Darwin Initiative Main Project Annual Report

Darwin Project Information

Project reference	Project 23-004 ref 3339
Project title	Ex-situ conservation of threatened plants from the Ivoloina-Ifontsy valleys, Madagascar
Host country/ies	Madagascar
Contract holder institution	Madagascar Fauna and Flora Group (MFG)
Partner institution(s)	Missouri Botanical Garden (MBG) Royal Botanic Gardens, Kew (RBG, Kew)
Darwin grant value	£235,894
Start/end dates of project	April 2016 to March 2019
Reporting period	April 2016 to March 2017, Annual Report No. 1
Project Leader name	Karen Freeman
Project website/blog/Twitter	Website: http://www.madagascarfaunaflora.org/ ;Twitter: @MadaFaunaFlora; @c.birkinshaw; Facebook: @MadagascarFaunaGroup
Report author(s) and date	Karen Freeman and Chris Birkinshaw, April 2017

1. Project rationale

The Malagasy flora is both exceptionally rich (14,000 species) and highly endemic (90%)[1]. However, it is also very threatened by anthropogenic activities (e.g. shifting cultivation, wild fires, charcoal production etc.). Between 1950 and 2000 40% of remaining forest was destroyed[2] and forest loss continues today at a similar pace. Most forest outside of protected areas will be lost in the next decade. An estimated 14% of the flora is not included in any protected area and many of these excluded species occur as tiny populations in small, degraded fragments of natural vegetation where they are exceptionally vulnerable. Ideally, these habitats should be conserved but this rarely occurs because of their small size and degraded nature. Thus, the most viable alternative to extinction for these species will be ex-situ conservation, either as growing plants in secure collections or as seeds in seed banks. Yet investment in ex-situ plant conservation in Madagascar is inadequate. This project was designed to respond to this need – albeit within a limited part of Madagascar: the Ivoloina and Ifontsy River Valleys. This area was selected as the target for this project because here natural vegetation has almost all been destroyed and the small remaining forest fragments are likely to be lost imminently. Thus, this project truly represents the last chance to save this botanical diversity for humanity. By demonstrating the success of this approach, we expect that this project will act as a model for similar initiatives elsewhere in Madagascar and perhaps beyond.

2. Project partnerships

The Madagascar Fauna and Flora Group (MFG) is a consortium of international zoos and botanical gardens and thus is fundamentally collaborative. During the first year of this project the partnership between MFG and its two main partners, Missouri Botanical Garden (MBG) and the Royal Botanic Gardens, Kew (RBG Kew) was as envisioned when the project was originally

[1] Callmander M. W. *et al*. 2011. Plant Ecology and Evolution, 144(2): 121-125.
[2] Harper G.J. *et al.* (2007). Environmental Conservation 34 (4): 1-9.

conceived: MFG staff acted to direct the project, manage the grant, provide a focal point for the project, and take responsibility for training the conservation horticulturalists and for propagating and nurturing the seed samples collected by the field botanists; MBG staff were responsible for training the field botanists and for coaching them in the collection of vouchered seed samples; and RBG-Kew staff were responsible for accompanying MBG in botanical activities and, most particularly, ensuring the quality of seed samples and their seed banking. The challenges encountered by this partnership were minor and related to conflicts between the salary structures and manual of procedures of the three partner organisations. Thus, for example, during fieldwork, staff working for MBG normally cover travel and subsistence according to real costs whereas staff of MFG and RBG-Kew cover these costs with a fixed "per-diem". To avoid the risk that these differences might result in conflict between members in mixed teams, MBG accepted that within the framework of this project its staff could receive per-diems.

The success of this project is dependent on excellent coordination between its diverse activities. Thus, for example, the nursery team need to know when seed samples will arrive in the nursery so that they can process and propagate them in a timely manner; information on the species collected needs to flow smoothly between the botanists and the nursery team; and the funds need to be disbursed and expenditure reported efficiently and coherently by diverse project actors. A high level of coordination was achieved by several approaches including the designation of a Project Focal Point tasked with this achieving this goal. The Project Focal Point encouraged all those implicated in the project to consider themselves as part of a single Darwin Initiative team and only secondarily as employees of MFG, MBG or RBG-Kew. He encouraged frequent exchange between the field botanist team and the nursery team including, for example, enabling the conservation horticulturalists to join the field trips and engaging the field botanists in work within the nursery.

