January 2022

Final Consultancy Report

Contributions towards the project *Caracterization of the threatened flora of São Tomé & Príncipe*

Report by: Maria do Céu Madureira – Centre for Functional Ecology, University of Coimbra

mceu.madureira@uc.pt / mceu.madureira@gmail.com

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1. Introduction and objectives

For the implementation of the project "Caracterization of the threatened flora of São Tomé & Príncipe", Maria do Céu Madureira (MCM), from the Centre of Functional Ecology, University of Coimbra (UC), was hired by the Missouri Botanical Garden (MBG) from October 2019 to December 2021 to act as a technical consultant, representing and supervising the work in São Tomé (ST). MCM was the supervisor of the project in São Tomé, beeing responsible for leading the activities in the island, including the supervision of ST´s team. The following sections of this report describe the activities and deliverables completed by MCM, following the consultancy agreement signed between the parts as bellow:

Activities

1) Represent and supervise the project in São Tomé
2) Train and manage the work of one project assistant and three field staff in São Tomé
3) Organize the field expeditions and data collection (transects, specimens, pictures, silicagel samples)
4) Attend the various meetings and workshops
5) Organize the project´s workshops and meetings in São Tomé
6) Manage the project media – website and social media
7) Create, translate and add content to the project website
8) Prepare the species form "fiche" for São Tomé species (identifying the uses of the species assessed for the project)
9) Write and contribute to the project´s scientific publications and the planned book
10) Contribute to technical reporting for CEPF
11) Manage all project data and specimens (including permits shipments and curation)
12) Manage funding of the project for São Tomé.

Deliverables

1) Contribute to Red Listing of rare and threatened plant species of São Tomé
2) Prepare with her team all requested excel spreadsheets (specimens, transects and others)
3) Management and host of the project equipment´s and supplies
4) Collect and manage specimens (permits, specimens, pictures, and silicagel)
5) Organization of field expeditions to collect and manage transect data (2 to 3 per month)
6) Develop a field campaign strategy
7) Create and translate contents for the Tropicos project
8) Contribute to any project related publication (newsletters, scientific papers and book)
9) Report on activities and results according to CEPF requirements
10) Participate in all media activities of the project
11) Organize in São Tomé any meetings and workshops related to the project
12) Maintain a good relationship with local authorities and project stakeholders in São Tomé
13) Represent the project at any CEPF meetings or site visits (including technical audits)
14) Contribute and implement any CEPF required documents (grievance mechanism, baseline indicator for the portfolio, etc.)
15) Contribute to KBA delimitation in São Tomé
16) Support the development of a strategy to monitor activities that are related to the project Key Indicator (KI) and the project impacts
17) Provide finance reports to MBG before CEPF datelines
18) Provide a contribution to the CEPF final completion report 30 days before the end of the grant
19) Three-month timesheet for the period considered by the CEPF finance reporting and provided at least two weeks before the CEPF reporting due date.

2. Activities and deliverables completed by MCM

2.1. Project staff, logistical and administrative procedures (Activities 1, 11 ; Deliverables 3)

- For the duration of the project, four permanent staff members were hired: Angela Lima and Dilson Madre Deus (Botanists students), Pascoal Sousa (Parataxonomist Student and Forest Thechnician) and Lewis Eduardo (Herbarium Thechnician student); the S. Tomé team was completed with two field staff assistants (Estevão Soares - Parataxonomist and António Camuenha - Guide & Collector).
- MCM, as representative of Coimbra University at São Tomé - Tesouros d'Obô partner Project, made resources available for the completion of the activities - office space, internet and computer equipment, vehicles, field equipment, logistical support – for project team and partner projects;
- Made resources available for the attendance of stakeholders on project meetings or presentations – office space, internet and computer equipment, vehicles and logistical support;
- Complied with the administrative and human resource procedures related to the students and the field staff – including: timesheets, payments of local taxes, evaluation of performance, management of contracts, COVID-19 pandemic procedures);
- When necessary, hired occasional service providers (climbers, porters, guides or field assistants), complying with all the national regulations, including invoices and tax payment;
- Purchased any necessary services, supplies or equipment following internal Purchasing procedures and accounting (invoices and cashbooks regularly audited), complying with MBG and CEPF standards;
- Manage all project specimens (including curation at STPH and permits shipments), complying with CITES, Nagoya Protocol and national and international legal requirements;
- Made available to all stakeholders project Grievance Mechanism.

2.2. Training and meetings (Activities 2,4,5 ; Deliverables 11, 12)

The project manager provided continuous training of the 6 team members on collection methods, methodologies for inventories of trees, preparation of herbarium materials (assembly, pressing and drying), scientific identification of families and species, computer processing of botanical data, use of GPS; plant species distribution maps: QGIS; Herbarium techniques (processing of specimens; labelling; digitazing, databasing: Specify software).

Additionally, we organize several Workshops or participate in Workshops organized by other Partner Projects, training technicians and field staff from several institutions: PNOST staff members, DFB staff members, Guardiões d'Obô - ECOFAC VI, Workers from Agripalma, Master Students (Coimbra University), PhD Students (University of Leeds), University Researchers (STP; UC; UL) and staff members of Partner Projects and ONG's (Oikos; Ecofac; BirdLife; PTRS; Monte Pico; Tesouros D'Obô; TRI) - on biodiversity and ecology, STP main ecosystems, methodologies for inventories of trees, scientific identification of families and species; Red List and HCV. Therefore, we trained 84 people in São Tomé during the project (60 men and 24 women), as shown in the table below.

We consolidated the training of national staff, through an internship at the Herbarium of the University of Coimbra, Portugal, with the duration of 3 months for the two botany students from the S. Tomé team, and lasting 1 month for our member of the Prince Foundation. This training abroad was only possible due to the partnerships established with Aqualogus by the teams from S. Tomé and Príncipe, with the carrying out of field work that allowed to partially finance the expenses of these internships. A partnership with the Project financed by GBIF, with the coordination of CIAT / STPH will cover the remaining expenses of this important training.

MCM also represented the project on the informal network/group "Super Forest League" on the subgroups *Forest Inventor*ies and *Agroforestry Systems*, providing information regarding project activities, events and finds. The group is composed of several local and international NGOs, Government technicians and Researchers from local and international universities.

Figure 1 - Training activities. A-Herbarium Techniques at STPH (Lewis, Pascoal, Dilson and Angela). B-Scientific Identification of Botanical Garden Species, with Tariq Stevart at Botanical Garden. C-.Introduction – IUCN Red List. D & E-Management of Botanical Collections at COI, University of Coimbra.

Table 1 - Training and meetings organized, delivered or attended by MCM-UC during the project.

