pdf

Planned Short-Term Impacts: 1 to 3 years (as stated in the approved proposal)

Impact Description	Impact Summary
La re-délimitation et la priorisation des mesures de conservation pour 4 ZCBs seront proposées sur la base d'informations critiques	The data underlying these observations and analysis have been collected during four field campaigns in São Tomé and two large ones in Príncipe totalizing

Impact Description	Impact Summary
sur la biodiversité végétale obtenues grâce à au moins 500 numéros d'herbiers collectés, 30 inventaires réalisés et la distribution connue et potentielle des 150 plantes menacées de STP documentée.	the collection of 2900 collection numbers in 2 to 5 duplicates (21% of all specimens ever collected in the archipelago) and tree inventories (106 transects, > 18 000 trees identified and measured). The KBA workshop organized in October 2021 (annex 2) involved several stakeholders and researchers bringing their knowledge and datasets on the flora (this project) and fauna (BirdLife). A joint spatial analysis of these data was conducted during the workshop (annex 3). We identified numerous trigger species for four existing KBA (Malanza, Parque Natural de Obo of São Tomé, Parque Natural de Principe, Praia das Conchas). We also initiated a discussion on the status of the Pico area in Sao Tomé, that hosts distinct vegetation types and several plant species endemic to this narrow area. We discussed whether we should consider this area as a distinct KBA different from the larger one (the Obo Natural Park) where it is already included. We did not reach a consensus on this topic. Overall, analysis remained preliminary and the scientific partners of the workshop were not yet able to mobilize resources for publishing the result yet.
Au moins 150 statuts de conservation d'espèces rares ou endémiques seront évalués et soumis à la Liste Rouge de l'UICN ce qui améliorera toutes actions de conservation de la flore.	154 endemic and/or rare species were assessed. Two species were assessed as Extinct. A hundred thirteen (113) taxa were assessed as threatened (eleven (11) as Critically Endangered, sixty six (66) as Endangered, thirty-six (36) as Vulnerable). Eight (8) taxa were assessed as Near Threatened. Eight (8) taxa were assessed as Data Deficient. Twenty-three (23) taxa were assessed as Not Threatened.
Deux botanistes et deux parataxonomistes saotoméens seront formés aux méthodes de collecte et de gestion de données botaniques grâce à l'organisation de 8 mois de terrain, et leur implication dans les formations, les 3 ateliers, et de façon plus générale, tous les volets du projet.	For the duration of the project, four permanent staff members were hired and trained in São Tomé: Angela Lima and Dilson Madre Deus (Botanists students), Pascoal Sousa (Parataxonomist Student and Forest Technician) and Lewis Eduardo (Herbarium Technician student). The project manager in São Tomé supervised continuous training of the 4 team members. The two botanist students took part in 14 training activities (including workshops, one-day or several days trainings) (see annex 6 for details). In Principe, the project manager trained three permanent FP staff members: one project assistant (Davide Dias), and two field staff (Osvaldo Lima and Jeremias Prazeres).
Un (1) réseau de collaboration sera établi afin de développer des synergies entre les autres projets actifs dans la conservation à STP et les institutions locales et internationales impliquées. Cela facilitera la sensibilisation de tous les intervenants sur les menaces qui	We validated this impact. The project team involved 7 international and local institutions and 7 nationalities (3 from Africa, 3 from Europe and one from South America). There is no doubt that the project achievements, both in terms of data acquisition and collaboration, will benefit future and

