January 2022

Final Consultancy Report

Contributions towards the project *Caractérisation de la flore menacée de São Tomé et Príncipe*

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1. Introduction and objectives

Principe is a small island of the Gulf of Guinea with only a few active NGOs working in conservation. Beside FP, only BirdLife International (BL) and Oikos are currently active. Until this day, Fundação Príncipe (FP), supported by Fauna & Flora International (FFI), is the only organization that has a permanent botanist on Príncipe, and the only institution with both knowledge of the local biodiversity and good connections with all local and international stakeholders, and with a sufficiently large and qualified staff to implement the project.

Through a consultancy contract, FP acted as the lead office for the implementation of the project "Caractérisation de la flore menacée de São Tomé et Príncipe" led by the Missouri Botanical Garden (MBG) with funding from the Critical Ecosystem Partnership Fund, from October 2019 to December 2021. The work was supervised by a designated Project Manager from FFI (also hired as technical consultant for the project).

This report describe the responsibilities, activities and deliverables completed by FP. Following the consultancy agreement signed between the parts, these responsibilities included:

1) Host project manager and project team in the local office and provide all the necessary structure for the team
2) Be responsible for the hiring of the local team and all the administrative and human resource procedures related to the employees (including payments of local taxes, evaluation of performance, and management of contracts)
3) Use its stakeholder network for the benefit of the project's interests and help with managing and creating relationships with the local partners
4) Organize the field expeditions and data collection
5) Provide logistical support and make equipment available for the implementation of the project.

Deliverables

1) Support project team on the Red Listing of rare and threatened plant species
2) Support management of project data
3) Management of the samples and Principe´s herbarium
4) Organize and implement field surveys to acquire data (specimens, pictures, silicagel and transects)
5) Prepare contents for project publications, including project website o Tropicos
6) Contribute in any project related publication (newsletters, scientific publications and book)
7) Provide working space for the project´s team
8) Report on activities and results according to CEPF requirements
9) Participate in all media activities of the project
10) Provide any finance reports or other finance requirements needed by MBG or CEPF
11) Host any meetings and workshop related to the project
12) Maintain good relationship with local authorities and project stakeholders in Principe
13) Represent the project to any CEPF meetings or visits
14) Contribute and implement any CEPF required documents (grievance mechanism, baseline indicator for the portfolio, etc.)
15) Contribute to KBA delimitation in Príncipe
16) Support the development of a strategy to monitor activities that are related to the project Key Indicator (KI) and the project impacts
17) If necessary, create and manage a nursery for at least 15 rare or threatened plant species and use it for project and awareness
18) If necessary, conduct or support the training of students, technicians or researchers
19) Provide logistic and management support to Príncipe´s herbarium
20) All permits needed to conduct fieldwork activities and species shipments

2. Institutional deliverables

2.1. Project staff and administrative procedures

Acting as the lead office, for the implementation of the project, FP:

- Hired and hosted three permanent FP staff members in Príncipe - one project assistant (Davide Dias) and two field staff (Osvaldo Lima and Jeremias Prazeres)
- Hosted FFI´s project manager (Laura Benitez - LBB – seconded to FP);
- Made resources available for the completion of the activities - office space, internet and computer equipment, vehicles and vessels, supplies, field equipment, logistical support – for project team and partner projects (Section 3.4);
- 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 employees – including: timesheets, payments of local taxes, evaluation of performance, management of contracts, accident insurance, COVID-19 pandemic procedure);
- 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 supplies or equipment following internal Purchasing procedures and accounting (invoices and cashbooks regularly audited), complying with MBG and CEPF standards;
- Made it available to all stakeholders both project´s and FP´s Grievance Mechanism.

2.2. Compliance with CEPF procedures

Deliverable 9 - Report on activities and results according to CEPF requirements

- 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 Principe.

- Given the good relationship previously stablished by FP and LBB, the authorities (Regional Government, Forest Department, Principe Natural Park, Biosphere Reserve Department) were engaged in the project and informed of our activities through:
  - bi-monthly meetings between FP and authorities (except during the lockdown in 2020);
  - training of PNP staff and inclusion of technicians on field activities;
- NGO´s (BirdLife International, Oikos) and private stakeholders (Here Be Dragons – HBD) were also included and informed of our activities.
- No grievances were recorded in Príncipe during this project (FP´s or project´s) 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 Príncipe during this project. In all other relevant meetings LBB 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 Príncipe – No grievances recorded in Príncipe 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

- Creation 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.

2.3. Training and meetings

FP provided continuous training on collection methods, preparation of herbarium materials (assembly, pressing and drying), methodologies for inventories of trees and other biodiversity, scientific identification of families and species, computer processing of botanical data, use of GPS. The team also received training about the IUCN Red List, having one of its members (Davide Dias) as one of the only two people in the country officially recognized as a Red List assessor. Thus, Príncipe has now local qualified staff at international level to measure threats to its biodiversity. Davide Dias also attended to trainings and meetings in São Tomé, and provided training to the other project members in Príncipe, as shown on table 1.

Additionally, FP trained at least three occasional field staff and four PNP staff members – all men - on methodologies for inventories of trees and biodiversity, scientific identification of families and species during field activities. Therefore, at least 10 people were trained in Príncipe during the project.

FP also represented the project on the informal network/group "Super Forest League" on the subgroup Forest Inventories, providing information regarding project activities, events and finds. The group is composed of several local and international NGOs, government and researchers.

The goal of the project to send at least one Príncipe staff member to receive training at Coimbra´s University in Portugal, was postponed and later canceled due to the COVID-19 pandemic. However, FP managed to secure the funds that will allow Davide Dias to travel and receive the training due to the importance of building national botanical and conservation capacity. This was achieved using FP´s internal funds and through a partnership with a new project in São Tomé led by Maria do Céu Madureira (project manager the project in São Tomé). Two project students from São Tomé are expected to stay in Portugal for three months (January - end of March 2022) and Davide Dias for one month (March).

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

Date	Location	Content	Public	Trainers	Function	Notes
2019, 21st October / 2 weeks	São Tomé, Bom Sucesso Botanical Garden	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, including Davide Dias (project staff – FP) and Laura Benitez (FP-FFI)	Project team and Jorge Paiva (Coimbra University)	Trainer	Including fieldwork with ST team at Pico São Tomé.
2020, January-continuous	Príncipe	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…	Jeremias Prazeres and Osvaldo Lima (FP – project staff)	LBB and Davide Dias	Organizer/trainer/attendant	Introduction and initial training to the two new project members
2020, June / August 5 days	Príncipe	Introduction – IUCN Red List	Jeremias Prazeres, Osvaldo Lima and Davide Dias (FP – project staff)	LBB	Organizer/trainer/attendant	
2020, 22nd June	On-line	GFWA KBA crash course	CEPF grantee	Agyemang Opoku	Attendant	
2021, 18th March / 1 day	Tesouros do Obô, São Tomé	Introduction – IUCN Red List	General public, including Davide Dias (FP)	Project team	Organizer/attendant	
2021, 22nd to 25th March / 4 days	Tesouros do Obô, São Tomé	Workshop - S. Tomé and Príncipe Endangered Species Assessment	Experts	Project team - LBB and Davide Dias	Organizer/ expert	
2021, 26th March / 1 day	São Tomé	Partial project results and RL presentation	General public	Project tea-m - LBB and Davide Dias	Organizer/ presenter	

2021, 24th September / 1 day	BidLife International, São Tomé	Introduction - Key Biodiversity Areas (KBAs)	General public	Eleuterio Duarte - Wildlife Conservation Society (WCS) Mozambique	Attendant	
2021, 27th – 29th September / 3 days	BidLife International (BL), São Tomé	27/09: introduction on delineation, forms and mapping + constitution of the work groups (the internal team thinks that this part of the workshop will only be useful for the people who will participate in the evaluation, not for the general public) 28 and 29/09: group work, presentation of working hypotheses and delineation of new KBAs	Birdlife International (BL), Wildlife Conservation Society (WCS), MBG, Estrela Matilde (FP), FFI, Centro para Ecologia, Evolução e Alterações Ambientais (cE3c) da Universidade de Lisboa e Centro de Ecologia Funcional da Universidade de Coimbra.	Eleuterio Duarte - Wildlife Conservation Society (WCS) Mozambique, Tariq Stévart (MBG), Agyemang Opoku (BL)	Attendant/ trainer	
2021, 30th – September and 1st October / 2 days	BidLife International (BL), São Tomé	Expert working group for KBA delimitation	FP, FFI, Centro para Ecologia, Evolução e Alterações Ambientais (cE3c) da Universidade de Lisboa e Centro de Ecologia Funcional da Universidade de Coimbra.	Katharina D´Avis, Ricardo Lima, Laura Benitez, Estrela Matilde	Expert – data prep., organization, revision	Príncipe´s Working Group
2021, 5th October – 1 day	São Tomé, Bom Sucesso Botanical Garden	Final project restitution and species planting	General public	Project team	Organizer/presenter	Session hold in person and on-line. Recording in English and Portuguese

3. Data collection and management

FP supported the developed the field campaign strategy with FFI, participated in the field expeditions, the management all data collection (transects, specimens, pictures, silicagel) and specimens (including shipment and curation), the preparation all requested excel spreadsheets (specimens, transects and others) to the Tropicos website and project database.

3.1. Data collection

Our team successfully completed 32 transects in Príncipe (transects 25 to 56 and reassessment of transect 19), covering both the Core area of the PNP and the North area of Príncipe (Annex 1 - table 3 and figs. 1 and 2).