While none us were surprised that the three main partner organisations could work together effectively, we were pleasantly surprised to see the willingness of the director of Silo National des Graines Forestières (SNGF, attached to the Ministère de l'Environnement, de l'Ecologie et des Forêts, Madagascar) to engage fully and proactively with our work. Staff of SNGF contributed a total of 40 person-days to train Project staff in best practise for seed collection, in nursery techniques, and in supporting our field work. The agreement signed between MFG and SNGF is included in appendix 4.1. of this report. The head of the Flora Department at Madagascar's national botanical and zoological garden, the Parc Botanique et Zoologique de Tsimbazaza (PBZT, attached to the Ministère de l'Enseignement Supérieur et de la Recherche Scientifique) was also very willing to collaborate with this project and staff from this institution joined one field trip. This latter collaboration was framed by MBG's existing institutional agreement with PBZT, but in addition it was agreed that PBZT would receive three seedlings of each of the species propagated at Parc Ivoloina to grow within their garden. We were pleased to agree to this proposal because such sharing will act as further safety-net for these plants.

MBG, and in particular, the Director of Field Botany, have been far more involved on a day to day basis with the project management and planning than originally envisaged, much to the advantage of the project as we have been able to capitalise on their extensive international and in-country experience and contacts to further the development of several aspects of the project such as the development of the nurseries at Parc Ivoloina during which one of MBG's experienced St Louis-based horticulturalists, Brock Mashburn offered advice on equipment purchases and horticultural methods, while the MBG international administration team offered invaluable support in purchasing and shipping project equipment.

3. Project progress

3.1 Progress in carrying out project Activities

In general, all the activities described below were delayed by 2 months compared to the original plan. This was due to the necessary change of Project Leader at the outset of the project (a request was made and accepted for this change) and the time required to transfer the grant from the UK to the account of St Louis Zoo in the USA – the institution that was acting to hold this fund on behalf of MFG. It was only by June 2016 that funds were finally received and available for use

Output 1*. Training and capacity building provided to enable four young Malagasy men/women to organise field trips, conduct botanical inventories, and collect high quality seed samples for ex-situ conservation*

In June 2016 the Project Leader, the Director of Field Botany and the Field Botany Manager began their search for candidates to be trained and then employed as field botanists. An advert was placed in the national newspaper "Midi" and recruitment posters affixed at the Universities of Antananarivo and the University of Toamasina (ISSEDD). In total 12 applications had been received by the closing date: 6 from females and 6 from males. We decided to interview all these candidates. The first series of interviews for the Toamasina-based candidates was held on 21 June and the second series of interviews for candidates based in Antananarivo was held on 24 June. Following the interviews, we selected two females (Rajaijaona Benjamina and Rasoanindriana Maheninsoa Harisandy) and two males (Rakotonirina Arsene Giovanni and Syde Remi Anthony). A list of all the candidates and the CVs of the successful applicants are included in appendices 4.2 and 4.3 respectively of this report.

In July 2016 the Director of Field Botany and Field Botany Manager conceptualised a 3-month training course for the four trainee field botanists. In addition, Sylvian Roli, MFG's dedicated botanical Conservation Agent, was included in the training programme to further train him in theoretical and practical field botany skills. Simultaneously, a building within the Parc Ivoloina was renovated and wired for electricity so that it could accommodate the trainees during the training. This building was also used for classroom sessions. Nearby this building a shelter was constructed to hold two plant driers for producing high quality herbarium specimens to voucher the seed samples. In June 2015 Director of Field Botany and Field Botany Manager, with assistance of staff at Missouri Botanical Garden, USA, placed an order for the IT and field equipment required for this project. This equipment arrived in Madagascar in October. Prior to the arrival of the equipment we were to be able to borrow equipment from MBG's program in Madagascar. The training of the four trainees and Sylvain began on 20 July and finished on 20 October 2016. The training included a diverse range of modules, some delivered by the project team and some by visiting experts (12 in total). The trainees were evaluated midway through the training on 5 September and again at the end of the training on 24 October. The objective of the evaluation was to provide the trainees with constructive criticism of progress and to identify areas of weakness. The trainee' evaluations are included in appendix 4.4. Since the conclusion of the training, the newly graduated field botanists have completed five field trips under the supervision and mentorship of the Field Botany Manager and his assistant.