Impact Description	Impact Summary
pèsent sur la flore et les habitats de STP et les prises de décision les concernant. En lien avec l'initiative d'ECOFAC, l'implication d'un postdoctorat et d'un spécialiste des arbres gabonais renforcera durablement les relations sud-sud entre STP et le continent dans le domaine de la botanique.	current projects focusing on plant biodiversity and conservation in São Tomé and Príncipe, but also in other countries in Central Africa. The work of MBG and BRLU in Sao Tomé and Principe started a long time ago and will continue far after this project.
Au moins 15 espèces CR ou EN feront l'objet de mesures de conservation ex situ à Bom Successo ou à Principe.	For each species assessed as threatened, we established the requested conservation actions and summarized them in the book for the local authority. We tested ex situ conservation actions and have been able to collect and grow 17 threatened species on both islands (4 of these species were cultivated on both islands, Podocarpus manni, EN, Chytranthus mannii, VU, Carapa gogo, VU, Afrocarpus mannii, EN). So, overall 13 species were put in cultivation with success on both islands (2 CR, 2 EN, 6 VU and 3 locally threatened). In Sao Tomé, 10 threatened species (8 globally and 2 locally), were integrated into the Campo de Milho nursery and at Bom Sucesso. In Principe, 7 threatened species (6 globally and 1 locally) have been cultivated at the nursery of the Fundação Príncipe´s headquarters. One species, Balthasaria mannii, assessed as CR, was transplanted at the Bom Successo Botanical Garden, but it did not survive. One species assessed as EN (Afrocarpus mannii) has been transplanted to both the Bom Successo botanical garden and to two forest communities, in collaboration with another project in which Maria do Céu Madureira is involved. Finally, 4 species potentially new to science, all threatened have been transplanted at Bom Successo and in the collection of the Principe Natural Park.
Au moins 20 zones potentiellement importantes pour la conservation de la biodiversité seront inventoriées et cartographiées. Leur importance pour la conservation et leur localisation seront présentées aux parties prenantes lors de l'atelier de restitution afin qu'elles soient prises en compte dans le plan d'aménagement du territoire.	A first analysis was conducted in collaboration with the Birdlife HCV project to identify areas that are potentially important for conservation. Then, fieldwork was organized in these areas to document their value for conservation (when possible). In the end, 21 areas have been identified as priority for conservation (17 in São Tomé and 4 in Principe) based on the occurrences of endemic or threatened plants (annex 3). They have been mapped and the list of species documented.

Unexpected impacts (positive or negative)?

In collaboration with BirdLife International and local stakeholders, we organized and contributed to the first KBA workshop in São Tomé in October 2021.

One area, not identified previously, probably deserves a status of KBA. Ribeira Funda, one of the last dry forest of the north part of São Tomé. This area is highly threatened and thus urgently deserves a protected status. The lowland deciduous forest, woodlands and savannas in the extreme north of São Tomé host patches of forests that still contain

threatened species. A portion of this ecosystem is already considered as a KBA (nearby praia das conchas and lagoa azul), but it needs to be expanded.

In São Tomé, the PN Obo and its buffer zone harbor 103 species that are potentially triggering KBA, of which 40 are triggering only the PN Obo. Within the PN Obo, the area situated above 1900 m (the Pico Grande and Pico Pequeno area) represents a unique ecosystem harboring 13 species triggering KBA, and might be considered as a potential site for an Alliance for Zero Extinction (AZE).

In Principe, the PN Obo contains 40 species that are potentially triggering KBAs and clearly justify its status.

The result of this workshop showed that the KBA network in São Tomé needs a new delineation and that 119 endemic plant species are triggering existing KBAs on both islands. However, the process to update the KBA database will require many additional workshops. The dataset on endemic and threatened plant species and our field experience also led us to identify 21 areas that are potentially important for their conservation (see Annex 3). Many of these areas are outside National park and KBA networks.

PROJECT RESULTS/DELIVERABLES

Overall results of the project:
The results of the project were presented during the restitution day available at https://www.youtube.com/channel/UCUD65rsd6Nwf5Uye3AgbPSQ. It can be summarized as below:

1. The flora and vegetation of many areas of both islands are much better known, thanks to (i) four field campaigns in São Tomé and two large ones in Príncipe - the collection of numerous specimens (2900 collection numbers in 2 to 5 duplicates, 21% of all specimens ever collected in the archipelago) and tree inventories (106 transects, > 18 000 trees identified and measured) - and (ii) the involvement of three experienced botanists from Gabon and Belgium. In total, we identified 50 species that are new records for the archipelago and 20 species that are potentially (or likely) new species (around 9% of the total native flora of the archipelago).

2. These new data were combined with historical collections to build the first updated and near-exhaustive database (including 13 727 specimen records) documenting the flora diversity and distribution of the archipelago. In particular, a verified checklist of endemic and/or rare taxa containing 156 names was produced based on this database (containing 3036 specimen records of endemic taxa).

3. Two workshops and several meetings were organized to conduct IUCN Red Listing of 154 endemic and/or rare species. Two species were assessed as Extinct. A hundred thirteen (113) taxa were assessed as threatened (eleven (11) as Critically Endangered, sixty six (66) as Endangered, thirty-six (36) as Vulnerable). Eight (8) taxa were assessed as Near Threatened. Eight (8) taxa were assessed as Data Deficient. Twenty-three (23) taxa were assessed as Not Threatened.

4. Seven training sessions (2-5 days) were organized during the project. In addition, four students were hired during the project in São Tomé and one in Príncipe and continuously trained.

