NIASSA BOTANICAL EXPEDITION JUNE 2003

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Sociedade para a Gestão e Desenvolvimento
da Reserva do Niassa
Moçambique

By

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EXECUTIVE SUMMARY

At the request of the Sociedade para a Gestão e Desenvolvimento da Reserva do Niassa and Fauna and Flora International, a botanical survey of the Niassa Reserve in northern Mozambique was carried out in June 2003. The objectives included compiling a preliminary plant species list, collecting herbarium specimens, providing an initial characterisation of the vegetation types found there, identifying species and areas of particular importance for conservation, and providing recommendations to management on plant conservation priorities. The survey team consisted of five botanists.

Existing information on the vegetation and plants of the area is very limited. This was reviewed.

Ground and aerial surveys were conducted over a 21 day period. Owing to difficulties in accessibility and the brief period spent in the Reserve, the findings are preliminary. These findings are presented and discussed under four headings: (i) plant species; (ii) species of interest; (iii) habitats and vegetation; and (iv) threats. In addition, some suggestions for future botanical collecting are given along with indications of the main management implications.

A total of 307 plant collections were made, and have been distributed to appropriate herbaria. The provisional checklist gives 326 species. One of these, from the slopes of Serra Mecula, is new to science. In addition, there are at least seven new records for Mozambique. Although many of the plants found are typical of drier miombo woodlands that cover much of the central African plateau, there are some habitats of particular interest. These are: (a) moist forest patches on Serra Mecula (a large mountain in the east of the Reserve); (b) drier forest patches associated with gullies on the slopes of the Serra Mecula and on numerous inselbergs; (c) riverine woodland and thickets (primarily along the Rio Lugenda); and (d) dambo grasslands. Such habitats support a number of species of restricted distribution, including species usually associated with moist forests or East African coastal forests. Of particular conservation importance are the moist upland forest patches on Serra Mecula that contain significant outliers of forest species at a continental level. These patches are now threatened by frequent wildfires. Apart from fire and clearance for cultivation in some localities, there are no major threats to plant populations at present.

It is recommended that a reconnaissance-level ecological vegetation survey of the Reserve and surrounding coutadas is undertaken which can act as a framework for future biological studies. In addition, for effective conservation management, more detailed surveys and collecting are required of the whole of Serra Mecula and of the riverine woodlands of the Rio Lugenda and other major rivers. Owing to the size of the Reserve, it is suggested that plant conservation attention is focussed on these and other areas of significance for biodiversity. Serra Mecula is an area of especial conservation and aesthetic significance. Reduction in the extent and frequency of fire should be a major objective.

1. INTRODUCTION

Following a proposal to carry out a reconnaissance botanical survey of the Niassa Reserve, submitted in July 2002 by Janice Golding and Jonathan Timberlake (Golding & Timberlake 2002), the Sociedade Para a Gestão e Desenvolvimento da Reserva do Niassa (henceforth, SRN) commissioned a reconnaissance botanical survey in April 2003. This was to take place in June 2003 with funding from Fauna and Flora International. The survey forms part of a series of biodiversity studies that include vegetation cover, small carnivores, birds, reptiles/amphibians and fish (see Rodrigues 2003).

The survey was initially meant to comprise six professionals (including three Mozambicans). However, owing to last minute changes in availability, only the following persons participated:

Jonathan Timberlake (Team Leader)
Janice Golding (Expedition Organiser)
Carlos Boane (Botany Technician)
Phillip Clarke (Botanist specialising in coastal forests)
Alfredo Nuvunga (Botany Technician)

Members of the expedition have had extensive experience in plant collecting in Southern and Eastern Africa, particularly in Mozambique, and in vegetation and plant conservation studies in Mozambique, Zimbabwe, Tanzania and South Africa.

1.1 Objectives

The study focussed on the Niassa Reserve and the objectives were to:

1. Compile a preliminary plant species list for the Reserve;
2. Collect plant specimens for regional herbaria and for a set of these to be identified by Kew Herbarium in UK;
3. Provide an initial characterisation of the vegetation types found;
4. Identify plant species and habitats of particular interest or significance for conservation;
5. Provide recommendations to management on botanical conservation of the area;
6. Provide a series of plant collecting guidelines and an indication of research needs.

1.2 Study Area

The Niassa Reserve is situated in northern Mozambique adjacent to the Rio Rovuma, the border with Tanzania. The main part of the Reserve lies between the Rovuma and Lugenda rivers from around 36°25' E eastwards to their confluence. At present it covers 23,040 km^2, with a buffer zone of coutadas (hunting areas) surrounding it on three sides of a further 19,239 km^2, giving a total under the jurisdiction of SRN of 42,279 km^2 (WWF SARPO 2002a). The Reserve was originally proclaimed in 1954 as a Game Reserve, but the boundaries have been modified significantly over the following 40 years. They were fully gazetted in their present form in 1999, with a core area surrounded by six coutadas. There is a District Centre (Mecula) within the area, and an estimated human population of 12,000. Local community rights within the reserve are protected by national forestry and wildlife legislation, particularly with respect to utilization of resources for subsistence.

The landscape comprises a mostly gently undulating plateau at around 300-600 m altitude, rising to a higher plateau and hills in the west at around 1370 m, and gradually falling to 150 m

at the confluence of the Rovuma and Lugenda rivers at the northeastern boundary. Much of the plateau is covered in dry to mesic (medium rainfall) miombo woodland on relatively sandy, nutrient-poor soils. The eastern and central parts are dominated by scattered granite inselbergs rising out of the plain to 600-800 m altitude. The microclimate on these inselbergs is harsh and extreme for plant growth, although a variety of discrete forest patches are associated with fire-protected gullies. The massif of the Serra Mecula, the highest point in the Reserve, rises to an altitude of 1442 m. Within the miombo woodland itself, particularly associated with the watersheds, are numerous and poorly-defined grassy dambos. Vegetation in lower-lying areas towards the Lugenda and Rovuma rivers is increasingly dominated by dry woodland types with species of *Millettia*, *Combretum* and *Acacia* trees.

1.3 Previous Botanical and Vegetation Studies

Previous work on the botany and vegetation of the area is very limited. Gomes Pedro and Barbosa (1955) in their pioneering study on Mozambique vegetation, describe the area as "*Brachystegia-Julbernardia* Woodland on Granite" (their Unit 104) and "little known", one of very few termed such in the country. A later vegetation map for the Flora Zambesiaca area (Wild and Barbosa 1967) shows more detail for this area, but the vegetation boundaries are related primarily to altitude (i.e. they follow contour lines rather than observed vegetation patterns). They are unlikely to have been based on new information from the Niassa Reserve. Wild and Barbosa state that the central and western parts are *Brachystegia boehmii* / *B. allenii* woodland (Type 29), with *Brachystegia boehmii* / *Adansonia* [baobab] woodland (Type 31) at lower altitudes towards the Lugenda and Rovuma rivers. Although we observed many of the species they mention, their descriptions of vegetation patterns do not do reflect well what we observed. For example, in the far west, on higher ground, and for a large area around the Serra Mecula, they map the vegetation as *Brachystegia utilis* / *Brachystegia* species woodland (Type 28). From our fieldwork, *B. utilis* is present on rocky slopes, but can hardly be termed a characteristic species within this area.

White in his vegetation map of Africa (White 1983) terms the area "Drier Zambezian miombo woodland (*Brachystegia/Julbernardia*)" with intrusions of East African coastal elements shown along the Rovuma and Lugenda rivers. However, we found very few of these elements during our fieldwork.

The Reserve falls within the Miombo Ecoregion as described by WWF, which comprises Caesalpinoid woodlands (Frost, Timberlake & Chidumayo 2001, WWF SARPO 2002b). Covering more than 3 million km^2, this Ecoregion (essentially tropical dy woodland) extends northwards to Angola and southern Democratic Republic of Congo, and as far south as tropical bushlands of South Africa. Much of the Miombo Ecoregion, including the Niassa Reserve, lies on the Central African Plateau, a flat area of undulating woodlands and grasslands that track the upland drainage of the plateau. This implies a similar biogeographic history of this ancient landscape.

The first biological survey of the area was that by Lobão Tello and Dutton (1979), which primarily covered the large mammals. It has also been the most comprehensive study undertaken to date on the vegetation of the Reserve. In the course of their 53 hour aerial survey, a preliminary vegetation classification of the entire area was carried out. Twenty-two vegetation types were briefly described under grasslands, savannas, woodlands, forest, riverine forest, swamps, thickets and formations on rock. Forty-four woody plant species characteristic of the vegetation types were mentioned, although we are not sure if these identifications were all confirmed or some seen solely from the air. The value of the work done by Lobão Tello and Dutton is that it was a first attempt to distinguish between different vegetation types using dominant species, as identified from aerial surveys, as indicators.

In 1997 the Niassa Reserve Management Plan was produced (Leo-Smith, Balson & Abacar 1997) which contains a list of 307 woody species. Of these, 191 were "positively identified" while the other 116 have "yet to be verified" or "may possibly occur". It is not clear what this actually means, how they were identified, or if herbarium specimens were collected and validated. There are no records in Maputo or Harare herbaria, the main herbaria for this region. Since some species pose great difficulties in identification without access to taxonomic keys and a herbarium, the list must be treated with caution.

There appear to have been no other botanical or vegetation studies. As far as we are aware, there have been hardly any botanical collections made from the Niassa Reserve area, including during colonial times. Balsinhas may have collected inside the Reserve, but it has not been possible to track any of these collections down.

The size of the Niassa Reserve and difficulties with accessibility are critical factors that impede fieldwork, and have compromised the detail and quality of previous work on botany and vegetation. Although there have been aerial surveys (e.g. Lobão Tello & Dutton 1979, Craig & Gibson 2002), very little ground-based fieldwork has been done (but see Balson in Leo-Smith *et al*. 1997). As a result, many untested assumptions have been made. The limitations of existing studies are as follows:

- Information presented in the various reports differs in its terminology and conceptual approach, and is often inconsistent and contradictory;
- A number of species on botanical checklists are possibly incorrectly identified;
- Taxonomic information has not been scientifically validated by a herbarium authority;
- Characteristic species of recorded vegetation types are questionable; and as a result
- Existing vegetation maps need to be confirmed by ground-based fieldwork.

As a result of these limitations, two important issues have been overlooked, namely, (i) how botanical and vegetation information for the Reserve should feed into an overall management plan, and (ii) *where* and *how* management should concentrate its efforts for conservation. We have attempted to address these issues in this report. Despite its limitations, some of the previous work on the botany and vegetation has laid an impressive and useful foundation for future fieldwork.

2. METHODS

A distinction is made here between a botanical or plant survey and a vegetation survey. In a plant survey plant species are recorded, resulting in a species list. Whereas in a vegetation survey vegetation structure and the main component species are recorded and related to landscape features. It usually results in a vegetation map.

2.1 Botanical Survey

The botanical survey component of this study set out to collect plant specimens, in addition to contributing towards a detailed inventory of the flora of the Niassa Reserve.

Our approach was to collect fruiting and flowering specimens in localities representing the broad vegetation types of the Reserve, a form of stratification. Because of problems with accessibility (many bridges were not passable at this time), observations on vegetation were limited to the central watershed (Mbatamila - Matondavela), the Serra Mecula and the area along the Rio Lugenda in Block C east of Mussoma village. Particular attention was given to woody species, partly because they are some of the most important species ecologically and partly because they made better specimens at the time of the survey. There were very few herbaceous species with flowers or fruits adequate for identification; grasses were nearly all dry and had lost seed heads.

Specimens collected were sent to Kew Herbarium (London, UK) for scientific validation. Such validation is important to confirm species identifications and new distribution records. Specimen duplicates were sent to the following herbaria: LMA and LMU (National Herbarium and University Herbarium, Maputo, respectively), SRGH (Harare) and PRE (Pretoria).

Table 1. Collection areas and itinerary during June 2003.

Date	Collecting locality	Description of broad vegetation types
6-7 June	Mbatamila & surrounds; road to Nyati	Deciduous woodland; vegetation on inselbergs; riverine woodland and thicket
8, 10-12 June	Serra Mecula (slopes and summit)	Deciduous woodland; vegetation on inselbergs; riverine woodland and thicket; vegetation on Serra Mecula
14-16 June	Rio Lugenda & surrounds (Block C)	Riverine woodland and thicket; deciduous woodland
17-18 June	Mbatamila & surrounds	Dambo vegetation; vegetation on inselbergs
19-20 June	Matondavela	Riverine woodland and thicket; deciduous woodland
21 June	Mbatamila & surrounds	Vegetation on inselbergs

Preliminary identification of specimens was done in the field, and later with the help of John Burrows from the Buffelskloof Herbarium (Lydenburg, Mpumulanga, South Africa). Thereafter they were quarantined in a deep freeze for 7 days, and later sent to various herbaria. A full list of specimens that were collected is given in Appendix 1. For each specimen the following were noted: GPS coordinates, the number of duplicates, whether it was in fruit or flower, and a general description of the specimen and habitat from which it was collected. There were four sets of collectors: (i) J.S. Golding J.R. Timberlake & P. Clarke; (ii) C. Boane; (iii) J.R. Timberlake, A. Nuvunga & C. Boane; and (iv) J.R. Timberlake.

2.2 Vegetation Survey

A good overview of the vegetation of the eastern part of the Reserve was obtained from three and a half hours flying time in a light aircraft flown by Mike Watson (Mbatamila - Mussoma - along Rio Lugenda to Rovuma confluence - back to Mbatamila via Mecula town, followed by overflight of Serra Mecula - west to Mbatamila - south along Rio Chiulezi and Rio Luatize to Lugenda confluence - along upper Lugenda - north to Mbatamila). The flights gave a much clearer idea of the relationship of vegetation to landscape position and environment than was possible from the ground.

On the ground, observations were made on upper canopy cover (estimates of canopy closure and dominant woody species) and the herbaceous/grassy layer. Aspects such as soil type and catenary position were also noted. A description of the broad vegetation types and their threats in terms of human disturbance, fire and large mammal activity was made.

Unfortunately on the return trip to Maputo the main field notebook was stolen, along with the GPS with recorded waypoints. This necessitated the rewriting of most locality and species details. The plant specimens themselves were not affected, nor were the notes from collections by Carlos Boane. It was not possible to recreate the vegetation notes, but summary findings had already been recorded elsewhere. Detailed observations are therefore lacking in many cases, but the overall findings and conclusions were not affected.

3. FINDINGS AND MANAGEMENT IMPLICATIONS

The main findings from the study are described and discussed under five headings, covering species composition, vegetation patterns and management implications.

3.1 Plant Species Survey

Species collecting was limited to four broad localities - the area within a 10 km radius of Mbatamila Camp (miombo woodland and inselbergs), the area around Matondavela (miombo and riverine woodland), the area around Luwire Safari Camp along the Rio Lugenda in Block C (various types of woodland, including riverine), and the slopes and plateau of the Serra Mecula (miombo woodland, riverine and other forest). A total of 307 separate collections were made, 201 of which were J.Golding numbers and 106 of which were C.Boane numbers (see Appendix 1 for details). The total number of specimens collected was around 1040. A complete set of the 307 collecting numbers was sent to the Kew Herbarium (K) in London for identification by Kaj Vollesen. Other sets have been labelled and sent to the INIA Herbarium (LMA) and University herbarium (LMU) in Maputo. Any remaining specimens were divided among the National Herbarium in Harare (SRGH), that has particularly good collections from both Mozambique and the miombo woodland area, and the National Herbarium in Pretoria (PRE). Any fern and Moraceae duplicate specimens were deposited at the Buffelskloof Nature Reserve Herbarium in Mpumalanga, South Africa that has a particular interest in these groups.

A number of sterile specimens collected in the course of the vegetation component of this study were identified by R.B. Drummond in Harare. These are incorporated into the full provisional checklist (Appendix 2). Many of the 326 species listed here were also mentioned by Balson (Leo-Smith *et al*. 1997) or Lobão Tello and Dutton (1979). Some were identified visually during the present survey and have no supporting specimen.

An initial analysis of the list shows that most species encountered are found primarily in the dry woodlands of south central Africa, that is miombo, *Millettia* and *Acacia* woodlands. Others are typical of riverine environments and the alluvial soils that run through these seasonally dry woodlands, while a few are typical of dry evergreen forests of the East African coastal region. A small number of species, but those of greatest interest owing to their restricted or patchy distribution, are those associated with moist forests found along the plateau edge and highlands that run along the rim of Eastern Africa.

A very high proportion of the species found outside of the forest areas during the present survey were also found during a vegetation survey of state farms in the Montepuez-Balama area of Cabo Delgado province, some 150 km away (Timberlake 1985), although soils in this latter area are generally much more clay-rich (Eschweiler 1986).

3.2 Species of Conservation Interest

Notes are given on those species with interesting distributions or which represent outlying populations, and on those that are considered rare or threatened. A provisional list of these is given in Table 2 below.

The species of greatest interest were mainly found in: (a) medium or higher altitude forests on Serra Mecula, (b) along the Rio Lugenda in riverine woodland, or (c) in the occasional small patches of gully forest between inselbergs. Many of those associated with riverine habitats are outliers of the East African coastal flora, a flora that is known to be rich and with many endemics

(Burgess and Clarke 2000). In terms of the forest patches found there, Serra Mecula appears to be an outlier of the East African highlands. The species composition shows similarities to that of higher altitude moist forests at 1500 m altitude in Zimbabwe, and medium altitude forests at around 1000-1200 m on Mount Selinda and the slopes of the Chimanimani Mountains and Mt Gorongosa.

Table 2. Species of particular interest found in the Niassa Reserve.

Family	**Species**	**Notes**
Acanthaceae	Barleria sp. nov.	Undescribed species of small shrub; in forest understorey on the lower slopes of Serra Mecula
Apocynaceae	Carvalhoa campanulata	Forest understorey shrub
Apocynaceae	Schizozygia coffaeoides	1st record for Mozambique; also in N Malawi. Forest understory shrub
Arecaceae	Elaeis guineense	Naturalised Oil Palm. 2nd record for Mozambique
Commelinaceae	Commelina nyasensis	Small herb in moist peat grassland; 1st record for Mozambique
Cyperaceae	Fuirena pubescens	Small sedge in moist peaty grassland; 1st record for Mozambique
Dracaenaceae	Sansevieria caniculata	Rare and little-known species; on clay bank in Acacia woodland
Ebenaceae	Diospyros anitae	Suffrutex endemic to N Mozambique & S Tanzania miombo woodland. Until recently only known from the type specimen
Ebenaceae	Diospyros truncatifolia	Little known species from N Mozambique, S Malawi and S Tanzania. Riverine woodland
Eriocaulaceae	Eriocaulon bongense	Small herb in wet grassland flush; 1st record for Mozambique
Euphorbiaceae	Croton scheffleri	Higher altitude forest shrub (possibly mis-identified). 1st record for Mozambique
Euphorbiaceae	Uapaca paludosa or U. lissopyrena	Rare swamp forest tree with stilt roots. If U. paludosa, 1st record for Mozambique
Fabaceae: Mimosoideae	Acacia welwitschii	Tree principally from south coastal area. One of the few records for N Mozambique
Fabaceae: Papilionoideae	Erythrina sp.	Unusual tree; does not match known species
Fabaceae: Papilionoideae	Millettia bussei	Tree. Only known from S Tanzania & N Mozambique
Loganiaceae	Strychnos cf. mellodora	Small forest tree. If confirmed, only 3rd record for Moz/Zim & a very significant outlying population
Olacaceae	Olax gambecola	Uncertain identification; normally from Congolian forest. Here a high attitude forest tree
Rubiaceae	Pavetta stenosepala	Understorey forest shrub; 1st record for Flora Zambesiaca region
Rutaceae	Zanthoxylum holtzianum	E African coastal species
Sapotaceae	Inhambanella henriquesii	E African coastal species
Sterculiaceae	Sterculia schliebenii	Coastal species of N Mozambique & S Tanzania

Thymeleaceae	Peddiea fischeri	High altitude forest tree
Tiliaceae	Grewia forbesii	E African coastal species
Violaceae	Rinorea ilicifolia	Small forest tree at medium altitude

3.3 Habitats and Vegetation

Because of problems of accessibility, observations on vegetation were limited to the central watershed (Mbatamila - Matondavela), Serra Mecula, and the area along the Rio Lugenda in Block C east of Mussoma village. Discussion of vegetation was also only a secondary objective of the present survey. The loss of the field notebook which contained numerous vegetation observations and data (including from 20 samples) restricts the detail of the discussion below, particularly in respect of species composition.