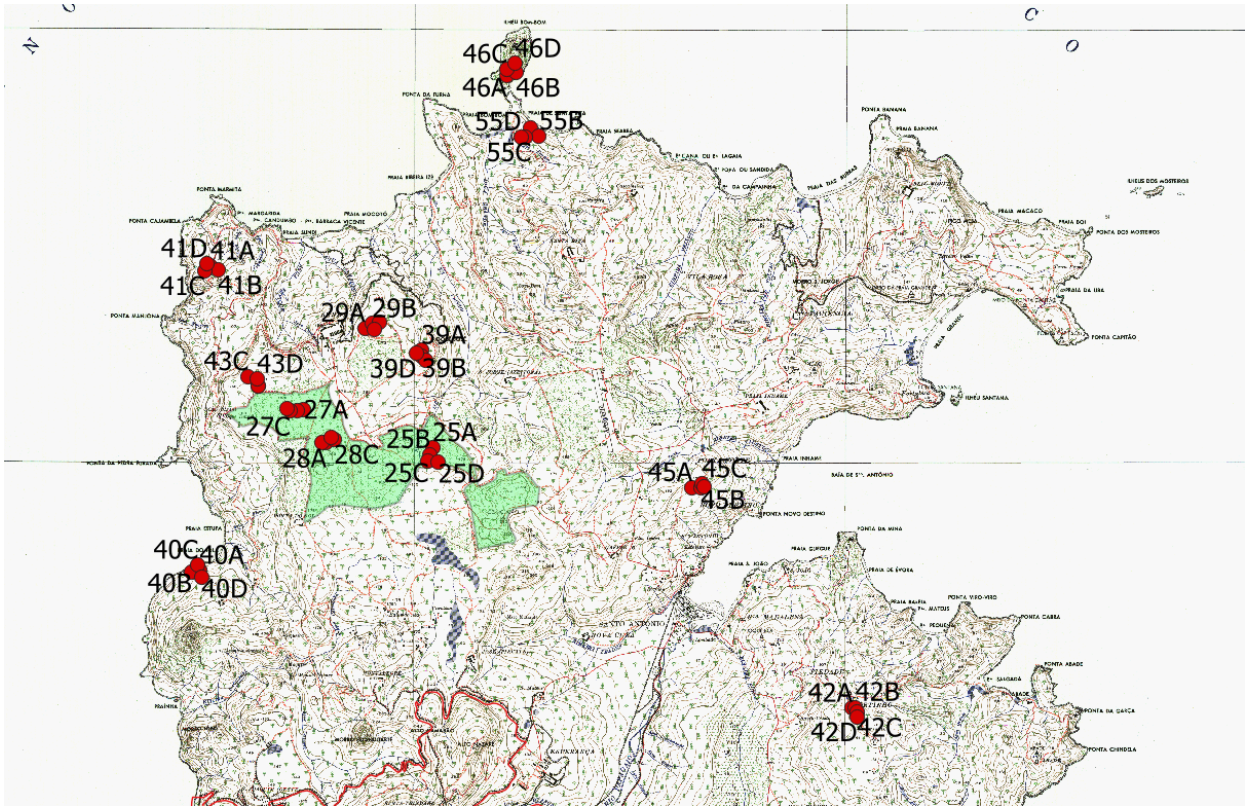

Figure 1 - Transects inventoried during the project on the North section of Príncipe. Azeitona Forest (PNP) in green.

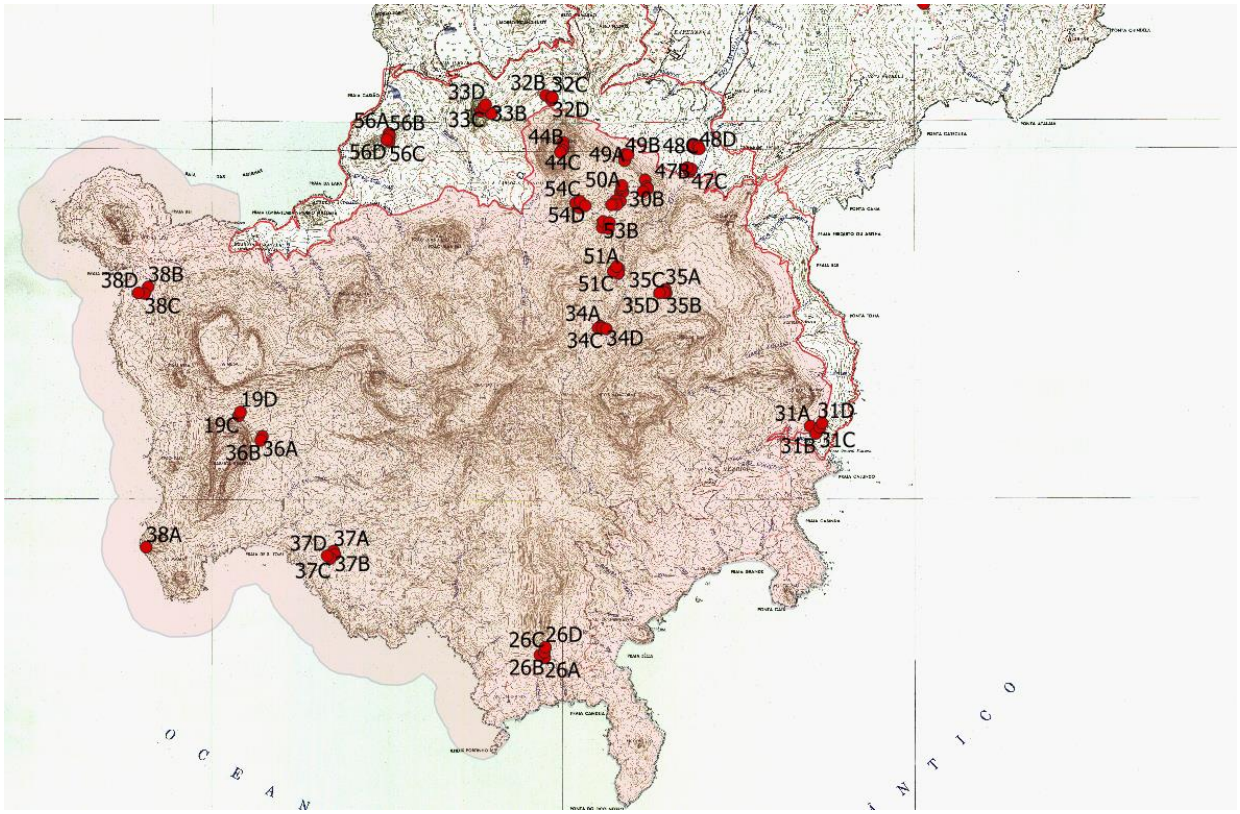

Figure 2 - Transects inventoried during the project on the South section of Príncipe. PNP buffer zone contoured in red and core area filled in light red.

We surveyed 7490 individuals and collected 845 specimens (Annex 1 - table 3) using the transect methodology. In addition, we collected 205 specimens using the general collection method (EBP – 26, LB – 53, DD – 115, OL – 11).

During the fieldwork, we collected seedlings and built a small nursery at our head office, as part of the project´s ex-situ component and the project *Taking action for the threatened tress of Príncipe* (FFI-FP project – Section 3.5).

3.2. Permits

Due to the good relationship with local and international stakeholders, FP:

- Organized official permits to conduct research inside Príncipe´s Natural Park (PNP);
- Engaged stakeholders to supervise the data collection and management;
- Organized shipping permits for samples.

3.3. Data and specimen management

FP supported the introduction and management of data (transects, specimens, pictures, silicagel). Training and capacity was given to the local project staff to support the preparation of all necessary Excel spreadsheets (specimens, transects and others) and pictures for the database of the project, and to support MBG on making the information available on Tropicos website. This information is available on-line to all stakeholders and for our team and will be (and is already being) fundamental to enable and inform future scientific-based conservation decisions in the Island (see section 3.4).

FP was also responsible for the preparation of the herbarium duplicates, shipment to project's Herbarium partners, and curation (for the duplicates of PNP´s herbarium) of all Principe´s biological material for the project. As a commitment of the project, at least one herbarium duplicate always stay at the PNP´s herbarium, which was created and is currently managed by FP (Figure 3). In 2020 FP helped the PNP team to move the herbarium from the headquarters at Santo António to the new headquarters in Porto Real. The collection is now available on the conservation room at the building and can be consulted by visitors and researchers under request to the PNP and under FP´s team supervision. FP has an ongoing commitment of to manage, acquire material and to provide logistic and supplies for the continuity of the PNP´s herbarium.

Figure 3 - FP team preparing herbarium material.

3.4. Publications and partnerships – Deliverable 6

Book chapters

FP (represented by LBB) 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 resulting from our project, FP (and FFI) supported the following researches conducted in Príncipe.

- Master´s thesis - *Spatial conservation prioritization on the endemic-rich island of Príncipe*. Katharina Vera D'Avis. Ecology and Environmental Management programme, University of Lisbon. Submitted in December 2021. Project data used – species list, geographic location of threated species, habitat classification from transect data. FP hosted the researcher (office and guesthouse), made field supplies available, organized the logistic, supported with staff and knowledge, and supported the contact with stakeholders.