5. The database of the project and the skills and knowledge of the team were used for a workshop dedicated to the documentation and delimitation of Key Biodiversity Areas in Sep 2021, the first of this kind to be organized in São Tomé. This work was done in collaboration with Birdlife, and other institutions and stakeholders.

6. The results of IUCN workshops and knowledge gathered during the project have been synthesized into a Red List data book of the plant species endemic to São Tomé and Príncipe (https://github.com/gdauby/saothreath_book/blob/main/MAQUETTE%20Familles%2010_compressed.pdf). In addition to the hard copies of this book (Annex 1), there will is an online version (https://gdauby.github.io/saothreath_book/).

7. The team of the project was deeply involved in the production of three chapters of another book edited by Springer Nature dedicated to the biodiversity and conservation of the islands of the Gulf of Guinea. https://link.springer.com/content/pdf/10.1007/978-3-031-06153-0.pdf

Results for each deliverable:

Component		Deliverable		
#	Description	#	Description	Results for Deliverable
1.0	Identification des espèces potentiellement menacées à travers une évaluation préliminaire de leur statut de conservation selon les critères UICN	1.1	Base de données exhaustive des occurrences d'espèces de plantes de STP.	This database has been built successfully. This is the most exhaustive database for the archipelago ever built both in terms of quality (important effort has been done for georeferencing and taxonomy standardization) and quantity.
1.0	Identification des espèces potentiellement menacées à travers une évaluation préliminaire de leur statut de conservation selon les critères UICN	1.2	Checklist contenant la liste des espèces de plantes avec l'ensemble des paramètres utilisées pour l'évaluation de leur statut de conservation et la catégorie IUCN auquelle elle se rapporte.	We successfully generated this checklist which is available in the soon to be published book, but also online (https://github.com/gdauby/saothreath_book/blob/main/MAQUETTE%20Familles%2010_compressed.pdf). See also the github repository : https://github.com/gdauby/saothreath_book
2.0	Caractérisation des habitats et et distribution des espèces menacées. Correspondant à l'étape 2 du volet 1	2.1	Cartes et fiches descriptives de chaque espèce potentiellement menacées.	Maps and descriptive leaflets for 106 (sub)-endemic species (many of them threatened) are available on the github repository (https://github.com/gdauby/saothreath_book/blob/main/MAQUETTE%20Familles%2010_compressed.pdf
2.0	Caractérisation des habitats et et distribution des espèces menacées. Correspondant à l'étape 2 du volet 1	2.2	Carte des habitats forestiers dégradés des Sao Tomé et Principe	A new typology of the terrestrial ecosystem of the archipelago has been produced in collaboration with other researchers (Ricardo Lima, Filipa Coutinho Soares). Maps and resources used to produce these classification have been made available (https://github.com/gdauby/stpa_ecosystems_review) This typology is presented in a book chapter (Biodiversity of the Gulf of Guinea Oceanic

Component		Deliverable		
#	Description	#	Description	Results for Deliverable
				Islands) available in open access (https://link.springer.com/content/pdf/10.1007/978-3-031-06153-0.pdf).
3.0	Red Listing des espèces potentiellement menacées.	3.1	Inventaire des menaces pesant sur les communautés et populations des espèces végétales natives.	Threats on the different habitats and terrestrial ecosystems have been evaluated, mapped and reviewed in the same book chapter, currently under review (Biodiversity of the Gulf of Guinea Oceanic Islands, https://link.springer.com/content/pdf/10.1007/978-3-031-06153-0.pdf). Maps and ressources underlying this chapter are open access (https://github.com/gdauby/stpa_ecosystems_review)
3.0	Red Listing des espèces potentiellement menacées.	3.2	Evaluations des statuts de conservation selon les critères de l'UICN.	Two workshops and several meetings were organized to conduct IUCN Red Listing of 154 endemic and/or rare species. Two species were assessed as Extinct. A hundred thirteen (113) taxa were assessed as threatened (eleven (11) as Critically Endangered, sixty six (66) as Endangered, thirty-six (36) as Vulnerable). Eight (8) taxa were assessed as Near Threatened. Eight (8) taxa were assessed as Data Deficient. Twenty-three (23) taxa were assessed as Not Threatened.
4.0	Réévaluation de la délimitation des Zones Clés de Biodiversité.	4.1	Rapport d'estimation, pour chaque espèce menacée ou à distribution restreinte, des paramètres nécessaires pour évaluer selon les critères A	As part of the assessment of their Red List conservation status, all parameters have been calculated. The parameters were used for the KBA workshop organized with Birdlife in Sep 2021.