Date	Location	Content	Public	Trainers	Function	Notes
18/10/2019 1 day	Bom Sucesso Botanical Garden, São Tomé	Project Presentation & KickOff Meeting	General public	Project team	Organization, presenter and translator	Deliverables 11 and 12. With the presence of the STP Minister of Agriculture
21-31/10/2019 2 weeks	Bom Sucesso Botanical Garden & ST Field Expeditions	Collection methods, preparation of herbarium materials, methodologies for inventories of trees and biodiversity, scientific identification of families and species; computer processing of botanical data, GPS.	General public, PNOST and DFB staff, Monte Pico Guides Association, and including project staff from ST and P. Total 21 (15 men; 6 women)	Project team and Jorge Paiva (Coimbra University)	Organization and trainer	Initial training to ST project members. Including fieldwork ST&P team.
9,16/02/2020 2 days	Tesouros do Obô, São Tomé	Introduction – IUCN Red List Plant species distribution maps: Introduction to QGIS	ST – project staff Total 5 (4 men; 1 woman)	MCM Ricardo Lima	Organization and trainer	Introduction and initial training to the ST project members
22, 29/09/2020 / 6, 13, 27/10/2020 3/11/2020 6 days	STPH - STP Herbarium CIAT, Potó	Training Course On Herbarium Techniques: processing of specimens includes Pressing, Drying, Mounting, Stitching, Labelling, Identification / Determination of plants, Digitazing, Databasing: introduction to Specify software	ST – project staff Total 3 (2 men; 1 woman)	MCM; Lewis Eduardo (STPH)	Organization and Trainer	
12, 19/01/2021 2 days	Bom Sucesso Botanical Garden	Scientific Identification of Botanical Garden Species: Native and Endemic Species & Introduced Species	PNOST staff, PTRS, TRI, Bird Life, including ST project staff Total 13 (9 men; 4 women)	MCM and ST project team	Organization and Trainer	
28/01/2021 1 day	Bom Sucesso Botanical	Training Course for Guardiões d'Obô - Module: Naturalist Training - Flora of S.	20 candidates (Ecofac VI); 4 PNOST and DFB staff; 2	MCM and Estevão Soares	Trainer	

	Garden	Tomé e Príncipe	Police staff. Total 26 (22 men; 4 women)			
18/03/2021 1 day	Tesouros do Obô, São Tomé	Introduction – IUCN Red List	General public, including project staff from ST & P Total 14 (10 men; 4 women)	Project team	Organizer Attendant and translator	
22-25/03/2021 4 days	Tesouros do Obô, São Tomé	Workshop - S. Tomé and Príncipe Endangered Species Assessment	Experts, including project staff from ST & P Total 13 (9 men; 4 women)	Project team	Organizer, Attendant and translator	
26/03/2021 1 day	C. Cultural Brasil São Tomé	Partial project results and preliminar RL presentation	General public	Project team	Organizer, presenter and translator	
5,8/07/2021 2 days	Agripalma, S. Tomé	Training in Conservation of Biodiversity of S. Tomé , for Agripalma Technicians - Module 1a - Flora of S. Tomé e Príncipe	Agripalma Technicians Total 17 (13 men; 4 women)	MCM	Trainer	Training organized by BirdLife International
24/09/2021 1 day	BidLife International São Tomé	Introduction - Key Biodiversity Areas (KBAs)	General public	Eleutério Duarte - Wildlife Conservation Society (WCS) Mozambique	Attendant	Training organized by BirdLife International & Coordinator of the Project
27 - 29/09/2021 3 days	BidLife International (BL), São Tomé	27/09: introduction on delineation, forms and mapping + constitution of the work groups 28 and 29/09: groups work, presentation of working hypotheses and delineation of new KBAs	Birdlife International (BL), Wildlife Conservation Society (WCS), MBG, FP, FFI, Centro Ecologia, Evolução e Alterações Ambientais (cE3c) Univ. de Lisboa e Centro de Ecologia Funcional da Universidade de Coimbra.	Eleutério Duarte (WCS) Mozambique, Tariq Stévart (MBG), Agyemang Opoku (BL)	Attendant	Training organized by BirdLife International & Coordinator of the Project

30/09/2021 01/10/2021 2 days	BidLife International (BL), São Tomé	Expert working group for KBA delimitation	Birdlife International (BL), Wildlife Conservation Society (WCS), MBG, FP, FFI, Centro Ecologia, Evolução e Alterações Ambientais (cE3c) Univ. de Lisboa e Centro de Ecologia Funcional da Universidade de Coimbra	Eleutério Duarte (WCS) Mozambique, Tariq Stévart (MBG), MC Madureira(UC) Laura Benitez (FFI); Estrela Matilde (FP), Ricardo Lima (cE3c);	Expert – data preparation organization, revision	São Tomé Working Group Total 6 (3 men; 3 women) & Príncipe´s Working Group Total 4 (1 men; 3 women)
5/10/2021 1 day	Bom Sucesso Botanical Garden, S. Tomé	Final project restitution Workshop & Ex situ conservation: plantation of specimen collected during field work at Bom Sucesso Botanical Garden	General public With the presence of the DFB Director and PNOST Director	Project team	Organizer, presenter and translator	Session hold in person and on-line. Recording in English and Portuguese
6/10/2021 1 day	Community Forest of Saudade	Ex situ conservation: plantation of specimens collected during field work (DFB nursery) at the Community Forest area of Saudade	Project team; Tesouros D'Obô Project team; Community elements of Saudade Total 15 (9 men; 6 women)	Project team	Organization	In collaboration with Project Tesouros D'Obô
15/01/2022 15/04/2022 3 Months	Herbarium of University of Coimbra (COI), Portugal	- Management of Botanical Collections Modern Herbarium Methods and Techniques: practice with material from São Tomé and Príncipe (preparation of plant material; Informatization; Digitization; Databases plant taxonomy) - Taxonomy and Identification of the Flora of São Tomé and Príncipe.	ST Project team (Botanist studants): Angela Lima and Dilson Madre Deus; Davide Dias from FP will stay 1 Month.	Fátima Sales; Jorge Paiva; Joaquim Santos; Filipe Covelo; MCM (COI/CFE - UC)	Organization	Financed by the partnership with Aqualogus and in collaboration with GBIF Project (CIAT & STPH & UC).

2.3. Data collection and management (Activities 3, 11; Deliverables 2,4,5,6)

MCM developed the field campaign strategy, organized and participated in the field expeditions, managed all data collection (transects, specimens, pictures, silicagel) and specimens (including curation at STPH and shipment permits) of the project, prepared all requested excel spreadsheets (specimens, transects and others) to the Tropicos website and project database, and supervised Project ST´s team. It´s important to note that the process of curation and management of the samples at STPH and the obtaining of shipments authorizations to send the herbarium specimens to the other international participating herbaria benefited greatly from the close, long-lasting relationship between University of Coimbra, STPH and CIAT, due to the excellent results obtained in a previous project financed by CEPF, which allowed the complete requalification and updating of STPH equipment and the training of 2 technicians at the UC. Additionally, the fact that MCM actively participated as a Technical Consultant of the Ministry of the Environment in the implementation of the Strategy for the Nagoya Protocol in STP greatly facilitated the establishment of official contacts and the obtaining of authorizations for the export of herbarium specimens, in strict compliance with national and international legal requirements.

Field activities

We successfully completed 48 transects in São Tomé, covering both the core area of the PNOST, the Buffer Zone and some forest areas with potential as HCV (Annex 1 - table 3 and fig. 1).

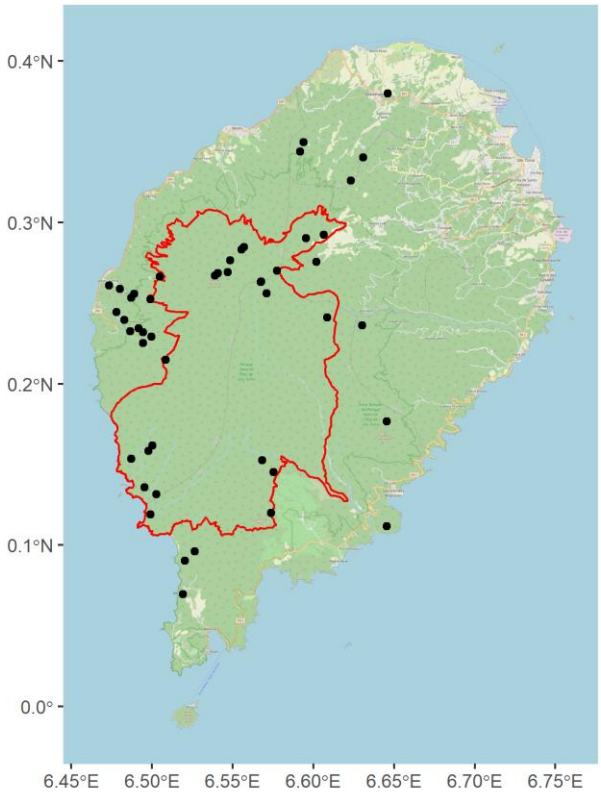


Figure 2 - Transects performed during the project on the island of S. Tomé. PNOST zone contoured in red.