The vegetation of the Reserve can be divided into four broad groups:

- Deciduous woodlands
- Riverine woodland and thicket
- Vegetation on inselbergs
- Vegetation on Serra Mecula

<u>*Deciduous Woodlands*</u>: These types of woodlands cover over 95% of the area. The main type is miombo woodland, that is woodland dominated by tree species of *Brachystegia* or *Julbernardia* with a well-developed grass layer underneath. The miombo to the west, as far as could be seen from the air, is significantly taller and denser than in the east. This is probably an indication of either higher rainfall, or of soils with a higher clay content in the western part. Miombo woodland is more common on sandier soils on higher ground, and is particularly well-developed along the Mecula-Mbatamila watershed. Here it is interspersed with a number of hydromorphic grasslands or dambos. The grasslands are not only a perennial source of moisture but also support a rich herbaceous flora. Along the "eye" of the dambo a small stream is often found, generally fringed by a thin band of evergreen forest dominated by *Syzygium guineense* subsp. *barotsense* (or very similar subspecies) and *Syzygium cordatum*. On steeper slopes within miombo woodland, especially where areas have been cleared in the past, bamboo (*Oxytenanthera abyssinica*) thickets are common.

In somewhat drier areas (with shallow soils or with less soil moisture storage capacity) the woodland is shorter and more open. *Combretum* species and others are common, with fewer *Brachystegia* or *Julbernardia* trees. This is almost a transitional woodland type.

Closer to the Rio Lugenda a drier woodland type dominated by *Millettia stuhlmannii* becomes increasingly extensive. This *Millettia* woodland is interspersed with the driest types of vegetation - *Acacia welwitschii* wooded grassland in and around clay-rich pans, and very small patches of *Euphorbia cooperi* thicket on cemented soils. *Acacia* woodland is microphyllous, compared to the broadleaved woodlands elsewhere, and only partially deciduous. The environment here is obviously quite dry and seasonal. *Hyphaene coriacea* palms are locally common, and indicate access to groundwater.

The transition of woodland types across the landscape or catena can be seen as one moves from deeper sandy soils on the broad ridges (which are broader and more common furthest away from the two main rivers), through drier woodland on the slopes, to the *Millettia* and *Acacia* woodland types on soils that have much lower moisture storage capacity. The transition is gradual, with patches of miombo vegetation becoming less and less extensive, and more and

more patchy, as one moves towards the rivers.

Riverine Woodland & Forest: This group of vegetation types is found in a narrow band 20-500 metres wide along the major rivers, in particular the Rio Lugenda. They are very limited in their extent, being principally confined to river bends and confluences. Most patches are only a few hectares in size. These woodlands are confined to alluvial soils where there is with additional available soil moisture owing to the proximity of the river. The species composition is significantly different from that of the surrounding deciduous woodland, and comprises a number of taller trees, including the characteristic and spectacular white-stemmed *Sterculia appendiculata*. Alluvial soils within the Reserve appear to be mostly deficient in clay particles, hence species normally associated with clay-rich soils, such as *Trichilia emetica*, were notably rare or absent. The understorey contains a number of shrubs of a variety of species. It was in these vegetation types that we hoped to find species more characteristic of the East African coastal area. However, most species found were typical of riverine woodland across the Zambezian savanna region, with few coastal species.

On sand banks in the main rivers, beds of the reed *Phragmites* sp. were common. Some islands seen from the air had a much denser vegetation on them of numerous shrubs with the palms *Phoenix reclinata* and (possibly) *Elaeis guineensis*. Flanking rivers in the west of the Reserve, Craig and Gibson (2002) found the palm *Raphia farinifera*. On sandy banks along the Lugenda and Rovuma rivers stands of the large tree *Faidherbia albida* are found locally.

Inselbergs: Vegetation on inselbergs, large rocky outcrops rising out of the plain, can be divided into four groups: (a) the bare rocky tops and steep slopes; (b) woodland on shoulders and ledges; (c) thick woodland or forest in the gullies; and (d) tall closed-canopy woodland on the footslopes.

The mostly bare slopes of inselbergs are exposed to desert-like conditions. The resurrection bush, *Myrothamnus flabellifolius*, is common along with the sedge *Coleochloa setifera*. Succulents such as *Aloe mawii*, *Euphorbia cooperi* and *Kalanchoe* species are found. Owing to the specialised adaptations required for life under such harsh conditions, including wide dispersal, most species on inselbergs are widespread in their distribution.

Woodland on slopes and ledges was not visited during the present survey. From the air it appears the main species is *Brachystegia glaucescens* (or a closely-related species). Again, the species here are likely to be widespread. Although no cycads were seen, it is in such environments that they are likely to be found.

Deeper, more nutrient-rich and moister soils in gullies or protected areas towards the base of inselbergs support thick woodland, becoming forest in places. A wide variety of woody species is found, including lianas. Although many are widely distributed, a few species are more typical of the East African coastal forests, e.g. *Grewia forbesii* and *Bombax rhodognaphalon*.

On the footslopes of inselbergs, on deeper and more clay-rich soils, tall dense woodland is found, dominated by *Julbernardia globiflora* or *Brachystegia* species up to 15 m high. The species composition is similar to the surrounding deciduous woodland, but the structure is different along with the size of trees.

Serra Mecula: The vegetation of the Serra Mecula is the most diverse within the Reserve, and also contains two types of vegetation not found elsewhere - moist forest and higher altitude shrubland or low woodland. The plateau on the mountain top, at around 800-1000 m altitude, comprises *Brachystegia* woodland (mostly *B. spiciformis*?). However, in the southern and eastern parts, human activity over almost 100 years (the German Army settled here for a period

during the First World War) has destroyed much of the woodland, resulting in a fire-maintained sub-climax grassland with scattered shrubs and small trees, especially *Strychnos spinosa*. On the outer slopes of the mountain a tall, moderately open woodland (10-15 m high, 75% canopy cover) of *Brachystegia boehmii*, *B. utilis* and *B. bussei* is found. Denser woodland or forest is found along the deeply-incised streams, and contains a number of interesting species such as *Uapaca* cf. *lissopyrena*, *Treculia africana* and *Khaya anthotheca*. Most significantly, the small patches of evergreen moist forest (1 to 5 ha in size) up on the plateau at a higher altitude (1000-1300 m) or associated with gullies below the larger peaks contain species, such as *Peddiea africana*, more commonly associated with forests of the mountains running along the eastern African plateau scarp from Ethiopia to South Africa, in particular those of Malawi, eastern Zimbabwe and Gorongosa.

On the highest peaks is found a scrub vegetation type with low scattered trees and a range of herbs and succulents. The species are often the same as those found in similar exposed but moist situations in eastern Zimbabwe. Serra Mecula is an outlier of upland or montane vegetation and species, and hence is of great conservation significance.

3.4 Threats

The level of threat to botanical diversity within the Niassa Reserve is much less than in other areas in northern Mozambique. The prime reason is a much lower human population density (due probably to a combination of poor soils, low rainfall and, historically, disease). Although a significant number of people live within the Reserve their subsistence agricultural activities involving bush clearance are comparatively restricted. However, the incidence and impacts of wildfires during the long dry season are significant.

Much of the miombo woodland seen showed signs of having been at least partially cleared at some time over the past 50 years, and virtually all showed evidence of burning within the past 2-3 years. Although miombo woodland is adapted to fire, it seems that the present frequency of fire is significantly higher that what was once 'natural'. Increased fire frequency leads to reduced recruitment of tree seedlings into the small tree layer, and to an increase in fire-adapted tall grasses and shrubs. Over decades fire can alter both woodland structure (making it more open) and the relative abundance of woodland species (favouring those adapted to fire).

No evidence was seen of selective logging of valued timber trees such as *Dalbergia melanoxylon* (Pau Preto), *Millettia stuhlmannii* (Panga Panga) or *Pterocarpus angolensis* (Kiaat). Individuals of these species are of poor size and form in the Reserve, but this is probably a natural feature and not a result of previous exploitation. Close to settlements various trees have been felled, but this is primarily construction timber for local use. A moderately wide range of hardwood species appear to be used.

There is no cattle grazing in the Reserve, and browsing by goats is limited to areas around settlements. Wildlife numbers are not sufficiently high to cause significant environmental impact. However, in Block C close to the Rio Lugenda there is evidence of elephant impact on vegetation, particularly to riverine woodland and thickets. Low branches are broken, thus increasing coppicing and shrubbiness. Around the clay pans, a number of shallow-rooted *Acacia* trees and others have been uprooted by elephant, presumably when the soils were very wet. Although not of major conservation concern at this stage, it is suggested that such damage could become problematic later if elephant concentrations build up. Impact is particularly prevalent during the dry season when elephants concentrate close to water sources such as the Rio Lugenda.

Of particular concern are wildfires on the Serra Mecula and on inselbergs. Evidence of fire is very apparent, and it is slowly "eating into" the important patches of forest found in the gullies. Protection against fires in such places, particularly up on the Serra Mecula, should be a conservation management priority. In particular, it was noted that a significant part of the secondary grassland/shrubland on the mountain was subjected to annual burning set by Niassa Reserve game scouts in order to keep footpaths open. What were intended to be small controlled fires rapidly become burnt hectares. The edges of the forest patches here are becoming increasingly 'hardened', and the size of the patches is likely to diminish slowly. A similar phenomenon was noted in Block C. Game scouts there burnt along the vehicle tracks in order to facilitate access and game viewing, but this results in square kilometres of woodland being burnt every year.

Very few plant species known to be globally or nationally threatened were found during the present survey. Of the seven species from the Reserve listed as threatened (Table 3, based on records in Walter & Gillett 1998, Oldfield *et al*. 1998 and Golding 2002), four are only considered threatened because of utilisation elsewhere (*Bombax rhodognaphalon*, *Khaya anthotheca*, *Sterculia appendiculata* and *S. quinqueloba*) but are in fact quite widespread.

Table 3. Species recorded as being threatened globally or within the region.

Species	**Notes**	**Source**
Bombax rhodognaphalon	Tree; fairly widely distributed; threatened through utilisation	1, 2
Diospyros anitae	Endemic suffrutex in miombo woodland	2
Khaya anthotheca	Widespread tree; not truly threatened except locally by utilisation	1
Sterculia appendiculata	Tree; threatened by utilisation in parts of Moz	2
Sterculia quinqueloba	Tree; threatened by utilisation in parts of Moz	2
Sterculia schliebenii	Tree; coastal forests	1
Strychnos mellodora	Small tree; needs confirmation of i/d. moist forests - very scattered	1

Sources: (1) World List of Threatened Trees (Oldfield, Lusty & MacKinven 1998); (2) Mozambique, in Southern African Plant Red Data Lists (Golding 2002).

3.5 Framework for Botanical Collecting

There are three main considerations when determining a strategy for future botanical work in the area: (a) that logistics are difficult, thus requiring a carefully targeted approach, not widespread sampling, (b) that a high proportion of the plant diversity is found in a very small proportion of the area; and (c) that large parts of the Reserve are relatively homogeneous in terms of both vegetation and plant species composition. From this it can be seen that any further botanical survey should be targeted towards certain areas or vegetation types. In terms of diversity and unusual species (those of restricted or patchy distribution) these areas are:

- Serra Mecula (woodland on slopes, rocky outcrops at higher altitude, and especially moist forest patches associated with gullies and drainage lines);
- Riverine woodland and thicket on alluvial soils (particularly along the Rio Lugenda);
- Inselbergs (particularly forest and thickets in gullies);
- Dambo grasslands along the central watershed.

There has been very little botanical study in the area and the survey has shown that some species are present outside of their previously known range. Thus it is important to collect voucher specimens of most species that can be verified in a herbarium, as species can be readily misidentified in the field. A herbarium specimen with reasonable notes on locality is proof that the species exists in the area.

The Serra Mecula can be surveyed on foot based out of the old Camp Simba (the proposed site for a small lodge). This is accessible by road. Forests on the outer slopes, which are particularly well-developed on the northeastern slopes of the mountain, would have to be accessed on foot from tracks near Mecula town.

The principal riverine woodlands, as seen from the air and as noted in discussions with safari operators in Block C, are along the Rio Lugenda, both downstream and upstream of the bridge. Block B apparently has much riverine thicket. It is in these areas that East African coastal species are likely to be most frequent. There is a track, accessible by vehicle during the hunting season, along the southern and eastern banks of the river from 70 km upstream of the bridge downstream to the confluence with the Rio Rovuma.

Inselbergs are scattered throughout the Reserve, but those in the eastern part are generally more accessible. Some can be accessed by helicopter, allowing for botanical collecting in the upper (higher) parts relatively easily, whilst others (such as around Mbatamila) can be readily accessed on the ground from motorable tracks. One promising site is on the inselbergs around Mbatamila Camp. Inselbergs in the western part pose more of a problem. A helicopter may be essential here. Gully forests on inselbergs are not easy places to work in.

The majority of dambo grasslands are found along the central watershed or 'spine' of the Reserve running between Mbatamila and Mecula. The grasslands in the north west close to the Rio Rovuma shown on the existing vegetation cover map, which were not seen, are unlikely to be moist dambo grasslands. Dambos support a wide range of herbaceous plants, often growing from bulbs, that mostly appear and flower in the early part of the season (November to January), effectively disappearing afterwards. A number of ground orchids are likely to be found which are often limited in their distribution. Effective collecting should be done early in the growing season. Many of the areas are relatively easily accessible by road from Mbatamila, whilst others are accessible by helicopter. A range of moist dambos need to be sampled.

In terms of logistics and timing, for comprehensive botanical collecting in the Niassa Reserve and surrounding areas one needs about 4-6 weeks in the field, around 20 plant presses and 3000 sheets of newspaper, and a field drying system (to facilitate plant drying by artificial heat), especially if the survey is carried out during the rains or during a humid period. Survey work should be done either in November/December, when plants are flowering but before roads become impassable, or in April/May before leaf fall but when accessibility improves after the rains. Use of a helicopter would greatly facilitate access. A series of rainy days not only reduces field time, but creates major problems in getting specimens dried.

3.6 Management Implications

As mentioned previously, there are no major threats to plant populations at present, other than the extent and frequency of wildfires. Clearance for cultivation and utilisation of plants by humans is very localised, although its effect can be seen more widely in woodland structure (skewed age classes, high levels of coppicing, etc.). In general, both vegetation and most species can look after themselves. There are no special plants identified so far that require particular conservation attention. However, if any cycads are found (none were seen during the survey but here have been verbal reports of some on inselbergs) they would need special

protection from collectors.

There are three major findings of direct relevance to management: (a) that any conservation action relating to plants and vegetation should be focussed on very few areas; (b) that there needs to be some control on the incidence of wildfire; and (c) that there need to be restrictions on the area of human settlement and utilisation. These are elaborated upon below.

Roughly half of the plant species diversity of the Reserve is found in only 5 to 10% of the area, and this half contains the species of most interest. Therefore, from a species conservation viewpoint, attention should be given primarily to a small proportion of the total area. These areas are forests on the Serra Mecula, gully forests in inselbergs, riverine woodland and dambos. The Serra Mecula in particular should be of major management concern, not least as it is one of the main areas threatened by human activities. If the habitat is conserved then generally the species occurring there also are.

Wildfires are very widespread at present, and their incidence at any particular locality is also very frequent. This needs to be reduced. Both vegetation in the Reserve and its constituent species are adapted to fire, but the increased frequency now is having a long-term effect. What needs to be achieved is to reduce the incidence of fire (not total prevention, which would be far too difficult), particularly on the Serra Mecula and on inselbergs. This could be by educational campaigns as well as increased patrolling. At present it appears that some of the fires are started by Reserve or coutada scouts for track clearance, and left to get out of control.

There are around 12,000 people living within the Reserve at present, and this number can easily increase if controls are not kept on immigration and where people can settle. Of particular concern here, from a biodiversity viewpoint, is Serra Mecula (especially on the south eastern slopes) and patches of riverine woodland along the Lugenda and Rovuma rivers.

4. CONCLUSIONS

Conclusions are given under five headings.

4.1 Vegetation and Habitats

- There are five main groups of vegetation types, the distribution and extent of which is determined principally by available soil moisture. These are: (1) Forest vegetation where additional moisture is received, particularly during the dry season; (2) Riverine vegetation on alluvium with additional moisture from perennial rivers; (3) Deciduous Woodland, which covers most of the Reserve and only receives moisture from incident rainfall; (4) Dambo vegetation where trees are precluded owing to poorly drained conditions during the growing season; and (5) Inselbergs with very poor moisture storage capacity and almost desert-like conditions (e.g. extremes of temperature). The majority of the area, perhaps 95%, is covered by deciduous woodland which is not particularly diverse in terms of species. This forms part of the Zambezian Caesalpinoid woodlands that cover much of south-central Africa. These woodlands are particularly extensive in the Reserve, and are relatively undisturbed compared to similar woodlands elsewhere in Mozambique.

- The Serra Mecula is perhaps the most important botanical area within the Reserve owing to its diversity of vegetation types, particularly forests. It is a prime conservation environment and of great aesthetic appeal.

- Certain parts of the Reserve are just moist enough to support forest patches of marginally deciduous or evergreen species. These are located in various places: (a) on high altitude (>800 m) slopes of the Serra Mecula which receive additional moisture from air flows or low cloud during the dry season, (b) in gullies at the base of mountain slopes or associated with small rivers that receive additional run-on moisture, and (c) in gullies around the base of inselbergs.

- Riverine woodland and thickets are surprisingly poorly developed across the Reserve, perhaps in part owing to a deficiency of clay particles in the system.

- The vegetation of the Niassa Reserve mostly comprises dry miombo woodland, with drier woodland types (*Combretum*, *Millettia* or *Acacia*) at somewhat lower altitudes closer to the Rovuma and Lugenda rivers. Based on our aerial survey, vegetation in the western part appears to be moister, consisting of taller and denser miombo woodland. The vegetation is forms a mosaic, with patches of more mesic types (i.e. miombo) declining in frequency and extent as one moves closer to the main rivers, and drier types (e.g. *Millettia*) becoming more common.

- The dambos present are not particularly well developed. The landscape is probably too dry and not sufficiently flat for their extensive development.

- The soils of the Reserve, at least in the eastern parts, seem to be more deficient in clay than soils outside to the south (Marrapa) and areas towards Montepuez. Here, extensive areas of red clay soils, good for agriculture, are found. This can also be seen in the lack of clay deposits along the main rivers, where only sand banks are present. As a result, the vegetation here is less diverse than was expected, and also drier owing to poor moisture storage capacity, hence it is suited to agriculture. Trees lose their leaves earlier compared to areas to the south.

- The most important vegetation types from a conservation and biodiversity viewpoint are: (a) Moist Forests, (b) Gully Forests, (c) Riverine Woodland, (d) Dambo Grasslands, and (e) Inselbergs. The main evergreen forest areas are on the upper slopes of Serra Mecula, while the main riverine woodlands are found along the Rio Lugenda. Other important, but drier forest areas, are associated with inselbergs, either in gullies or at the base of the larger outcrops. Dambo grasslands are mostly found along the watershed between Mbatamila and Matondavela but have woodland encroaching on their margins. Inselbergs are large with a number of perched flatter areas where dry woodland can develop.

4.2 Species

- Biodiversity is not evenly distributed. Perhaps half of the plant diversity of the Reserve in terms of numbers of species is found in less than 5% of the total area.