Component		Deliverable		
#	Description	#	Description	Results for Deliverable
			et B des standards d'évaluation ZCB.	
4.0	Réévaluation de la délimitation des Zones Clés de Biodiversité.	4.2	Cartes de l'archipel présentant les sites devant être considérée comme ZCB selon les critères A et B des standards ZCB.	We used distribution data for all threatened plant species (assessed during the project) to test both existing KBAs and two new potential KBA (the Pico area and the Ribeira Funda area). We identified 119 taxa that can be considered as trigger species (following Criteria B1 and A1 of the KBA guidelines). The resulting map of this study has not yet been submitted because additional workshops would be necessary for validating the results and to include zoological data.
4.0	Réévaluation de la délimitation des Zones Clés de Biodiversité.	4.3	Article présentant les résultats de l'application des standards ZCB à la flore menacée de STP	The KBA workshop has been conducted in October 2021 (four days). It involved several stakeholders and researchers bringing knowledge and data both on the flora (our project) and fauna. We conducted a spatial analysis of distribution data and KBA delimitations (both existing limits and two potentially new KBAs) in order to identify trigger species following Criteria B1 and A1 of KBA guidelines. More specifically, we automatically computed Areas of Occupancy of all species and calculated the overlap with KBA polygons. Results are however still preliminary. Some of these results are presented as part of the book.
4.0	Réévaluation de la délimitation des Zones Clés de Biodiversité.	4.4	Article présentant les outils R développés pour appliquer	We devised an original method (and an R script) to apply automatically the criterion B1 and A1 of KBA guidelines. However, this

Component		Deliverable		
#	Description	#	Description	Results for Deliverable
			les standard ZCB à la flore de STP.	method remains preliminary. Additional efforts are necessary to test the method on other datasets and to publish it. This work is now conducted in Gabon, as part of the Bezos' KBA project.
5.0	Renforcement des capacités	5.1	Évaluation démontrant les capacités augmentées des 2 étudiants formés pour collecter, identifier les plantes, gérer une collection de spécimens et réaliser une évaluation UICN préliminaire.	The students and other project participants have received many training during the project. They have been able to successfully collect their own specimens (see for example Tropicos database: http://legacy.tropicos.org/Specimen/101267601 for Angela Lima, and http://legacy.tropicos.org/Specimen/101236651 for Madre Deus, Dilson who contributed to 1311 collections). Both students from Sao Tomé, but also project members from Principe participated in Red Listing activities and published some species: https://www.iucnredlist.org/species/196294299/196312493 for example. All project members successfully passed a test at the end of the project.
6.0	Dissémination des données et résultats.	6.1	Livre sur la flore de STP.	This book will be printed in 2023 in 100 copies (see additional file for the front page). This book will be distributed both as hard copies and online (see https://github.com/gdauby/saothreath_book).
6.0	Dissémination des données et résultats.	6.2	Site web rendant disponible les informations sur les plantes menacées de STP.	The project website is available in the following link https://gdauby.github.io/saothreath_book/.

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#	Description	#	Description	Results for Deliverable
				Information of threatened species is also available in the online book (see https://link.springer.com/content/pdf/10.1007/978-3-031-06153-0.pdf).
6.0	Dissémination des données et résultats.	6.3	Compte-rendu des deux ateliers démontrant l'amélioration des connaissances et de la sensibilisation des parties prenantes aux enjeux de la conservation de la flore	Because of the covid the last workshop has been made online. It is available at https://www.youtube.com/watch?v=XmdJLqYeXRM Most of the stakeholders contributed to the KBA workshops (annex 2) and stayed the whole week, showing a clear interest.
7.0	Gestion et suivi de la conformité du projet	7.1	Plan de mobilisation des parties prenantes implémenté et suivi, comme demontré dans les rapports programmatiques soumis en Janvier et Juillet de chaque année au CEPF.	The "Plan de mobilisation des parties prenantes" is given in annex 4. The communication was ensured using may ways: An online final presentation of the project has been distributed through youtube: https://www.youtube.com/watch?v=XmdJLqYeXRM All supporting documents have been made available through the project website (including the four newsletters): (https://cepf-stp-threat-flora.netlify.app/) Form for the threatened species are available online at: http://legacy.tropicos.org/NameSearch.aspx?IsExact=False&ListID=30628&IncludeActive=True&IncludeInactive=False&OrderBy=1&SortOrder=1&projectid=86 The KBA form with plant data has been given to Birdlife for submission to the KBA secretary.

