

# TIPAs Guinea Darwin Project report

## Field expedition to Fouta Djalon 02-16 July 2017

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**Site : Préfecture de Dalaba**

### Introduction

A two week expedition to the Dalaba area of the Fouta Djalon was undertaken to assess the type and quality of forest present. This was to support a Kew Masters student, Oliver Hooper, whose Masters thesis is on the sub-montane forest of Guinea. This is a threatened habitat type for Guinea and therefore part the TIPAs programme. We have data on the sub-montane forest in Guinée Forestière, but little recent information is available for the Fouta Djalon highlands. Satellite imagery suggested that there could be some remnants of sub-montane forest existing in areas near Dalaba for example the Tinka, Tangama and Ley Fita/Kala Classified forests.

During this expedition we also wanted to assess the threats to the population of *Vernonia djalonensis* and search for sites based on historical specimen locations such as the area between Ditinn and Timbo. This plant is now coming into flower making it easy to find in the landscape.

### Methodology

The patrol method of collection was used, specimens were collected of fertile material where possible. Data was gathered at GPS points taken when there was a change in vegetation type and data recorded included dominant species, disturbance level and photographs were taken. This was done using a Samsung S4 smartphone using the Locus Pro application. This data can automatically be downloaded and photos georeferenced. This was in addition to written notes and specimen data. Seeds were also collected on this trip for seedbanking and DNA samples were taken of some species for phylogenetic research.

### Results

#### 146 specimens and observations were collected

Collector	Collector numbers	Total
Couch, C.A.	916-938	23 + 4 observations
Balde, A.	214-279	59
Fofana, F.	298-341	42
Hooper, O.	30-46	17
Thea, F.	01	1
<b>Total collected</b>		<b>146</b>

*List of species will follow once all the identifications have been made.*

## Site observations

Tinka Classified forest (CF) (10° 43' 49.3" -12° 15' 30.0" and 10° 44' 30.6" -12° 16' 27.6"). Following a brief visit in October 2016, we spent a further 2 days exploring this classified forest. The area covers 540 hectares, though not all of this area is forested. The visit was carried out with the chef de cantonnement for the Commune Urbaine de Dalaba. He was able to show us a large area of the CF. The forest has been significantly disturbed over a long period of time which is apparent in the fragmented canopy. Open areas were densely liana dominated and therefore difficult to traverse. The areas where the canopy was denser, the understory was clearer, but with low diversity. The dominant tree species were *Carapa procera* and *Parinari excelsa*. The summit of the hill has previously been cleared for farming. This has now been stopped, but the damage is done. At the summit there are more woodland species present and species which are rocky outcrop specialists such as *Sakersia echinulata* (Melastomataceae). The soils vary in depth across the site and there are varying degrees of rockiness. There is also considerable damage from fires which have swept up the hillside from the villages below, opening up large tracks of land, previously forested, to pest species such as *Lantana camara* and *Breynia disticha*. These alien plant species are invading many disturbed areas in the Fouta Djallon especially along paths and roadsides. The parties responsible for these fires have apparently been charged and fines paid.

Tangama Classified Forest (10° 40' 32.4" -12° 15' 49.3" and 10° 40' 47.8" -12° 15' 30.1"). Covering over 400Ha, this looked to be in better condition from the Satellite imagery that the Tinka forest. However, on closer inspection it was highly disturbed. There is a river running through this forest which accounts for some of the intact canopy area. The understory was still quite disturbed and there was evidence rubbish dumping from nearby settlements. The forest is flanked by the University of Dalaba, a coffee plantation and a road, there are several well-worn paths through the area along which pest species such as *Lantana* and *Breynia* can be found invading. There is a gradient to most of this forest, which may account for the appearance of a more intact canopy. Similar to Tinka FC, the understory has been cleared in areas. Though there are species associated with sub-montane forest present here, they are not in abundance and it would be difficult to classify this area as quality sub-montane forest based on the current species assemblage.

Kala and Ley Fita Classified Forest, sub prefectures of Kala and Ditinn (10° 48' 23.7" -12° 11' 39.5" and 10° 49' 15.2" -12° 11' 30.5"). This was the most promising of the patches highlighted on the satellite imagery. However, there is a mosaic of vegetation types in this area. There is some relatively intact gallery forest along the valley heading down the valley towards Ditinn. This route forms the daily commute for people from Kala to Ditinn and has resulted in non-native species cropping up such a mango and guava trees where people have eaten fruit and left seeds behind. It is very steep and the forest on the actual river bank is hardly accessible from the path down the side affording it some protection from the population.

Species noted: *Cola ?maclaudii*, *Tabernaemontana africana*, *Pseudospondias mombin*, *Detarium* sp., *Sterculia tragacantha*, Sapotaceae spp. *Carapa procera*, *Anthonotha macrophylla*, Annonaceae and Rubiaceae in the understory, plus *Aframomon*, *Costus* and *Dioscorea* sp.

Further down as the valley flattens out the vegetation starts to change and become more like woodland with a more open canopy and areas of monodominance by *Erythrophleum suaveolens*. There has also been some reforestation in the area with *Cassia sieberiana*.

Entering from the other side at Ley Fita and heading along the river to the Ditinn Waterfall the riverine forest varies in width. The terrain is shallower in profile and there is a mosaic of woodland

species and gallery forest species. There has been some manual clearance for a new road that the villagers building between Kala and Ditinn, this has opened up some of the area and it is now dominated by grasses. The gallery forest is dominated by *Garcinia ovalifolia*, with *Uapaca togoensis*, *Pandanus*, *Dialium guineensis*, *Azelia*, *Carapa procera* and *Zanthoxylum* sp. The majority of trees here are small in girth, on average between 10-20cm dbh, with the occasional large *Carapa procera* tree of c.1m dbh. There are numerous rapids in the river which may have Podostemaceae species, though this was not the right season to find them.