Regarding the 48 transects, we surveyed **10.933** individuals and collected **1.118** specimens (Annex 1 - table 3) using the transect methodology. In addition, we collected **1.197** specimens using the general collection method (OL - 474, IK– 230, DD – 57, DG – 10; PS - 8; AL - 85; LE - 285; MCM - 45; DMD - 2; AC - 1), and 201 specimens using the Relevé method.

During the fieldwork, we collected seedlings and kept them at the nursery of DFB, in Campo de Milho, as part of the project´s ex-situ component. Results further on this report.

Data and specimen management

We were responsible for the preparation of the herbarium duplicates, preparation of exportation permits, and shipment to project's Herbarium partners, and curation (for the duplicates of ST project specimens and also the duplicates of PNP´s herbarium) of all São Tomé and Principe´s biological material for the project.

We also prepared all necessary Excel spreadsheets and pictures for the database of the project, and supported MBG on making the information available on Tropicos website. This information will be (and is already being) fundamental to enable and inform future scientific-based conservation decisions in the Island.

2.4. Publications and partnerships – Activities 6,7,8,9 and Deliverables 7,8,10

Book chapters

MCM (UC) collaborated on two chapters of the book "Biodiversity of the Gulf of Guinea Oceanic Islands" to be published by Springer in 2022, titled "Typification, distribution and biodiversity of terrestrial ecosystems in the Gulf of Guinea Oceanic Islands" and "The Seed Plants of the Gulf of Guinea Oceanic islands".

Research partnerships

Using information / expertise resulting from our project, ST team supported the following researches conducted in S. Tomé.

- *Tesouros d'Obô* - Ongoing project, coordinated by University of Coimbra, aimed at implementation of Agroforestry Systems and Community Forests in the buffer zone of PNOST, thus supporting conservation actions and forest management, and promoting the biodiversity reinforcement through plantation of trees for a sustainable use of Non Wood Forest Products. The project used the same transect methodology to perform 11 transects in 3 community forest areas (Saudade; Abade; Plancas I); project taxonomists were responsible for the management of the collected samples at STPH and for their scientific identification. Collaboration in *ex situ* conservation activities: plantation of specimens collected during field work (kept at DFB nursery) at the Community Forest area of Saudade.
- *Ecofac VI* - Ongoing project, coordinated by *Bird Life Internacional,* with the collaboration of cE3c, University of Lisbon. Collaboration with this project took place in several areas (use of data to design HCV's; participation as Trainers in workshops and training courses organized by BirdLife: Guardians d'Obô and Agripalma; Scientific

identification of species from the Bom Sucesso Botanical Garden, managed by by the Ecofac VI Project).

- *PhD Thesis*: in a partnership with Ricardo Lima (Centro Ecologia, Evolução e Alterações Ambientais - cE3c, University of Lisbon) we trained a PhD student from University of Leeds (Lena Strauß) in the project transect methodology; our team participated in 50 transects inventoried within rural and urban areas in S. Tomé island (fig. 2). We were also responsible for the management of the collected samples at STPH and for their scientific identification.

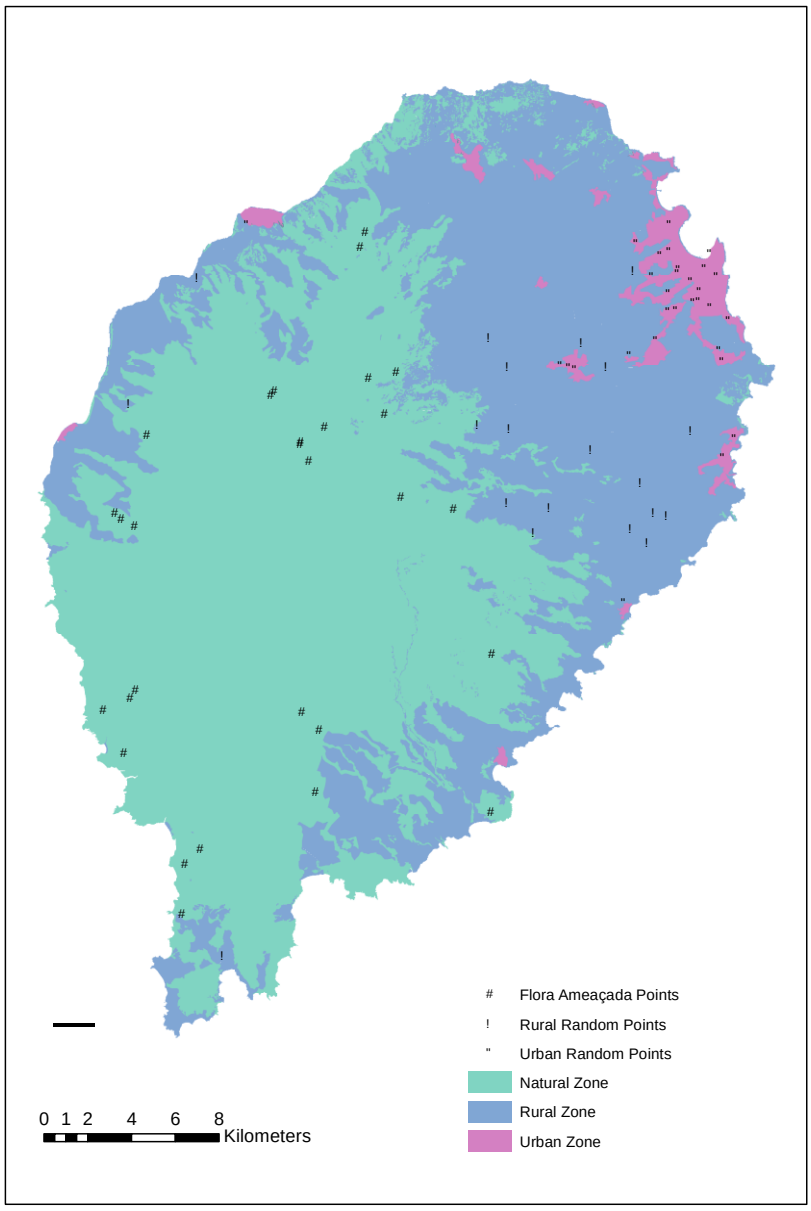


Figure 3 - Urbanization gradient across the island of São Tomé. The transects established by "Threatened Flora of São Tomé & Príncipe" are indicated as triangles. Rural transects (20) are shown as circles and urban transects (30) as squares (Lena Strauß, Project "*Biodiversidade e o uso de plantas lenhosas ao longo do gradiente de urbanização na ilha de São Tomé*).

- *Aqualogus* - A partnership was made with the company Aqualogus to collect data on the flora of 3 hydrographic basins (with 11 transects, general collection and relevés), for the preliminary study of the environmental impact of the construction of mini-hydro plants for energy production. With this partnership, we managed to finance the internship of our 2 students at the Herbarium of the University of Coimbra (15 January - 15 April 2022).

Conservation management tools

- S. Tomé National Obô Park (PNOST) Management Plan 2020-2025 and HCV's delimitation – to be published in 2022 (Bird Life Internacional). Project data used – general information regarding São Tomé´s habitats and flora.

Newsletters

Writing and translation of the four project newsletters with project team – available here. In addition, fulfilling deliverable 10 - Participate in all media activities of the project.

*All publications and partnerships cited on this section had the previous approval of MBG and contain the proper acknowledgements to the project, to CEPF and all other the institutions and people involved.