With the assistance of MBG's governmental sponsor in Madagascar, the PBZT, we obtained a research permit from the Malagasy Government for the collection of vouchered seed samples from the Ivoloina and Ifontsy Valleys. As is normal with research permits in Madagascar, our permit has a duration of 6 months but can be renewed as necessary. A scan of our research permit is included in Appendix 4.5.

Output 2. *Training and capacity building provided to enable six young Malagasy men/women the skills necessary to propagate and nurture native Malagasy plants*

Before the training in Conservation Horticulture could begin, it was necessary to select and recruit a Manager of Conservation Horticulture. To do this, on 6 June 2016, we placed an advert in the Malagasy newspaper "Midi" but by the closing date for applications we had received only two potential candidates (both male). On 24 June 2016 the Project Leader, the Project Manager and the Director of Field Botany interviewed these candidates but were not satisfied that either of them fulfilled the required profile for the post. Therefore, the Director of Field Botany contacted various professional horticulturalists operating in Madagascar to ask if they had any other candidates to suggest. Fortunately, one of these contacts proposed a candidate (Mamisoa Alexandre) who, on interview, proved to be both suitable and available, and was therefore recruited to this post. Alex's CV is included in appendix 4.6 of this report. The first task for the newly appointed Manager of Conservation Horticulture was to seek candidates for the proposed training. This was done by placing an advert once again in the newspaper "Midi" and by placing recruitment posters at the University of Antananarivo and the University of Toamasina (ISSEDD). This publicity specified that both males and females were eligible for the training opportunity and subsequent post. In total 42 applications had been received by the closing date for submissions: 13 from females and 29 from males. The applications were analysed by the Project Leader, Director of Field Botany and the Manager of Conservation Horticulture to select the 14 candidates (5 female and 9 male) that seemed to best satisfy the required profile. These candidates were interviewed by the three project members at the end of September. Following the interviews, we selected two females (Malasoa Tahina Mickaëla and Mandimbiosa Lalaina Nina) and three males (Antonio Platini,

Razafimandimy Nelson, and Rajaonarivelo David). The list of candidates and the CVs of the selected applicants are shown in appendices 4.7 and 4.8 respectively. A sixth person, a young male called Joelimanana Théodore, originating from the community adjacent to the Parc Ivoloina, largely uneducated but exceptionally interested in horticulture, was also invited to join the training to bring the total number of trainees to six. This addition was made because of our desire that this training should be accessible to people of diverse backgrounds and also to increase the relevance of the project to local people.

The training was conceived by the Project Focal Point and the Manager of Conservation Horticulture following a module structure. Like the training for the field botanists, it included a mixture of classroom training and practical work. Most of the training was provided by the Project Focal Point and the Manager of Conservation Horticulture but, in addition, the experienced horticulturalists from SNGF provided a total of 42 person-days of training. In total eight different experts contributed to this training. Towards the end of the training a trip was organised to visit nine different tree nurseries and speak with their staff. The objective of this study trip was to expose the trainees to a diversity of approaches to plant propagation and encourage them to reflect on the nature of best practice. The trainees were evaluated midway through the training and again at the end of training. Those evaluations are included in appendix 4.9 of this report.