There is a tourist route to the waterfall which is quite disturbed. Close to the waterfall there is an area that has particularly unstable soil and the trees have been destroyed by fire this area has been colonised and overrun by *Dioscorea alata*. Also due to tourists, guava has been introduced. Heading towards the village of Yali, the forest canopy becomes more open with fewer riparian species. *Erythrophleum suaveolens*, *Albizia zygia*, *Parinari excelsa* with some woodland species coming in such as *Hannoa undulata*, *Pterocarpus erinaceus* and *Markhamia tomentosa* before transitioning to fields on the edge.

Goundoupi Community Forest, Sous-prefecture de Kala (10° 47' 06.8" -12° 11' 01.6"). This forest has only been given protection in recent years and was heavily used by the local population. The entrance area and edges are dominated by *Lantana camara*. Despite this there is still a reasonable diversity even though the forest is highly disturbed. The canopy is around 50% with some gaps and the height of the trees is on average 8-12m, with average dbh of 35cm; there are some canopy emergents (*Parinari excelsa*, *Zanthoxylum* sp, *Ficus* sp.) of 20m with larger dbhs of 50cm. It is a riverine forest dominated by the same *Garcinia* species from the Ley Fita forest; the roots of which are dug up for toothbrushes and there were large pits as evidence of this adjacent to some trees. There were many lianas in the understorey but where it was clearer, there were carpets of orchids present. Parts of this forest are seasonally inundated, though perhaps not every year, stilt rooted trees of *Santira trimera* support this.

To the south the forest is border by a bowal which is made up of pisoliths and the soil is >10cm deep, with some large rocks. There are many shrubs and small trees colonising of *Syzygium guineense*. *Mesanthemum tuberosum* was found here in small numbers as well as a succulent Melastomataceae. *Vernonia djalonensis* was not present in the bowal in this area since the bowal substrate is different to that of the Diaguissa plateau.

Diaguissa Plateau. (10° 39' 31.8" -12° 12' 52.9") *Vernonia djalonensis* found to be coming into flower. This plant is currently only known from the Diaguissa plateau, the older sites are in the process of being visited to see if the species is still present there. It appears that *Vernonia* prefers ferrallitic bowal with a solid concretised iron pan and thin soils which are not dominated by tall grasses. Area is much disturbed by new Chinese crushing plant (usine de concassage) who are also burning their rubbish on the bowal. The area is under construction of new houses and the areas have been defined and marked out. This was apparent from the previous visit and no new houses appear to have been started in the meantime on the largest part of the population.

To mitigate to possible loss and extinction of this species, the team addressed its concerns to the Prefet of Dalaba who in turn formed a team of people from the Mairie, Housing, Forestry, citizenship etc to accompany us to the site to see the plant, the threats and discuss possible mitigation plans. After explanation and showing of the species, it was discussed that two possibilities could be tried: 1) to protect a certain area of the population, fenced or otherwise protected, 2) Sensitize the population to this unique plant to Dalaba and its threats, 3) to ask each person constructing a house to safeguard a certain number of plants in their garden to maintain genetic diversity. This was then

presented to the Mairie. The Mayor, Mr El Hadj Tierno Habib BARRY, was very receptive to the proposition of protecting the plants. He postulated that protecting them with a fence may not be the best idea, but sensitization of the population could be done with the help of the local radio. He would also talk with the Chinese company about burning their rubbish as this is an issue for them as well. Plants were also dug up from the site and taken to the Forestry nursery for a propagation trial by Mr Barry (chef du Cantonnement).

Bowes between Ditinn and Mamou Road. A number of bowés were visited to verify the presence or absence of *Vernonia djalensis* between Ditinn and Porédaka/ Soumbalako down towards the road to Mamou. Many of the bowés cover vast areas, but they are sandstone/ bauxite and are mostly pisolithic with deeper soils dominated by tall grasses. There are varying degrees of disturbance from cattle grazing or gravel extraction. However, few interesting species were found here and *Vernonia djalensis* was not present.

## **Conclusion**

The general conclusion of this expedition is that there is no intact sub-montane cloud forest remaining in the Fouta Djallon. There was most likely large tracts of it, but human influence over many decades has destroyed or altered the forests to such a degree that the sites visited can no longer be called sub montane forest. There is still a chance that some forest patches exist that have not been visited on this trip though it is likely they are small. It is also possible that most of this forest is gallery forest with some submontane species existing. It is unlikely that any of these sites will be retained as a Tropical Important Plant Area (TIPA) in the Fouta Djallon.

Good progress was made in the protection of *Vernonia djalensis*. We hope to continue with the protection of this species with the local government and also in the Regional Flower Campaign. A team will return in October to see what progress has been made in the sensitization of the population to this species.

## **Recommendations**

Continue to sensitize the population to *Vernonia djalensis* and other endangered plant species in the area. Posters for some of these species were left with the forestry department. Introduce endangered species and create awareness through the Regional Flower Campaign.

We recommend that reforestation of the Classified Forests should incorporate a wider range of native species and not be a monoculture. It is good that native species such as *Cassia sieberiana* and *Erythrophleum suaveolens* are used, but the forestry departments should be encouraged to grow more native species in their nurseries.

## **Pictures of species and sites visited**



*Vernonia djalonensis*. Critically Endangered endemic to the Fouta Djallon.



*Trichilia djalonis*



Forêt Classé de Tinka



Team at the edge of Tinka FC.



*Mesanthemum tuberosum* Endangered species from bowal.