- *Assessing anthropogenic impacts on endemic-rich forests of Sao Tomé Island* - Alvaro Castilla-Beltrán, Sandra Nogué and Ricardo Lima. Project data used – Pollen grains collected from herbarium specimens collected by our project and available on the National Herbarium of São Tomé and Príncipe (São Tomé) and Príncipe´s Natural Park Herbarium. Preliminary report available under request. A follow-up catalogue with images of the pollen grains is being prepared and can result in a future publication. FP FP hosted the researcher (office and guesthouse), made field supplies available, organized the logistic, supported with staff and knowledge, supported the contact with stakeholders and supervised the pollen collection from the herbarium samples.

- *Taking action for Principe's threatened trees* - Ongoing FP and FFI project to understand the reproductive biology and regeneration, support the implementation of conservation actions and management, and promote the reinforcement plantation of three threatened trees (*Carapa gogo*, *Chytranthus mannii* and *Strephonema* sp.). Project data used – general biology information, habitat and distribution for the target species. Project ending – December 2022.

Conservation management tools

- Príncipe Natural Park (PNP) Management Plan 2020-2025 – to be published in 2022. Project data used – general information regarding Príncipe´s habitats and flora. FP is part of the Management Plan committee and represented project interests in all meetings.

Newsletters

Contribution on the four project newsletters with project team – available here. In addition, fulfilling deliverable 5 and 9.

*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.

3.5. Ex-situ conservation – Deliverable 17

FP created a nursery for threated tree species at Fundação Príncipe´s headquarters through the project *Taking action for Principe's threatened trees* (FFI and FP project – Fig. 4). We collected 50 seedlings of nine different species added to our nursery (Table 2). Príncipe´s Natural Park intends to create a botanical collection on its headquarters in Porto Real for awareness and ex-situ conservation. There is an ongoing discussion about the site and the possible donation of this specimen to this collection. FP is currently supporting the project team to produce a small poster with the ex-situ conservation achievements of the projects, including pictures and information about the species. On October 2020, at the final restitution presentation of the project, three seedlings of *Strephonema* sp. were planted at the Bom Sucesso Botanical Garden in São Tomé contributing with the awareness and ex situ conservation for the species (Figure 5).

Figure 4 - Ex situ conservation activities. A - Jeremias Prazeres (FP) holding two seedlings of Strephonema sp. B and C - nursery at FP´s headquarters

Figure 5 - Seedling of *Strephonema* sp. being planted at the Bom Sucesso Botanical Garden in São Tomé as part of the project´s ex situ conservation initiative.

Table 2 - Species collected for ex-situ conservation under this and the Taking action for Principe's threatened trees project from 2019-2021 growing at FP´s headquarters.

Species	Seedlings	Predicted plant out date	Predicted plant site notes
Anisophyllea (Cabolé)	1	2022	Príncipe´s Natural Park intends to create a botanical collection on its headquarters for awareness and ex-situ conservation. Discussion undergoing about the site and the possible donation of this specimen to the collection.
Strephonema sp.	5	2021-2022	Target species. 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 September 2021). The others will be planted at Praia Seca for the reinforcement plantation of the *Taking action for Principe's threatened trees* project
Cynometra aff. mannii	1	2022	Príncipe´s Natural Park collection.
Cytranthus mannii (Pessegueiro)	31	2022	Planting site under discussion with the Forest Department. Target species of the *Taking action for Principe's threatened trees* project
Carapa gogo	7	2022	Planting site under discussion with the Forest Department. Target species of the *Taking action for Principe's threatened trees* project
Campylospermum vogelii (Pau dumo)	1		Príncipe´s Natural Park collection.
Pycnanthus angolensis (Pau caixão)	1	2022	Príncipe´s Natural Park collection.
Podocarpus mannii (Pinheiro de São Tomé)	1	2022	Príncipe´s Natural Park collection. This specimen was donated by the National Botanical Garden in ST.
Syzygium jambos (Jambre)	2		Only planted in July using seeds collected/donated by the traditional healers association (ATTRAP). Medicinal species easily propagated by seeds.

3.6. Media and communication

Newsletter – Collaboration on four project newsletters with project team – available here.

Website (here) and Social media (Facebook and Twitter) – supporting management, content creation and translation of content. Content also created and shared through Fundação Príncipe´s social media (Facebook).

Project synthesis – draft and translation.

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

Communication materials – supervision and layout of project stickers and t-shirts.

3.7. Contribute to KBA delimitation in Príncipe

During the workshop of Key Biodiversity Areas (KBAs) of São Tomé and Principe in September 2021, FP/LB contributed with the revision of the KBA *Príncipe Forests* (PNP core area) in partnership with Ricardo Lima and Katharina D´Avis (Lisbon University). Using the file *STP_KBA_Trigger Species List* based on project results and additional literature regarding the flora of Príncipe prepared by Gilles Dauby, we tested four plant species supporting the KBA, reviewed the KBA limits using better GIS layers and proposed three new possible KBAs for the island: PNP buffer zone (detaching it from the core area), Azeitona forest, and Quatro Caminhos. Although no plant species occur in the area, the subgroup (Príncipe – see table 1) also reviewed the KBA *Tinhosas islands* using fauna data. Four species (birds) supported the KBA and the KBA limits reviewed using better GIS layers.

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.

3.8. Contribue to Red Listing of rare and threatened plant species of Príncipe

FP supported the preparation of the fiches for the threatened species of Príncipe 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. LB prepared 14 assessments for the book and RL, supervised the work of Davide Dias on one species, and reviewed or contributed to several assessments for other species on this publications. Fiches of this species on Annex 2.

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
25	A	11/2/2020	Floresta Azeitona - Bule Faca	1.6575	7.39424	153	54	11
25	B	11/2/2020	Floresta Azeitona - Bule Faca	1.65679	7.39401	172	44	3
25	C	11/2/2020	Floresta Azeitona - Bule Faca	1.65606	7.39379	162	52	9
25	D	11/2/2020	Floresta Azeitona - Bule Faca	1.656	7.39485	178	67	4
26	A	19/2/2020	Praia Seca-Trilho para Praia Cara	1.54515	7.38995	174	48	12
26	B	19/2/2020	Praia Seca-Trilho para Praia Cara	1.54547	7.38934	191	42	5
26	C	20/2/2020	Praia Seca-Trilho para Praia Cara	1.54581	7.38988	134	44	10
26	D	20/2/2020	Praia Seca-Trilho para Praia Cara	1.54649	7.39003	220	38	10
27	A	5/3/2020	Floresta Azeitona - O quê Daniel	1.66145	7.38087	189	56	16
27	B	5/3/2020	Floresta Azeitona - O quê Daniel	1.66137	7.3802	189	52	7
27	C	5/3/2020	Floresta Azeitona - O quê Daniel	1.6613	7.37941	192	50	2
27	D	5/3/2020	Floresta Azeitona - O quê Daniel	1.66156	7.37909	193	47	3
28	A	6/3/2020	Floresta Azeitona -Caminho Estufas Sundy	1.65798	7.38321	247	46	15
28	B	6/3/2020	Floresta Azeitona -Caminho Estufas Sundy	1.65803	7.38274	198	55	3
28	C	9/3/2020	Floresta Azeitona -Caminho Estufas Sundy	1.65837	7.38402	195	56	8
28	D	9/3/2020	Floresta Azeitona -Caminho Estufas Sundy	1.65853	7.38374	194	52	2
29	A	22/6/2020	Floresta Sundy - Quatro Caminhos	1.66999	7.38721	169	58	10
29	B	22/6/2020	Floresta Sundy - Quatro Caminhos	1.67045	7.38798	175	66	5
29	C	22/6/2020	Floresta Sundy - Quatro Caminhos	1.67063	7.3887	176	67	6
29	D	22/6/2020	Floresta Sundy - Quatro Caminhos	1.66982	7.38817	167	71	3
30	A	24/6/2020	Topo do Trilho Santa Joaquina	1.60669	7.40274	329	58	17
30	B	24/6/2020	Topo do Trilho Santa Joaquina	1.60581	7.40295	299	57	20
30	C	25/6/2020	Topo do Trilho Santa Joaquina	1.60557	7.40306	303	56	4
30	D	25/6/2020	Topo do Trilho Santa Joaquina	1.60518	7.40249	302	67	2
31	A	2/7/2020	Ribeira Fria - Pedra Caixão	1.575	7.42389	119	54	12