It is anticipated that during the two years of fieldwork supported by this project, the field botanists will collect seed samples from at least 500 species. A large area of nursery will be required to propagate the seeds and nurture the resultant seedlings. To provide this area it was necessary to expand and modernise the Parc Ivoloina's existing tree nursery and to create a second nursery at another location within the Parc. The first activity was implemented simultaneously with the training and indeed was used as a training exercise. The creation of the second nursery became necessary during March 2017 when the first nursery reached capacity. Both nurseries were conceived to be models of their type and included for example: germination beds and seedling tables made of concrete; seedlings tables raised to waist height; a shade structure covering the entire nursery, and paths within the nursery covered with stone chips. These innovations (for Madagascar) not only provide the young plants with ideal conditions for growth, but also provide more pleasant working conditions for nursery staff than is normal in Malagasy tree nurseries where staff typically must stoop during their work and are fully exposed to the sun. In addition to the infrastructure improvements, on the advice of experienced horticulturalists at MBG, we also invested purchasing several hundred "air pots" (http://air-pot.com/garden/) to trial. The innovative design of these pots has been shown to improve root growth and consequent plant survival when planted-out. Negotiation with this Scottish manufacturer enabled us to buy and ship these pots at a special price. Finally, we also purchased, but have not yet installed, an automatic watering system that will be used to facilitate seedling irrigation in the second nursery.

Output 3. Vouchered and genetically diverse seed samples collected for at least 500 endemic Malagasy species from remaining native forest fragments within Ivoloina-Ifontsy River Valley

Beginning in October 2016 and until end of March 2017, the field botany team completed five fieldtrips consisting in total of 53 days in the field. The objective of this fieldwork was to collect vouchered seed samples from plants growing in doomed forests within the Ivoloina and Ifonsty River Valleys. The locations where collections were made are shown on the map included in appendix 4.10. The fieldwork was planned with the assistance of information derived from analysis google earth projections and from local knowledge. During the field-trips a total of 321 seed samples were collected. In each case the sample was vouchered with an herbarium specimen accompanied by detailed field notes and a photo. The herbarium specimens were typically collected in replicates of five so that in addition to Madagascar's national herbarium at the PBZT, several other international herbaria could each receive a replicate to enrich their collections. Information (including the images) concerning the collections were entered into the freely-available, on-line botanical database TROPICOS (http://www.tropicos.org/).

Output 4. *At least 500 vouchered, genetically-diverse, endemic Malagasy flowering plant species conserved ex-situ*

Seed samples collected by the field botanists together with the associated collection information were handed over to the Head of Conservation Horticulture. The samples were cleaned (e.g. removed from their fruit) and sorted to remove predated or diseased seeds. If sufficiently numerous seeds in samples collected from woody plants were divided into two parts: one part for propagation at Parc Ivoloina and another to be sent to SNGF for seed

banking. For reasons of capacity no more than 200 seeds from each sample were normally retained for propagation at Parc Ivoloina. All the seeds in samples collected from herbaceous plants were sent to SNGF because it is difficult to maintain such species as growing plants and in this case the best option is preservation in a seed bank. In total, by the end of March 2017, seeds from 169 samples had been sown in the nursery, and 84 samples had been dispatched to SNGF for seed banking. In each case the seed samples are carefully labelled with the collection code of their voucher herbarium specimen. To date all the information relating to each of the seed samples (e.g. number of seeds sown, date of first germination, number of germinations, etc.) has been noted in nursery log books from which the information is periodically captured in an electronic spreadsheet. In Year 2 we will transfer this information to a specially designed system for tracking and managing plants in a botanical garden setting such as BRAHMS or the Living Plant Monitoring System.

At the time of writing several of the young plants in the nursery are attaining the ideal size for planting out into the Parc. In January 2017 the Project Focal Point, the Manager of Conservation Horticulture, the Director of Field Botany and MFG's Forestry Station Manager, explored the 282-hectare Parc Ivoloina to identify 3 locations, each with contrasting conditions, where the seedlings will be planted. Then, having selected these locations, work began to prepare them for the receipt of the seedlings. This preparatory work included: thinning of alien trees (e.g. *Acacia mangium* and *Eucalyptus grandis*) that had been planted when the Parc was a forestry station; removal of invasive alien shrubs, clearing the herb layer that in many places is dominated by smothering herbs, and sowing the green manure species *Flemingia macrophylla* to improve the soil.