- We had hoped to find a number of species with East African coastal affinities coming in along the main river valleys (the East African coastal area is known to be very bio-diverse with a number of species of restricted distribution). However, the number of coastal species found within the Reserve was relatively low, and there were very few patches resembling East African coastal vegetation types.

- Of particular interest were a number of small (1 to 5 ha) forest patches on the Serra Mecula, above 800 m altitude. These patches contain a number of species associated with montane forests such as found in Malawi, eastern Zimbabwe and southern Tanzania. Thus the Serra Mecula supports outlying populations of these species, similar to Mt Gorongosa.

- Few species of major interest were noted. These include (some pending confirmation) forest species such as *Strychnos mellodora* and *Uapaca* cf. *lissopyrena*; East African coastal species such as *Grewia forbesii* and *Zanthoxylon holtzianum;* and new records for Mozambique such as *Schizozygia coffaeoides* and *Erythrina* sp. A species of *Barleria* is new to science. There are records of a *Pandanus*, but this was not seen. No cycads were noted. Islands in the Rio Lugenda had what appeared to be *Elaeis guineensis* (the oil palm) on them.

- There are unlikely to be any species restricted to the Niassa Reserve. Most of the habitats present are widespread, and those that are unusual (e.g. forest) normally contain species of wider (although very patchy) distribution. In addition to the seven new records for Mozambique and one new species found during this trip, there are likely to be a number of additional new records for the country still to be found.

4.3 Threats

- Plant species and vegetation are under relatively little threat at present compared to other areas in northern Mozambique. Perhaps the major threat to plant diversity is the high frequency of fire. Most woodland species are adapted to fire, but not to fires as frequent as every year. Some areas are showing poor regeneration of the woody layer and a dominance of fire-resistant species. This is also occurring on the slopes of many inselbergs, which appear to burn every year.

- Increasing settlement by humans along the main rivers and on the slopes of Serra Mecula is a significant threat. Utilization of plants by humans is not significant at present owing to

distance from markets for commercialisation, difficulties in transportation and the low population pressure.

- Changes in hydrology will impact on dambo grasslands. Such changes may come from road construction (causeways), frequent burning, or cultivation in the immediate catchment. At present the hydrological regime is very 'natural' and any soil erosion is very localised.

- A possible future threat is the impact of concentrations of elephant during the dry season on riverine woodland and thickets. Another possible threat is inappropriate infrastructurel developments associated with tourism, such as camps in riverine woodland and up on the Serra Mecula.

4.4 Future Studies

- The major priority is a landscape-guided ecological vegetation survey of the Niassa Reserve and surrounding areas. This should be done at a scale of 1:250,000 using satellite imagery. It will give an ecological classification of the Reserve that can be used as a basis for other biodiversity studies and for conservation management zonation.

- A detailed vegetation survey (at around 1:50,000 scale) should be carried out of the Serra Mecula. This is a very important area biologically, and will possibly be the main focus for future tourist development. It also has particular threats upon it from human populations in Mecula.

- The present botanical survey was very incomplete, and was just a first reconnaissance. Although some ideas of diversity and important areas are now beginning to emerge, further botanical survey is needed of selected areas, especially forests. Priority study areas are the Serra Mecula, inselberg bases and gullies, riverine woodlands and thickets, and dambos.

- After a more comprehensive botanical survey it will be possible to determine which are the plant species of restricted distribution, which are of particular ecological significance, and which are under particular threat from human settlement, fire, changes in hydrology or elephant impact. Particular attention should be paid to species linked to the East African coastal vegetation or to moist forests.

4.5 Conservation and Management Issues

- There is a need to be more clear on the conservation objectives of the Niassa Reserve, and what the ecological factors that determine or impact on these might be.

- Key habitats, such as moist forests, riverine woodland/thickets and dambos, should be given major conservation priorities. The Serra Mecula should be a major conservation target area.

- There should be greater control over the incidence of fire Many fires are set by game scouts. There could be a programme of education or sensitisation in the worst affected areas, such as around the Serra Mecula.

5. RECOMMENDATIONS

1. A synthesis of existing information and data on the biodiversity of the area, its distribution and status should be carried out. This synthesis, essentially a desk job, should also cover information on relevant aspects of the physical environment (geology, soils, climate and landform). It should provide a platform for all future studies within the Reserve, and help inform conservation management.

2. An ecological vegetation survey of the Niassa Reserve and surrounding coutadas should be carried out. This should be done at a reconnaissance scale of around 1:250,000. The most suitable method is to use satellite imagery followed by low-level aerial survey to back this up. Ground-based fieldwork is essential in order to determine species composition and environmental detail. Given problems of accessibility, a helicopter would be most useful for this activity.

3. Within the reconnaissance-scale vegetation survey, more detailed surveys should be carried out in selected areas of conservation importance and management significance. The two areas of highest priority are the Serra Mecula and immediate surrounds, and the riverine woodlands/thickets along the Rio Lugenda. Air photos are the more appropriate medium, along with ground-based fieldwork. Much of the riverine survey could be done from a light aircraft.

4. Further botanical survey is required, principally of particular habitats or areas. These are:

    - the forests and woodlands of the Serra Mecula;
    - riverine woodlands and thickets;
    - gully forests at those at the base of inselbergs;
    - the slopes and upper reaches of the inselbergs themselves; and
    - dambos.

    Specimens should be collected for verification in a competent herbarium as new records and some unusual finds are likely. Particular attention should be paid to species likely to be of restricted distribution and to determining species under threat.

5. Conservation management should focus its attention on those areas and habitats of greater biodiversity significance, as well as on large mammal populations. Such areas will include the Serra Mecula, riverine fringes along the Rio Lugenda, inselberg woodlands and dambos.

6. The frequency of fire over the NGR could be investigated using satellite imagery, with particular reference to key inselberg areas and the Serra Mecula. This study will give a firmer base to subsequent management interventions towards reducing the incidence of fire.

7. Some reports dating back to the 1970s cover the NGR but appear to only exist in one or two copies (e.g. Lobão Tello & Dutton 1979). These are invaluable sources of information. They should be copied and stored in an archive as well as being made more widely available to researchers.

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Appendix 1. List of plant specimens collected in the Niassa Reserve, June 2003.

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Appendix 2. Provisional list of plants recorded from the Niassa Reserve during the survey.

PTERIDOPHYTA (Ferns)
Actinopteris radiata *(Sw.) Link*
Christella chaseana *(Schelpe) Holttum*
Pleopeltis macrocarpa *(Willd.) Kaulf.*

MONOCOTYLEDONS
Aloaceae
Aloe mawii *Christian*

Anthericaceae
Chlorophytum nubicum *(Baker) Kativu*

Arecaceae
Elaeis guineensis *Jacq.*
Hyphaene coriacea *Gaertn.*
Phoenix reclinata *Jacq.*

Commelinaceae
Commelina nyasensis *C.B.Clarke*

Cyperaceae
Coleochloa setifera *(Ridl.) Gilly*
Fuirena pubescens *(Lam.) Kunth.*
Scleria nutans *Kunth*

Dracaenaceae
Dracaena mannii *Baker*
Sanseveria caniculata *Carr.*

Eriocaulaceae
Eriocaulon bongense *Engl.& Ruhr.*

Orchidaceae
Cyrtorchis sp.

Poaceae
Andropogon sp.
Aristida sp.
Eragrostis chapelieri *(Kunth) Nees*
Eragrostis japonica *(Thunb.) Trin.*
Heteropogon sp.
Hyparrhenia sp.
Hyperthelia dissoluta *(Steud.) Clayton*
Loudetia arundinacea *(A.Rich.) Steud.*
Melinis ambigua *Hack.*
Oxytenanthera abyssinica *(A.Rich.) Munro*
Pennisetum polystachion *(L.) Schult.*
Pennisetum unisetum *(Nees) Benth.*
Phragmites mauritianus *Kunth*
Sporobolus sp.

DICOTYLEDONS
Acanthaceae
Barleria sp. nov.
Blepharis affinis *Lindau*
Dyschoriste verticillaris *(Oliv.) C.B.Clarke*
Justicia nyassana *Lindau*

Lepidagathis andersoniana *Lindau*
Monochema depauperatum *(T.Anderson) C.B.Clarke*
Peristrophe paniculata *(Forssk.) Brummitt*
Phaulopsis imbricata *(Forssk.) Sweet*
Ruspolia decurrens *(Nees) Milne-Redh.*

Amaranthaceae
Celosia trigyna *L.*

Anacardiaceae
Lannea discolor *(Sond.) Engl.*
Mangifera indica *L.*
Ozoroa insignis *Delile* subsp. reticulata *(Baker f.) J.B.Gillett*
Rhus longipes *Engl.*
Rhus tenuinervis *Engl.*
Sclerocarya birrea *(A.Rich.) Hochst.*
Sorindeia madagascariensis *DC.*

Annonaceae
Annona senegalensis *Pers*.
Cleistochlamys kirkii *(Benth.) Oliv.*
Dielsiothamnus divaricata *(Diels) R.E.Fries*
Friesodielsia obovata *(Benth.) Verdc.*
Monanthotaxis buchananii *(Engl.) Verdc.*
Monodora junodii *Engl.& Diels*
Xylopia aethiopica *(Dunal) A.Rich.*

Apiaceae
Heteromorpha trifoliata *(Wendl.) Eckl.& Zeyh.*

Apocynaceae
Carvalhoa campanulata *K.Schum.*
Diplorhynchus condylocarpum *(Müll.Arg.) Pichon*
Holarrhena pubescens *(Buch.-Ham.) G.Don*
Schizozygia coffaeoides *Baill*.
Voacanga africana *Stapf*

Aristilochiaceae
Aristilochia albida *Duch*.

Asteraceae
Dicoma sessiliflora *Harv*.
Helichrysum kirkii *Oliv.& Hiern*
Laggera crispata *(Vahl) Hepper & J.R.I.Wood*
Mikania chenopodifolia *Willd*.
Pleiotaxis pulcherrima *Steetz*
Sphaeranthus humilis *O.Hoffm.*
Vernonia colorata *(Willd.) Drake* subsp. colorata
Vernonia colorata *(Willd.) Drake* subsp. oxyura *(O.Hoffm.) C.Jeffrey*
Vernonia ugandensis *S.Moore*

Balanitaceae
Balanites aegyptiaca *(L.) Delile*
Balanites maughamii *Sprague*

Bignoniaceae
Kigelia africana *(Lam.) Benth.*
Markhamia zanzibarica *(DC.) K.Schum.*
Stereospermum kunthianum *Cham*.

Bombacaceae
Adansonia digitata *L*.
Bombax rhodognaphalon *K.Schum*.

Burseraceae
Commiphora cf. glandulosa *Schinz*
Commiphora mollis *(Oliv.) Engl.*

Capparaceae
Boscia angustifolia *A.Rich.* var. corymbosa *(Gilg) DeWolf*
Boscia mossambicensis *Klotszch*
Cadaba kirkii *Oliv*.
Capparis cf. sepiaria *L*.
Cladostemon kirkii *(Oliv.) Pax & Gilg*
Courbonia glauca *(Klotzsch) Gilg & Bened.*
Maerua edulis *(Gilg & Bened.) DeWolf*
Thilachium africanum *Lour*.

Caryophyllaceae
Polycarpaea eriantha *A.Rich.*

Celastraceae
Gymnosporia mossambicensis *(Klotzsch) Blakelock*
Maytenus senegalensis *(Lam.) Exell*

Chrysobalanaceae
Parinari curatellifolia *Benth*.

Clusiaceae
Garcinia buchananii *Baker*
Garcinia livingstonei *Anderson*
Psorospermum febrifugum *Spach*

Combretaceae
Combretum adenogonium *A.Rich.*
Combretum celastroides *M.A.Lawson*
Combretum collinum *Fresen*.
Combretum elaeagnoides *Klotzsch*
Combretum molle *G.Don*
Combretum mossambicense *(Klotzsch) Engl.*
Combretum psidioides *Welw*.
Combretum zeyheri *Sond*.
Pteleopsis myrtifolia *(M.A.Lawson) Engl.& Diels*
Terminalia brachystemma *Hiern*
Terminalia sericea *DC*.
Terminalia stenostachya *Engl.& Diels*

Connaraceae
Rourea orientalis *Baill*.

Convolvulaceae
Astripomoea malvacea *(Klotzsch) A.Meeuse*

Crassulaceae
Crassula setulosa *Harv*.
Kalanchoe elizae *Burger*
Kalanchoe lanceolata *(Forssk.) Pers.*

Dilleniaceae
Tetracera boiviniana *Baill*.

Dipterocarpaceae
Monotes engleri *Gilg*

Ebenaceae
Diospyros anitae *F.White*
Diospyros kirkii *Hiern*
Diospyros mespiliformis *A.DC.*
Diospyros senensis *Klotzsch*
Diospyros truncatifolia *A.N.Caveney*
Diospyros verrucosa *Hiern*
Euclea natalensis *A.DC*.

Erythroxylaceae
Erythroxylum emarginatum *Thonn*.

Euphorbiaceae
Antidesma rufescens *Tul*.
Antidesma vogelianum *Müll.Arg.*
Bridelia cathartica *G.Bertol.* subsp. cathartica
Bridelia cathartica *G.Bertol.* subsp. melanthesoides *(Baill.) J.Léonard*
Bridelia cf. duvigneadii *J.Léonard*
Cleistanthus schlechteri *(Pax) Hutch.*
Croton gratissimus *Burch*.
Croton megalobotrys *Müll.Arg.*
Croton menyhartii *Pax*
Croton scheffleri *Pax*
Drypetes arguta *(Müll.Arg.) Hutch.*
Euphorbia cooperi *A.Berger*
Flueggea virosa *(Willd.) Voigt*
Hymenocardia acida *Tul*.
Hymenocardia ulmoides *Oliv*.
Macaranga mellifera *Prain*
Phyllanthus beillei *Hutch*.
Phyllanthus ovalifolius *Forssk*.
Phyllanthus reticulatus *Poir*.
Pseudolachnostylis maprouneifolia *Pax*
Uapaca lissopyrena *Radcl.-Sm.*
Uapaca nitida *Müll.Arg.*
Uapaca sansibarica *Pax*

Fabaceae: Caesalpinioideae
Afzelia quanzensis *Welw*.
Bauhinia tomentosa *L*.
Brachystegia allenii *Burtt Davy & Hutch.*
Brachystegia boehmii *Taub*.
Brachystegia bussei *Harms*
Brachystegia glaucescens *Burtt Davy & Hutch.*
Brachystegia longifolia *Benth*.
Brachystegia manga *De Wild.*
Brachystegia spiciformis *Benth*.
Brachystegia utilis *Burtt Davy & Hutch.*
Burkea africana *Hook*.
Cassia abbreviata *Oliv*.
Cassia afrofistula *Brenan*
Chamaecrista mimosoides *(L.) Greene*
Erythrophleum africanum *(Benth.) Harms.*
Julbernardia globiflora *(Benth.) Troupin*
Piliostigma thonningii *(Schumach.) Milne-Redh.*
Pterolobium stellatum *(Forssk.) Brenan*
Senna petersiana *(Bolle) Lock*
Tamarindus indica *L*.

Fabaceae: Mimosoideae
Acacia gerrrardii *Benth*.
Acacia goetzii *Harms* subsp. microphylla *Brenan*
Acacia nigrescens *Oliv*.
Acacia nilotica *(L.) Delile* subsp. kraussiana *(Vatke) Brenan*
Acacia polyacantha *Willd*. subsp. campylacantha *(A.Rich.) Brenan*
Acacia robusta *Burch*. subsp. clavigera *(E.Mey.) Brenan*
Acacia schweinfurthii *Brenan & Exell*
Acacia senegal *(L.) Willd.* var. rostrata *Brenan*
Acacia sieberiana *DC*.
Acacia welwitschii *Oliv*. subsp. delagoensis *(Harms) J.H.Ross & Brenan*
Albizia adianthifolia *(Schumach) W.Wight*
Albizia harveyii *E.Fourn.*
Albizia tanganyikensis *Baker f.*
Albizia versicolor Oliv.
Dichrostachys cinerea *(L.) Wight & Arn.* subsp. nyassana *(Taub.) Brenan*
Faidherbia albida *(Delile) A.Chev.*
Mimosa pigra *L*.

Fabaceae: Papilionoideae
Adenodolichos punctatus *(Micheli) Harms* subsp. bussei *(Harms) Verdc.*
Aeschynomene schimperi *A.Rich.*
Baphia massaiensis *Taub*. subsp. gomesii *(Baker f.) Brummitt*
Cordyla africana *Lour*.
Crotalaria goreensis *Guill.& Perr.*
Crotalaria laburnifolia *L*.
Crotalaria pallida *Aiton*
Dalbergia arbutifolia *Baker*
Dalbergia boehmii *Taub*.
Dalbergia lactea *Vatke*
Dalbergia melanoxylon *Guill.& Perr.*
Dalbergia nitidula *Baker*
Erythrina sp.
Millettia bussei *Harms*
Millettia stuhlmannii *Taub*.
Mundulea sericea *(Willd.) A.Chev.*
Ormocarpum kirkii *S.Moore*
Pericopsis angolensis *(Baker) Meeuwen*
Philenoptera bussei *(Harms) Schrire*
Philenoptera violacea *(Klotze) Schrire*
Pterocarpus angolensis *DC*.
Swartzia madagascariensis *Desv*.
Xeroderris stuhlmannii *(Taub.) Mendonça & E.P.Sousa*

Flacourtiaceae
Flacourtia indica *(Burm.f.) Merr.*
Xylotheca tettensis *(Klotzsch) Gilg*

Ixonanthaceae
Phyllocosmos lemaireanus *(De Wild.& T.Durand) T.Durand & H.Durand*

Lamiaceae
Aeollanthus ukamensis *Gürke*
Clerodendrum cephalanthum *Oliv*. subsp. swynnertonii *(S.Moore) Verdc.*
Clereodendron robustum *Klotzsch* var. fischeri *(Gürke) Verdc.*
Haumaniastrum venosum *(Baker) Agnew*
Hemizygia bracteosa *(Benth.) Briq*.
Leucas nyassae *Gürke*
Solenostemon lateriflorus *(Benth.) J.K.Morton*
Tetradenia riparia *(Hochst.) Codd*

Vitex doniana *Sweet*
Vitex cf. mombassae *Vatke*

Lentibulariaceae
Utricularia firmula *Oliv*.
Utricularia livida *E.Mey.*

Linaceae
Hugonia orientalis *Engl*.

Loganiaceae
Strychnos madagascariensis *Poir*.
Strychnos cf. mellodora *S.Moore*
Strychnos spinosa *Lam*.

Loranthaceae
Tapinanthus forbesii *(Sprague) Wiens*

Malvaceae
Abutilon angulatum *(Guill.& Perr.) Mast.*
Azanza garckeana *(F.Hoffm.) Exell.& Hillc.*
Hibiscus calyphyllus *Cav*.
Urena lobata *L*.
Wissadula rostrata *(Schumach.& Thonn.) Hook.f.*

Melastomataceae
Dissotis debilis *(Sond.) Triana*

Meliaceae
Khaya anthotheca *(Welw.) C.DC.*
Trichilia dregeana *Sond*.
Trichilia emetica *Vahl*
Turraea nilotica *Kotschy & Peyr.*
Turraea robusta *Gürke*
Turraea sp.

Melianthaceae
Bersama abyssinica *Fresen*. subsp. engleriana *(Gürke) F.White*

Moraceae
Ficus capreifolia *Delile*
Ficus ingens *(Miq.) Miq.*
Ficus sur *Forssk*.
Ficus sycomorus *L*.
Treculia africana *Decne*
Trilepisium madagascariensis *DC*.

Myrothamnaceae
Myrothamnus flabellifolius *Welw*.

Myrsinaceae
Maesa lanceolata *Forssk*.