2.5. Ex-situ conservation

We collected seedlings and juvenile plants of 10 different species during our field expeditions, and kept them at the DFB nursery, in Campo de Milho (fig. 3 and Table 2). These young plants were planted in *ex situ* conservation activities: plantation of specimens at Jardim Botânico de Bom Sucesso and at the Community Forest area of Saudade and Agroforesty System of Abade.

Figure 4 - Ex situ conservation activities. A- Species collected growing at DFB Nirsery .B - Laura Benitez (FFI) and João D'Alva (DFB Director) holding two seedlings of Strephonema sp. to be planted at Botanical Garden. C. Tariq Stevart and Marlene (Tesouros D'Obô) planting *Podocarpus mannii* at Saudade Community Forest area.

Table 2 - Species collected for ex-situ conservation under this project from 2019-2021 growing at DFB Nursery.

Species	Seedlings /Juvenile	Predicted plant out date	Predicted plant site notes
Pandanus thomensis (Pau-esteira)	6	2021	Collected at Praia Xixi. Plantation of 2 of these specimens in the collection of the Bom Sucesso Botanical Garden. The others have be planted at Saudade Community Forest for the reinforcement plantation of the *Tesouros d'Obô* project.
Strephonema sp.	3	2021	Collected in Principe island by the FP project team. Three individuals planted on the National Botanical Garden "Bom Sucesso" in São Tomé contributing with awareness about the species and ex-situ conservation (during the final restitution of the project in October 2021).
Xylopia sp. nov	8	2021	Collected at Bombaim and Rio Quija. Plantation of 2 of these specimens in the collection of the Bom Sucesso Botanical Garden. The others have be planted at Saudade Community Forest for the reinforcement plantation of the *Tesouros d'Obô* project.
Cytranthus mannii (Pessegueiro)	5	2021	Seeds from fruits collected at Santana. Plantation of 1 of these specimens in the collection of the Bom Sucesso Botanical Garden. The others 4 have be planted at Saudade Community Forest for the reinforcement plantation of the *Tesouros d'Obô* project, contributing with awareness about the species and ex-situ conservation.
Carapa gogo (Gogô)	60	2021	Collected at Praia das Conchas. Plantation of these specimens at Saudade, Abade and Plancas I Community Forests for the reinforcement plantation of the *Tesouros d'Obô* project, contributing with awareness about the species and ex-situ conservation.
Manilkara obovata (Pau-azeitona)	15	2021	Collected at Praia Xixi and Rio Quija. Plantation of these specimens at Saudade Community Forest for the reinforcement plantation of the *Tesouros d'Obô* project, contributing with awareness about the species and ex-situ conservation.
Amanoa sp	2	2021	Collected in Pico Maculu (potential HCV). These individuals were planted on the National Botanical Garden "Bom Sucesso" in São Tomé contributing to ex-situ conservation (during the final restitution of the project in October 2021).
Podocarpus mannii (Pinheiro de São Tomé)	39	2021	Collected at CIAT, Potó. Plantation of these specimens at Saudade and Abade Community Forests / AFS for the reinforcement plantation of the *Tesouros d'Obô* project, contributing with awareness about the species and ex-situ conservation.

Voacanga africana; V. lemosii (Cata-quiô)	6	2021	Collected at Rio Ave. Plantation of these specimens at Saudade Community Forest for the reinforcement plantation of the *Tesouros d'Obô* project, contributing with awareness about the species and ex-situ conservation of medicinal plants.
Staudtia pterocarpa (Pau-vermelho)	5	2021	Collected at Pico Cão Grande and Rio Cantador. Plantation of 1 of these specimens in the collection of the Bom Sucesso Botanical Garden. The others 4 have be planted at Saudade Community Forest for the reinforcement plantation of the *Tesouros d'Obô* project, contributing with awareness about the species and ex-situ conservation.
Syzigium guineense (Macamblalá)	20	2021	Collected at Bom Sucesso. Plantation of these specimens at Saudade Community Forest for the reinforcement plantation of the *Tesouros d'Obô* project, contributing with awareness about the species and ex-situ conservation of medicinal plants.

2.6. Media and communication

Newsletter - Writing and translation of four project newsletters with project team – available here.

Website (here) and Social media (Facebook and Twitter) – supporting management, content creation and translation of content.

Project synthesis – draft and translation.

Project logo – concept, management of designer contract and contact (Victor Jiménez).

Communication materials – content creation (for images and text) with LB for a Poster about STP Flora - Jardim UCCLA, São Tomé, by Victor Jiménez (Annex 3).

2.7. Compliance with CEPF procedures

Deliverable 9 - Report on activities and results according to CEPF requirements / Activity 11 - Contribute to technical reporting for CEPF

- Contribution to all project reports and enquiries submitted on time and approved by CEPF.

Deliverable 12 - Maintain a good relationship with local authorities and project stakeholders in São Tomé.

- Given the good relationship previously established by MCM and UC, the authorities (Forest & Biodiversity Directorate - DFB, São Tomé Obô National Park (PNOST), and CIAT- Centre of Research and Agriculture Technology) were engaged in the project and informed of our activities through:
  - regular meetings between ST team and authorities (except during the lockdown in 2020);

- official permits to conduct research and collect specimens;
- training of DFB, PNOST and STPH staff and inclusion of technicians on field activities;
- shipping permits for sample (CIAT; Nagoya Protocol Naional Authority), engagement on the management of STPHs herbarium.

- NGO´s (BirdLife International, Oikos) and private stakeholders (Aqualogus) were also included and informed of our activities.
- No grievances were recorded in S. Tomé during this project and the general feedback about the project is very positive.

Deliverable 13 - Represent the project at any CEPF meetings or site visits (including technical audits)

- No CEPF site visit was conducted in S. Tomé during this project. In all other relevant meetings MCM represented the project accordingly.

Deliverable 14 - Contribute and implement any CEPF required documents (grievance mechanism, baseline indicator for the portfolio, etc.)

- Contribution to project's Grievance Mechanism, in English and Portuguese, being the contact point for São Tomé – No grievances recorded in S. Tomé during this project.
- Contribution to baseline indicator.
- Contribution to Stakeholders Engagement strategy and safeguards.

Deliverable 16 - Support the development of a strategy to monitor activities that are related to the project Key Indicator (KI) and the project impacts

- Using of an excel document to monitor the KI, including full project log frame with deliverables and activities. Document updated following the implementation of the activities and used for reporting.

Deliverable 18 - Provide a contribution to the CEPF final completion report 30 days before the end of the grant

- Completed by this report and contributions to CEPF completion report.

Deliverable 19 - Three-month timesheet for the period considered by the CEPF finance reporting and provided at least two weeks before the CEPF reporting due date.

- MCM provided all timesheets to MBG on time and as requested and a full extract of the timesheets for the project period on October 2021.

2.8. Contribute to KBA delimitation in São Tomé (Deliverable 15)

During the workshop of Key Biodiversity Areas (KBAs) of São Tomé and Principe in September 2021, MCM/UC contributed with the revision of the São Tomé KBA's with the ST project team.

Using the file *STP_KBA_Trigger Species List* based on project results and additional literature regarding the flora of S. Tomé prepared by Gilles Dauby, we tested the 5 current S. Tomé KBA's, wich do not have any flora data supporting them. For the PNOST area, the current KBA limit consider the PNOST + the buffer zone. During our workshop we tested the core

area, hence without the buffer zone, and we find 20 plant species supporting the PNOST KBA core area alone, so it will be advisable that the buffer zone should be detached from the core area.