3.2 Progress towards project Outputs

Output 1*. Training and capacity building provided to enable four young Malagasy men/women to organise field trips, conduct botanical inventories, and collect high quality seed samples for ex-situ conservation*

This output has been entirely achieved. At the end of the training the four trainees and Sylvain were all evaluated as capable of organising field trips, conducting botanical inventory and collecting high quality seed samples. Their evaluations are included in Appendix 4.4 of this report. Since the end of training together they have been responsible for collecting 321 vouchered seed samples. In addition, they have also collected 189 herbarium specimens without seed samples as part of the general botanical inventory of the area. While these new field botanists continue to be mentored this mainly concerns sharing knowledge on plant identification in the field and most other tasks can be delegated to them with little risk.

Output 2*. Training and capacity building provided to enable six young Malagasy men/women the skills necessary to propagate and nurture native Malagasy plants*

This output has also been entirely achieved because, through the training, all six trainees have developed to be knowledgeable, skilled and motivated horticulturalists. However, while five of the trainees have been given a long-term contract to work on this project, one has not due to his inability to work as part of a team and his tendency to create conflict. This is unfortunate because he is both skilled and dedicated. We intend to hire a replacement nursery worker with existing horticultural training and give them intensive "on-the job" training to bring their skills into line with their colleagues'. Like the field botanists the horticulture trainees were also evaluated mid-way through the training and at its end. These evaluations are presented in Appendix 4.9 of this report.

Output 3. *Vouchered and genetically diverse seed samples collected for at least 500 endemic Malagasy species from remaining native forest fragments within Ivoloina-Ifontsy River Valley*

Between the start of fieldwork in October until the end of March the field botanists collected a total of 320 seed samples, however, the nursery-team found that the seeds in some samples were diseased or predated and discarded them, leaving a total of 253 samples for ex-situ conservation (listed in Appendices 4.12 and 4.13). The list of collections, downloaded from the botanical database TROPICOS, is shown in Appendix 4.11. Given that 12 months of collection remain in this project we are confident in attaining, indeed largely surpassing, our target of 500 species. Although this project is not specifically targeted on any specific groups of plant, and rather considers all native plant diversity within the doomed forests as being worth conserving, it is satisfying to note several important species among our collections including for example: the endangered *Eremolaena humblotiana*, the locally endemic *Fenerivia ghesquiereana,* seven ebony species (*Diospyros*) including two species as yet unnamed by scientists (i.e. "new species"), a new species of *Polyscias*; and two threatened species of *Didymeles*.

Output 4. *At least 500 vouchered, genetically-diverse, endemic Malagasy flowering plant species conserved ex-situ*

For the 321 seed samples collected to date: 169 samples were sown in the nursery at Parc Ivoloina, 84 samples were sent to SNGF for accession into their seed bank and for dispatch to the Millennium Seed Bank. Among the samples sown at Parc Ivoloina seeds from 134 samples have germinated to date. Currently all these seedlings are still in the nursery but their plantation within the grounds of Parc Ivoloina will begin as soon as they attain the size recommended for planting-out and when the weather is conducive to seedling survival.

3.3 Progress towards the project Outcome

Our proposal identified two indicators of the project outcome

1 Number of Malagasy plant species preserved using ex-situ conservation measures increases from baseline of ca. 2100 species (the number of species conserved ex-situ in the MSB and Parc Ivoloina) to ca. 2600 species

2 Ten newly-trained Malagasy field botanists and nurserymen/women intervene effectively to reduce the risk of extinction of their flora through ex-situ conservation

With respect to the first indicator, in Year 1 we accessioned seed samples from 253 different species into ex-situ collections (see Appendices 4.12. and 4.13), so therefore we are well on track to attaining the specified target by the end of the project.

With respect to the second indicator, due to our training and subsequent coaching, ten young Malagasy are now contributing to reducing the risk of extinction of Malagasy plant species. This target has thus been fully attained although the future challenge will be to ensure that these knowledgeable, skilled and motivated young people remain employed in positions where they can make best use of the training and experience provided by this project.