Myrtaceae
Syzygium cordatum *C.Krauss*
Syzygium guineense *(Willd.) DC.* subsp. afromontanum *F.White*
Syzygium guineense *(Willd.) DC.* subsp. barotsense *F.White*
Syzygium guineense *(Willd.) DC.* subsp. guineense

Nymphaeaceae
Nymphaea nouchali *Burm.f.*

Ochnaceae
Brackenridgea zanguebarica *Oliv*.
Ochna leptoclada *Oliv*.

Olacaceae
Olax gambecola *Baill*.
Ximenia caffra *Sond*.

Onagraceae
Ludwigia octovalvis *(Jacq.) P.H.Raven*

Orobanchaceae
Orobanche minor *Sm*.

Oxalidaceae
Biophytum umbraculatum *Welw*.

Piperaceae
Peperomia tetraphylla *(G.Forst.) Hook.& Arn.*

Polygalaceae
Polygala albida *Schinz*
Securidaca longipedunculata *Fresen*.

Proteaceae
Faurea saligna *Harv*.
Protea angolensis *Welw*. var. divaricata *(Engl.& Gilg) Beard*
Protea welwitschii *Engl*.

Rhamnaceae
Berchemia discolor *(Klotzsch) Hemsl.*
Ziziphus abyssinica *A.Rich.*

Rubiaceae
Anthospermum whyteanum *Britten*
Breonadia salicina *(Vahl) Hepper & J.H.I.Wood*
Catunaregum spinosa *(Thunb.) Tirveng.* subsp. taylorii *(S.Moore) Verdc.*
Crossopteryx febrifuga *(G.Don.) Benth.*
Gardenia resiniflua *Hiern*
Hymenodictyon parvifolium *Oliv*.
Keetia venosa *(Oliv.) Bridson*
Keetia zanzibarica *(Klotzsch) Bridson* subsp. zanzibarica
Oldenlandia rosulata *K.Schum.*
Oxyanthus goetzei *K.Schum.*
Pavetta stenosepala *K.Schum.*
Polysphaeria dischistocalyx *Brenan*
Polysphaeria multiflora *Hiern*
Psychotria capensis *(Eckl.) Vatke* subsp. capensis
Psychotria capensis *(Eckl.) Vatke* subsp. riparia *(K.Schum.& K.Krause) Verdc.*
Psychotria kirkii *Hiern*
Psychotria pumila *Hiern*
Rothmannia engleriana *(K.Schum.) Keay*
Rothmannia fischeri *(K.Schum.) Bullock* subsp. moramballae *(Hiern) Bridson*
Rothmannia manganjae *(Hiern) Keay*
Rytigynia cf. macrura *Verdc*.
Spermacoce dibrachiata *Oliv*.
Spermacoce subvulgata *(K.Schum.) J.G.Garcia*
Tarenna pavettoides *(Harv.) Sim* subsp. affinis *(K.Schum.) Bridson*
Vangueria esculenta *S.Moore*
Vangueria madagascariensis *J.F.Gmel.*

Rutaceae
Vepris bachmannii *(Engl.) W.Mziray*
Zanthoxylum cf. holtzianum *(Engl.) Waterman*

Sapindaceae
Allophylus sp.
Aporrhiza paniculata *Radlk*.
Blighia unijugata *Baker*
Deinbollia oblongifolia *(E.Mey.) Radkl.*
Lecaniodiscus fraxinifolius *Baker*
Paullina pinnata *L*.

Sapotacaeae
Englerophytum magalismontanum *(Sond.) T.D.Penn.*
Englerophytum natalense *(Sond.) T.D.Penn.*
Inhambanella henriquesii *(Engl.& Warb.) Dubard*
Synsepalum passargei *(Engl.) T.D.Penn.*

Scrophulariaceae
Buchnera hispidula *D.Don*
Buchnera randii *S.Moore*
Micrargeria filiformis *(Schumach.& Thonn.) Hutch.& Dalziel*
Striga asiatica *(L.) Kuntze*
Striga pubiflora *Klotzsch*

Sterculiaceae
Dombeya acutangula *Cav*.
Melochia corchorifolia *L*.
Sterculia africana *(Lour.) Fiori*
Sterculia appendiculata *K.Schum*.
Sterculia quinqueloba *(Garcke) K.Schum.*
Sterculia schliebenii *Mildbr*.

Thymeleaceae
Peddiea africana *Harv*.
Synaptolepis alternifolia *Oliv*.
Synaptolepis kirkii *Oliv*.

Tiliaceae
Carpodiptera africana *Mast*.
Grewia bicolor *Juss*.
Grewia forbesii *Mast*.
Grewia inaequilatera *Garcke*
Triumfetta rhomboidea *Jacq*.

Ulmaceae
Celtis africana *Burm.f.*
Trema orientalis *(L.) Blume*

Violaceae
Rinorea ilicifolia *(Oliv.) Kuntze*

Appendix 3. Waypoints from Niassa study.

Garmin 45 (car), datum WGS 84, Long/Lat decimal minutes. June 2003

Waypoint	Latitude (S)	Longitude (E)	Date	Time (-2 hrs)	Notes
WP 433	1210.87482	03732.88337	08-JUN-03	08:02:30	near Mbatamila camp
WP 434	1206.77940	03740.06418	08-JUN-03	10:16:20	Mecula town, Agricultura offices
WP 435	1225.52450	03740.14336	09-JUN-03	08:22:52	JT4896, Brachystegia
WP 436	1223.18068	03744.51139	09-JUN-03	09:54:05	JT4898, Ac. welwitschii
WP 437	1221.37084	03745.19986	09-JUN-03	14:32:14	
WP 438	1224.78261	03743.52326	14-JUN-03	09:21:09	Julbernardia thicket
WP 439	1223.16877	03744.51751	14-JUN-03	09:46:35	Acacia pan→Luwire, JG73
WP 440	1221.37856	03745.19503	14-JUN-03	10:02:25	
WP 441	1220.44676	03745.50080	14-JUN-03	10:36:53	
WP 442	1217.33400	03747.97305	14-JUN-03	12:56:57	JG72, wet flush
WP 443	1214.13273	03756.79280	14-JUN-03	14:17:09	
WP 444	1214.39666	03800.18429	14-JUN-03	14:38:38	JG83, Anthericum
WP 445	1213.93286	03800.63973	14-JUN-03	14:45:29	Luwire camp
WP 446	1214.49580	03800.70281	15-JUN-03	07:07:14	JG84, Ac. senegal
WP 447	1214.53989	03800.77910	15-JUN-03	07:48:51	JG85, Maerua
WP 448	1212.97370	03806.65185	15-JUN-03	09:00:38	JG88, Sansevieria
WP 449	1211.47992	03813.83201	15-JUN-03	11:18:59	Riverine woodland, JG91 etc
WP 450	1211.58582	03813.74028	15-JUN-03	11:29:26	JG94, Ac. welwitschii
WP 451	1211.77121	03812.98873	15-JUN-03	12:58:18	Riverine woodland, JG97 etc
WP 452	1212.16839	03812.05564	15-JUN-03	13:52:08	JG102, Euphorbia
WP 453	1213.92513	03800.64230	15-JUN-03	14:56:35	Luwire camp
WP 454	1208.49849	03730.11147	18-JUN-03	09:30:22	JG147, Ac. nilotica
WP 455	1206.83637	03715.01954	18-JUN-03	12:33:45	
WP 456	1201.74125	03702.78319	18-JUN-03	14:34:34	Camp by Rio Chiulezi
WP 457	1202.76639	03701.61193	20-JUN-03	06:38:53	JG175, Brachystegia
WP 458	1204.04548	03659.69812	20-JUN-03	08:02:33	JG176a, Matondavela barracks
WP 459	1204.04838	03659.70037	20-JUN-03	09:28:56	
WP 460	1205.74944	03711.61163	20-JUN-03	12:09:08	specimen JG178c, Ficus
WP 461	1207.63396	03721.20160	20-JUN-03	12:50:58	specimen JG178b, Striga
	1211.00	03732.83	6 June		JT4887, Ochthocosmos
	1210.996	03732.808	6 June		JT4888, Sterculia
	1211.021	03732.966	6 June		JT4890, Chlorophytum
	1211.007	03733.013	6 June		JT4892, Eriocaulon
	1211.53	03732.73	7 June		Mbatamila botany campsite
	1209.938	03702.992	7 June		JT4894, Bridelia
	1209.928	03732.984	7 June		JG004, Diospyros
	1211.050	03732.454	11 June		JG1, Aloe, Mbatamila camp
	1211.061	03732.338	11 June		JG2, Euphorbia, camp

COLLECTOR	NO	FAMILY	GENUS	SP1	SSP	SP2	DD	MM	AREA	LOCALITY	LAT	S	LONG	E	ALT	NOTES	FL	FR
Golding JS, Timberlake, J & Clarke P	1	Aloaceae	Aloe	mawii			6	June	Mecula	Mbatamila senior staff camp	12 11.5	S	37 32.7	E	600	Low growing succulent herb, no stem. Leaves dull red; not mottled. Flowering raceme to 1m. Close-packed red flowers. Occurs singly, occasional. On bare rock on inselberg. Behind Warden's house.	X	
Golding JS, Timberlake, J & Clarke P	2a	Euphorbiaceae	Euphorbia	cooperi			6	June	Mecula	Mbatamila senior staff camp	12 11.5	S	37 32.7	E	600	Stem succulent to 3m. Occurs singly in exposed situations. Very ocassional. On bare rock on inselberg. Behind Warden's house.		
Golding JS, Timberlake, J & Clarke P	2b	Annonaceae	Cleistochlamys	kirkii			7	June	Mecula	Mbatamila main camp	12 09.9	S	37 33.0	E	510	Shrub to more than 3m. On termite mound.		X
Golding JS, Timberlake, J & Clarke P	3	Dilleniaceae	Tetracera	boiviniana			7	June	Mecula	Mbatamila main camp	12 09.9	S	37 33.0	E	510	Woody herb. In open miombo woodland (Julbernardia-Brachystegia spiciformis).		X
Golding JS, Timberlake, J & Clarke P	4	Ebenaceae	Diospyros	anitae			7	June	Mecula	Mbatamila main camp	12 09.9	S	37 33.0	E	510	Suffrutex forming low patches 20cm high. Large yellow fleshy fruit, 10cm from ground. In open miombo woodland (Julbernardia-Brachystegia spiciformis).		X
Golding JS, Timberlake, J & Clarke P	5	Capparaceae	Boscia	angustifolia	var.	corymbosa	7	June	Mecula	Mbatamila main camp	12 09.9	S	37 33.0	E	510	Tree 6-8m high. Large, pale grey trunk. On 4m high termite mound with Combretum celastroides.	X	
Golding JS, Timberlake, J & Clarke P	6	Scrophulariaceae	Buchnera	hispida			7	June	Mecula	Mbatamila	12 09	S	37 33	E	500	Annual herb to 30cm in open areas. Open, low miombo woodland (Julbernardia-Brachystegia spiciformis) on coarse sandy soils.	X	
Golding JS, Timberlake, J & Clarke P	7	Aizoaceae	Polycarpaea	eriantha			7	June	Mecula	Mbatamila	12 09	S	37 33	E	500	Annual herb to 5cm. Whitish bracts. Abundant in open sandy areas in low, open miombo woodland (Julbernardia-Brachystegia spiciformis) on coarse sandy soil	X	
Golding JS, Timberlake, J & Clarke P	8	Acanthaceae	Monochema	depauperatum			7	June	Mecula	Mbatamila		S		E		Woody herb to 70cm. In miombo woodland.		X
Golding JS, Timberlake, J & Clarke P	9	Orchidaceae	Cyrtorchis	sp.			7	June	Mecula	On Nyati road, before the second bridge	12 09	S	37 34	E	400	Epiphytic orchid on treee in miombo woodland.		
Golding JS, Timberlake, J & Clarke P	10	Fabaceae: Caesalpiniodeae	Chamaecrista	mimosoides			7	June	Mecula	On Nyati road, before the second bridge	12 09	S	37 34	E	400	Woody herb to 1m. In miombo woodland (Julbernardia-Brachystegia spiciformis).	X	X
Golding JS, Timberlake, J & Clarke P	11	Rubiaceae	Polysphaeria	dischistocalyx			7	June	Mecula	On Nyati road from Mbatamila, at the second bridge	12 04.38	S	37 33.35	E		Large shrub. Close to edge of small river.		X
Golding JS, Timberlake, J & Clarke P	12	Fabaceae: Papilionoideae	Crotalaria	pallida			7	June	Mecula	On Nyati road from Mbatamila, at the second bridge	12 04.38	S	37 33.35	E		Annual herb to 60cm. Yellow flowers. Close to edge of small river.		X
Golding JS, Timberlake, J & Clarke P	13	Fabaceae: Papilionoideae	Dalbergia	boehmii			7	June	Mecula	On Nyati road from Mbatamila, at second bridge	12 04.38	S	37 33.35	E		Small tree/shrub. Close to edge of small river.		
Golding JS, Timberlake, J & Clarke P	14	Combretaceae	Pteleopsis	myrtifolia			7	June	Mecula	On Nyati road from Mbatamila, at second bridge	12 04.38	S	37 33.35	E		Small tree to 5m high. Close to edge of small river.		
Golding JS, Timberlake, J & Clarke P	15	Rubiaceae	Psychotria	capensis	subsp.	riparia	8	June	Mecula	Mecula town	12 05	S	37 38	E	700	Understorey shrub in tall miombo woodland on rocky slope (Brachystegia bussei-B. utilis?). Fruits clustered in axillary position; small black berries. Along mountain footpath near base of Serra Mecula.		X
Golding JS, Timberlake, J & Clarke P	16	Combretaceae	Pteleopsis	myrtifolia			8	June	Mecula	Mecula town	12 05	S	37 38	E	700	Small tree in tall miombo woodland on rocky slope (Brachystegia bussei-B. utilis?). Along mountain footpath near base of mountain.		X
Golding JS, Timberlake, J & Clarke P	17	Rubiaceae	Rothmannia	engleriana			8	June	Mecula	Mecula, old Posto Administrativo	12 05	S	37 38	E	700	Along mountain footpath near Mecula town. In Brachystegia woodland.		X
Golding JS, Timberlake, J & Clarke P	18	Fabaceae: Caesalpinioideae	Brachystegia	bussei			8	June	Mecula	Mecula, old Posto Administrativo	12 05	S	37 38	E	700	One of the main trees in tall Brachystegia woodland on rocky slopes. Along mountain footpath near base of mountain.		
Golding JS, Timberlake, J & Clarke P	19	Connaraceae	Hugonia	orientalis			8	June	Mecula	Mecula, old Posto Administrativo	12 05	S	37 38	E	700	Small tree to 5m. Bark corky and deeply fissured. Common in tall Brachystegia woodland in rocky slope; along mountain footpath near base of mountain.		
Golding JS, Timberlake, J & Clarke P	20	Proteaceae	Faurea	saligna			8	June	Mecula	Mecula, old Posto Administrativo	12 05	S	37 38	E	700	Tree to 10m high. Collected along track in tall Brachystegia woodland.	X	
Golding JS, Timberlake, J & Clarke P	21	Fabaceae: Mimosoideae	Acacia	goetzii	subsp.	microphylla	8	June	Mecula	Mecula, old Posto Administrativo	12 05	S	37 38	E	700	Shrub to slender small tree. Very local in tall Brachystegia woodland on rocky slope.		
Golding JS, Timberlake, J & Clarke P	22	Polygalaceae	Securidaca	longepedunculata			8	June	Mecula	Mecula, old Posto Administrativo	12 05	S	37 38	E	700	Tree to 8m. Winged fruits. In tall Brachystegia woodland on rocky ridge.		X
Golding JS, Timberlake, J & Clarke P	23	Acanthaceae	Phaulopsis	imbricata			8	June	Mecula	Mecula, old Posto Administrativo	12 06	S	37 39.4	E	700	Slender herb in riparian forest understorey. Flowers yellow. River below old Posto Administrativo.	X	X
Golding JS, Timberlake, J & Clarke P	24	Orobanchaceae	Orobanche	minor			10	June	Mecula	Mecula, old Posto Administrativo	12 06	S	37 39.4	E	800	Saprophyte with pale pink flowers. 1.5km from old Posto Administrativo on path to Serra Mecula. Locally abundant; only seen in one locality in deep shade. First record for Mozambique at Kew.	X	
Golding JS, Timberlake, J & Clarke P	25	Rubiaceae	Psychotria	capensis	subsp.	capensis	10	June	Mecula	Serra Mecula	12 04.5	S	37 38	E	1000	Understorey shrub in riparian mid-altitude moist evergreen forest. River below new Simba camp.		X
Golding JS, Timberlake, J & Clarke P	26	Malvaceae	Hibiscus	calyphyllus			10	June	Mecula	Serra Mecula	12 04.5	S	37 38	E	1000	Woody herb to small shrub. Yellow flowers. Common understorey species in riparian mid-altitude moist evergreen forest. Along river edge.		X
Golding JS, Timberlake, J & Clarke P	27	Sapindaceae	Aporrhiza	paniculata			10	June	Mecula	Serra Mecula	12 04.5	S	37 38	E	1000	Large tree along river in moist evergreen forest. Occasional. Near new Simba camp.		
Golding JS, Timberlake, J & Clarke P	28	Rubiaceae	Rothmannia	manganjae			10	June	Mecula	Serra Mecula	12 04.5	S	37 38	E	1000	Small tree with large, round hard single fruit borne terminally. Riparian forest in moist evergreen mid-altitude forest. Near new Simba camp.		X