Component		Deliverable		
#	Description	#	Description	Results for Deliverable
				Many training documents have been prepared for this project (see annexes 8 and 9). Seven training sessions occurred in Sao Tomé and three staff members went to Coimbra after the Covid crisis and thanks to external fundings. The launch meeting was organized on 18th of October 2019 and objectives were presented (annex 10). The restitution was made online. Our two representatives, MDC et LB consulted frequently the various stakeholders (Annexes 5, 6 and 7: Deliverable 12) and contributed to the Grupo Inventário Florestal - Super Liga das Florestas.
7.0	Gestion et suivi de la conformité du projet	7.2	Rapports financiers et programmatiques soumis en ligne à temps et de façon précise.	All finance reports have been submitted. We experienced some delays due to the time constraint of the PI of this project.
7.0	Gestion et suivi de la conformité du projet	7.3	Impacts de projet suivis et documentés dans le Rapport Final soumis en ligne au CEPF.	All impacts have been documented in the various reports submitted to the CEPF and in the final report.
7.0	Gestion et suivi de la conformité du projet	7.4	Supports de communication partagés avec l'Équipe Régionale d'Implémentation, par email ou tout autre moyen.	Four newsletters have been published during the project (https://cepf-stp-threat-flora.netlify.app/). The regional team was included in the mailing list. Some newsletters have been posted on the CEPF website: https://www.cepf.net/grants/grantee-projects/characterization-threatened-flora-sao-tome-and-principe

Tools, products or methodologies that resulted from the project or contributed to the results:

We developed a website that inform on the outputs of the project.
https://cepf-stp-threat-flora.netlify.app/

We built an online Red List Book (https://link.springer.com/content/pdf/10.1007/978-3-031-06153-0.pdf) that provides leaflets for many threatened species of the archipelago.
https://gdauby.github.io/saothreath_book/

We built an open-access repository providing online and open access to all documentation on the terrestrial ecosystems of São Tomé y Principe.
https://github.com/gdauby/stpa_ecosystems_review

PORTFOLIO INDICATORS

Portfolio Indicator Number	Portfolio Indicator Description	Expected Numerical Contribution	Expected Contribution Description	Actual Numerical Contribution	Actual Contribution Description
3.3	Number of species from poorly assessed taxonomic groups with their global conservation status updated or assessed for the first time on the IUCN Red List (target: at least 100).	150	Au moins 150 statuts de conservation d'espèces rares ou endémiques seront évalués et soumis à la Liste Rouge de l'UICN ce qui améliorera toutes actions de conservation de la flore.	154	154 endemic and/or rare species were assessed. Two species were assessed as Extinct. A hundred thirteen (113) taxa were assessed as threatened (eleven (11) as Critically Endangered, sixty six (66) as Endangered, thirty-six (36) as Vulnerable). Eight (8) taxa were assessed as Near Threatened. Eight (8) taxa were assessed as Data Deficient. Twenty-three (23) taxa were assessed as Not Threatened.
2.1	Number of conservation-related policies of national governments are	6	Cinq lois (RDSTP Lei No 05/2001; Lei No 06/2006; Lei No 10/1999; Lei No	0	All the data needed to update these laws were integrated into the Red List data book that we prepared

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	informed or influenced by research, analysis and outreach supported by CEPF grants (target: At least 5).		11/1999; Decreto N.º 37/1999 30-11-1999) pourront être actualisees et une loi sur la protection de la flore (Lei n.º11/99) complétée grâce aux acquis du projet		for this project (https://gdauby.github.io/saothreath_book/). The book will be made available to all stakeholders so they can use it to update the annex linked with these laws. However, so far, none of these laws have been modified and the current politic situation do not help.
3.1	Number of Critically Endangered and Endangered species with priority actions identified in Conservation Action Plans being implemented (target: for at least 15).	15	Au moins 15 espèces CR ou EN feront l'objet de mesures de conservation ex situ à Bom Successo ou à Principe.	13	For each species assessed as threatened, we established the requested conservation actions and summarized them in the book for the local authority. We tested ex situ conservation actions and have been able to collect and grow 17 threatened species on both islands (4 of these species were cultivated on both islands, Podocarpus manni, EN, Chytranthus mannii, VU, Carapa gogo, VU, Afrocarpus mannii, EN). So, overall 13 species were put in cultivation with success on both islands (2 CR, 2 EN, 6 VU and 3 locally threatened). In Sao Tomé, 10 threatened species (8 globally and 2 locally), were