Transect	Part	Date	Locality	Latitude	Longitude	Altitude (m)	N. of Individuals sampled	N. specimens collected
31	B	2/7/2020	Ribeira Fria - Pedra Caixão	1.57405	7.42461	100	52	8
31	C	2/7/2020	Ribeira Fria - Pedra Caixão	1.57482	7.42508	100	50	3
31	D	2/7/2020	Ribeira Fria - Pedra Caixão	1.57537	7.42542	98	58	2
32	A	8/7/2020	Floresta Base do Pico Papagaio	1.61692	7.39076	338	63	12
32	B	8/7/2020	Floresta Base do Pico Papagaio	1.61756	7.39002	335	66	5
32	C	8/7/2020	Floresta Base do Pico Papagaio	1.61733	7.39081	333	67	1
32	D	8/7/2020	Floresta Base do Pico Papagaio	1.61731	7.39086	346	70	5
33	A	9/7/2020	Topo do Morro Fundão	1.61549	7.38172	348	104	14
33	B	9/7/2020	Topo do Morro Fundão	1.6152	7.38308	349	132	6
33	C	8/9/2020	Morro Fundão	1.61602	7.38208	289	64	21
33	D	8/9/2020	Morro Fundão	1.61636	7.38233	280	52	5
34	A	14/7/2020	Atras do Morro de Leste.	1.58784	7.39705	466	58	13
34	B	15/7/2020	Atras do Morro de Leste.	1.58759	7.39675	452	59	10
34	C	15/7/2020	Atras do Morro de Leste.	1.5876	7.39727	443	64	6
34	D	15/7/2020	Atras do Morro de Leste.	1.58749	7.39781	473	59	9
35	A	14/7/2020	Morro de Leste	1.59258	7.40533	503	54	22
35	B	15/7/2020	Morro de Leste	1.59212	7.40546	502	54	18
35	C	15/7/2020	Morro de Leste	1.59218	7.4052	509	56	7
35	D	15/7/2020	Morro de Leste	1.59211	7.4046	509	54	8
36	A	28/7/2020	Floresta a Leste da Bariga Branca, entre Pico Mesa e Barriga Branca	1.57361	7.35381	152	56	16
36	B	28/7/2020	Floresta a Leste da Bariga Branca, entre Pico Mesa e Barriga Branca	1.57309	7.35362	149	48	7
37	A	29/7/2020	Leste do Rio São Tomé	1.55885	7.36294	130	58	15
37	B	29/7/2020	Leste do Rio São Tomé	1.5584	7.36308	120	58	5
37	C	29/7/2020	Leste do Rio São Tomé	1.55791	7.36252	117	60	3
37	D	29/7/2020	Leste do Rio São Tomé	1.55822	7.36212	123	56	5

Transect	Part	Date	Locality	Latitude	Longitude	Altitude (m)	N. of Individuals sampled	N. specimens collected
19	C	30/7/2020	Floresta a Leste da Bariga Branca, entre Pico Mesa e Barriga Branca	1.57625	7.35077	230	52	11
19	D	30/7/2020	Floresta a Leste da Bariga Branca, entre Pico Mesa e Barriga Branca	1.57675	7.35101	218	47	4
38	A	4/8/2020	Novo\Portinho. Floresta costeira ao Oeste do Pico Mesa	1.559324	7.33896	67	55	8
38	B	4/8/2020	Novo\Portinho. Floresta costeira ao Oeste do Pico Mesa	1.59284	7.3392	57	66	6
38	C	4/8/2020	Novo\Portinho. Floresta costeira ao Oeste do Pico Mesa	1.592	7.33872	64	69	5
38	D	4/8/2020	Novo\Portinho. Floresta costeira ao Oeste do Pico Mesa	1.59208	7.33795	49	52	0
39	A	3/9/2020	Floresta após Quatro caminhos - Sundy	1.66768	7.39308	146	68	11
39	B	3/9/2020	Floresta após Quatro caminhos - Sundy	1.66702	7.39315	164	56	8
39	C	3/9/2020	Floresta após Quatro caminhos - Sundy	1.66664	7.3935	168	70	0
39	D	3/9/2020	Floresta após Quatro caminhos - Sundy	1.66736	7.39252	164	66	0
40	A	9/9/2020	Praia Iola, perto da Ponta do Sol.	1.64465	7.37006	26	80	0
40	B	9/9/2020	Praia Iola, perto da Ponta do Sol.	1.64452	7.36924	28	64	0
40	C	9/9/2020	Praia Iola, perto da Ponta do Sol.	1.64521	7.36986	22	55	0
40	D	9/9/2020	Praia Iola, perto da Ponta do Sol.	1.64395	7.37025	23	68	17
41	A	11/9/2020	Floresta Praia Margarida	1.67646	7.37114	57	61	12
41	B	11/9/2020	Floresta Praia Margarida	1.67606	7.37193	49	70	4
41	C	11/9/2020	Floresta Praia Margarida	1.67598	7.37052	52	66	5
41	D	11/9/2020	Floresta Praia Margarida	1.6767	7.37082	54	58	4
42	A	14/9/2020	Tchada Mamão - Right side of the road to Abade.	1.63031	7.4379	93	68	9
42	B	14/9/2020	Tchada Mamão - Lado direito da estrada para Abade.	1.6304	7.43822	91	69	0

Transect	Part	Date	Locality	Latitude	Longitude	Altitude (m)	N. of Individuals sampled	N. specimens collected
42	C	14/9/2020	Tchada Mamão - Lado direito da estrada para Abade.	1.62989	7.43839	93	66	1
42	D	14/9/2020	Tchada Mamão - Lado direito da estrada para Abade.	1.62941	7.43838	83	50	1
43	A	16/9/2020	Oquê Daniel	1.66388	7.37612	173	58	8
43	B	16/9/2020	Oquê Daniel	1.66388	7.37612	173	55	5
43	C	16/9/2020	Oquê Daniel	1.66491	7.37508	175	66	3
43	D	16/9/2020	Oquê Daniel	1.66463	7.37601	172	64	0
44	A	17/9/2020	Topo do Pico papagaio	1.61152	7.39229	646	22	9
44	B	17/9/2020	Topo do Pico papagaio	1.611	7.39231	677	16	2
44	C	17/9/2020	Topo do Pico papagaio	1.61051	7.39218	677	64	11
44	D	17/9/2020	Topo do Pico papagaio	1.61024	7.3919	666	54	4
45	A	24/9/2020	Nova cuba em diração ao Picão	1.65336	7.42124	132	70	9
45	B	24/9/2020	Nova cuba em diração ao Picão	1.65328	7.42213	131	73	7
45	C	24/9/2020	Nova cuba em diração ao Picão	1.65374	7.42227	140	70	1
45	D	24/9/2020	Nova cuba em diração ao Picão	1.6534	7.42248	136	76	1
46	A	30/10/2020	Ilhéu Bombom - base do trilho	1.69635	7.40191	18	45	14
46	B	30/10/2020	Ilhéu Bombom - topo do trilho	1.69672	7.40289	26	52	3
46	C	30/10/2020	Ilhéu Bombom - topo do trilho	1.69705	7.40195	41	53	1
46	D	30/10/2020	Ilhéu Bombom - topo do trilho	1.69763	7.40278	42	56	6
47	A	3/3/2021	Bela Vista - I5 - Rio Papagaio	1.60779	7.40835	105	51	10
47	B	3/3/2021	Bela Vista - I5 - Rio Papagaio	1.60779	7.4085	94	50	9
47	C	3/3/2021	Bela Vista - I5 - Rio Papagaio	1.6081	7.40866	104	60	3
47	D	3/3/2021	Bela Vista - I5 - Rio Papagaio	1.60826	7.40813	113	53	7
48	A	4/3/2021	Bela Vista - C3	1.61072	7.40915	99	53	7
48	B	4/3/2021	Bela Vista - C3	1.61112	7.40895	99	61	2
48	C	4/3/2021	Bela Vista - C3	1.61106	7.40952	95	78	1
48	D	4/3/2021	Bela Vista - C3	1.6107	7.40968	99	56	0

Transect	Part	Date	Locality	Latitude	Longitude	Altitude (m)	N. of Individuals sampled	N. specimens collected
49	A	10/3/2021	Antes Base Santa Joaquina - C2	1.60995	7.40012	269	51	13
49	B	10/3/2021	Antes Base Santa Joaquina - C2	1.60953	7.40016	279	54	4
49	C	10/3/2021	Antes Base Santa Joaquina - C2	1.60915	7.40013	298	54	5
49	D	10/3/2021	Antes Base Santa Joaquina - C2	1.60993	7.40055	265	58	2
50	A	11/3/2021	Lado esquerdo Topo Santa Joaquina - I3	1.60509	7.39959	315	51	14
50	B	11/3/2021	Lado esquerdo Topo Santa Joaquina - I3	1.60512	7.3999	313	59	8
50	C	11/3/2021	Lado esquerdo Topo Santa Joaquina - I3	1.60563	7.39978	309	59	1
50	D	11/3/2021	Lado esquerdo Topo Santa Joaquina - I3	1.60597	7.39978	323	55	1
51	A	25/3/2021	Rio Papagaio - I1	1.59525	7.3994	319	54	14
51	B	25/3/2021	Rio Papagaio - I1	1.59465	7.39934	321	60	5
51	C	25/3/2021	Rio Papagaio - I1	1.59491	7.39869	329	52	2
51	D	25/3/2021	Rio Papagaio - I1	1.59551	7.39911	316	52	2
52	A	13/4/2021	São Joaquim - C1	1.60393	7.39958	291	72	13
52	B	13/4/2021	São Joaquim - C1	1.60401	7.39899	305	56	5
52	C	13/4/2021	São Joaquim - C1	1.60348	7.39913	278	55	6
52	D	13/4/2021	São Joaquim - C1	1.60347	7.39845	293	60	1
53	A	14/4/2021	Atrás Santa Joaquina - I2	1.60054	7.39727	347	57	17
53	B	14/4/2021	Atrás Santa Joaquina - I2	1.60132	7.39739	353	49	7
53	C	21/4/2021	Atrás Santa Joaquina - I2	1.60117	7.39819	325	55	4
53	D	21/4/2021	Atrás Santa Joaquina - I2	1.60042	7.39808	337	54	2
54	A	22/4/2021	Santa Joaquina - C4	1.60307	7.39436	308	56	19
54	B	22/4/2021	Santa Joaquina - C4	1.60368	7.39386	310	47	3
54	C	22/4/2021	Santa Joaquina - C4	1.60391	7.39442	315	53	1
54	D	22/4/2021	Santa Joaquina - C4	1.60335	7.3951	337	49	3
55	A	17/6/2021	Bombom	1.69087	7.40439	42	59	10
55	B	17/6/2021	Bombom	1.69007	7.4053	54	71	6
55	C	17/6/2021	Bombom	1.68998	7.40385	57	70	1

Transect	Part	Date	Locality	Latitude	Longitude	Altitude (m)	N. of Individuals sampled	N. specimens collected
55	D	17/6/2021	Bombom	1.68998	7.40342	36	69	0
56	A	29/7/2021	Morro Caixão após o Rio Banzu	1.61268	7.36999	128	49	10
56	B	29/7/2021	Morro Caixão após o Rio Banzu	1.61235	7.37004	120	62	5
56	C	29/7/2021	Morro Caixão após o Rio Banzu	1.61162	7.37000	140	64	4
56	D	29/7/2021	Morro Caixão após o Rio Banzu	1.61185	7.36969	166	63	3
Total							7490	845

Annex 2 – Red Listing assessments prepared for this project.