Outcome Assumption 1: *Most Malagasy plants can be either conserved long term in seed-banks or have seeds that can be germinated and grown thereby allowing conservation as growing plants*

Among the 169 seed samples that have been sown in the nursery at Parc Ivoloina, to date, some seeds at least have germinated for 134 species (i.e. 79%). This is an excellent rate of success given that many seed samples have only been sown for a few weeks and more germinations can still be expected. Thus it would seem that the assumption is at least partly confirmed. However, it should be noted that: 1) only seeds from woody plants are sown in this nursery (because only perennial species can be maintained easily in living ex-situ plant conservation collections), and 2) no information is available concerning the long-term viability of our seed samples in the two seed banks in which they were deposited. It should also be noted that while many of our seed samples germinated prolifically to give many seedlings that are growing strongly in the nursery, it is possible that some of the resultant young plants may not grow well once planted out into the Parc. To minimise the risk that all the seedlings from a given seed sample die once planted out, we propose to plant samples of seedlings at several different locations within the Parc with contrasting environments. We will also nurture (i.e. liberate from smothering competitors) the seedlings after planting until they are well established.

Outcome Assumption 2: *Young Malagasy are motivated to invest their career in the conservation of the Malagasy flora*

One of the most pleasing aspects of this project is the enthusiasm and dedication of the young Malagasy who were recruited and trained as field botanists and conservation horticulturalists. All are undoubtedly dedicated to the conservation of the Malagasy flora however it is less clear whether they will contribute to this goal as conservation horticulturalists and field botanists. Two of the field botanists have spoken of their desire to pursue doctoral studies which might mean that ultimately their careers may diverge from field botany. Nevertheless, were this to happen then their experiences in this project would influence their paradigms and surely ultimately benefit plant conservation in Madagascar - particularly if they assumed influential positions in society.

Outcome Assumption 1: *Candidates for training are available who have the physical attributes and character to cope with the sometimes-harsh conditions of fieldwork in Madagascar*

Certain aspects of the work of field botanists and conservation horticulturalists are physically demanding and were challenging to several of the females recruited to these posts. However, this difference in physical strength has not been an issue because, in a team, it is possible for different members to focus on what they do best. The female members of the team were just

as tolerant of harsh working conditions (e.g. long treks to reach remote forest fragments or long hours working in the sun or rain) as their male colleagues. Thus, it is possible to conclude that this assumption is confirmed.

Outcome Assumption 2: *Candidates for training are available who have the physical attributes and empathy for plant life required by excellent horticulturalists*.

See above.

Outcome Assumption 3: *Specialist identification of voucher specimens can be obtained during the project's duration*

This assumption cannot be confirmed because it is likely that a proportion of the voucher herbarium specimens accompanying seed samples will not be identified to the level of species during the project's duration. This is because identification of the vouchers by specialists is voluntary and thus depends on the work priorities of the specialist. In addition, a proportion of the Malagasy flora lacks a viable taxonomic framework and therefore it is currently impossible to name a specimen falling within these groups with a scientifically valid name. However, if we are proactive in encouraging the specialists to work on our vouchers then, by the end of the project, the proportion of the seed samples that cannot be identified to the level of species will be quite small.

Outcome Assumption 4: *Nursery teams able to retain high standards at times when the field teams collect large numbers of samples (phenological periodicity of work)*

This assumption is confirmed: through good communication between the field botanists and the nurserymen/women; through good organisation of the nursery team; and through a hardworking and flexible staff, all seed samples have been treated in a timely fashion and using best practise. The longest period between when the field botanists collected a seed sample and when the sample was sown was 12 days and most seeds were sown a few days after collection.

3.4 Impact: achievement of positive impact on biodiversity and poverty alleviation

Although the conception of this project was based on our knowledge of the comprehensive destruction of natural forest within the Ivoloina and Ifontsy Valleys, it has still been shocking and depressing to see, during the fieldwork, the tiny remaining forest fragments now being further diminished. It is particularly sad to witness this loss when one is aware of the extraordinary plant diversity surviving in these fragments. By collecting seed samples from the last standing native trees in this area and organising their ex-situ conservation we are making an important contribution to preventing the total loss of this genetic diversity. When we share images, for example on twitter, showing the last forest fragments, we are sometimes asked the question: "can't you conserve it?" Sadly, the answer is probably that we cannot: in most cases the fragments are too tiny to constitute viable ecosystems – being very vulnerable to invasive species, desiccation, stochastic loss of genetic diversity, wild fires and catastrophic winds. Also, there is little motivation in the local community to conserve these areas amid their scramble to access the last fertile land (below the last trees) in the now largely barren landscape. One day, when socio-economic conditions in Madagascar are more favourable, we hope that the plants that we have conserved ex-situ can provide the seeds from which new native forests can be restored to this sadly impoverished landscape.