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					integrated into the Campo de Milho nursery and at Bom Sucesso. In Principe, 7 threatened species (6 globally and 1 locally) have been cultivated at the nursery of the Fundação Príncipe´s headquarters. One species, Balthasaria mannii, assessed as CR, was transplanted at the Bom Successo Botanical Garden, but it did not survive. One species assessed as EN (Afrocarpus mannii) has been transplanted to both the Bom Successo botanical garden and to two forest communities (Saudade and Abade Community Forests), in collaboration with another project in which Maria do Céu Madureira is involved. Finally, 4 species potentially new to science, all threatened (Amanoa sp. nov, Strephonema sp.Cynometra aff mannii, Xylopia sp. nov) have been transplanted at Bom Successo and in the collection of the Principe Natural Park managed by FFI.

Portfolio Indicator Number	Portfolio Indicator Description	Expected Numerical Contribution	Expected Contribution Description	Actual Numerical Contribution	Actual Contribution Description
2.2	Number of key biodiversity areas with locally-relevant information on natural ecosystems generated and used to influence political and economic decision-making in favor of their conservation (target: for at least 20).	4	La re-délimitation et la priorisation des mesures de conservation pour 4 ZCBs seront proposées sur la base d'informations critiques sur la biodiversité végétale obtenues (au moins 500 numéros d'herbiers collectés, 30 inventaires réalisés,...)	4	This impact has been validated during the project. The KBA workshop organized in October 2021 (annex 2) involved several stakeholders and researchers bringing their knowledge and datasets on the flora (this project) and fauna (BirdLife). A joint spatial analysis of these data was conducted during the workshop (annex 3). We identified numerous trigger species for four existing KBA (Malanza, Parque Natural de Obo of São Tomé, Parque Natural de Principe, Praia das Conchas). We also initiated a discussion on the status of the Pico area in Sao Tomé. This area above 1800 m hosts distinct vegetation types and several plant species endemic to this narrow area. We discussed whether we should consider this area as a distinct KBA different from the larger one (the Obo Natural Park) where it is already included. We did not reach a consensus on this topic.

Portfolio Indicator Number	Portfolio Indicator Description	Expected Numerical Contribution	Expected Contribution Description	Actual Numerical Contribution	Actual Contribution Description
					Overall, analysis remained preliminary and the scientific partners of the workshop were not yet able to mobilize sufficient resources for publishing the result yet. However, all the data needed to update six laws were collected, thus demonstratng that the newly acquired knowledge on these four KBAs could influence policies.
3.2	Number of inventory of Key Biodiversity Areas in the hotspot is updated to fill critical information gaps, particularly with regard to the Lower Guinean Forests subregion, and freshwater ecosystems.	20	Au moins 20 zones potentiellement importantes pour la conservation de la biodiversité seront inventoriées et cartographiées. Leur importance pour la conservation et leur localisation seront présentées aux parties prenantes lors de l'atelier de restitution	21	A first analysis was conducted in collaboration with the Birdlife HCV project to identify areas that are potentially important for conservation. Then, fieldwork was organized in these areas to document their value for conservation (when possible). In the end, 21 areas have been identified as priority for conservation (17 in São Tomé and 4 in Principe) based on the occurrences of endemic or threatened plants (annex 3). They have been mapped and the list of species documented.

GLOBAL INDICATORS

Protected Areas

Protected areas that have been created and/or expanded as a result of the project. Protected areas may include private or community reserves, municipal or provincial parks, or other designations where biodiversity conservation is an official management goal.

Name of Protected Area	WDPA ID*	Latitude	Longitude	Country	Original Total Size (Hectares) **	New Protected Hectares ***	Year of Legal Declaration or Expansion

*World Database of Protected Areas

**If this is a new protected area, 0 should appear in this column

*** This column excludes the original total size of the protected area.

Key Biodiversity Area Management

Key Biodiversity Areas (KBAs) under improved management—where tangible results have been achieved to support conservation—as a result of the project.

KBA Name	KBA Code	Size of KBA	Number of Hectares with Improved Management

Production Landscapes

Production landscapes with strengthened management of biodiversity as a result of the project.

A production landscape is defined as a site outside a protected area where commercial agriculture, forestry or natural product exploitation occurs.