18 *Anisophyllea cabole* Henriq. - ANISOPHYLLEACEAE

Distribution: São Tomé and Príncipe

Status: Near Threatened

Rationale: Anisophyllea cabole is a tree species 35–40 m tall, endemic of São Tomé and Príncipe, recorded in São Tomé Island and recently in Príncipe (consistently since 2018, but with one previous collection made in 1980). The species was assessed in 1998 as VU D2 by the World Conservation Monitoring Centre. The new information gathered in the last years justifies a new assessment. Anisophyllea cabole occurs in lowland forests, on low and middle elevation (77-740 m). The collection made in Angolares (Curado s.n.) does not have precise coordinates and was excluded from this assessment. Anisophyllea cabole is known from 30 collections and 113 observations. The 12 collections and 92 observations in Príncipe represent 28 occurrences, none of which is considered extirpated. In Príncipe, Anisophyllea cabole occurs in secondary forests, including on the North of the Island (two occurrences on Ôque Daniel). However, the majority of the individuals are currently concentrated in the mature forests in the South, especially around Pico do Príncipe, the valley between Pico Mesa and Barriga Branca, and the valley of Papagaio River behind Morro de Leste. All the 28 occurrences are restricted to the PNOP, representing one subpopulation, but the species was likely widespread on the lowland forests of Príncipe. In São Tomé, Anisophyllea cabole is known from 26 collections and 21 observations, representing 16 occurrences. The occurrence of Angolares (Curado s.n.) is considered extirpated due to palm oil plantations and the one from Roça Potó (A. J. d'Almeida s.n.) due to urban expansion. These two collections were not considered for this evaluation. The 14 remaining occurrences represent one subpopulation. Five occurrences are located within the PNOST. Based on a 2 x 2 km cell size, the AOO is estimated as 96 km², above the upper threshold EN status under subcriterion B2. The EOO is calculated to be 2,769 km², above the upper threshold for EN status under subcriterion B1. In Príncipe, the two occurrences on Azeitona forest are threatened by charcoal production and represent one location. We suggest that these two occurrences will disappear in the near future because of the high human pressure within this part of the PNP. Two occurrences located around Morro de Leste are threatened by human disturbance and represent one location. Three occurrences behind Praia Seca and the one adjacent to Rio Porco are threatened by illegal logging and represent one location. The four occurrences on the valley between Pico Mesa and Barriga Branca and the three around Rio São Tomé were threatened by large plantations during colonial times. The thirteen other occurrences are not threatened and represent one location. Therefore, these 28 occurrences represent five locations in Príncipe (sensu IUCN, 2019). In São Tomé, the occurrence on Morro Muquinqui is threatened by small-scale agriculture and represents one location, which we suggest will disappear in near future. The occurrence in Lobata is threatened by illegal logging and represents one location. The occurrence at São Miguel, although within the PNOST, was threatened by former plantations and represents one location. The occurrence in the palm plantation is threatened by palm plantation and represents one location. We suggest that this occurrence will disappear in the near future. The occurrence at Pico Macuru was threatened by logging and represents one location. The occurrence at the base of Pico Maria Fernandes was threatened by logging and represents one location. The occurrence between Pico Maria Fernandes and Zagaia was threatened by logging and represents one location. The two occurrences (Lima 18 and 67) were threatened by large plantations during colonial times and represent one location. The other seven occurrences are not threatened and represent one location. Therefore, these 14 occurrences represent eight locations in São Tomé. In summary, These 42 occurrences represent 13 locations (sensu IUCN, 2019), with regards to the most important threats (illegal logging). We thus infer a future decline in its AOO, the number of locations, and the number of mature individuals. Moreover, we infer a current and a future

continuous decline in the extent and habitat quality. The species is not severely fragmented and does not meet the threshold of any threatened categories under criterion B. Additionally, although three occurrences of the species are expected to disappear in the near future (due to small-scale agriculture, charcoal and palm plantations), this cannot lead to consider the species under a threatened category according to criterion B. Anisophyllea cabole is therefore assessed as NT since it could belong to a threatened category in a near future.

Habitat and ecology: The species is known from the lowland forest, on low and middle elevation (77-740 m).

Use and trade: There is no known use for this species.

Population: The species is widespread in the lowland forest of São Tomé and Príncipe where aggregated individuals are often found.

46 *Campylospermum nutans* (Hiern) Biss. - OCHNACEAE

Distribution: Príncipe

Status: Vulnerable

Rationale: *Campylospermum nutans* was preliminary assessed as EN B1/B2(i,ii) based on 11 collections examined (Bissiengou 2014), but it was not published on the Red List. Since then, additional material was collected. The species is a treelet up to 4 m tall, endemic to Príncipe Island and found in old-growth and secondary forest between 9 and 910 m in elevation. It is known from 16 collections and 11 observations made between 1853 (Welwitsch, 4606) and 2021 (Transects Príncipe 755, 872), all within PNP or at least in the buffer zone, with one exception (Terra Prometida, Dias 183). These collections and observations represent 19 occurrences, none considered as extirpated. Based on a 2 x 2 km cell size, the AOO of this species is estimated as 44 km^2, below the upper threshold for EN status under subcriterion B2. The EOO is calculated as 46 km^2, below the upper threshold for CR status under subcriterion B1. The five occurrences around Praia Cará, Barriga Branca, (track to) Pico Mesa, Estrada Infante and the one near Santa Trindade were threatened by past plantations and represent one location. The five occurrences around Morro de Leste (behind Morro de Leste, Morro de Leste and between Oquê Pipi and Morro de Leste), Morro Fundão, and the one at Pico Mesa are not threatened and represent one location. The two occurrences at Pico Papagaio, the one at Oquê Pipi and the one at the top of Santa Joaquina are threatened by human disturbances (tourism) leading to a rapid degradation of its habitat and represent one location each. The location near Terra Prometida is threatened by housing expansion and represents one location, inferred to disappear in the near future. Therefore, these 19 occurrences represent six locations (*sensu* IUCN, 2019) with regard to the most serious plausible threats (housing expansion) and 1-7 subpopulations. Based on these threats, we infer past, current and future continuing decline in the extent and the quality of its habitat, and a decline in the number of mature individuals and disappearance of one location due to housing expansion. *Campylospermum nutans* is thus assessed as VU B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v).

Habitat and ecology: The species occurs in old-growth and secondary forests, between 9 and 910 m in elevation.

Use and trade: It is not known if the species is used.

Population: Population information is not sufficiently documented for this species, but we suggest the existence of 1-7 subpopulations.

44 *Carapa gogo* A.Chev. ex Kenfack – MELIACEAE

Distribution: São Tomé and Príncipe

Status: Vulnerable – VU

Rationale: *Carapa gogo* occurs mostly in mid elevation forest in São Tomé and Príncipe (300-500 m). The distribution of *C. gogo* appears quite restricted in São Tomé and more widespread in Príncipe. In Príncipe it is limited to PNOP, occurring on the coastal forest near Rio Porco and Maria Correia, but also on the track to Pico Mesa, the area near Barriga Branca and near Pico do Príncipe. Indeed this species has probably a larger distribution on Príncipe and many individuals should have been cut for timber. This rare species appears to be locally abundant but its density is difficult to assess because it is misidentified with *Strephonema sp. nov.* in this island. Moreover, there is no sign of natural regeneration. Since 2020 a project lead by Fauna & Flora International and Fundação Príncipe (Taking action for Príncipe's threatened trees) is conducting awareness, surveys and monitoring of *Carapa gogo*, and more information regarding the species is expected in the near future, this assessment should be considered as preliminary. *C. gogo* is currently known from 11 collections and 21 observations that represent 9 subpopulations. Its extent of occurrence is calculated to be 1718 km², within the limit for EN status under subcriterion B1, while its area of occupancy is estimated to be 36 km², also within the limit for EN status under subcriterion B2. Seven of its subpopulations occur in a protected area but some are close to the border of it (Maria Correia, Oquê Pipi, Lago Amélia). Former subpopulations were threatened by habitat destruction for plantations in areas near Praia Seca, and between Rio Porco and Rio do São Tomé, and in the South of Pico Mesa, but also everywhere in São Tomé. A decline in habitat extent and quality is therefore observed, and a past decline in number of individuals, number of subpopulations, AOO and EOO is suspected. The 9 occurrences represent 9 locations in the sense of IUCN, therefore, the species is assessed as VU under the conditions B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v). This species could be considered as a flagship species for biodiversity conservation since it's a good indicator of highly diverse mature forest and probably important for bird nesting. Therefore, the places where it occurs need thus to be protected in priority.

Habitat and ecology

The species occurs mostly in mid elevation forest (300-500 m) but can be found up to 1,300 m in São Tomé.