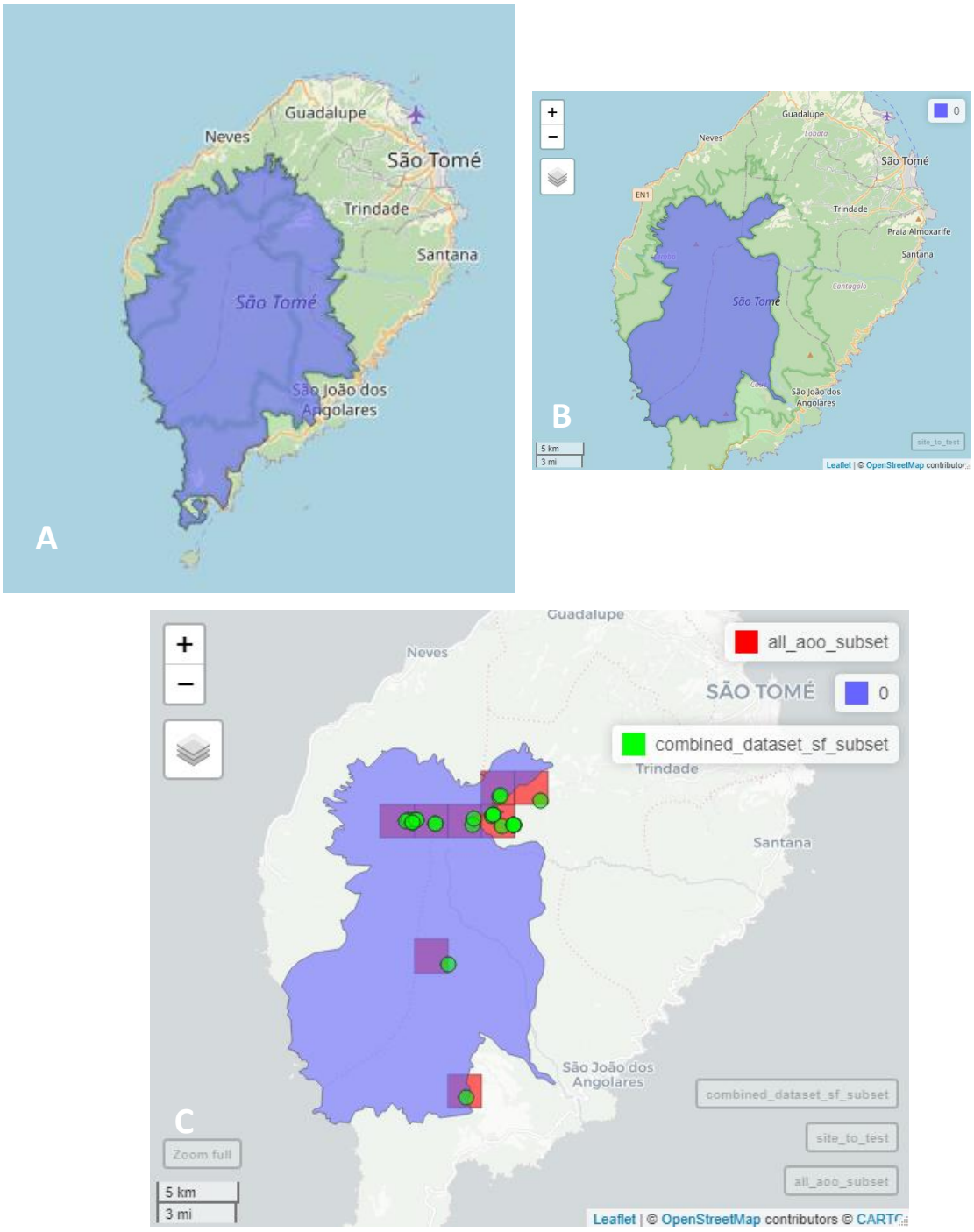


Fig. 5 A & B - KBA Revision of Parque Nacional Obô São Tomé (PNOST) + Buffer zone Vs. PNOST alone. **C.** Distribution map of the trigger species, showing >70% AOO included in the core area of the Park.

We also tested São Tomé northern savannas KBA, and find that it was supported by 2 species (*Cleistanthus* sp.nov. and ***Rinorea molleri***), both endemic and thus with restricted distribution.

However, Malanza River Mangrove Ecological Zone was not supported by plant species, as there was only one old record for one species, that we excluded, and we recommend an actualization of the flora content in the area.

We also recommend another area in the north of the island of S. Tomé: the valey of Ribeira Funda, that has a moist dense forest which is quite unique for the dry northern area of ST, but is also strongly impacted.

The project team compiled all the data available and shared it with WCS Mozambique and BirdLife International, who will lead the revision of the KBAs of São Tomé and Príncipe after the conclusion of the project.

2.9. Contribute to Red Listing of rare and threatened plant species of São Tomé (Deliverable 1)

We prepared the fiches for the threatened species of São Tomé, using IUCN Red List Categories and Criteria, and contributed with the book *Red List data book of the plant species endemic to São Tomé and Principe*, to be published as one of the results of this project.

The book contains information regarding 106 STP species, including RL status, rationale, habitat, uses and trade, population and pictures.

MCM prepared with the ST team 17 assessments for the book and RL, supervising the work of Angela Lima, Dilson Madre Deus and Lewis Eduardo, and also reviewed or contributed to several assessments for other species on this publications, namely with the traditional uses of the species assessed.

List of the fiches of these assessed species and respective conservation statutes on Annex 3.

Annex 1 – Transect data.

Table 3 - Transects by the project team.

Transect	Part	Date			Locality	Latitude	Longitude	Altitude (m)	N. of Individuals sampled	N. specimens collected
TRST1	A	21	10	2019	Morro claudino- Caminho fugido	0,29241	6,60760	1240	295	42
TRST1	B	22	10	2019	Morro claudino- Caminho fugido	0,29231	6,60713	1288		
TRST1	C	22	10	2019	Morro claudino- Caminho fugido	0,29212	6,60619	1283		
TRST1	D	22	10	2019	Morro claudino- Caminho fugido	0,29296	6,60544	1295		
TRST2	A	23	10	2019	Pico maria fernandes	0,17685	6,64600	483	249	35
TRST2	B	21	1	2020	Pico maria fernandes	0,17637	6,64552	491		
TRST2	C	21	1	2020	Pico maria fernandes	0,17603	6,64515	517		
TRST2	D	21	1	2020	Pico maria fernandes	0,17750	6,64605	422		
TRST3	A	21	10	2019	Bom Sucesso-Caminho de antena	0,27552	6,60223	1349	332	26
TRST3	B	22	10	2019	Bom Sucesso-Caminho de antena	0,27552	6,60223	1349		
TRST3	C	22	10	2019	Bom Sucesso-Caminho de antena	0,27528	6,60173	1389		
TRST3	D	22	10	2019	Bom Sucesso-Caminho de antena	0,27550	6,60137	1350		
TRST4	A	25	10	2019	Guarda	0,34383	6,59182	471	67	25
TRST5	A	29	10	2019	Estação Sousa	0,26333	6,55982	1581	316	22
TRST5	B	29	10	2019	Estação Sousa	0,26330	6,55987	1568		
TRST5	C	29	10	2019	Estação Sousa	0,26273	6,55843	1587		
TRST5	D	29	10	2019	Estação Sousa	0,26240	6,59185	1570		
TRST6	A	1	11	2019	Morro Santana	0,28952	6,59580	1362	271	23
TRST6	B	1	11	2019	Morro Santana	0,29005	6,59573	1348		
TRST6	C	1	11	2019	Morro Santana	0,29047	6,59533	1338		
TRST6	D	1	11	2019	Morro Santana	0,29078	6,59485	1350		
TRST7	A	4	11	2019	Morro Vilela	0,28525	6,55785	1190	269	41
TRST7	B	6	11	2019	Morro Vilela	0,28470	6,55740	1083		
TRST7	C	6	11	2019	Morro Vilela	0,28468	6,55667	1153		
TRST7	D	6	11	2019	Morro Vilela	0,28438	6,55575	1196		
TRST8	A	5	11	2019	Morro Vilela	0,28327	6,55462	1245	241	34
TRST8	B	5	11	2019	Morro Vilela	0,28307	6,55530	1236		