Golding JS, Timberlake, J & Clarke P	29	Rubiaceae	Pavetta	stenosepala			10	June	Mecula	Serra Mecula	12 04.5	S	37 38	E	1000	Understorey shrub in riparian mid-altitude moist evergreen forest. First record for Mozambique & for FZ.	X	
Golding JS, Timberlake, J & Clarke P	30	Rubiaceae	Keetia	venosa			10	June	Mecula	Serra Mecula	12 04.5	S	37 38	E	1000	Tall understorey shrub in riparian mid-altitude moist evergreen forest. Near new Simba camp.	X	X
Golding JS, Timberlake, J & Clarke P	31	Lamiaceae	Clerodendron	cephalanthum	subsp.	swynnertonii	10	June	Mecula	Serra Mecula	12 04.5	S	37 38	E	1000	Tall understorey shrub in riparian mid-altitude moist evergreen forest. Near new Simba camp.	X	
Golding JS, Timberlake, J & Clarke P	32	Lamiaceae	Solenostemon	lateriflorus			10	June	Mecula	Serra Mecula	12 04.5	S	37 38	E	1000	Annual herb to 50cm. In riverine mid-altitude moist evergreen forest. Near new Simba camp.	X	X
Golding JS, Timberlake, J & Clarke P	33	Dracaenaceae	Dracaena	mannii			10	June	Mecula	Serra Mecula	12 04.5	S	37 38	E	1000	Shrub to 1.5m. In mid-altitude moist evergreen forest by riverside. Near new Simba camp.		
Golding JS, Timberlake, J & Clarke P	34	Melianthaceae	Bersama	abyssinica	subsp.	engleriana	10	June	Mecula	Serra Mecula	12 04.5	S	37 38	E	1000	Fruits red woody capsules. In mid-altitude moist evergreen forest along riverside. Near new Simba camp.		X
Golding JS, Timberlake, J & Clarke P	35	Rubiaceae	Tarenna	pavettoides	subsp.	affinis	10	June	Mecula	Serra Mecula	12 04.5	S	37 38	E	1000	Understorey shrub. Black berries in terminal clusters. In riverine mid-altitude moist evergreen forest. Near new Simba camp.		X
Golding JS, Timberlake, J & Clarke P	36	Meliaceae	Turraea	robusta			10	June	Mecula	Serra Mecula	12 04.5	S	37 38	E	1000	Tree with terminal clusters of flowers. Conspicuous yellow staminal tube. In mid-altitude moist evergreen forest along riverside. Occasional. Near new Simba camp.	X	
Golding JS, Timberlake, J & Clarke P	37	Fabaceae: Caesalpinioideae	Pterolobium	stellatum			11	June	Mecula	Serra Mecula	12 04.5	S	37 38	E	1000	Thorny liana on forest edge. Red winged fruits. Mid-altitude moist evergreen forest. 0.5km from new Simba camp towards summit. Locally common.		X
Golding JS, Timberlake, J & Clarke P	38a	Tiliaceae	Carpodiptera	africana			11	June	Mecula	Serra Mecula	12 04.5	S	37 38	E	1000	In mid-altitude moist evergreen forest. Uncertain if winged seeds belong to specimen. 0.5km from new Simba camp towards summit.		X?
Golding JS, Timberlake, J & Clarke P	38b	Fabaceae: Caesalpinioideae	Senna	petersiana			11	June	Mecula	Serra Mecula	12 04.5	S	37 38	E	1000	Shrub with yellow flowers. In mid-altitude moist evergreen forest. Common on forest edges. 0.5 km from new Simba camp towards summit.	X	
Golding JS, Timberlake, J & Clarke P	39	Asteraceae	Mikania	chenopodifolia			11	June	Mecula	Serra Mecula	12 04.5	S	37 38	E	1000	Trailing climber on forest margin. White flowers. In mid-altitude moist evergreen forest. Fairly common. 0.5 km from new Simba camp towards summit.	X	
Golding JS, Timberlake, J & Clarke P	40	Rubiaceae	Oxyanthus	goetzei			11	June	Mecula	Serra Mecula	12 04.5	S	37 38	E	1000	Shrub with large, fleshy yellow fruits tapering at both ends. Local in mid-altitude moist evergreen forest. 0.5 km from new Simba camp towards summit.		X
Golding JS, Timberlake, J & Clarke P	41	Apocynaceae	Carvalhoa	campanulata			11	June	Mecula	Serra Mecula	12 04.5	S	37 38	E	1000	Locally common understorey shrub. In mid-altitude moist evergreen forest. 0.5 km from new Simba camp towards summit.	X	X
Golding JS, Timberlake, J & Clarke P	42	Anacardiaceae	Rhus	longipes			11	June	Mecula	Serra Mecula	12 04.5	S	37 38	E	1000	In mid-altitude moist evergreen forest, on forest margin. 0.5 km from new Simba camp towards summit.	X	
Golding JS, Timberlake, J & Clarke P	43	Loganiaceae	Strychnos	sp.			11	June	Mecula	Serra Mecula	12 04.5	S	37 38	E	1000	In mid-altitude moist evergreen forest. Rare. 0.5 km from new Simba camp towards summit.		
Golding JS, Timberlake, J & Clarke P	44	Violaceae	Rinorea	ilicifolia			11	June	Mecula	Serra Mecula	12 04.5	S	37 38	E	1000	Fairly common understorey shrub in mid-altitude moist evergreen forest. 0.5 km from new Simba camp towards summit.		X
Golding JS, Timberlake, J & Clarke P	45	Euphorbiaceae	Croton	scheffleri			11	June	Mecula	Serra Mecula		S		E	1300	Small shrub on forest margin, below Serra Mecula peak. In higher altitude moist evergreen forest. First record for Mozambique		X
Golding JS, Timberlake, J & Clarke P	46	Lamiaceae	Clerodendrum	cephalanthum	subsp.	swynnertonii	11	June	Mecula	Serra Mecula		S		E	1300	Below Serra Mecula peak in higher altitude moist evergreen forest.		
Golding JS, Timberlake, J & Clarke P	47	Celastraceae	Gymnosporia	mossambicense			11	June	Mecula	Serra Mecula		S		E	1300	Spiny shrub to 1.5 m. Localised in higher altitude moist evergreen forest below Serra Mecula peak.	X	X
Golding JS, Timberlake, J & Clarke P	48	Sapotacaeae	Englerophytum	magalismontanum			11	June	Mecula	Serra Mecula		S		E	1300	Small understorey tree with milky latex. Very common. In higher altitude moist evergreen forest below Serra Mecula peak.		
Golding JS, Timberlake, J & Clarke P	49	Aloaceae	Aloe	mawii			11	June	Mecula	Serra Mecula		S		E	1300	On bare rock below Serra Mecula peak.	X	
Golding JS, Timberlake, J & Clarke P	50	Olacaceae	Olax	gambecola			11	June	Mecula	Serra Mecula		S		E	1300	Shrub with green woody stem. In higher altitude moist evergreen forest below Serra Mecula peak. First record for Mozambique.		
Golding JS, Timberlake, J & Clarke P	51	Erythroxylaceae	Erythroxylum	emarginatum			11	June	Mecula	Serra Mecula		S		E	1300	One of the dominant trees in higher altitude moist evergreen forest below Serra Mecula peak.		
Golding JS, Timberlake, J & Clarke P	52	Thymeleaceae	Peddiea	fischeri			11	June	Mecula	Serra Mecula		S		E	1300	Dominant tree species in higher altitude moist evergreen forest below Serra Mecula peak. First record for Mozambique.	X	
Golding JS, Timberlake, J & Clarke P	53	Rubiaceae	Rytigynia	sp.			11	June	Mecula	Serra Mecula		S		E	1300	On forest margin in higher altitude moist evergreen forest below Serra Mecula peak.		
Golding JS, Timberlake, J & Clarke P	54	Thymeleaceae	Peddiea	fischeri			11	June	Mecula	Serra Mecula		S		E	1300	On forest margin in higher altitude moist evergreen forest below Serra Mecula peak. First record for Mozambique.	X	
Golding JS, Timberlake, J & Clarke P	55	Piperaceae	Peperomia	tetraphylla			11	June	Mecula	Serra Mecula		S		E	1300	Semi-succulent herb on rock on forest margin in shade. In higher altitude moist evergreen forest below Serra Mecula Peak. Not common.	X	
Golding JS, Timberlake, J & Clarke P	56	Asteraceae	Helichrysum	kirkii			11	June	Mecula	Serra Mecula		S		E	1400	Locally common in shrubland on summit of Serra Mecula, amongst grasses. Flowers yellow.	X	
Golding JS, Timberlake, J & Clarke P	57	Aloaceae	Aloe	mawii			11	June	Mecula	Serra Mecula		S		E	1400	Grows singly on exposed rock on summit. Low growing, and with no stem. Leaves not mottled with dull red colour.		
Golding JS, Timberlake, J & Clarke P	58	Lamiaceae	Tetradenia	riparia			11	June	Mecula	Serra Mecula		S		E	1400	Succulent tree shrub to 2 m. Pale green leaves. Flowers unopened, in terminal raceme. Occasional. On summit of Serra Mecula.	X	

Golding JS, Timberlake, J & Clarke P	59	Poaceae	Melinis	ambigua			11	June	Mecula	Serra Mecula		S		E	1400	Dominant grass with Urochloa. On summit of Serra Mecula.	X	
Golding JS, Timberlake, J & Clarke P	60	Rubiaceae	Anthospermum	whyteanum			11	June	Mecula	Serra Mecula		S		E	1400	Low woody shrub. No more than 1m high. Axillary flowers. On summit of Serra Mecula. Not common.	X	
Golding JS, Timberlake, J & Clarke P	61	Anacardiaceae	Rhus	tenuinervis			11	June	Mecula	Serra Mecula		S		E	1400	Small leaved. Axillary sprays of white flowers. On summit of Serra Mecula. Infrequent.	X	
Golding JS, Timberlake, J & Clarke P	62	Pteridophyta	Pleopeltis	macrocarpa			11	June	Mecula	Serra Mecula		S		E	1400	Small reduced leaves. Epiphyte on summit of Serra Mecula. Common.		X
Golding JS, Timberlake, J & Clarke P	63	Crassulaceae	Kalanachoe	elizae			11	June	Mecula	Serra Mecula		S		E	1400	Semi-succulent herb to 1.5m. Yellow flowers, reddish stem. Single plant seen. Collected underneath Rhus on summit of Serra Mecula.	X	
Golding JS, Timberlake, J & Clarke P	64	Euphorbiaceae	Uapaca	paludosa			11	June	Mecula	Mecula, old Posto Administrativo	12 06	S	37 39.4	E	800	Forest tree with stilt roots arising from up to 1m from base, like Rhizophora. In dense riparian forest along perennial stream, 0.5 km from Simba camp. Only single individual seen. First record for Mozambique.		
Golding JS, Timberlake, J & Clarke P	65	MISSING																
Golding JS, Timberlake, J & Clarke P	66	Myrtaceae	Syzygium	guineense	subsp.	barotsense	12	June	Mecula	Simba Camp		S		E	1000	Tree in tall Brachystegia spiciformis woodland near new Simba camp.	X	
Golding JS, Timberlake, J & Clarke P	67	Sapindaceae	Deinbollia	oblongifolia			12	June	Mecula	Simba Camp		S		E	1000	In tall Brachystegia spiciformis woodland near new Simba camp.	X	
Golding JS, Timberlake, J & Clarke P	68	Euphorbiaceae	Phyllanthus	reticulatus			12	June	Mecula	Simba Camp		S		E	1000	Shrub in tall Brachystegia spiciformis woodland near new Simba camp.	X	X
Golding JS, Timberlake, J & Clarke P	69	Fabaceae: Papilionoideae	Baphia	massaiensis	subsp.	gomesii	12	June	Mecula	Simba Camp		S		E	1000	Understorey species in tall dense canopy Brachystegia spiciformis woodland near new Simba camp.		
Golding JS, Timberlake, J & Clarke P	70	Apocynaceae	Holarrhena	pubescens			14	June	Mecula	Kiboko	12 24.78	S	37 43.52	E	300	Small tree in low Julbernardia globiflora thicket. Block C, along road.		X
Golding JS, Timberlake, J & Clarke P	71	Apocynaceae	Holarrhena	pubescens			14	June	Mecula	Kiboko	12 24.78	S	37 43.52	E	300	Small tree in low Julbernardia globiflora thicket. Block C, along road.		X
Golding JS, Timberlake, J & Clarke P	72	Fabaceae: Mimosoideae	Acacia	robusta	subsp.	clavigera	14	June	Mecula	Kiboko	12 23.17	S	37 44.58	E	295	Tree by clay pan close to Rio Lugenda. Block C, 10 km E of Kiboko.		
Golding JS, Timberlake, J & Clarke P	73	Fabaceae: Mimosoideae	Acacia	nigrescens			14	June	Murrupa	Kiboko	12 23.17	S	37 44.58	E	295	Tall tree in clay pan close to Rio Lugenda. Block C, 10 km E of Kiboko. Browsed by elephant. Common.		
Golding JS, Timberlake, J & Clarke P	74	Crassulaceae	Kalanchoe	lanceolata			14	June	Murrupa	Kiboko	12 23.17	S	37 44.58	E	295	Succulent herb to 1m with orange flowers. Common on clay pan in sites protected against browsing. Block C, 10km E of Kiboko. Common.	X	
Golding JS, Timberlake, J & Clarke P	75	Fabaceae: Mimosoideae	Acacia	senegal	var.	rostrata	14	June	Murrupa	Kiboko	12 17.33	S	37 47.97	E	300	Small tree on clay pan close to Rio Lugenda. Block C, 10 km E of Kiboko. Common.		
Golding JS, Timberlake, J & Clarke P	76	Cyperaceae	Fuirena	pubescens			14	June	Murrupa	Kiboko	12 17.33	S	37 47.97	E	300	Annual herb to 30cm in wet flush on clay soil. Locally abundant. Block C, 10 km E of Kiboko. Adjacent to Millettia woodland. First record for Mozambique.	X	
Golding JS, Timberlake, J & Clarke P	77	Commelinaceae	Commelina	nyasensis			14	June	Murrupa	Kiboko	12 17.33	S	37 47.97	E	300	Trailing annual herb to 30cm, purple flowered. Wet flush amongst Cyperaceae on clay soils. Block C, 10 km E of Kiboko. First record for Mozambique.	X	
Golding JS, Timberlake, J & Clarke P	78	Fabaceae: Papilionoideae	Millettia	stuhlmannii			14	June	Murrupa	Kiboko	12 17.33	S	37 47.97	E	300	Thin stemmed tree with light bark. Dominant and locally common. Mostly leafless. Block C, 10 km E of Kiboko.		X
Golding JS, Timberlake, J & Clarke P	79	Tiliaceae	Grewia	forbesii			14	June	Murrupa	Kiboko	12 17.33	S	37 47.97	E	300	Shrub; fruit with tubercles. In Millettia woodland. Block C, 10 km E of Kiboko.		X
Golding JS, Timberlake, J & Clarke P	80	Euphorbiaceae	Hymenocardia	ulmoides			14	June	Murrupa	Kiboko	12 17.33	S	37 47.97	E	300	Tree on termite mound with lianas. Grey clay soils. Combretum species present. Block C, 10 km E of Kiboko.	X	
Golding JS, Timberlake, J & Clarke P	81	Apocynaceae	Voacanga	africana			14	June	Murrupa	Kiboko	12 17.33	S	37 47.97	E	300	In Millettia woodland. Not common. Block C, 10 km E of Kiboko.		X
Golding JS, Timberlake, J & Clarke P	82	MISSING																
Golding JS, Timberlake, J & Clarke P	83	Anthericaeae	Chlorophytum	nubicum			14	June	Murrupa	Kiboko	12 14.40	S	38 00.18	E	300	Herb from bulb. Terminal white flowers. Single plant seen along roadside. Block C, 10 km E of Kiboko.	X	
Golding JS, Timberlake, J & Clarke P	84	Fabaceae: Mimosoideae	Acacia	senegal	var.	rostrata	15	June	Murrupa	Luwire	12 14.50	S	38 00.70	E	300	Spreading shrub to 2m. Broad pods, flaking bark; 2 or 3 thorns. Common and locally abundant in clay-rich savanna. Block C, 600m E of Luwire camp.		X
Golding JS, Timberlake, J & Clarke P	85	Capparaceae	Maerua	edulis			15	June	Murrupa	Luwire	12 14.54	S	38 00.78	E	300	Low shrub with blue-green leaves. Yellow-green flowers. On clay soils. Block C, 600m E of Luwire camp.	X	
Golding JS, Timberlake, J & Clarke P	86	Rhamnaceae	Ziziphus	abyssinica			15	June	Murrupa	Luwire	12 14.54	S	38 00.78	E	300	Small tree to 4m; reddish fruits. On margins of clay soils close to Rio Lugenda. Block C.		X
Golding JS, Timberlake, J & Clarke P	87	Asteraceae	Sphaeranthus	humilis			15	June	Murrupa	Luwire	12 14.54	S	38 00.78	E	300	Trailing herb in moist grassland patches on clay soils dominated by Acacia. On clay soils. Block C, 600m E of Luwire camp.	X	
Golding JS, Timberlake, J & Clarke P	88	Dracaenaceae	Sanseveria	canaliculata			15	June	Murrupa	Luwire	12 12.97	S	38 06.65	E	300	Clustered rhizomacous herb to 70cm. Loose racemes of white flowers. On clay soils by roadside gulley that possibly cut into termite soil. Not seen elsewhere. Block C, 600m E of Luwire camp. Rare species.	X	