Use and trade

The species is used for massages of displaced or broken bones, for the treatment of venereal diseases (heating), to treat anaemia, and it is used as an aphrodisiac. Moreover, the wood is used for the manufacture of furniture, being very appreciated and valued by the beautiful veins of the wood and its red color.

Population

This species probably has a larger distribution on Príncipe but many individuals should have been cut for timber. This rare species appears to be locally abundant but the density is difficult to assess since it is misidentified with *Strephonema sp. nov.* in these areas. Moreover, there is no sign of natural regeneration.

98 *Chrysophyllum calophyllum* Exell - SAPOTACEAE

Distribution: Príncipe

Status: Endangered

Rationale: *Chrysophyllum calophyllum* is a shrub endemic to Príncipe Island, found between 404 and 602 m altitude, occurring in low vegetation on ridges. The species is known from three collections and 13 transect observations made between 1932 (Exell 711, typus) and 2021 (Príncipe Transects). *Chrysophyllum calophyllum* is known from three occurrences, two around Pico Papagaio, and one at the top of Pico Mesa. All occurrences are within PNOP and none is considered as extirpated. Based on a 2 x 2 km cell size, its EOO is calculated to be 1,116 km², and its AOO is estimated to be 8 km², both within the limits for CR status under subcriteria B1 and B2. Following the IUCN guidelines, the EOO cannot be less than the AOO, thus we consider the EOO as 8 km², the same as the AOO. The two occurrences at Pico Papagaio are threatened by ecotourism activities leading to a rapid degradation of its habitat and represent one location. The occurrence at the top of Pico Mesa is not threatened and represents one location. Thus, these three occurrences represent two locations (*sensu* IUCN, 2019), with regards to the most important threat (tourism), within the limits of EN status. We infer a current and a future continuing decline in the extent and habitat quality. *Chrysophyllum calophyllum* is therefore assessed as EN B1ab(iii)+2ab(iii).

Habitat and ecology: The species occurs in low vegetation on ridges between 404 and 602 m altitudes.

Use and trade: This species is not known to be used.

Population: *Chrysophyllum calophyllum* is known from two subpopulations.

97 *Chytranthus mannii* Hook.f. - SAPINDACEAE

Distribution: São Tomé and Príncipe

Status: Vulnerable

Rationale: *Chytranthus mannii* was assessed as NT in 1998. However, the collection of new information and changes on the Red List criteria (2001) justifies a new assessment. Since 2020, a project lead by Fauna & Flora International and Fundação Príncipe (Taking action for Príncipe's threatened trees) is conducting awareness, surveys and monitoring of *Chytranthus mannii*, and more information regarding the species is expected in the near future, this assessment should be considered as preliminary. This species is a tree with edible fruits, endemic to São Tomé and Príncipe, present in the secondary forests of the North of Príncipe, and in the lowland forest of São Tomé, also in the secondary forest. *C. mannii* is known from 27 collections and four observations, occurring in the lowland forest up to 1,000 m altitude, representing 18 occurrences. Old specimens recorded in urbanized or cultivated areas in São Tomé have been removed from the calculation since they are considered as extirpated (Chevalier specimens and Moller 892). Based on a 2 x 2 km cell size, its extent of occurrence is calculated to be 1,852 km², and its area of occupancy is estimated to be 60 km², both within the threshold for EN status under subcriteria B1 and B2. Two occurrences were recorded within the PNOST in São Tomé, while the other 11 occurrences are outside of protected areas. We infer a decline of the area of occupancy due to urbanization. In addition, in agricultural areas like Boa Entrada, or Monte Café, this species is likely to be extirpated in a near future. This species is used in traditional medicine, fruits are edible, and toothbrushes are made with seedlings. Nevertheless, these uses are limited and the main threats to this species are plantations and urbanization, which still cause degradation of habitat quality. Therefore, we can suspect a past decline in the quality of habitat. The occurrences of *C. mannii* represent 5 to 7 subpopulations and 7 locations in the sense of IUCN, within the limits of Vulnerable status. This species is therefore assessed as Vulnerable under the conditions B1ab(iii)+2ab(iii).

Habitat and ecology: The species is present in the secondary forests of the North of Príncipe, and in the lowland forest of São Tomé, also in the secondary forest, up to 1000 m altitudes.

Use and trade: This species is used in traditional medicine, fruits are edible, and toothbrushes are made with seedlings.

Population: No population information is known for this species.

40 *Croton stellulifer* Hutch. - EUPHORBIACEAE

Distribution: São Tomé and Príncipe

Status: Vulnerable

Rationale: The species has been assessed as VU but without any information on threats. The collection of new information justify its reassessment. *Croton stellulifer* is a tree endemic to São Tomé and Príncipe islands. It is found in mature and, mostly, in secondary lowland and montane forests, from 77 to 1,694 m in elevation. It is known from 33 collections and 92 observations, made between 1932 (Exell 547, type) and 2020. The collection of Madureira & Martins 483 was made in an unrecorded locality in São Tomé, thus was not considered for this evaluation. In Príncipe, *Croton stellulifer* is found in low to middle elevated forests of the South, and known from 11 occurrences and 1-4 populations, none considered extirpated and all within PNOP. This species probably has a larger distribution in Príncipe, especially in the North, since it occurs in secondary or degraded forests, and a population probably occurs in Sundy, but additional fieldwork needs to be conducted to confirm this information. In São Tomé, *Croton stellulifer* is quite widespread, occurring in the lowland to montane forest and known from 24 occurrences and 4-5 subpopulations, none considered extirpated. Thus, this species is known from 35 occurrences and 5-8 subpopulations. Based on a 2 x 2 km cell size, the AOO of this species is estimated as 84 km², below the upper threshold for EN status under subcriterion B2. The EOO is calculated as 2,424 km², below the upper threshold for EN status under subcriterion B1. In Príncipe, the occurrences around Rio Porco, and Pico Mencorne are not threatened and represent one location. Nine occurrences were threatened by past plantations and are currently threatened by the unsustainable bark collection for traditional medicine due to its proximity to accessible places through touristic tracks (two occurrences on the Track to Pico do Príncipe and seven around Oquê Pipi), representing one location. In São Tomé, seven occurrences located near Bom Sucesso and Macambrará are threatened by agricultural activities (vegetable plantations) and represent one location. Five occurrences situated along touristic tracks within the PNOST, near Morro Vilela and Lagoa Amélia, are threatened by tourism activities, and invasive species, they represent one location. Four occurrences (Pico ana Chaves, Monte Carmo, Rio Lemba, Rio Ave) situated in the PNOST are not threatened and represent one location. The occurrence near Sta. Clotilde - S. José is threatened by illegal logging and represents one location. The occurrences situated near Cao Pequeño and Cão Grande are threatened by palm plantations and represent one location. The ones near the top of Pico Macuru and near Monta Maru/ bombaim were previously threatened by plantations and represent two locations. Finally, the occurrences collected near Pico Maria Fernandez are threatened by current plantations, and the one near Morro Claudina is threatened by illegal logging. The species is thus known from 8 locations in São Tomé. Therefore, these occurrences represent 10 locations (*sensu* IUCN, 2019), with regards to the most serious plausible threats (small-scale agriculture). In São Tomé, its distribution probably strongly declined when large shade plantations covered most of the island. The subpopulation situation in the north-center of the island is currently exposed to high human pressure for logging and we can suspect a decline in the quality of its habitat. A decline in habitat extent and quality is therefore observed, and a past decline in the number of individuals, number of subpopulations, AOO, and EOO could have occurred but since the species occur in secondary vegetation, it is impossible to assess it properly. The 8 subpopulations represent 10 locations, therefore, the species is assessed as VU under the conditions B1ab(iii)+2ab(iii).

Habitat and ecology: The species is principally occurring in secondary forest (World Conservation Monitoring Centre, 1998), but exists also in old-growth forest (Carvalho et al., 2004). This species has a wide altitudinal range (World Conservation Monitoring Centre, 1998)*: C. stellulifer* is present at low altitude in the valley of the rivers, but it is also recorded in montane rainforest between 800 and

1,400m of elevation and in cloudy-forest above 1400m (Christy, 2001). The studies of Toelen (1995) on the montane forests of São Tomé show that this tree is frequent in old secondary forests and rare in old-growth forests. In Príncipe, the species is quite abundant in old secondary forest, but also occurs in disturbed forest on the Pico of Príncipe.

Use and trade: The dry and pulverized bark is burned as incense, on charcoal, to flavor and disinfect the house environment and to ward off "bad looks".

Population: This species probably has a larger distribution in Príncipe, especially in the North.