Transect	Part	Date			Locality	Latitude	Longitude	Altitude (m)	N. of Individuals sampled	N. specimens collected
TRST8	C	5	11	2019	Morro Vilela	0,28288	6,55563	1214		
TRST8	D	5	11	2019	Morro Vilela	0,28327	6,55628	1168		
TRST9	A	8	11	2019	Monte Carmo	0,14833	6,57628	292		
TRST9	B	8	11	2019	Monte Carmo	0,14913	6,57545	271	180	31
TRST9	C	8	11	2019	Monte Carmo	0,14960	6,57502	297		
TRST9	D	8	11	2019	Monte Carmo	0,13335	6,57457	303		
TRST10	A	11	11	2019	Ribeira Funda	0,34900	6,59417	322		
TRST10	B	11	11	2019	Ribeira Funda	0,34898	6,59503	324	173	25
TRST10	C	11	11	2019	Ribeira Funda	0,34910	6,59410	413		
TRST10	D	11	11	2019	Ribeira Funda	0,35157	6,59310	469		
TRST11	A	25	11	2019	Monte Carmo	0,15250	6,56942	310		
TRST11	B	25	11	2019	Monte Carmo	0,15263	6,56870	330	199	39
TRST11	C	11	12	2019	Monte Carmo	0,15278	6,56790	355		
TRST11	D	11	12	2019	Monte Carmo	0,15250	6,56680	351		
TRST12	A	11	12	2019	Base do Pico Cão Grande	0,11708	6,57423	53		
TRST12	B	11	12	2019	Base do Pico Cão Grande	0,12078	6,57383	74	200	20
TRST12	C	11	12	2019	Base do Pico Cão Grande	0,12077	6,57423	127		
TRST12	D	11	12	2019	Base do Pico Cão Grande	0,12050	6,57287	116		
TRST13	A	18	2	2020	Pico situado entre Sta. Clotilde - S. José	0,23276	6,49375	436		
TRST13	B	19	2	2020	Pico situado entre Sta. Clotilde - S. José	0,23224	6,49418	437	213	23
TRST13	C	19	2	2020	Pico situado entre Sta. Clotilde - S. José	0,23177	6,49449	430		
TRST13	D	19	2	2020	Pico situado entre Sta. Clotilde - S. José	0,23134	6,49497	429		
TRST14	A	19	2	2020	Pico situado entre Sta. Clotilde - S. José	0,23476	6,49043	328		
TRST14	B	19	2	2020	Pico situado entre Sta. Clotilde - S. José	0,23505	6,49100	312	234	34
TRST14	C	19	2	2020	Pico situado entre Sta. Clotilde - S. José	0,23412	6,49216	424		
TRST14	D	19	2	2020	Pico situado entre Sta. Clotilde - S. José	0,23398	6,49325	425		
TRST15	A	20	2	2020	Base do Pico situado entre Sta. Clotilde - S. José	0,22920	6,49886	387		
TRST15	B	20	2	2020	Base do Pico situado entre Sta. Clotilde - S. José	0,22908	6,49928	318	252	35
TRST15	C	20	2	2020	Base do Pico situado entre Sta. Clotilde - S. José	0,22894	6,49998	332		

Transect	Part	Date			Locality	Latitude	Longitude	Altitude (m)	N. of Individuals sampled	N. specimens collected
TRST15	D	20	2	2020	Base do Pico situado entre Sta. Clotilde - S. José	0,22906	6,50076	331		
TRST16	A	25	2	2020	Praia Xixi	0,07045	6,51784	110		
TRST16	B	25	2	2020	Praia Xixi	0,06959	6,51827	130	208	22
TRST16	C	25	2	2020	Praia Xixi	0,06931	6,51993	126		
TRST16	D	25	2	2020	Praia Xixi	0,06876	6,52056	135		
TRST17	A	26	2	2020	Willy	0,09115	6,52027	151		
TRST17	B	26	2	2020	Willy	0,09058	6,52062	158	232	21
TRST17	C	26	2	2020	Willy	0,08998	6,52072	174		
TRST17	D	26	2	2020	Willy	0,08969	6,51991	148		
TRST18	A	27	2	2020	Sto Ant. Mussacavú	0,09694	6,52670	249		
TRST18	B	27	2	2020	Sto Ant. Mussacavú	0,09682	6,52638	247	200	31
TRST18	C	27	2	2020	Sto Ant. Mussacavú	0,09611	6,52700	256		
TRST18	D	27	2	2020	Sto Ant. Mussacavú	0,09505	6,52661	277		
TRST19	A	4	3	2020	caminho do Pico Ana Chave	0,25539	6,57025	1235		
TRST19	B	4	3	2020	caminho do Pico Ana Chave	0,25565	6,57081	1266	335	25
TRST19	C	4	3	2020	caminho do Pico Ana Chave	0,25643	6,57158	1307		
TRST19	D	4	3	2020	caminho do Pico Ana Chave	0,25667	6,57145	1346		
TRST20	A	5	3	2020	cresta- Tomate Musay	0,26351	6,56683	1416		
TRST20	B	5	3	2020	cresta- Tomate Musay	0,26356	6,56731	1444	286	25
TRST20	C	5	3	2020	cresta- Tomate Musay	0,26373	6,56785	1446		
TRST20	D	5	3	2020	cresta- Tomate Musay	0,26314	6,56841	1484		
TRST21	A	9	3	2020	Terreiro Velho/ S. Miguel	0,16180	6,49943	119		
TRST21	B	10	3	2020	Terreiro Velho/ S. Miguel	0,16118	6,50014	101	232	21
TRST21	C	10	3	2020	Terreiro Velho/ S. Miguel	0,16179	6,50026	142		
TRST21	D	10	3	2020	Terreiro Velho/ S. Miguel	0,16180	6,50111	135		
TRST22	A	10	3	2020	Terreiro Velho/ S. Miguel	0,15933	6,49782	119		
TRST22	B	10	3	2020	Terreiro Velho/ S. Miguel	0,15869	6,49796	121	222	16
TRST22	C	10	3	2020	Terreiro Velho/ S. Miguel	0,15816	6,49799	99		
TRST22	D	10	3	2020	Terreiro Velho/ S. Miguel	0,15757	6,49823	93		
TRST23	A	11	3	2020	S. Miguel	0,15245	6,48728	195	229	26