Golding JS, Timberlake, J & Clarke P	89	Rubiaceae	Hymenodictyon	parvifolium			15	June	Murrupa	Luwire	12	12.97	S	38	06.65	E	300	Leafless specimens. Fruits clustered terminally, with woody capsules. On clay soils. Block C, 600m E of Luwire camp.		X
Golding JS, Timberlake, J & Clarke P	90	Rutaceae	Vepris	cf. bachmannii			15	June	Murrupa	Luwire	12	12.97	S	38	06.65	E	300	Evergreen trifoliate tree. Riparian woodland.	X	
Golding JS, Timberlake, J & Clarke P	91	Fabaceae: Caesalpiniodeae	Erythrophleum	africanum			15	June	Murrupa	Luwire	12	11.48	S	38	13.83	E	300	Woodland close to Rio Lugenda. Block C, E of Luwire camp.		X
Golding JS, Timberlake, J & Clarke P	92	Annonaceae	Cleistochlamys	kirkii			15	June	Murrupa	Luwire	12	11.48	S	38	13.83	E	300	Common understorey shrub in riparian woodland with Sterculia appendiculata. Block C, E of Luwire camp.		X
Golding JS, Timberlake, J & Clarke P	93	Flacourtiaceae	Xylotheca	tettensis			15	June	Murrupa	Luwire	12	11.48	S	38	13.83	E	300	Climbing shrub in Acacia woodland on grey clay soils. Block C, E of Luwire camp.		
Golding JS, Timberlake, J & Clarke P	94	Fabaceae: Mimosoideae	Acacia	welwitschii	subsp.	delagoensis	15	June	Murrupa	Luwire	12	11.59	S	38	13.74	E	300	In open Acacia savanna. Dominant on grey clay soils. Block C, E of Luwire camp.		
Golding JS, Timberlake, J & Clarke P	95	Euphorbiaceae	Bridelia	cathartica			15	June	Murrupa	Luwire	12	11.59	S	38	13.74	E	300	Shrub with black berries. In Acacia woodland on grey clay soils. Block C, E of Luwire camp.		X
Golding JS, Timberlake, J & Clarke P	96	Capparaceae	Cadaba	kirkii			15	June	Murrupa	Luwire	12	11.59	S	38	13.74	E	300	Low shrub with fleshy leaves. Terminal clusters of yellow-green flowers. Collected along roadside. Block C, E of Luwire camp.	X	
Golding JS, Timberlake, J & Clarke P	97	Ebenaceae	Diospyros	truncatifolia			15	June	Murrupa	Luwire	12	11.77	S	38.12	.99	E	300	Tree to 5m. On alluvial soils with Sterculia appendiculata and Cleistochlamys.		X
Golding JS, Timberlake, J & Clarke P	98	Rhamnaceae	Ziziphus	abyssinica			15	June	Murrupa	Luwire	12	11.77	S	38.12	.99	E	300	Tree with red fleshy fruits. Associated with Rio Lucinge, E of Luwire camp.		X
Golding JS, Timberlake, J & Clarke P	99	Euphorbiaceae	Antidesma	rufescens			15	June	Murrupa	Luwire	12	12.17	S	38.12	.06	E	300	Densely foliaged shrub to 3m on edge of backwater. Associated with Rio Lucinge, E of Luwire camp.	X	
Golding JS, Timberlake, J & Clarke P	100	Fabaceae: Mimosoideae	Acacia	schweinfurthii				June	Murrupa	Luwire	12	12.17	S	38.13	.46	E	300	Scrambling shrub with pale stems. Locally common. Riverine woodland on alluvium with Sterculia appendiculata along Rio Lugenda.		
Golding JS, Timberlake, J & Clarke P	101	Ebenaceae	Diospyros	truncatifolia			15	June	Murrupa	Luwire	12	12.17	S	38.13	.46	E	300	Shrub. Riparian woodland with Sterculia appendiculata along Rio Lugenda.		X
Golding JS, Timberlake, J & Clarke P	102	Euphorbiaceae	Euphorbia	cooperi			15	June	Murrupa	Luwire	12	12.17	S	38.13	.46	E	300	Stem succulent to 3m, branching high up. Branches constricted. On cemented soils surrounded by Acacia. Close to Rio Lucinge, Block C.	X	X
Golding JS, Timberlake, J & Clarke P	103	Apocynaceae	Schizozygia	coffaeoides			15	June	Murrupa	Luwire	12	12.17	S	38.13	.46	E	300	In Millettia woodland. First record for Mozambique.		X
Golding JS, Timberlake, J & Clarke P	104	Tiliaceae	Grewia	inaequilatera			15	June	Murrupa	Luwire	12	13.93	S	38	00.64	E	300	Shrub. Riparian woodland with Sterculia appendiculata along the Rio Lugenda. Not frequently encountered.		X
Golding JS, Timberlake, J & Clarke P	105	Rubiaceae	Keetia	zanzibarica	subsp.	zanzibarica	15	June	Murrupa	Luwire	12	13.93	S	38	00.64	E	300	Clustered axillary flowers. On alluvial soils along Rio Lugenda, Block C.	X	X
Golding JS, Timberlake, J & Clarke P	106	Ebenaceae	Diospyros	mespiliformis			15	June	Murrupa	Luwire	12	13.93	S	38	00.64	E	300	Tree in alluvial woodland along Rio Lugenda.		X
Golding JS, Timberlake, J & Clarke P	107	Malvaceae	Wissadula	rostrata			16	June	Murrupa	Luwire	12	13.93	S	38	00.64	E	300	Annual herb with small orange flowers. Forest patch directly behind Luwire camp.	X	
Golding JS, Timberlake, J & Clarke P	108	Malvaceae	Abutilon	angulatum			16	June	Murrupa	Luwire	12	13.93	S	38	00.64	E	300	Annual herb with orange flowers. Forest patch directly behind Luwire camp.	X	X
Golding JS, Timberlake, J & Clarke P	109	Fabaceae: Papilionoideae	Millettia	bussei			16	June	Murrupa	Luwire	12	13.93	S	38	00.64	E	300	Large thick-stemmed tree in alluvial woodland directly behind Luwire camp.		X
Golding JS, Timberlake, J & Clarke P	110	Flacourtiaceae	Xylotheca	tettensis			16	June	Murrupa	Luwire	12	13.93	S	38	00.64	E	300	Tree. In alluvial woodland directly behind Luwire camp.		
Golding JS, Timberlake, J & Clarke P	111	Flacourtiaceae	Xylotheca	tettensis			16	June	Murrupa	Luwire	12	13.93	S	38	00.64	E	300	Tree. In alluvial woodland directly behind Luwire camp.		
Golding JS, Timberlake, J & Clarke P	112	Scrophulariaceae	Micrargeria	filiformis			16	June	Mecula	Kiboko	12	25.46	S	37	40.04	E	350	Annual herb to 60cm. White flowers. 5km N of Kiboko in dry dambo grassland fringed by Brachystegia. Along main road to Mbatamila.	X	X
Golding JS, Timberlake, J & Clarke P	113	Poaceae	Loudetia	arundinacea			16	June	Mecula	Kiboko	12	25.46	S	37	40.04	E	350	In dry dambo grassland. 5 km N of Kiboko along road to Mbatamila.	X	
Golding JS, Timberlake, J & Clarke P	114	Poaceae	Loudetia	arundinacea			16	June	Mecula	Kiboko	12	25.46	S	37	40.04	E	350	In dry dambo grassland. 5 km N of Kiboko along road to Mbatamila.	X	
Golding JS, Timberlake, J & Clarke P	115	Rubiaceae	Spermacoce	dibrachiata			16	June	Mecula	Kiboko	12	25.46	S	37	40.04	E	350	Perennial herb with blue flowers. In dry dambo grassland. 5km N of Kiboko along road to Mbatamila.	X	
Golding JS, Timberlake, J & Clarke P	116	Combretaceae	Combretum	psidioides			16	June	Mecula	Kiboko	12	25.46	S	37	40.04	E	350	Small tree. Only single individual seen. In dry dambo grassland. Along Mbatamila road.		X
Golding JS, Timberlake, J & Clarke P	117	Fabaceae: Caesalpiniodeae	Brachystegia	allenii			16	June	Mecula	Kiboko	12	25.46	S	37	40.04	E	350	Tree to 5m, glaucous leaves and heavy pods. Dominant woody species with Combretum. Common on edge of dry dambo grassland along road to Mbatamila.		X
Golding JS, Timberlake, J & Clarke P	118	Sterculiaceae	Dombeya	acutangula			17	June	Mecula	Mbatamila senior staff camp	12	11.50	S	37	32.70	E	550	Gulley forest between two inselbergs. Mbatamila camp, behind Warden's house.	X	
Golding JS, Timberlake, J & Clarke P	119	Tiliaceae	Grewia	forbesii			17	June	Mecula	Mbatamila senior staff camp	12	11.50	S	37	32.70	E	550	Gulley forest between two inselbergs. Mbatamila camp. behind warden's house.		X
Golding JS, Timberlake, J & Clarke P	120a	Fabaceae: Mimosoideae	Albizzia	tanganyikensis			17	June	Mecula	Mbatamila senior staff camp	12	11.50	S	37	32.70	E	550	Large shrub. Close to edge of river.		X
Golding JS, Timberlake, J & Clarke P	120b	Rubiaceae	Keetia	zanzibarica	subsp.	zanzibarica	17	June	Mecula	Mbatamila senior staff camp	12	11.50	S	37	32.70	E	550	Large shrub. Close to edge of river.		X

Golding JS, Timberlake, J & Clarke P	121	MISSING																			
Golding JS, Timberlake, J & Clarke P	122	Proteaceae	Protea	welwitschii			17	June	Mecula	Mbatamila airstrip	12 10.12	S	37 32.12	E	550	Shrub. Young plants, but only a single adult. Mbatamila airstrip, in moist eye of dambo.	X	
Golding JS, Timberlake, J & Clarke P	123	Cyperaceae	Scleria	nutans			17	June	Mecula	Mbatamila airstrip	12 10.12	S	37 32.12	E	550	Sedge to 40cm. In dambo grassland, Mbatamila airstrip. First record for Mozambique.		X
Golding JS, Timberlake, J & Clarke P	124	Lentibulariaceae	Utricularia	livida			17	June	Mecula	Mbatamila airstrip	12 10.12	S	37 32.12	E	550	Very slender annual herb to 20cm hidden in grass. Mauve flowers, no leaves. In dambo grassland, Mbatamila airstrip. Common.	X	
Golding JS, Timberlake, J & Clarke P	125	Lentibulariaceae	Utricularia	firmula			17	June	Mecula	Mbatamila airstrip	12 10.12	S	37 32.12	E	550	Very slender annual herb to 10cm, hidden in grass. Yellow flowers, no leaves. In dambo grassland, Mbatamila airstrip. Common.	X	
Golding JS, Timberlake, J & Clarke P	126	Lamiaceae	Hemizygia	bracteosa			17	June	Mecula	Mbatamila airstrip	12 10.12	S	37 32.12	E	550	Sweet-scented annual herb in dambo grassland. Mbatamila airstrip. Not common.	X	
Golding JS, Timberlake, J & Clarke P	127	Scrophulariaceae	Striga	pubiflora			17	June	Mecula	Mbatamila airstrip	12 10.12	S	37 32.12	E	550	Annual herb with 4-petalled white flowers. In dambo grassland, Mbatamila airstrip.	X	
Golding JS, Timberlake, J & Clarke P	128	Lamiaceae	Leucas	nyassae			17	June	Mecula	Mbatamila airstrip	12 10.12	S	37 32.12	E	550	Perennial herb. Inflorescence clustered, white pubescent flowers. Locally common in dambo grassland, Mbatamila airstrip.	X	
Golding JS, Timberlake, J & Clarke P	129	Asteraceae	Vernonia	ugandensis			17	June	Mecula	Mbatamila airstrip	12 10.12	S	37 32.12	E	550	Bristly inflorescence. In dambo grassland, Mbatamila airstrip. Common and abundant.	X	
Golding JS, Timberlake, J & Clarke P	130	Rubiaceae	Oldenlandia	rosulata			17	June	Mecula	Mbatamila airstrip	12 10.12	S	37 32.12	E	550	Slender annual herb. Common in dambo grassland, Mbatamila airstrip. First record for Mozambique.		X
Golding JS, Timberlake, J & Clarke P	131	Acanthaceae	Blepharis	affinis			17	June	Mecula	Mbatamila airstrip	12 10.12	S	37 32.12	E	550	Annual herb with spiny bracts. Pale, mauve flowers. Common in dambo grassland, Mbatamila airstrip.	X	
Golding JS, Timberlake, J & Clarke P	132	Rubiaceae	Spermacoce	dibrachiata			17	June	Mecula	Mbatamila airstrip	12 10.12	S	37 32.12	E	550	Perennial herb in dambo grassland, Mbatamila airstrip. Common.	X	
Golding JS, Timberlake, J & Clarke P	133	Scrophulariaceae	Striga	asiatica			17	June	Mecula	Mbatamila airstrip	12 10.12	S	37 32.12	E	550	Annual herb. Small bright orange flowers. Only single individual seen.	X	
Golding JS, Timberlake, J & Clarke P	134	Lamiaceae	Haumaniastrum	venosum			17	June	Mecula	Mbatamila airstrip	12 10.12	S	37 32.12	E	550	Herb with Labiate inflorescence. In dambo grassland, on edge of dambo. Mbatamila airstrip.	X	
Golding JS, Timberlake, J & Clarke P	135	Scrophulariaceae	Buchnera	randii			17	June	Mecula	Mbatamila airstrip	12 10.12	S	37 32.12	E	550	Annual herb. On dambo edge. Mbatamila airstrip.	X	
Golding JS, Timberlake, J & Clarke P	136	Melastomataceae	Dissotis	debilis			17	June	Mecula	Mbatamila airstrip	12 10.12	S	37 32.12	E	550	Annual woody herb with mauve flowers. Extremely common in edge of dambo. Mbatamila airstrip.	X	
Golding JS, Timberlake, J & Clarke P	137	MISSING																			
Golding JS, Timberlake, J & Clarke P	138	Bombacaceae	Bombax	rhodognaphalon			17	June	Mecula	Mbatamila senior staff camp	12 11.50	S	37 32.70	E	550	Gully forest between two inselbergs. Mbatamila camp, behind Warden's house.		
Golding JS, Timberlake, J & Clarke P	139	Annonaceae	Dielsiothamnus	divaricatus				June	Mecula	Mbatamila senior staff camp	12 11.50	S	37 32.70	E	550	Gully forest between two inselbergs. Mbatamila camp, behind Warden's house.		X
Golding JS, Timberlake, J & Clarke P	140	Amaranthaceae	Celosia	trigyna			17	June	Mecula	Mbatamila senior staff camp	12 11.50	S	37 32.70	E	550	Annual herb. Gully forest between two inselbergs. Mbatamila camp, behind Warden's house.	X	
Golding JS, Timberlake, J & Clarke P	141	Thymeleaceae	Synaptolepis	alternifolia			17	June	Mecula	Mbatamila senior staff camp	12 11.50	S	37 32.70	E	550	Gully forest between two inselbergs. Mbatamila camp, behind Warden's house.		X
Golding JS, Timberlake, J & Clarke P	142	Tiliaceae	Grewia	bicolor			17	June	Mecula	Mbatamila senior staff camp	12 11.50	S	37 32.70	E	550	Shrub. Gully forest between two inselbergs. Mbatamila camp, behind Warden's house.		X
Golding JS, Timberlake, J & Clarke P	143	Acanthaceae	Ruspolia	decurrens			17	June	Mecula	Mbatamila senior staff camp	12 11.50	S	37 32.70	E	550	Herb. Small flat whitish seeds; dehiscent fruits. Gully forest between two inselbergs. Mbatamila camp, behind Warden's house.	X	X
Golding JS, Timberlake, J & Clarke P	144	Fabaceae: Papilionoideae	Dalbergia	arbutifolia			17	June	Mecula	Mbatamila senior staff camp	12 11.50	S	37 32.70	E	550	Gully forest between two inselbergs. Mbatamila camp, behind Warden's house.		X
Golding JS, Timberlake, J & Clarke P	145	Annonaceae	Monanthotaxis	buchananii			17	June	Mecula	Mbatamila senior staff camp	12 11.50	S	37 32.70	E	550	Gully forest between two inselbergs. Mbatamila camp, behind Warden's house.		
Golding JS, Timberlake, J & Clarke P	146	Moraceae	Ficus	sur			17	June	Mecula	Mbatamila senior staff camp	12 11.50	S	37 32.70	E	550	Tree. Large leaves with long petioles. Gully forest between two inselbergs. Mbatamila camp, behind Warden's house.		X
Golding JS, Timberlake, J & Clarke P	147	Fabaceae: Mimosoideae	Acacia	nilotica	subsp.	kraussiana	18	June	Mecula	Mbatamila main camp	12 08.50	S	37 30.11	E	550	Tree to 5m. Rare in miombo woodland. 10km along road from Mbatamila to Matondavela.		
Golding JS, Timberlake, J & Clarke P	148	Fabaceae: Caesalpiniodeae	Brachystegia	utilis			18	June	Mecula	Mbatamila main camp	12 08.50	S	37 30.11	E	550	Tree, common in miombo woodland. 15 km from Mbatamila on Matondavela road.		
Golding JS, Timberlake, J & Clarke P	149	Ixonantheaceae	Phyllocosmos	lemaireanus			18	June	Mecula	Mbatamila main camp	12 08.50	S	37 30.11	E	550	Multistemmed tree with dark bark, to 8m. Copious axillary sprays of white flowers. Occasional. 20 km from Mbatamila in well developed Brachystegia woodland on the road to Matondavela.	X	
Golding JS, Timberlake, J & Clarke P	150	Ebenaceae	Diospyros	verrucosa			18	June	Mecula	Mbatamila main camp	12 08.50	S	37 30.11	E	550	Fruits warty and furry. 20 km from Mbatamila on road to Matondavela.		X
Golding JS, Timberlake, J & Clarke P	151	Thymeleaceae	Synaptolepis	alternifolia			18	June	Mecula	Mbatamila main camp	12 08.50	S	37 30.11	E	550	In well developed Brachystegia woodland 20km along from Mbatamila on road to Matondavela.		X
Golding JS, Timberlake, J & Clarke P	152	Bignoniaceae	Stereospermum	kunthianum			18	June	Mecula	Mbatamila main camp	12 08.50	S	37 30.11	E	550	Small tree on causeway. Pale pink sprays of flowers. 20km from Mbatamila on the road to Matondavela.	X	X
Golding JS, Timberlake, J & Clarke P	153	Myrtaceae	Syzygium	cordatum			18	June	Mecula	Mbatamila main camp	12 08.50	S	37 30.11	E	550	Evergreen riverine tree in woodland fringing dambos. With Syzygium guineense. 10 km from Mbatamila on Matondavela road.		

Golding JS, Timberlake, J & Clarke P	154	Clusiaceae	Garcinia	livingstonei			18	June	Mecula	Mbatamila main camp	12 08.50	S	37 30.11	E	550	Small tree, glossy leaves with serrated margins. In well developed Brachystegia woodland 20km along road from Mbatamila to Matondavela.		
Golding JS, Timberlake, J & Clarke P	155	Rubiaceae	Breonadia	salicina			19	June	Mecula	Matondavela	12 01.74	S	37 02.78	E	450	Rio Chiulezi crossing on road to Chamba, 5 km from Matondavela. Growing on rocky bank.		
Golding JS, Timberlake, J & Clarke P	156	Fabaceae: Papilionoideae	Ormocarpum	kirkii			19	June	Mecula	Matondavela	12 01.74	S	37 02.78	E	450	Small shrub on eroded edge of bank with yellow flowers. Common. Rio Chiulezi crossing on road to Chamba, 5 km from Matondavela. Ocassional.	X	
Golding JS, Timberlake, J & Clarke P	157	Poaceae	Eragrostis	japonica			19	June	Mecula	Matondavela	12 01.74	S	37 02.78	E	450	On banks of Rio Chuilezi, 5km from Matondavela.	X	
Golding JS, Timberlake, J & Clarke P	158	Pteridophyta	Actinopteris	radiata			19	June	Mecula	Matondavela	12 01.74	S	37 02.78	E	450	Growing on steep soil bank along Rio Chiulezi. Fronds dried.		X
Golding JS, Timberlake, J & Clarke P	159	Onagraceae	Ludwigia	octovalvis			19	June	Mecula	Matondavela	12 01.74	S	37 02.78	E	450	Herb to 50cm. Purple coloured stem. On sandy bank of Rio Chiulezi. Common.	X	X
Golding JS, Timberlake, J & Clarke P	160	Myrtaceae	Syzygium	guineense	subsp.	barotsense	19	June	Mecula	Matondavela	12 01.74	S	37 02.78	E	450	Main tree in riverine fringe along Rio Chiulezi. Pale mottled bark. Open canopy with young leaves reddish. Intermediate between ssp. afromonatnum and ssp. barotsense.		
Golding JS, Timberlake, J & Clarke P	161	Moraceae	Ficus	caprifolia			19	June	Mecula	Matondavela	12 01.74	S	37 02.78	E	450	Multistemmed tree/shrub on edge of Rio Chiulezi, amongst rocks.		
Golding JS, Timberlake, J & Clarke P	162	Rubiaceae	Polysphaeria	dischistocalyx			19	June	Mecula	Matondavela	12 01.74	S	37 02.78	E	450	Riparian shrub in shade along Rio Chiulezi. Black fruits. Common.		X
Golding JS, Timberlake, J & Clarke P	163	Nymphaceae	Nymphaea	nouchali			19	June	Mecula	Matondavela	12 01.74	S	37 02.78	E	450	Rhizomaceous aquatic plant with prominent mauve flowers and floating leaves. Rooted more than 1m down in standing body of water by Rio Chiulezi. Locally common.	X	
Golding JS, Timberlake, J & Clarke P	164	Fabaceae: Mimosoideae	Mimosa	pigra			19	June	Mecula	Matondavela	12 01.74	S	37 02.78	E	450	Spiny woody herb. Round purplish inflorescence. Stems with golden yellow hairs. On alluvium in riparian woodland along Rio Chiulezi.	X	
Golding JS, Timberlake, J & Clarke P	165	Euphorbiaceae	Cleistanthus	schlecteri			19	June	Mecula	Matondavela	12 01.74	S	37 02.78	E	450	Small tree in riparian woodland along Rio Chiulezi.		
Golding JS, Timberlake, J & Clarke P	166	Bignoniaceae	Kigelia	africana			19	June	Mecula	Matondavela	12 01.74	S	37 02.78	E	450	Small tree in riparian woodland along Rio Chiulezi.		
Golding JS, Timberlake, J & Clarke P	167	Lamiaceae	Vitex	doniana			19	June	Mecula	Matondavela	12 01.74	S	37 02.78	E	450	In riparian woodland along Rio Chiulezi.		
Golding JS, Timberlake, J & Clarke P	168	Oxalidaceae	Biophytum	umbraculum			19	June	Mecula	Matondavela	12 01.74	S	37 02.78	E	450	Very small annual herb. Common on footpath close to edge of Rio Chiulezi.		X
Golding JS, Timberlake, J & Clarke P	169	Euphorbiaceae	Phyllanthus	reticulatus			19	June	Mecula	Matondavela	12 01.74	S	37 02.78	E	450	Common in riparian woodland along footpath by Rio Chiulezi.		X
Golding JS, Timberlake, J & Clarke P	170	Sapindaceae	Paullina	pinnata			19	June	Mecula	Matondavela	12 01.74	S	37 02.78	E	450	Along footpath in riparian woodland by Rio Chiulezi.	X	
Golding JS, Timberlake, J & Clarke P	171	Sapindaceae	Deinbollia	oblongifolia			19	June	Mecula	Matondavela	12 01.74	S	37 02.78	E	450	Banks of Rio Chiulezi in riparian woodland.	X	
Golding JS, Timberlake, J & Clarke P	172	Aristilochiaceae	Aristilochia	albida			19	June	Mecula	Matondavela	12 01.74	S	37 02.78	E	450	Trailing herb with deep purple flowers. Close to edge of Rio Chiulezi in Brachystegia woodland.		
Golding JS, Timberlake, J & Clarke P	173	Asteraceae	Dicoma	sessiliflora			19	June	Mecula	Matondavela	12 01.74	S	37 02.78	E	450	Herb with spiny bracts. In miombo woodland on edge of Rio Chiulezi.	X	
Golding JS, Timberlake, J & Clarke P	174	Asteraceae	Vernonia	colorata	subsp.	colorata	19	June	Mecula	Matondavela	12 01.74	S	37 02.78	E	450	Woody shrub to 8m. Along edge of Rio Chiulezi in riparian woodland.		X
Golding JS, Timberlake, J & Clarke P	175	Fabaceae: Caesalpiniodeae	Brachystegia	manga			20	June	Mecula	Matondavela	12 02.77	S	37 01.61	E	470	Tree. Leaves go black on drying. Common in Brachystegia woodland. 5 km from Matondavela on Chamba road, close to Rio Chiulezi.		X
Golding JS, Timberlake, J & Clarke P	176a	Fabaceae: Mimosoideae	Acacia	polyacantha	subsp.	campylacantha	20	June	Mecula	Matondavela	12 04.05	S	36 59.70	E	480	Tree to 15m. Flattened open canopy. Common around old Matondavela barracks.		X
Golding JS, Timberlake, J & Clarke P	176b	Lamiaceae	Clerodendrum	robustum	var.	fischeri	20	June	Mecula	Matondavela	12 04.05	S	36 59.70	E	470	Long tubular white flowers. Weed in agricultural field on alluvial soil. By old Matondavela barracks.	X	
Golding JS, Timberlake, J & Clarke P	177	Moraceae	Ficus	sycomorus			20	June	Mecula	Matondavela	12 04.05	S	36 59.70	E	500	Large tree with edible fruits. Fruits taken from ground. Old Matondavela barracks.		X
Golding JS, Timberlake, J & Clarke P	178a	Anthericaceae	Chlorophytum	nubicum			20	June	Mecula	Matondavela	12 07	S	37 21	E	480	Herb with white flowers. Roadside on way from Matondavela to Mbatamila. In Brachystegia woodland.	X	
Golding JS, Timberlake, J & Clarke P	178b	Scrophulariaceae	Striga	pubiflora			20	June	Mecula	Matondavela	12 07.63	S	37 21.20	E	481	Herb to 50cm. Terminal white flowers, swollen fleshy roots. In Brachystegia woodland on Mbatamila-Matondavela road. Dambo margin by roadside.	X	
Golding JS, Timberlake, J & Clarke P	178c	Moraceae	Treculia	africana			20	June	Mecula	Matondavela	12 05.75	S	37 11.61	E	448	Tree to 15m overhanging river. Milky latex, no fruits. On Mbatamila-Matondavela road.		
Golding JS, Timberlake, J & Clarke P	179	Rubiaceae	Psychotria	kirkii			20	June	Mecula	Mbatamila main camp	12 10	S	37 33	E	400	Woody herb with red berries. Locality uncertain.		X
Golding JS, Timberlake, J & Clarke P	180	Fabaceae: Mimosoideae	Dichrostachys	cinerea	subsp.	nyassana	21	June	Mecula	Mbatamila main camp	12 10	S	37 33	E	400	Shrub or small tree to 3m. Coiled pods. On Nyati road, 5 km from Mbatamila main camp. Miombo woodland.		X
Golding JS, Timberlake, J & Clarke P	181	Fabaceae: Caesalpiniodeae	Brachystegia	busseii			21	June	Mecula	Mbatamila main camp	12 10	S	37 33	E	400	Common tree with Brachystegia spiciformis and Julbernardia. On Nyati road 5 km from Mbatamila main camp. Miombo woodland.		X