3 *Alsophila camerooniana* (Hook.) R.M.Tryon var. currorii (Holttum) J.P.Roux - CYATHEACEAE

Distribution: Príncipe

Status: Critically Endangered

Rationale: *Alsophila camerooniana var. currorii* was preliminary assessed as VU D2 (Figueiredo 2002), but not published on the IUCN Red List. This variety is a tree fern up to 3 m in height, endemic to Príncipe Island and found in lowland forest from 60 to 350 altitude. It is known from seven collections made between 1919 (Navel *136*) and 1957 (Rose *400*). Three of these collections do not have precise coordinates and were excluded from this assessment (Strickland s.n., Curror s.n. and Stévart s.n.). Four specimens of *Alsophila camerooniana* were collected *in* Príncipe from 1998 and 2016 and need further investigation to check if they can be *Alsophila camerooniana var. currorii (*Oliveira 98/177, 515, 1796 and Equipa Botanica do Príncipe 56) and were not used for this assessment. The four collections used for this assessment represent three occurrences, none considered as extirpated and all within Príncipe's Natural Park (PNP). Based on a 2 x 2 km cell size, the AOO of this species is estimated as 12 km^2, below the upper threshold for EN status under subcriterion B2. The EOO is calculated as 5.1 km^2, below the upper threshold for CR status under subcriterion B1. Since the EOO cannot be less than the AOO, we consider the EOO as 12 km^2 (the same value as AOO), which is below the upper threshold of the CR category under subcriterion B1. The three occurrences (Rio Bambu-Porco, Ôquê Pipi-Morro do Leste and Infante D. Henrique) were threatened by past plantations but are not currently threatened and represent one location and 1-3 subpopulations. *Alsophila camerooniana var. currorii* was probably much more widespread in the lowland forests of the South and thus we infer a reduction of the EOO, area of occupancy, and past decline in the extent and quality of its habitat, and a decline in the number of mature individuals. It is thus assessed as CR B1ab(i,ii,iii,iv,v).

Habitat and ecology: The species occurs in lowland forest, between 60 and 350 in elevation.

Use and trade: *Alsophila camerooniana var. currorii* is included on the checklist of CITIES species (UNEP-WCM 2011).

Population: Population information is not sufficiently documented for this species, but we suggest the existence of 1-3 subpopulations.

8 *Grammitis nigrocincta* Alston - POLYPODIACEAE

Distribution: Cameroon, Gabon, Democratic Republic of the Congo, Rio Muni (Equatorial Guinea), and São Tomé and Príncipe

Status: Near Threatened

Rationale: *Grammitis nigrocincta* is a fern preliminary assessed as VU D2 but not published on the IUCN Red List (Figueiredo 2002). The species is known from 18 collections made between 1956 (Monod 12162 and Thorold 2017) and 2019 (Barberá 2592), in submontane forests, between 450 and 1,852 m altitude. Two collections do not have precise coordinates and were excluded from this assessment (Rozeira s.n. and Wilde 532). The 16 remaining collections represent 15 occurrences (4 in Príncipe, 1 in São Tomé, 1 in Cameroon, 2 in Equatorial Guinea, 6 in Gabon, and 1 in Congo), none are considered as extirpated and representing seven subpopulations. Based on a 2 x 2 km cell size, the AOO of this species is estimated as 56 km^2, below the upper threshold for EN status under subcriterion B2. The EOO is calculated as 229,315 km^2, above the upper threshold for VU status under subcriterion B1. In Príncipe three occurrences Pico do Príncipe are not threatened and represent one location, and the occurrence at Pico Papagaio is threatened by tourism causing the decrease of the quality of the habitat and promoting invasive species spread and represents one location. In São Tomé, the only occurrence is at the top of Pico São Tomé and is threatened by tourism causing the decrease of the quality of the habitat and promoting invasive species spread representing one location. In Cameroon, the occurrence is not threatened and represents one location. In Equatorial Guinea, the two occurrences at the Parc National de Monte Alén are not threatened and represent one location. In Gabon, three occurrences around Monts de Cristal are threatened, two by logging and one by small-scale agriculture, each one representing one location. The occurrence in Tchimbélé is threatened by hydroelectric facilities and represents one location. The occurrence on the Komo is threatened by illegal logging and represents one location. In Naguila, the occurrence is not threatened and represents one location. In Congo, the occurrence on Bamba Mountain is not threatened and represents one location. Thus, the 15 occurrences of *Grammitis nigrocincta* represent 11 locations (*sensu* IUCN, 2019), with regard to the most serious plausible threat (logging). Due to these threats, we infer a continuing decline in the extent and quality of its habitat, almost reaching the threshold of VU status, but which cannot currently lead to consider the species under a threatened category according to criterion B. *Grammitis nigrocincta* is therefore assessed as NT.

Habitat and ecology: The species occurs in submontane forests, between 450 and 1,852 m in elevation.

Use and trade: There is no known use for this species.

Population: Population information is not sufficiently known for this species, but we suggest the existence of 9 subpopulations.

37 *Principina grandis* Uitt. - Cyperaceae

Distribution: Gabon, and São Tomé and Príncipe

Status: Endangered

Rationale: *Principina grandis* is a grass-like herb, known from old-growth vegetation on *trachyte* inselbergs, between 670 and 760 m in elevation. This species was supposed to be endemic to São Tomé and Príncipe until it was recently collected in Gabon. The species is known from two collections, one in Príncipe Island, in 1932 (Excell 703 at the summit of Pico Papagaio) and one in São Tomé Island in 2007 (Mesterhàzy 173 at the South West part of Pico Maria Fernandes, Angolares), and one observation in Gabon (at Milobo inselberg). None of these three occurrences is considered extirpated and they represent three subpopulations. *Principina grandis* seems to be locally abundant on these sites. Several similar inselbergs can be found around Milobo´s region in Gabon, in Equatorial Guinea, and on São Tomé and Príncipe. The species is probably more abundant but currently underrepresented due to the difficult access to its habitat. Based on a 2 x 2 km cell size, the AOO of this species is estimated as 12 km^2, below the upper threshold for EN status under Criterion B2. The EOO is calculated as 31,040 km^2, above the upper threshold for VU status under Criteria B1. The occurrence at Pico Papagaio in Príncipe is within PNOP but is threatened by ecotourism which induces degradation of the quality of the habitat and represents one location. The occurrence located on Pico Maria Fernandes is threatened by intensive use of the area for palm wine extraction, which induces degradation of the quality of the habitat and potentially reduction of the number of mature individuals and represents one location. The occurrence in Milobo is not threatened and represents one location. Thus, these three occurrences represent three locations (*sensu* IUCN 2019) with regards to the most important threats (tourism and palm wine harvest). We infer a past, current and future continuing decline in the extent and the quality of its habitat and number of mature individuals. This species is thus assessed as EN B2ab(iii,v).

Habitat and ecology: The species is known from old-growth vegetation on inselbergs, between 670 and 760 m in elevation. Mesterhazy & Browning (2014) correlate the distribution of this species with trachyte mounts.

Use and trade: There is no known use for this species.

Population: Population information is not sufficiently known for this species, but we suggest existence of three subpopulations.

104 *Rinorea insularis* Engl. - VIOLACEAE

Distribution: Príncipe

Status: Critically Endangered

Rationale: *Rinorea insularis* is a shrub with yellow flowers which is endemic to Príncipe Island (Figueiredo et al. 2011). The species is known from four collections made between 1858 (Barter s.n.) and 1992 (Paiva 580 and 618). Two collections (Sousa s.n. and Barter s.n.) were made in unrecorded localities with no coordinates, and thus were not considered for this evaluation. The two remaining specimens (Paiva 580 and 618) represent one occurrence and one subpopulation located within PNOP. The genus is known from one species in the island and is also known from five collections (Oliveira 589, Dias 126bis, Príncipe Transects 987 and 1022 and Releve Príncipe 90), not identified at species level since only sterile material were collected. These specimens could represent that species, but we can't use them for these assessments in absence of formal identification. Based on a 2 x 2 km cell size, the AOO of this species is thus estimated as 4 km^2, below the upper threshold of the CR status under subcriterion B2. With only one occurrence it was not possible to calculate the EOO. The species habitat, the lowland forest, was highly impacted by plantations in the colonial times. Moreover, the occurrence at Pico Papagaio is threatened by human disturbances (tourism activities) leading to a rapid degradation of its habitat and represents one location (*sensu* IUCN, 2019) with regard to the most serious plausible threat (tourism). This occurrence is not considered as extirpated. Based on this threat, we infer past, current and future continuing decline in the area, extent and the quality of its habitat. *Rinorea insularis* is thus assessed as CR B2ab(iii).

Habitat and ecology: The species occurs in lowland forest at 500 m altitude.

Use and trade: There is no known use for the species.

Population: Population information is not sufficiently known for this species, but data suggest the existence of only one subpopulation.

34 *Strephonema* sp. nov. - COMBRETACEAE

Distribution: Príncipe

Status: Endangered

Rationale: *Strephonema* sp. nov. occurs in lowland forest in Príncipe. Since 2020 a project lead by Fauna & Flora International and Fundação Príncipe (Taking action for Príncipe's threatened trees) is conducting awareness, surveys, and monitoring of this species, and more information is expected in the near future, thus this assessment should be considered as preliminary. The IUCN status will also depend on the publication of the species, but it is currently considered as an endemic species to Príncipe. The distribution of *Strephonema* sp. nov. appears very restricted, limited to coastal forest near Rio Porco, on the track to Pico Mesa from Maria Correia, and near Barriga Branca, on mature lowland forest inside PNOP. A recent account of the population gives a number of 400 mature individuals. In fact, this species should have had a larger distribution in the lowland forest where it was probably cut for timber during the colonial period from the 15th century. This species appears to be locally abundant but its density is difficult to assess because it is misidentified with *Carapa gogo*. The species is known from 12 collections and 75 observations representing 16 occurrences and three subpopulations. Its extent of occurrence is calculated to be 5.432 km², within the limit for CR status under subcriterion B1, while its area of occupancy is estimated to be 12 km², also within the limit for EN status under subcriterion B2. However, since the AOO cannot be larger than the EOO, the AOO should be considered as equal to the EOO, meaning 5,432 km², within the limit for CR status under subcriterion B2. All of its subpopulations occur in a protected area but one is close to the border of it (Maria Correia) and its habitat is threatened by farming activities. Former subpopulation was threatened by habitat destruction for plantations in areas near Praia Seca, and between Rio Porco and Rio São Tomé, and in the South of Pico Mesa. A decline in habitat extent and quality is therefore observed, and a past decline of about 80% in AOO and EOO is inferred which could lead to CR status. However, this number still needs to be confirmed by GIS analysis and could not be used in this assessment. The three groups of occurrences represent three locations in the sense of IUCN which qualifies for EN status. The population of each subpopulation is less than 250 mature individuals. Therefore, the species is assessed as EN under the conditions B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v); C2(i). This species could be considered as a flagship species for biodiversity conservation since it is a good indicator of highly diverse mature forest and important for bird nesting. The sites of occurrence should be protected in priority.