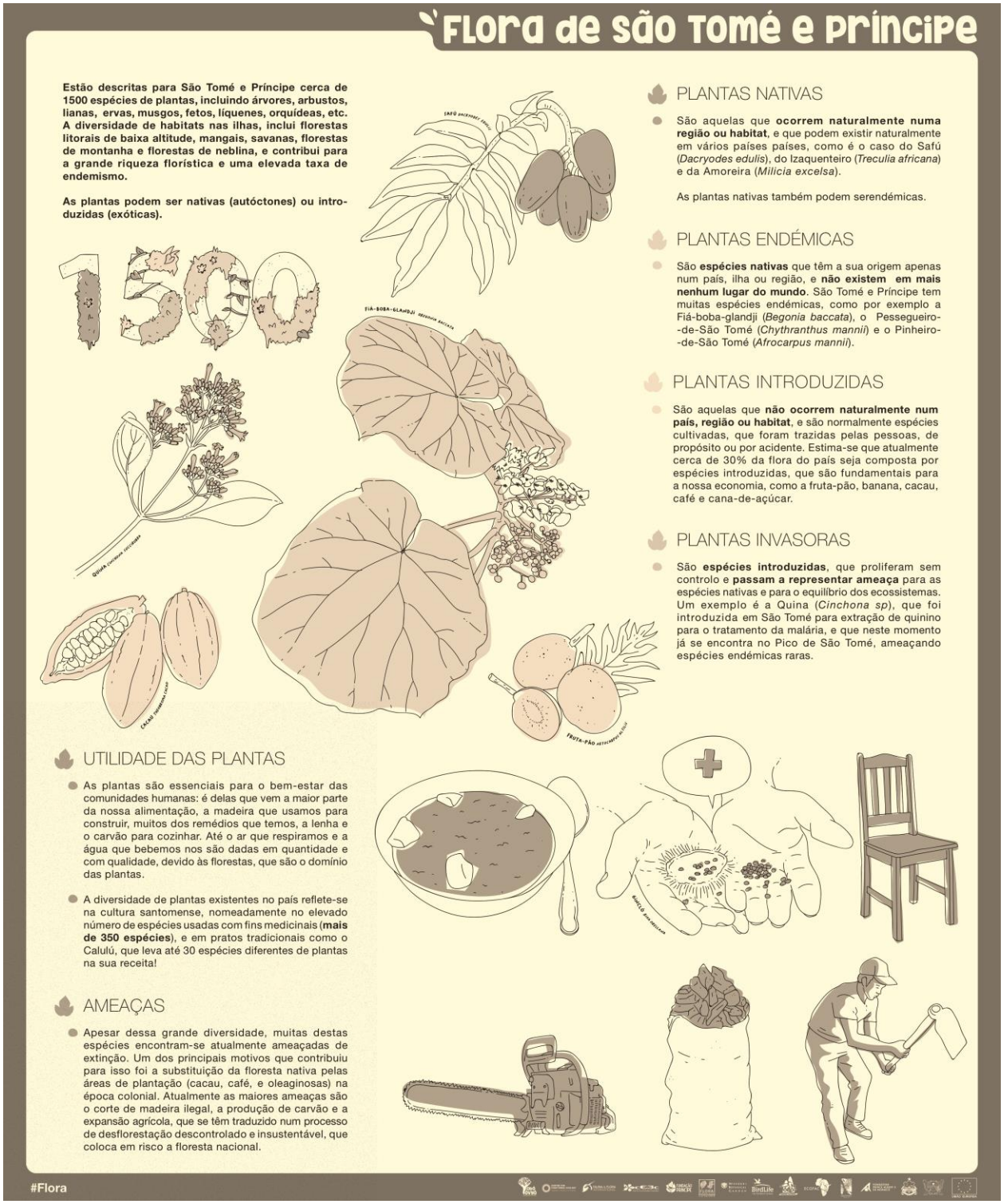
Transect	Part	Date			Locality	Latitude	Longitude	Altitude (m)	N. of Individuals sampled	N. specimens collected
TRST23	B	11	3	2020	S. Miguel	0,15311	6,48732	205		
TRST23	C	11	3	2020	S. Miguel	0,15364	6,48712	222		
TRST23	D	11	3	2020	S. Miguel	0,15474	6,48648	226		
TRST24	A	12	3	2020	S. Miguel	0,13537	6,49583	130		
TRST24	B	12	3	2020	S. Miguel	0,13526	6,49516	117	215	20
TRST24	C	12	3	2020	S. Miguel	0,13591	6,49506	154		
TRST24	D	12	3	2020	S. Miguel	0,13684	6,49535	161		
TRST25	A	18	3	2020	Monta Maru/ Bombaim	0,24084	6,60872	731		
TRST25	B	18	3	2020	Monta Maru/ Bombaim	0,24059	6,60923	742	220	33
TRST25	C	18	3	2020	Monta Maru/ Bombaim	0,24107	6,60859	735		
TRST25	D	18	3	2020	Monta Maru/ Bombaim	0,24183	6,60809	712		
TRST26	A	30	6	2020	Pico Maculu	0,11117	6,64605	293		
TRST26	B	30	6	2020	Pico Maculu	0,11168	6,64577	305	206	34
TRST26	C	30	6	2020	Pico Maculu	0,11218	6,64522	315		
TRST26	D	30	6	2020	Pico Maculu	0,11153	6,64470	306		
TRST27	A	7	7	2020	Base do Pico Formoso-Grande	0,23750	6,63127	749		
TRST27	B	7	7	2020	Base do Pico Formoso-Grande	0,23632	6,62980	698	227	28
TRST27	C	14	7	2020	Base do Pico Formoso-Grande	0,23583	6,62967	722		
TRST27	D	14	7	2020	Base do Pico Formoso-Grande	0,23530	6,62980	682		
TRST28	A	28	7	2020	Rio Ave	0,26688	6,50410	418		
TRST28	B	28	7	2020	Rio Ave	0,26660	6,50458	436	246	28
TRST28	C	28	7	2020	Rio Ave	0,26627	6,50498	471		
TRST28	D	28	7	2020	Rio Ave	0,26563	6,50552	469		
TRST29	A	11	8	2020	Pico Calvário	0,27067	6,57820	1541		
TRST29	B	11	8	2020	Pico Calvário	0,27012	6,57763	1572	340	22
TRST29	C	11	8	2020	Pico Calvário	0,26997	6,57705	1574		
TRST29	D	11	8	2020	Pico Calvário	0,26955	6,57658	1601		
TRST30	A	20	8	2020	Praia Pipa	0,11842	6,49870	58		
TRST30	B	22	8	2020	Praia Pipa	0,11866	6,49898	92	211	19
TRST30	C	22	8	2020	Praia Pipa	0,11903	6,49934	104		

Transect	Part	Date			Locality	Latitude	Longitude	Altitude (m)	N. of Individuals sampled	N. specimens collected
TRST30	D	22	8	2020	Praia Pipa	0,12021	6,49939	123		
TRST31	A	21	8	2020	Monte Rosa	0,13181	6,50316	185		
TRST31	B	21	8	2020	Monte Rosa	0,13129	6,50305	168	212	15
TRST31	C	21	8	2020	Monte Rosa	0,13145	6,50255	156		
TRST31	D	21	8	2020	Monte Rosa	0,13166	6,50183	149		
TRST32	A	23	9	2020	Morro Muquinquí	0,38083	6,64666	265		
TRST32	B	23	9	2020	Morro Muquinquí	0,38001	6,64654	272	153	11
TRST32	C	23	9	2020	Morro Muquinquí	0,37950	6,64602	272		
TRST32	D	23	9	2020	Morro Muquinquí	0,37916	6,64535	249		
TRST33	A	10	6	2021	Rio Lembá_St.José de Binda	0,21501	6,50887	110		
TRST33	B	10	6	2021	Rio Lembá_St.José de Binda	0,21475	6,50935	111	190	22
TRST33	C	10	6	2021	Rio Lembá_St.José de Binda	0,21509	6,50842	121		
TRST33	D	10	6	2021	Rio Lembá_St.José de Binda	0,21449	6,50788	104		
TRST34	A	11	6	2021	Rio Lembá_St.José de Binda	0,22468	6,49523	67		
TRST34	B	11	6	2021	Rio Lembá_St.José de Binda	0,22522	6,49498	82	174	16
TRST34	C	11	6	2021	Rio Lembá_St.José de Binda	0,22548	6,49427	91		
TRST34	D	11	6	2021	Rio Lembá	0,22500	6,49387	106		
TRST35	A	11	6	2021	Rio Lembá	0,23165	6,48722	73		
TRST35	B	11	6	2021	Rio Lembá	0,23198	6,48658	65	196	31
TRST35	C	11	6	2021	Rio Lembá	0,23260	6,48666	71		
TRST35	D	11	6	2021	Rio Lembá	0,23325	6,48638	63		
TRST36	A	12	6	2021	Rio Lembá	0,23951	6,48449	47		
TRST36	B	12	6	2021	Rio Lembá	0,23980	6,48319	30	207	13
TRST36	C	12	6	2021	Rio Lembá	0,23941	6,48234	42		
TRST36	D	12	6	2021	Rio Lembá	0,23931	6,48100	42		
TRST37	A	17	6	2021	Rio Cantador_St. João	0,25364	6,48673	162		
TRST37	B	17	6	2021	Rio Cantador_St. João	0,25352	6,48686	150	171	10
TRST37	C	17	6	2021	Rio Cantador_St. João	0,25318	6,48743	134		