Name of Production Landscape	Latitude	Longitude	Hectares Strengthened	Intervention

Benefits to Individuals

- **Structured Training:**

Number of Men Trained	Number of Women Trained	Topics of Training
18	6	Tree inventory and specimen collection (October 2019, three days) Specimen identification (October 2019, two days) Herbarium Techniques: processing of specimens includes Pressing, Drying, Mounting, Stitching, Labeling, Identification / Determination of plants, Digitizing, Databasing: introduction to Specify software (September - November 2020, six days) Flora of STP (January 2021, two days) Red Listing workshop (March 2021, five days) Conservation & Biodiversity of S. Tomé (July 2021, two days) KBA identification and delineation workshop (six days, October 2021)

- **Cash Benefits:**

Number of Men – Cash Benefits	Number of Women – Cash Benefits	Description of Benefits

Benefits to Communities

View the **characteristics** column below with the following corresponding codes:	View the **benefits** column below with the following corresponding codes:
1- Small Landowners	a. Increased Access to Clean Water
2- Subsistence Economy	b. Increased Food Security
3- Indigenous/ Ethnic Peoples	c. Increased Access to Energy
4- Pastoralists / Nomadic Peoples	d. Increased Access to Public Services
5- Recent Migrants	e. Increased Resilience to Climate Change
6- Urban Communities	f. Improved Land Tenure
7- Other	g. Improved Use of Traditional Knowledge
	h. Improved Decision-Making
	i. Improved Access to Ecosystem Services

Community Name	**Community Characteristics**							**Type of Benefit**								**Country**	**Number of Males Benefitting**	**Number of Females Benefitting**
	1	**2**	**3**	**4**	**5**	**6**	**7**	**a**	**b**	**c**	**d**	**e**	**f**	**g**	**h**	**i**			

Characteristics of "Other" Communities:

Policies, Laws and Regulations

View the **topics** column below with the following corresponding codes:			
A- Agriculture	E- Energy	I- Planning/Zoning	M- Tourism
B- Climate	F- Fisheries	J- Pollution	N- Transportation
C- Ecosystem Management	G- Forestry	K- Protected Areas	O- Wildlife Trade
D- Education	H- Mining and Quarrying	L- Species Protection	P- Other

No.	**Name of Law**	**Scope**	**Topics**														
			A	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**

"Other" Topics Addressed by the Policy, Law or Regulation:

No.	Country/ Countries	Date Enacted/ Amended	Expected impact	Action Performed to Achieve the Enactment/ Amendment

Companies Adopting Biodiversity-friendly Practices

A company is defined as a for-profit business entity. A biodiversity-friendly practice is one that conserves or uses natural resources in a sustainable manner.

Name of Company	Description of Biodiversity-Friendly Practice	Country/Countries where Practice was Adopted

Networks and Partnerships

Networks/partnerships should have some lasting benefit beyond immediate project implementation. Informal networks/partnerships are acceptable.

Name of Network/Partnership	Year Established	Country/ Countries	Established by Project?	Purpose

Sustainable Financing

Sustainable financing mechanisms generate funding for the long-term (generally five or more years). These include, but are not limited to, conservation trust funds, debt-for-nature swaps, payment for ecosystem services (PES) schemes, and other revenue, fee or tax schemes that generate long-term funding for conservation.

Name of Mechanism	Purpose	Date Established	Description	Country/ Countries	Project Intervention	Delivery of Funds?

Globally Threatened Species

Globally threatened species (CR, EN, VU) on the IUCN Red List of Threatened Species, benefitting from the project.

Genus	Species	Common Name (English)	Status	Intervention	Population Trend at Site
Afrocarpus	mannii		VU	The species was reassessed as EN during the project. This species was collected at CIAT and Potó. Thirty-nine (39) seedlings were planted in Saudade and Abade Community Forests to reinforce existing plantations done in the context of another project (Tesouros d'Obô project).	Stable
Balthasaria	mannii		VU	The species was assessed as CR during the project. One individual was collected during the field campaign in October 2021 in the Pico area. This individual was planted in Bom Sucesso Botanical Garden but it did not survive.	Decreasing
Staudtia	pterocarpa		VU	Seedlings were collected at Pico Cão Grande and Rio Cantador. One was planted at Bom Sucesso Botanical Garden. The others have been planted at Saudade Community Forest to reinforce existing plantations done in the context of another project (Tesouros d'Obô project).	Unknown
Pandanus	thomensis		VU	Seedlings were collected at Praia Xixi. Two of them were planted at the Bom Sucesso	Unknown

Genus	Species	Common Name (English)	Status	Intervention	Population Trend at Site
				Botanical Garden. The others have been planted at Saudade Community Forest to reinforce existing plantations done in the context of another project (Tesouros d'Obô project).	
Anisophyllea	cabole		VU	22 seedlings were collected in Principe and were grown in the nursery of the Fondation Principe, our local partner.	Stable

LESSONS LEARNED

Such projects need a strong level of collaboration between various partners:

South-south collaboration
For the first time, we developed a collaboration between São Tomé and Gabon for conducting botanical studies and training. This had a strong impact on the motivation of the field team, and allowed acquisition of high quality data in remote places, strongly increasing the knowledge on the plant distribution in these islands. This was an indispensable prerequisite to assess species conservation status and identify KBAs.