Habitat and ecology: The species appears very restricted, limited to coastal forest near Rio Porco, and near Barriga Branca, on mature lowland forest.

Use and trade: The species was probably cut for timber during the colonial period from the 15th century.

Population: A recent account of the population gives a number of 400 mature individuals. In fact, this species should have had a larger distribution in the lowland forest where it was probably cut for timber during the colonial period from the 15th century. This species appears to be locally abundant but its density is difficult to assess because it is misidentified with *Carapa gogo*.

19 Tabernaemontana stenosiphon Stapf - APOCYNACEAE

Distribution: São Tomé and Príncipe

Status: Least Concern

Rationale: *Tabernaemontana stenosiphon* was assessed as NT in 1998. The collection of new information and changes on Red List methodology in 2001, justifies a new assessment. This tree species is endemic to São Tomé and Príncipe, found between 86 and 1867 m altitude, but mainly in the submontane and montane forest. The species can be easily mistaken for other *Tabernaemontana* species. The genus also presents at least five collections (Davide Dias 86; Príncipe Transects 787,898 and 1042, and F. de Oliveira 146) and 92 observations in Príncipe; and 14 collections and 92 observations in São Tomé, not identified at species level since only sterile material was collected. Overall, *Tabernaemontana stenosiphon* is known from 74 collections and 359 observations made between 1885 (Moller 220, 439) and 2020. We excluded nine collections because no locality information is provided (Henriques 4,28,29,30 and 31; Moller s.n. and 97, Campos 3; Welwitsch 5988) and seven with imprecise coordinates (Wilde 119, 155, 171; Oliveira 1456, 166; Matos 7304, 7579). In Príncipe, *Tabernaemontana stenosiphon* is known from 15 collections representing six occurrences, being three around Pico Mesa, one at the top of Pico do Príncipe, one behind Morro de Leste and one occurrence between Praia Lapa and Morro Caixão. All occurrences are within PNOP and none is considered extirpated. In São Tomé, it is known from 37 occurrences. We consider that eight occurrences around Bom Sucesso and Monte Café, corresponding to collections made by Espirito Santo (4493, 4609, 5040), Lejoly (67, 219), Moller (439), Matos (7313), and Randrianaivo (1593), as extirpated due to of habitat conversion for small-scale agriculture. Therefore, *Tabernaemontana stenosiphon* is known from 35 occurrences, 29 in São Tomé and six in Príncipe. Based on a 2 x 2 km cell size, its EOO is calculated to be 2,168 km², and its AOO is estimated to be 84 km², both within the limits for EN status under subcriteria B1 and B2. In Príncipe, the occurrence at the top of Pico do Príncipe is threatened by ecotourism activities and represents one location. The occurrence between Praia Lapa and Morro Caixão was threatened by past plantations and represents one location. The other three occurrences are not threatened and represent one location. These occurrences represent 1-3 subpopulations. In São Tomé 14 occurrences are found within the PNOST. Two occurrences between Nova Ceilão and Calvario (Matos 7343 and Joffroy 114) are threatened by illegal logging and represent one location, which we suggest will disappear in near future. The 12 other occurrences are not threatened and represent one location. Outside PNOST, the 15 occurrences represent nine locations (*sensu* IUCN, 2019). Four occurrences are threatened by illegal logging: one occurrence between Santa Clotilde and Sao Jose, one occurrence between Chamico Caminho Maya, and two occurrences at Zampalma and Tras dos Montes, representing three locations. Three occurrences (Binda to Juliana Sousa, Vale Carmo and Sao Francisco) were threatened by past plantations, representing one location each. Two occurrences at Calvario are not threatened and represent one location. One occurrence at Caminho antenna will be threatened in the near future by small-scale agriculture and logging, representing one location. Five occurrences are threatened by small-scale agriculture (Clareira de Santa Maria, Macambara, Macambara to São Nicolau, and Wilde 330 and 155) representing one location. These occurrences represent 7 populations. In summary, these 37 occurrences correspond to 14 locations (*sensu* IUCN, 2019), with regards to the most important threats (small-scale agriculture), and 8-10 subpopulations, within the limits of LC status. We infer a future decline in its AOO, the number of locations, and the number of mature individuals. Moreover, we infer a current and a future continuous decline in the extent and habitat quality. Although two occurrences of the species are expected to disappear in the near future due to illegal logging, which cannot lead to consider the species under a threatened category according to criterion B. *Tabernaemontana stenosiphon* is therefore assessed as LC.

Habitat and ecology: In São Tomé this species was described to be the most important in the near environment of the Pico Carvalho (Decock, 2013). *T. stenosiphon* has a gregarious behavior, it can reach 84 stems/ha (Lejoly, 2000) in the PNOST (São Tomé). This common upland endemic tree (Oldfield et al., 1998) form part of the characterization of the northern mist forest of São Tomé, from 1350 to 1600 m (Llopart, 2005). This species is present in montane forest, rainforest (between 800 and 1400 m of elevation) and in the cloud-forest (above 1400 m) (Christy, 2001). More generally, this species is widely distributed over the island of São Tomé between 500 to 1600 m (Oldfield et al., 1998). This species is recorded in São Tomé and Príncipe between 86 to 1867 m altitude, mostly present at high altitude, in old-growth and secondary forest.

Use and trade: The bark of this species is used in São Tomé, but not in Príncipe, as traditional medicine (hypotensor) and as witchcraft protection, but this use is really limited. *T. stenosiphon* can also be used for production of lumber and firewood (Carvalho et al., 2004), but this was not mentioned during a workshop in Príncipe in June 2019. Apparently, the species yields rubber of good quality but in small quantity (Moller, cited by Exell, 1944), but no mention of this use could be found.

Population: Widespread and abundant on submontane and montane forest, mentioned as one of the most frequent tree species near to the Pico Carvalho (within PNOST) (Decock, 2013). Preliminary data indicates that the population is stable and with good regeneration capacity. Nine to ten subpopulations can be found in São Tomé and Príncipe.

7 Triplophyllum fraternum var. elongatum (Hook.) Holttum

Distribution: Príncipe

Status: Data Deficient

Rationale: *Triplophyllum fraternum* var. *elongatum* is a fern assumed to be endemic to Príncipe Island. This variety was listed as rare in the 1997 IUCN Red List of Threatened Plants (Walter and Gillett 1998). It was then assessed as CR by Figueiredo & Gascoigne (2001), but not published in the IUCN Red List. *Triplophyllum fraternum* var. *elongatum* is known from three collections. The locality of the collection made by Mann (s.n.) in 1861 is unknown. According to Holttum (1986), additional specimens exist, collected by Barter and by Curror (s.n.) with no information regarding the collection year, habitat, or locality. Klopper & Figueiredo (2013) consider the variety as rare or extinct since no collections were made since the 19th century. No dedicated survey has been conducted to find the variety, so we can't consider it extinct. The taxon is thus known from few specimens with no locality information so that it is not possible to make any further inference about its conservation status, thus this species is assessed as DD.

Habitat and ecology: Habitat and ecology are unknown. Collected only in Príncipe Island, in an unknown locality described only as "forest".

Use and trade: No direct uses for the species were identified.

Population: There is no population information for this species.

86 Pauridiantha príncipensis Ntore & O.Lachenaud - RUBIACEAE

Distribution: Príncipe

Status: Endangered

Rationale: *Pauridiantha príncipensis* was recently described by Ntore and Lachenaud (2019), and assessed by the authors as VU D2 but not submitted for publication on the IUCN Red List. The species is endemic to Príncipe island, and is known from two collections, made in 1998 on Pico do Príncipe (*Oliveira 192*), and in 1999 on Caminho do Morro de Leste (*Oliveira 149*). These two collections represent two occurrences. Considering the date of collection; the forest coverage, which is still good in this area; and that both are within PNOP, we think that neither of the two occurrences is extirpated. Based on a 2 x 2 km cell size, the AOO of this species is estimated as 8 km^2, below the upper threshold for CR status under criterion B2. Since this species is known from only two occurrences, its EOO cannot be estimated. Pico do Príncipe is used for tourism activities such as hiking, and these have been increasing in recent years representing a current and future threat for the species through the decrease in the quality of the habitat and potential facilitation of invasive species. Morro de Leste is a known illegal hunting area, representing a threat to the species through a decrease in the quality of the habitat. Therefore, the two occurrences of *P. Príncipensis* represent two locations (*sensu* IUCN 2019), with regards to the most important threats (tourism). Thus, a decline in habitat quality is inferred. Therefore, *P. príncipensis* is assessed as EN under criteria B2ab(iii).

Habitat and ecology: The species is a medium-sized shrub occurring in submontane forests, from 675 to 750 m in altitude.

Use and trade: There is no information on use of this species.

Population: No quantitative population data are available for this species.