Transect	Part	Date			Locality	Latitude	Longitude	Altitude (m)	N. of Individuals sampled	N. specimens collected
TRST37	D	17	6	2021	Rio Cantador_St. João	0,25278	6,48783	144		
TRST38	A	17	6	2021	Rio Cantador_St. João	0,25881	6,47990	133		
TRST38	B	17	6	2021	Rio Cantador_St. João	0,25878	6,47936	123	181	13
TRST38	C	17	6	2021	Rio Cantador_St. João	0,25862	6,48024	139		
TRST38	D	17	6	2021	Rio Cantador_St. João	0,25833	6,48081	122		
TRST39	A	18	6	2021	Rio Cantador_Brigoma	0,26140	6,47258	32		
TRST39	B	18	6	2021	Rio Cantador_Brigoma	0,26161	6,47188	33	164	14
TRST39	C	18	6	2021	Rio Cantador_Brigoma	0,26043	6,47443	49		
TRST39	D	18	6	2021	Rio Cantador_Brigoma	0,26037	6,47522	65		
TRST40	A	18	6	2021	Rio Lembá	0,24374	6,47907	26		
TRST40	B	18	6	2021	Rio Lembá	0,24379	6,47755	32	174	9
TRST40	C	18	6	2021	Rio Lembá	0,24476	6,47765	62		
TRST40	D	18	6	2021	Rio Lembá	0,24532	6,47729	51		
TRST41	A	24	6	2021	Rio do Ouro	0,32462	6,62330	459		
TRST41	B	24	6	2021	Rio do Ouro	0,32510	6,62292	450	181	11
TRST41	C	24	6	2021	Rio do Ouro	0,32643	6,62269	451		
TRST41	D	24	6	2021	Rio do Ouro	0,32746	6,62463	450		
TRST42	A	26	6	2021	Rio Cantador	0,25539	6,49010	166		
TRST42	B	26	6	2021	Rio Cantador	0,25546	6,48962	155	179	14
TRST42	C	26	6	2021	Rio Cantador	0,25574	6,48898	118		
TRST42	D	26	6	2021	Rio Cantador	0,25606	6,48702	121		
TRST43	A	29	6	2021	Rio do Ouro	0,33820	6,63088	265		
TRST43	B	29	6	2021	Rio do Ouro	0,33911	6,63096	311	202	17
TRST43	C	29	6	2021	Rio do Ouro	0,34144	6,63075	301		
TRST43	D	29	6	2021	Rio do Ouro	0,34170	6,63109	293		
TRST44	A	2	7	2021	Rio Cantador	0,25090	6,49954	224		
TRST44	B	2	7	2021	Rio Cantador	0,25207	6,49957	190	202	24
TRST44	C	2	7	2021	Rio Cantador	0,25266	6,49900	227		

Transect	Part	Date			Locality	Latitude	Longitude	Altitude (m)	N. of Individuals sampled	N. specimens collected
TRST44	D	2	7	2021	Rio Cantador	0,25318	6,49845	247		
TRST45	A	21	9	2021	Vale situado entre Pico de São Tomé e P.pequeno	0,26804	6,54031	1929		
TRST45	B	21	9	2021	Vale situado entre Pico de São Tomé e P.pequeno	0,26853	6,54047	1942	319	20
TRST45	C	21	9	2021	Vale situado entre Pico de São Tomé e P.pequeno	0,26860	6,54085	1968		
TRST45	D	21	9	2021	Vale situado entre Pico de São Tomé e P.pequeno	0,26883	6,54173	1937		
TRST46	A	22	9	2021	Pico pequeno	0,26671	6,53831	1908		
TRST46	B	22	9	2021	Pico pequeno	0,26681	6,53881	1886	333	6
TRST46	C	22	9	2021	Pico pequeno	0,26678	6,53927	1859		
TRST46	D	22	9	2021	Pico pequeno	0,26726	6,53932	1856		
TRST47	A	23	9	2021	Sentada de Ponpêu	0,26867	6,54739	1787		
TRST47	B	23	9	2021	Sentada de Ponpêu	0,26919	6,54750	1774	267	25
TRST47	C	23	9	2021	Sentada de Ponpêu	0,26916	6,54687	1793		
TRST47	D	23	9	2021	Sentada de Ponpêu	0,26942	6,54645	1804		
TRST48	A	24	9	2021	Sentada de Pinheiro	0,27512	6,54846	1601		
TRST48	B	24	9	2021	Sentada de Pinheiro	0,27610	6,54853	1614	328	21
TRST48	C	24	9	2021	Sentada de Pinheiro	0,27654	6,54863	1479		
TRST48	D	24	9	2021	Sentada de Pinheiro	0,27753	6,54881	1497		
TOTAL									***10933***	***1118***

Annex 2 – Poster “FLORA DE SÃO TOMÉ E PRÍNCIPE” , Jardim UCCLA, S. Tomé



Annex 3 – Red Listing assessments prepared for this project (IUCN methodology).

Red List Assessed Species	Red List Status
Begonia loranthoides subsp. *loranthoides*	VU - Vulnerable, B1ab(iii,v)+2ab(iii,v) (IUCN version 3.1)
Calvoa crassinoda	LC - Least Concern, (IUCN version 3.1)
Calvoa integrifolia	EN - ENDANGERED B1ab(i, ii, iii, iv, v)+2ab(i, ii, iii, iv, v)) (IUCN version 3.1), (IUCN version)
Chassalia hiernii	VU - Vulnerable, VU B1ab(iii)+2ab(iii) (IUCN version 3.1)
Chassalia hiernii var. *hiernii*	EN - Endangered, B1ab(iii)+2ab(iii) (IUCN version 3.1)
Chassalia hiernii var. *glandulosa*	EN - Endangered, B1ab(iii)+2ab(iii) (IUCN version 3.1)
Ficus chlamydocarpa subsp. *fernandesiana*	EN - Endangered, B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v) (IUCN version 3.1)
Hernandia beninensis	VU - Vulnerable, B1ab(ii, iii, iv, v)+2ab(ii, iii, iv, v)) (IUCN version 3.1)
Homalium henriquesii	VU - B1ab(iii,v)+2ab(iii,v) (IUCN version 3.1)
Psychotria grumilia	VU - Vulnerable, B1ab(i, ii, iii, iv, v)+2ab(i, ii, iii, iv, v)) (IUCN version 3.1)
Rauvolfia dichotoma	EN B1ab(ii,iii,iv,v)+B2ab(ii,iii,iv,v), (IUCN version 3.1)
Sabicea thomensis	EN - Endangered, EN B1ab(iii)+2ab(iii) (IUCN version 3.1)
Staudtia pterocarpa	EN - Endangered, B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v) (IUCN version 3.1)
Trichilia grandifolia	EN - Endangered, B1ab(iiii)+2ab(iii) (IUCN version 3.1)
Tristemma mauritianum. var. *rozeiranum*	EN - Endangered, B1ab(iii, v)+2ab(iii, v), (IUCN version 3.1)
Tristemma mauritianum var. *thomense*	EN - Endangered, B1ab(ii,iii, iv,v)+2ab(ii,iii, iv,v), (IUCN version 3.1)