North-south collaboration
Involvement of international partners such as IRD and Meise Botanic Garden allow to significantly increase the taxonomic knowledge of the flora and to conduct high quality analyses.

Thanks to this highly diverse team, we completed the project and developed collaborations that will certainly help future project and conservation actions.

SUSTAINABILITY/REPLICATION

The sustainability of the project will be ensured thanks to several outcomes:
First, all data collected during the project have been made available on Tropicos, which makes possible their update (for example regarding identification) and long-term availability (open access).
Second, the capacity building activities led the training of two students. This training was further reinforced through their visits at Coimbra Herbarium, in the context of another project coordinated by Maria Do Ceu Madureira. The skills these students acquired make them now able to gather and process similar activities.
The increase in botanical local capacity will contribute to the conservation and research of the flora and vegetation.
The main challenge of this project has been to face the consequences of Covid and the lockdowns. Our team was in the field when during the first wave of Covid, and we had to repatriate them urgently. Moreover, this completed halted exchanges between Europe and Africa, and the training of the team in Europe was thus cancelled for the rest of the duration of the project. The project team has learnt how to do better remote communication, but we experienced lot of delay, especially in Red Listing activities. Overall, Covid gave more responsibilities to the local team, which was positive, and the training was made at Coimbra after the project completion, thanks to external funding. Also, since the preparation of the IUCN assessments took more time than what was expected, the publication of the book was also delayed. However, MBG is a Red List partner and has enough resources to continue the publication of these assessments, but this is a slow process that also depends on the capacity of the Red List unit to manage their workload. Finally, we were not able to update the laws during the duration of the project which was too short but the needed information is now available, and will be disseminate trough the book. However, Sao Tomé is facing political troubles and we should wait until the politic situation is clarified before starting disseminating this information to the appropriate people.

ENVIRONMENTAL AND SOCIAL SAFEGUARDS/STANDARDS

A Grievance mechanism was created (MBG Grievance Mechanism - English) and made available on the project's website, to the government, and to the general public during public presentations. No grievances were recorded during the project.
The project faced the Covid pandemia which hampered multiple activities of the project during one year (starting from March 2020 until March 2021). For two months (first lockdown), all activities were canceled. When the activities started again (June 2020), the teams in Sao Tomé and Principe established strict health and safety measures both during field and offices works (e.g. facial mask mandatory). Some of the canceled field activities were finally re-scheduled during the last months of the project (October 2021).

ADDITIONAL COMMENTS/RECOMMENDATIONS

The duration of the project was short in comparison with the challenges that represent the goals of this project. Moreover, unexpected events such as Covid can have a deep impact on the possibility of reaching these goals. Clearly, having 4 to 5 years without additional cost would be better to fulfill such a project.

ADDITIONAL FUNDING

Total Amount of Additional Funding Actually Secured (USD)	$20,000.00
Breakdown of Additional Funding	We consolidated the training of the national staff, through an internship at the Herbarium of the University of Coimbra, Portugal. Indeed, this training was delayed because of the Covid and occured after the end of the project thanks to additional fundings. This stay lasts 3 months for the two students in botany from the S. Tomé team, and one month for our member of the Principe Foundation. This training conducted abroad was made possible thanks to the partnerships established in the frame of the Aqualogus project. This project was conducted by the project teams in São Tomé and Príncipe which conducted field work for this project raising the funds that partially finance these internships. A partnership with the Project funded by GBIF, with the coordination of CIAT / STPH will cover the remaining expenses of this important training. FP managed to secure the funds that would allow one of its staff to travel and receive training in Coimbra (Portugal). This was achieved using FP´s internal funds and through a partnership with the project in São Tomé. Finally, matching funds were also secured by the West and Central Africa program of the MBG to fund the publication of the book, which exceeded the cost planned in the CEPF budget.

INFORMATION SHARING AND CEPF POLICY

CEPF is committed to transparent operations and to helping civil society groups share experiences, lessons learned and results. For more information about this project, you may contact the organization and/or individual listed below.

Missouri Botanical Garden, Central African program, mbgwcap@gmail.com