Golding JS, Timberlake, J & Clarke P	182	Fabaceae: Caesalpiniodeae	Brachystegia	boehmii			21	June	Mecula	Mbatamila main camp	12 10	S	37 33	E	400	Common tree in Brachystegia and Julbernardia woodland. Large heavy woody pods. 1km towards Serra Mecula from Nyati road.		X
Golding JS, Timberlake, J & Clarke P	183	Fabaceae: Mimosoideae	Acacia	gerrrardii			21	June	Mecula	Mbatamila main camp	12 10	S	37 33	E	400	Small tree to 3m. Orange under-bark. Rare in miombo woodland. On Nyati road 5 km from Mbatamila main camp. Miombo woodland.		
Golding JS, Timberlake, J & Clarke P	184	Crassulaceae	Crassula	setulosa			11	June	Mecula	Serra Mecula		S		E	1300	Small succulent reddish coloured herb with white flowers. On path to Serra Mecula summit. In thin soil on rock faces. Locally abundant.	X	
Golding JS, Timberlake, J & Clarke P	185	Moraceae	Treculia	africana			8	June	Mecula	Mecula, old Posto Administrativo	12 06	S	37 39.4	E	600	Riverine tree in gallery forest. River below old Posto Administrativo on Serra Mecula.		
Golding JS, Timberlake, J & Clarke P	186	Fabaceae: Papilionoideae	Erythrina	sp.			12	June	Mecula	Simba Camp		S		E	800	Tree to 10m. In tall closed-canopy Brachystegia spiciformis miombo woodland, below new Simba Camp.		
Golding JS, Timberlake, J & Clarke P	187	Pteridophyta	Thelypteris	chasena			8	June	Mecula	Mecula, old Posto Administrativo	12 06	S	37 39.4	E	600	Fern in riparian forest understorey. By river below old Posto Administrativo on Serra Mecula.		X
Golding JS, Timberlake, J & Clarke P	188	Fabaceae: Caesalpiniodeae	Brachystegia	bussei			8	June	Mecula	Mecula, old Posto Administrativo	12 05	S	37 38	E	600	Main tree in tall Brachystegia woodland on rocky slopes. Along mountain footpath by base of mountain.		
Timberlake JR, Nuvunga A & Boane C	4887	Ixonantheaceae	Phyllocosmos	lemaireanus			6	June	Mecula	Mbatamila senior staff camp	12 11.00	S	37 32.83	E	509	Multistemmed tree to 12 m. Dark grey/blackish straited bark; dark green sclerophyllous leaves, dense. Flowering (in bud), with erect racemes of white flowers.On steep gneiss slope in Brachystegia boehmii-Julbernardia woodland/grassland with rocky outcrops.	X	
Timberlake JR, Nuvunga A & Boane C	4888	Sterculiaceae	Sterculia	quinqueloba			6	June	Mecula	Mbatamila senior staff camp	12 10.99	S	37 32.81	E	535	Tree to 8m at base of rocky outcrop. Trunk mottled, mottled pinkish-mauve, flaking or smotth bark. Thick stems. No leaves; dry leaves on ground. Flowering; some young fruits. Grassland on steep gneiss rocky slope with Themeda, Coleochloa. Andropogon to 1.5m.	X	X
Timberlake JR, Nuvunga A & Boane C	4889	Annonaceae	Bridelia	cf. duvigneadii			6	June	Mecula	Mbatamila senior staff camp	12 10.99	S	37 32.81	E	535	Small tree under Sterculia quinqueloba. Grassland on steep gneiss rocky slope with Themeda, Coleochloa.		
Timberlake JR, Nuvunga A & Boane C	4890	Anthericaceae	Chlorophytum	nubicum			6	June	Mecula	Mbatamila senior staff camp	12 11.02	S	37 32.97	E	463	Herb with fibrous bulb to 170cm. White flowers. Open grassy area by Mbatamila camp with Themeda, Hyparrhenia grass to 1.5m, surrounded by tall miombo woodland (Brachystegia boehmii-Julbernardia). Poorly drained.	X	
Timberlake JR, Nuvunga A & Boane C	4891	Acanthaceae	Blepharis	affinis			6	June	Mecula	Mbatamila senior staff camp	12 11.02	S	37 32.97	E	463	Annual low spiny herb. Linear leaves. Pale mauve flowers, clustered. More open areas in seasonally poorly-drained grassland by Mbatamila camp with Themeda, Hyparrhenia grass to 1.5m, surrounded by tall miombo woodland (Brachystegia boehmii- Julbernardia).	X	X
Timberlake JR, Nuvunga A & Boane C	4892	Eriocaulaceae	Eriocaulon	bongense			6	June	Mecula	Mbatamila senior staff camp	12 11.01	S	37 33.01	E	471	Annual herb to 30cm. Basal rosette with terminal inflorescence. In peaty moist patch of seepage grassland below rock, surrounded by miombo woodland. First record for Mozambique.	X	X
Timberlake JR, Nuvunga A & Boane C	4893	Commelinaceae	Commelina	nyasensis			6	June	Mecula	Mbatamila senior staff camp	12 11.01	S	37 33.01	E	471	Herb to 30cm. Among Urochloa grass in peaty moist patch of seepage grassland below rock, surrounded by miombo woodland. First record for Mozambique.	X	
Timberlake JR	4894	Euphorbiaceae	Bridelia	cathartica	subsp.	melanthesoides	7	June	Mecula	Mbatamila main camp	12 09.94	S	37 02.99	E	510	Shrub/small tree to 3m. Fruit still green. In open miombo woodland - Julbernardia/Brachystegia boehmii/B. spiciformis/Diplorhynchus. Grass to 1.5m.		X
Timberlake JR	4895	Fabaceae: Caesalpiniodeae	Brachystegia	longifolia			7	June	Mecula	Mbatamila main camp	12 09.93	S	37 32.98	E	510	Shrub/small tree to 3m. Similar to B. boehmii. In open miombo woodland - Julbernardia/Brachystegia boehmii/B. spiciformis/Diplorhynchus. Grass to 1.5m.		
Timberlake JR	4896	Fabaceae: Caesalpiniodeae	Brachystegia	allenii			9	June	Mecula	Kiboko	12 25.53	S	37 40.14	E	337	Tree to 6m with glaucous leaves. Large woody explosive dehiscent pods. Scattered trees in wooded Tristachya grassland, seasonally waterlogged, with Parinari, Diplorhynchus.		X
Timberlake JR	4897	Euphorbiaceae	Hymenocardia	acida			9	June	Mecula	Kiboko	12 25.53	S	37 40.14	E	337	Tree to 3m, with fruits. In wooded Tristachya grassland, seasonally waterlogged, with Parinari, Diplorhynchus.		X
Timberlake JR	4898	Fabaceae: Mimosoideae	Acacia	welwitschii	subsp.	delagoensis	9	June	Murrupa	Kiboko	12 23.18	S	37 44.51	E	302	Large spreading tree to 14m. No pods. Browsed by elephant. Surrounding pan on clay soils, with Millettia stuhlmannii beyond. Block C, near Luwire camp.		

COLLECTOR	NO	FAMILY	GENUS	SP1	SSP	SP2	DD	MM	AREA	LOCALITY	NOTES	LAT	S	LONG	E	ALT	FL	FR
Boane C	1	Ixonanthaceae	Phyllocosmos	lemaireanus			6	June	Mecula	Mbatamila senior staff camp	Arvore c.8m de altura, flores brancas, folhas verdes. Numa base de montanha sobre roches.	12 11'08	S	37 32'42	E	509	X	
Boane C	2	Commelinaceae	Commelina	nyasensis			6	June	Mecula	Mbatamila senior staff camp	Erva annual c.30cm de altura. Flores azulades. Numa zona humida de solos escuro.	12 11'08	S	37 32'42	E	509	X	
Boane C	3	Eriocaulaceae	Eriocaulon	bongense			6	June	Mecula	Mbatamila main camp	Erva annual c.20cm de altura. Flores brancas. Numa zona humida de solo escuros.	12 11'08	S	37 32'42	E	509	X	
Boane C	4	Anthericaceae	Chlorophytum	nubicum			6	June	Mecula	Mbatamila main camp		12 11'08	S	37 32'42	E	509	X	
Boane C	5	Euphorbiaceae	Bridelia	cathartica			7	June	Mecula	Mbatamila	Arbusto de 3m de altura. Fruto imaturo, verde. Solo arenoso.	12 10'05	S	37 32'55	E			X
Boane C	6	Dilleniaceae	Tetracera	boiviniana			7	June	Mecula	Mbatamila	Pequeno arbusto c.60cm de altura. Flores avermelhados.	12 10'05	S	37 32'55	E		X	X
Boane C	7	Ebenaceae	Diospyros	anitae			7	June	Mecula	Mbatamila	Sub-arbusto c.20cm de altura. Fruto maduros alaranjadas. A raiz surve para limpar dentes e feridas na boca. Solo arenoso.	12 10'05	S	37 32'55	E			X
Boane C	8	Capparaceae	Boscia	angustifolia	var.	corymbosa	7	June	Mecula	Mbatamila	Arvore c.8m de altura, flores esbranquicadas quase secas, sobre mumuche. Caule cinzento.	12 09'25	S	37 32'91	E	495	X	
Boane C	9	Sterculiaceae	Triumfetta	rhomboidea			7	June	Mecula	On Nyati road before 2nd bridge	Erva annual/arbusto vivaz c.40cm de altura. Frutos formados quase maderos. Nas margen duma riache.	12 04'38	S	37 33'35	E	390		X
Boane C	10	Fabaceae: Papilionoideae	Crotalaria	pallida			7	June	Mecula	On Nyati road before 2nd bridge	Arbusto annual c.60cm de altura. Flores amarelas, frutos imaturos. Na margem duma riacha.	12 04'38	S	37 33'35	E	390	X	X
Boane C	11	Combretaceae	Pteleopsis	myrtifolia			7	June	Mecula	On Nyati road before 2nd bridge	Arbusto c.5m de altura. Frutos imaturas, folhas verdes. Nas margems duma riacha.	12 04'38	S	37 33'35	E	390		X
Boane C	12	Fabaceae: Papilionoideae	Adenodolichos	punctatus	subsp.	bussei	8	June	Mecula	Mecula town	Arbusto c.1.50m de altura. Flores vermelhas-escureda. Frutos imaturos. Mecula sede em direccao ao cimo do serra, subido 200m. Solo pedragoso.	12 06'09	S	37 39'36	E		X	X
Boane C	13	Asteraceae	Vernonia	colorata	subsp.	oxyura	8	June	Mecula	Mecula town	Arbusto ramificado na base c.3m de altura. Flores branca. Mecula sede em direccao ao cimo do serra, subido 200m. Solo pedragoso.	12 06'09	S	37 39'36	E		X	
Boane C	14	Acanthaceae	Peristrophe	paniculata			8	June	Mecula	Mecula town	Arbusto erecta c.1.60m de altura. Flores lilas, caule verde. Mecula sede em direccao ao cimo do serra, subido 200m. Solo pedragoso.	12 06'09	S	37 39'36	E		X	X
Boane C	15	Proteaceae	Faurea	saligna			8	June	Mecula	Mecula town	Arvore c.10m de altura. Flores em botas. Caule escrecido com casca ferndado. Mecula sede em direccao ao cimo do serra, subido 200m. Solo pedragoso.	12 06'09	S	37 39'36	E		X	
Boane C	16	Polygalaceae	Securidaca	longepedunculata			8	June	Mecula	Mecula town	Pequeno arvore c.8m de altura. Frutos imaturos. Mecula sede em direccao ao cimo do serra, subido 200m. Solo pedragoso.	12 06'09	S	37 39'36	E			X
Boane C	17	Combretaceae	Combretum	zeyheri			8	June	Mecula	Mecula town	Pequeno arvore c.6m de altura. Frutos imaturos. Caule escurecida. Mecula sede em direccao ao cimo do serra, subido 200m. Solo pedragoso.	12 06'09	S	37 39'36	E			X
Boane C	18	Apiaceae	Heteromorpha	trifoliata			8	June	Mecula	Mecula, old Posto Administrativo	Arbusto c.2m de altura. Flores brancas. Serra Mecula, subido 200m da Serra no acampamento dos fiscais da reserva.	12 06'02	S	37 39'40	E			X
Boane C	19	Rubiaceae	Catunaregum	spinosa	subsp.	taylorii	8	June	Mecula	Mecula, old Posto Administrativo	Arbusto c.3m de altura com espinho. Frutos imaturos, caule acastanhada. Serra Mecula, subido 200m da Serra no acampamento dos fiscais da reserva.	12 06'02	S	37 39'40	E			X
Boane C	20	Fabaceae: Mimosoideae	Dichrostachys	cinerea	subsp.	nyassana	8	June	Mecula	Mecula, old Posto Administrativo	Pequena arvore c.6m de altura. Frutos imaturas. Serra Mecula, no acampamento dos fiscais da Reserva.	12 06'02	S	37 39'40	E			X
Boane C	21	Acanthaceae	Barleria	sp. nov.			8	June	Mecula	Mecula, old Posto Administrativo	Arbusto c.1m de altura. Flores azuladas. Na mata de galeria nas margens do Rio Kuthi. Serra Mecula, subido 200m da Serra no acampamento dos fiscais da reserva.	12 06'02	S	37 39'40	E		X	
Boane C	22	Acanthaceae	Justicia	nyassana			8	June	Mecula	Mecula, old Posto Administrativo	Erva annual c.60cm de altura. Flores lilaz. Na mata de galeria nas margens do Rio Kuti. Serra Mecula, subido 200m da Serra no acampamento dos fiscais da reserva.	12 06'02	S	37 39'40	E		X	X
Boane C	23	Convolvulaceae	Astripomea	malvacea			9	June	Murrupa	Luwire	Erva prostrada c.2m de altura. Flores azulados. Solo arenoso branca. Mata aberta com algumas arvores com altura media. Rio Lugenda.	12 25'40	S	37 49'05	E	300	X	X
Boane C	24	Rubiaceae	Spermacoce	dibrachiata			9	June	Murrupa	Luwire	Arbusto erecta c.60cm de altura. Flores azuis; caule verde com pelos. Mata aberta com algumas arvores com altura media. Rio Lugenda.	12 25'40	S	37 49'05	E	300	X	

Boane C	25	Euphorbiaceae	Hymenocardia	acida			9	June	Murrupa	Luwire	Arbusto c.4m de altura. Frutos imaturos; caule acastanhado. Mata aberta com algumas arvores com altura media. Rio Lugenda.	12 25'40	S	37 49'05	E	300		X
Boane C	26	Lamiaceae	Leucas	nyassae			9	June	Murrupa	Luwire	Erva vivaz rasteiante c.50cm de altura. Flores brancas. Mata aberta com algumas arvores com altura media. Rio Lugenda.	12 25'40	S	37 49'05	E	300	X	
Boane C	27	Poaceae	Loudetia	arundinacea			9	June	Murrupa	Luwire	Erva erecta c.1m de altura. Espiguetas dourados. Mata aberta com algumas arvores com altura media. Rio Lugenda.	12 25'40	S	37 49'05	E	300		X
Boane C	28	Combretaceae	Combretum	collinum			10	June	Mecula	Mbatamila senior staff camp	Arvore c.8m de altura. Frutos imaturos. Mata com Brachystegia sopiciformis a volta de acampamento.	12 11'01	S	37.32'45	E	500		X
Boane C	29	Poaceae	Pennisetum	unisetum			10	June	Mecula	Mbatamila senior staff camp	Arbusto erecta c.2m altura. Espiguetes acastanhadas. Mata com Brachystegia sopiciformis a volta de acampamento.	12 11'01	S	37.32'45	E	500	X	X
Boane C	30	Fabaceae: Papilionoideae	Pseudarthria	hookeri			10	June	Mecula	Mbatamila senior staff camp	Arbusto multicaula c.70cm de altura. Frutos maduros, acastanhados. Mata com Brachystegia sopiciformis a volta de acampamento.	12 11'01	S	37.32'45	E	500		X
Boane C	31	Combretaceae	Terminalia	stenostachya			10	June	Mecula	Mbatamila senior staff camp	Arevore c.7m de altura. No patio do acampamento.	12 11'01	S	37.32'45	E	500	X	X
Boane C	32	Rubiaceae	Crossopteryx	febrifuga			10	June	Mecula	Mbatamila senior staff camp	Arvore c.8m de altura. Frutos imaturos, verde. No patio do acampamento.	12 11'01	S	37.32'45	E	500		X
Boane C	33	Apocynaceae	Diplorrhynchus	condylocarpon			10	June	Mecula	Mbatamila senior staff camp	Arvore c.`10m de altura. Frutos imaturos, verdes. No patio do acampamento.	12 11'01	S	37.32'45	E	500		X
Boane C	34	Poaceae	Pennisetum	polystachion			10	June	Mecula	Mbatamila senior staff camp	Erva annual c.40cm de altura. No patio do acampamento.	12 11'01	S	37.32'45	E	500	X	
Boane C	35	Onagraceae	Ludwigia	octovalvis			10	June	Mecula	Mbatamila senior staff camp	Arbusto c.50cm de altura. Flores amaralas. Ao longo dum riacho.	12 11'01	S	37.32'45	E	500	X	X
Boane C	36	Combretaceae	Combretum	molle			10	June	Mecula	Mbatamila senior staff camp	Arvore c.10m de altura. Em volta do patio do acampamento.	12 11'01	S	37.32'45	E	500		X
Boane C	37	Melastomataceae	Dissotis	debilis			10	June	Mecula	Mbatamila senior staff camp	Arbusto ramificado na base c.60cm de altura. Flores azuladas. Perto do riacho.	12 11'01	S	37.32'45	E	500	X	
Boane C	38	Lamiaceae	Aeollanthus	ukamensis			10	June	Mecula	Mbatamila senior staff camp	Erva vivoz c.30cm de altura. Flores azul de metilene. Perto do riacho.	12 11'01	S	37.32'45	E	500	X	
Boane C	39	Polygalaceae	Polygala	albida			10	June	Mecula	Mbatamila senior staff camp	Erva vivaz c.20cm de altura. Inflorescencias esbranquicadas. Perto do riacho.	12 11'01	S	37.32'45	E	500	X	
Boane C	40	Rubiaceae	Psychotria	capensis	subsp.	riparia	10	June	Mecula	Mbatamila senior staff camp	Arbusto c.3m de altura. Frutos maduros, vermelhos. Em volta do acampamento.	12 11'01	S	37.32'45	E	500		X
Boane C	41	Aloaceae	Aloe	mawii			11	June	Mecula	Mbatamila senior staff camp	Arbusto suculenta c.30cm de altura. Flores amarelas. Mata abeta na base de serra, Mbatamila.	12 11'06	S	37 32'34	E	570		
Boane C	42	Euphorbiaceae	Euphorbia	cooperi			11	June	Mecula	Mbatamila senior staff camp	Arbusto c.2m de altura, com espinhos. No cima do serra, Mbatamila.	12 11'06	S	37 32'34	E	700	X	
Boane C	43	Burseraceae	Commiphora	mollis			11	June	Mecula	Mbatamila senior staff camp	Arbusto c.3m de altura. No cimo do serra, Mbatamila.	12 11'06	S	37 32'34	E	700		X
Boane C	44	Sterculiaceae	Sterculia	quinqueloba			11	June	Mecula	Mbatamila senior staff camp	Arvore c.7m de altura. Flores esbranquicada. Cimo da serra, Mbatamila.	12 11'06	S	37 32'34	E	700	X	X
Boane C	45	Apocynaceae	Holarrhena	pubescens			11	June	Mecula	Mbatamila senior staff camp	Arbusto c.2.5m de altura. Cimo da serra, Mbatamila.	12 11'06	S	37 32'34	E	700		X
Boane C	46	Cyperaceae	Coleochloa	setifera			11	June	Mecula	Mbatamila senior staff camp	Erva annual c.15cm de altura. A lado de serra a forma comunidade. Zona rochoso, Mbatamila.	12 11'06	S	37 32'34	E	700		
Boane C	47	Fabaceae: Mimosoideae	Albizia	tanganyikensis			11	June	Mecula	Mbatamila senior staff camp	Arbusto c.4m de altura. Cimo da serra, Mbatamila.	12 11'06	S	37 32'34	E	700		X
Boane C	48	Myrothamnaceae	Myrothamnus	flabellifolius			11	June	Mecula	Mbatamila senior staff camp	Arbusto c.30cm de altura. Flores secos. Cimo da serra, Mbatamila.	12 11'06	S	37 32'34	E	700		
Boane C	49	Fabaceae: Papilionoideae	Baphia	massaiensis	subsp.	gomesii	14	June	Murrupa	Kiboko	Arbusto c.4m de altura. Solo arenoso. Mata aberta de Millettia stuhlmannii, Bloco C, Rio Lugenda.	12 20'18	S	37 45'43	E	300		
Boane C	50	Tiliaceae	Grewia	forbesii			14	June	Murrupa	Kiboko	Arbusto multicaule c.5m de altura. Proxima de uma baixa humido.	12 17'29	S	37 47'54	E	300		X
Boane C	51	Sterculiaceae	Melochia	corchorifolia			14	June	Murrupa	Kiboko	Pequeno arbusto erecta c.1.3m de altura.	12 17'29	S	37 47'54	E	300	X	X
Boane C	52	Crassulaceae	Kalanchoe	lanceolata			14	June	Murrupa	Kiboko	Erva vivaz c.40cm de altura. Flores alaranjados. Solo compacto, negro.	12 17'29	S	37 47'54	E	300	X	
Boane C	53	Tiliaceae	Carpodiptera	africana			14	June	Murrupa	Kiboko	Arvore c.6m de altura. Frutos passados. Sobre murmuche. Solo compacto negro.	12 17'29	S	37 47'54	E	300		X
Boane C	54	Apocynaceae	Voacanga	africana			14	June	Murrupa	Kiboko	Arbusto latax c.2.5m de altura. Solo humido.	12 17'29	S	37 47'54	E	300		X
Boane C	55	Capparaceae	Maerua	edulis			14	June	Murrupa	Luwire	Arbusto ramificado na base, c.30cm de altura. Flores brancas. Solo compacto negro. 600m de acampamento de Luwire, Bloco C, Rio Lugenda.	12 14'39	S	38 00'38	E	300	X	

Boane C	56	Rhamnaceae	Ziziphus	abyssinica			14	June	Murrupa	Luwire	Arbusto c.4m de altura com espinhos. Fruos maduras, acastanhado. Solo cinzenta. 600m de acampamento de Luwire, Bloco C, Rio Lugenda.	12 14'39	S	38 00'38	E	300		X
Boane C	57	Asteraceae	Sphaeranthus	humilis			14	June	Murrupa	Luwire	Erva prostrata c.15cm de altura. Flores de cor de vinho. Solo compacto. 600m de acampamento de Luwire, Bloco C, Rio Lugenda.	12 14'39	S	38 00'38	E	300	X	
Boane C	58	Dracaenaceae	Sanseveria	caniculata			14	June	Murrupa	Luwire	Arbusto c.40cm de altura. Inflorescencia na base. Flores brancas. Zona na baixa duma cale. 600m de acampamento de Luwire, Bloco C, Rio Lugenda.	12 14'39	S	38 00'38	E	300	X	
Boane C	59	Fabaceae: Papilionoideae	Bauhinia	tomentosa			14	June	Murrupa	Luwire	Arbusto c.3m de altura. Frutos veludos. Nas baixas de uma vale. 600m de acampamento de Luwire, Bloco C, Rio Lugenda.	12 14'39	S	38 00'38	E	300		X
Boane C	60	Fabaceae: Caesalpinioideae	Erythrophleum	africanum			14	June	Murrupa	Luwire	Arvore c.8m de altura. Solo arenoso com miombo.	12 13'07	S	38 06'34	E	300		X
Boane C	61	Annonaceae	Cleistochlamys	kirkii			15	June	Murrupa	Luwire	Arvore ramificada desde e base c.7m de altura. Solo pluvial. Margems do Rio Luambezi. Mata de galeria com Millettia.	12 11'37	S	38 13'46	E	300		X
Boane C	62	Rubiaceae	Polysphaeria	multiflora			15	June	Murrupa	Luwire	Arbusto c.2m de altura. Flores brancas. Solo pluvial. Margems do Rio Luambezi. Mata de galeria com Millettia.	12 11'37	S	38 13'46	E	300	X	
Boane C	63	Capparaceae	Cadaba	kirkii			15	June	Murrupa	Luwire	Arbusto c.40cm de altura. Flores brancas. Solo pluvial. Margems do Rio Luambezi. Mata de galeria com Millettia.	12 11'37	S	38 13'46	E	300	X	
Boane C	64	Ebenaceae	Diospyros	truncatifolia			15	June	Murrupa	Luwire	Arbusto c.5m de altura. Margems direito do Rio Chitande. Bloco C.	12 11'37	S	38 13'46	E	300		X
Boane C	65	Combretaceae	Combretum	kirkii			15	June	Murrupa	Luwire	Liana com c.5m de altura. Frutos seca. Na zona de Euphorbias. Margems direito do Rio Chitande. Bloco C. Solo compacto acinzentada.	12 11'37	S	38 13'46	E	300		X
Boane C	66	Euphorbiaceae	Euphorbia	cf. cooperi			15	June	Murrupa	Luwire	Arvore c.6m de altura. Folhas suculentas com pequenos espinho. Latex. Flores +/-arosadas. Solo argiloso compacto. Margems direito do Rio Chitande. Bloco C.	12 11'37	S	38 13'46	E	300		X
Boane C	67	Flacourtiaceae	Xylotheca	tettensis			16	June	Murrupa	Luwire	Arbusto c.3m de altura. No recinto do acampamento do Luwire, Bloco C, margem do Rio Lugenda.	12 14'05	S	38 00'33	E	300		X
Boane C	68	Ebenaceae	Diospyros	mespiliformis			16	June	Murrupa	Luwire	Arvore c.10m de altura. Floresta de riberinha da margem direito do Rio Lugenda. Acampamento Luwire, Bloco C.	12 14'05	S	38 00'33	E	300		X
Boane C	69	Celastraceae	Gymnosporia	senegalensis			16	June	Mecula	Kiboko	Arbusto c.1.5m de altura. Flores brancas. Solo arenoso. Junto ao posto da control de fiscais, estrada para Mbatamila.	12 25'46	S	37 46'04	E		X	
Boane C	70	Rubiaceae	Psychotria	pumila			16	June	Mecula	Kiboko	Arbusto ramificado na base, c.40cm de altura. Frutos vermelhos. Junto ao posto da control de fiscais, estrada para Mbatamila.	12 25'46	S	37 46'04	E			X
Boane C	71	Acanthaceae	Lepidagathis	andersoniana			16	June	Mecula	Kiboko	Arbusto ramificado na base c.40cm de altura. Flores azuladas. Junto ao posto da control de fiscais, estrada para Mbatamila.	12 25'46	S	37 46'04	E		X	
Boane C	72	Scrophulariaceae	Micrargeria	filiformis			16	June	Mecula	Kiboko	Arbusto c.50cm de altura. Flores lilaz. Junto ao posto da control de fiscais, estrada para Mbatamila.	12 25'46	S	37 46'04	E		X	
Boane C	73	Rubiaceae	Spermacoce	subvulgata			16	June	Mecula	Kiboko	Arbusto erecto c.60cm de altura. Flores brancas. Em volta de murmuche. Estrada para Mbatamila.	12 25'46	S	37 46'04	E		X	
Boane C	74	Combretaceae	Combretum	psidioides			16	June	Mecula	Kiboko	Arbusto c.4m de altura. Estrada para Mbatamila.	12 25'46	S	37 46'04	E			X
Boane C	75	Fabaceae: Caesalpinioideae	Brachystegia	allenii			16	June	Mecula	Kiboko	Pequeno arvore c.7m de altura. Frutos quase maduros +/-escurecidas. Estrada para Mbatamila.	12 25'46	S	37 46'04	E			X
Boane C	76	Proteaceae	Protea	welwitschii			17	June	Mecula	Mbatamila airstrip	Arbusto c.2m de altura. Flores passadas, folhas jovens.Campo de aerodromo, Mbatamila. Zona humido com graminas.	12 10'12	S	37 32'12	E		X	
Boane C	77	Lamiaceae	Haumaniastrum	venosum			17	June	Mecula	Mbatamila airstrip	Pequeno arbusto c.40cm de altura. Flores azuledas. Solo com muito humidade. Campo de aerodromo, Mbatamila. Zona humido com graminas.	12 10'12	S	37 32'12	E		X	
Boane C	78	Lentibulariaceae	Utricularia	livida			17	June	Mecula	Mbatamila airstrip	Erva com c.10cm de altura. Flores azuledas. Campo de aerodromo, Mbatamila. Zona humido com graminas.	12 10'12	S	37 32'12	E		X	
Boane C	79	Lamiaceae	Leucas	nyassae			17	June	Mecula	Mbatamila airstrip	Arbusto c.40cm de altura. Flores brancas. Campo de aerodromo, Mbatamila. Zona humido com graminas.	12 10'12	S	37 32'12	E		X	

Boane C	80	Scrophulariaceae	Buchnera	randii			17	June	Mecula	Mbatamila airstrip	Subarbusto c.30cm de altura. Flores azuledas. Campo de aerodromo, Mbatamila. Zona humido com graminas.	12 10'12	S	37 32'12	E		X	
Boane C	81	Poaceae	Eragrostis	chapelieri			17	June	Mecula	Mbatamila airstrip	Erva c.1m de altura. Espiguetas verdes. Campo de aerodromo, Mbatamila. Zona humido com graminas.	12 10'12	S	37 32'12	E		X	
Boane C	82	Fabaceae: Papilionoideae	Adenodolichos	punctatus	subsp.	bussei	18	June	Mecula	Mbatamila-Matondavela	Arbusto c.1.5m do altura. Flores vermelhos. Junto do Rio Matondavela com Syzygium.	12 08'02	S	37 20'08	E		X	
Boane C	83	Fabaceae: Papilionoideae	Crotalaria	goreensis			18	June	Mecula	Mbatamila-Matondavela	Arbusto c.90cm de altura. Flores amareladas. Junto do Rio Matondavela com Syzygium.	12 08'02	S	37 20'08	E		X	
Boane C	84	Fabaceae: Caesalpinioideae	Brachystegia	utilis			18	June	Mecula	Mbatamila-Matondavela	Arbusto c.4m de altura. Floresta aberta de miombo. Junto do Rio Matondavela.	12 08'02	S	37 20'08	E			X
Boane C	85	Fabaceae: Papilionoideae	Swartzia	madagascariensis			18	June	Mecula	Mbatamila-Matondavela	Arbusto c.3m de altura. Floresta aberta de miombo. Junto do Rio Matondavela.	12 08'02	S	37 20'08	E			X
Boane C	86	Euphorbiaceae	Bridelia	cathartica			18	June	Mecula	Mbatamila-Matondavela	Arbusto c.4m de altura. Floresta de miombo. Junto do Rio Matondavela.	12 08'02	S	37 20'08	E			X
Boane C	87	Ebenaceae	Diospyros	verrucosa			18	June	Mecula	Mbatamila-Matondavela	Arbusto c.3m de altura. Na floresta aberta de miombo. Junto do Rio Matondavela.	12 08'02	S	37 20'08	E			
Boane C	88	Rubiaceae	Rothmannia	engleriana			19	June	Mecula	Matondavela	Arbusto c.3m de altura. Margem do Rio Chulichi, estrada para Chamba.	12 02'01	S	37 02'50	E			X
Boane C	89	Loranthaceae	Tapinanthus	forbesii			19	June	Mecula	Matondavela	Parasita sobre Dichrostachys cinerea de 2.5m. Flores avermelhadas. Margem do Rio Chulichi, estrada para Chamba.	12 02'01	S	37 02'50	E		X	
Boane C	90	Acanthaceae	Dyschoriste	verticillaris			19	June	Mecula	Matondavela	Subarbusto c.80cm de altura. Flores azuis. Margem do Rio Chulichi, estrada para Chamba.	12 02'01	S	37 02'50	E		X	
Boane C	91	Asteraceae	Pleiotaxis	pulcherrima			19	June	Mecula	Matondavela	Subarbusto c.40cm de altura. Flores passadas. Margem do Rio Chulichi, estrada para Chamba.	12 02'01	S	37 02'50	E		X	
Boane C	92	Fabaceae: Caesalpinioideae	Burkea	africana			19	June	Mecula	Matondavela	Arvore c.8m de altura. Frutos secas. Margem do Rio Chulichi, estrada para Chamba.	12 02'01	S	37 02'50	E			X
Boane C	93	Proteaceae	Protea	angolensis	var.	divaricata	19	June	Mecula	Matondavela	Arbusto c.2m de altura. Flores brancas. Margem do Rio Chulichi, estrada para Chamba.	12 02'01	S	37 02'50	E		X	
Boane C	94	Myrtaceae	Syzygium	guineense	subsp.	guineense	19	June	Mecula	Matondavela	Arvore c.8m de altura. Flores em botaes. Margem do Rio Chulichi, estrada para Chamba.	12 02'01	S	37 02'50	E			X
Boane C	95	Ochnaceae	Ochna	leptoclada			19	June	Mecula	Matondavela	Arbusto c.1.6m de altura. Flores em botaes. Margem do Rio Chulichi, estrada para Chamba.	12 02'01	S	37 02'50	E			
Boane C	96	Anacardiaceae	Ozoroa	insignis	subsp.	reticulata	19	June	Mecula	Matondavela	Arbusto c.2m de altura. Margem do Rio Chulichi, estrada para Chamba.	12 02'01	S	37 02'50	E			X
Boane C	97	Polygalaceae	Polygala	macrostigma			19	June	Mecula	Matondavela	Arbusto erecta c.1.5m de altura. Flores esbranquicadas. Margem do Rio Chulichi, estrada para Chamba.	12 02'01	S	37 02'50	E		X	
Boane C	98	Asteraceae	Laggera	crispata			19	June	Mecula	Matondavela	Arbusto c.2m de altura. Flores brancas. Margem do Rio Chulichi, estrada para Chamba.	12 02'01	S	37 02'50	E			X
Boane C	99	Fabaceae: Caesalpinioideae	Brachystegia	boehmii			19	June	Mecula	Matondavela	Arvore c.8m de altura. Frutos quase maduraos com cor dourados. Perto do Rio Chulichi, estrada para Chamba.	12 02'01	S	37 02'50	E			X
Boane C	100	Poaceae	Phragmites	mauritianus			19	June	Mecula	Matondavela	Erva lenhoso c.2m de altura. Margem do Rio Chulichi, estrada para Chamba.	12 02'01	S	37 02'50	E		X	
Boane C	101	Malvaceae	Urena	lobata			19	June	Mecula	Matondavela	Arbusto c.2m de altura. Flores alosadas. Perto do Rio Chulichi, estrada para Chamba.	12 02'01	S	37 02'50	E		X	
Boane C	102	Fabaceae: Papilionoideae	Crotalaria	laburnifolia			19	June	Mecula	Matondavela	Arbusto c.1.6m de altura. Flores amarelas. Margem do Rio Chulichi, estrada para Chamba.	12 02'01	S	37 02'50	E		X	
Boane C	103	Fabaceae: Papilionoideae	Aeschynomene	schimperi			19	June	Mecula	Matondavela	Arbusto c.1.2m de altura. Flores amareladas. Caule com pequeno pelos. Margem do Rio Chulichi com Phragmites, estrada para Chamba.	12 02'01	S	37 02'50	E		X	
Boane C	104	Fabaceae: Caesalpinioideae	Brachystegia	manga			20	June	Mecula	Matondavela	Pequeno arvore c.6m de altura. Solo arenoso. Picada Matondavela para Chamba, proximo do Rio Chulichi.	12 02'54	S	37 01'32	E			X
Boane C	105	Fabaceae: Mimosoideae	Acacia	polyacantha	subsp.	campylacantha	20	June	Mecula	Matondavela	Arvore c.15m de altura, com espinhos. Muito dominata no local. Antigo quartel de Candula.	12 04'12	S	36 59'38	E			X
Boane C	106	Lamiaceae	Clerodendrum	robustum	var.	fischeri	20	June	Mecula	Matondavela	Arbusto c.2.5m de altura. Flores brancas com fundo avermelhadas. Zona cultivada.	12 04'12	S	36 59'38	E		X	