This project was conceived to maximise the participation of the people of Madagascar and to date a total of 102 Malagasy received compensation for their contributions to project implementation (7 senior staff, 4 field botanists, 6 nurserymen/women, 12 local guides, 73 labourers). Most significant among these people are the field botanists and horticulturalists who we trained who have thereby developed highly marketable skills on which they can base viable careers. This is especially the case for the horticulturalists who are already being sought by the other projects seeking to restore Madagascar's vast areas of degraded and minimally productive land. Among the seed samples collected and propagated by this project are several species of known economic importance such as species of ebony and rosewood. Other species included in our collections are reputed to have medicinal properties.

4. Contribution to the Global Goals for Sustainable Development (SDGs)

During the reporting period, this project has contributed to the following global goals for sustainable development:

1. No poverty: this project made a small contribution to this goal by providing salaried employment to a total of 102 Malagasy people. Most significantly the training provided in field botany and conservation horticulture should provide long-term viable livelihoods for ten people.
4. Quality Education: not only did this project provide high quality training in conservation horticulture and field botany to a total of eleven young Malagasy but in addition, the newly trained conservation horticulturalists themselves were responsible for providing a 4-day training course in best practise for the propagation of native trees for a total of 26 conservation managers and their nursery staff.
5. Gender Equality: the project has demonstrated that females can be skilled and competent horticulturalists and fieldworkers – two posts that in Madagascar have traditionally been regarded as male domains.
15. Life on Land: to date the project has conserved seed samples form 321 species of plants living in doomed forests. Without this intervention, this diversity would certainly have been lost. The young Malagasy who were developed as horticulturalists and field botanists represent an important advocate and resource for future plant conservation interventions in Madagascar.
17. Partnerships for Goals: this project has established an effective and trusting partnership between diverse institutions: MFG, MBG, RBG-Kew, SNGF and PBZT. The key to this success is probably related to the presence of a focal point who is tasked with ensuring good communication between the various partners and sympathetically considering their institutional' peculiarities. We are already seeking opportunities to exploit this partnership to implement other similar projects (e.g. perhaps focused on Madagascar's highly threatened littoral forests)

5. Project support to the Conventions, Treaties or Agreements

This proposal responds to one of the three main goals of the CBD i.e. the conservation of biological diversity. In particular, the project is directly contributing to Target 8 of the 16-point Global Plant Conservation Strategy that is linked to the Convention after it was adopted by the Conference of Parties in 2002. This target seeks to conserve at least 75 per cent of threatened plant species in ex situ collections, preferably in the country of origin, and at least 20 per cent of these should be available for recovery and restoration programmes. To date our actions in this project have resulted in the accession of 253 species to ex-situ collections.
Our work in ex-situ plant conservation can also be considered as a contribution to Madagascar's most recent National Biodiversity Strategy and Action Plan (to 2025) which states, as Action 12.1, that the country will implement programs for the ex-situ conservation of plants and the re-establishment of populations of target species. This project does not propose re-establishing plants into the wild because of its short duration and because currently conditions do not exist in the landscapes of the Ivoloina and Ifontsy valleys where such reintroduced plants would be secure.

6. Project support to poverty alleviation

To date a total of 102 Malagasy have received compensation for their contributions to project implementation (7 senior staff, 4 field botanists, 6 nurserymen/women, 12 local guides, 73 labourers). In addition, most of the expenditure during field work (e.g. purchase of food and services) contributes to the income of local people. Clearly this contribution to poverty alleviation is of very minor significance compared to the huge needs of this impoverished country. Poverty in Madagascar has multiple causes but one of these, and one that is becoming increasingly important, is the low natural capital remaining in most Malagasy landscapes. Activities to promote the successful reduction of poverty in Madagascar must certainly include restoration of these degraded landscapes. Such restoration endeavours will be facilitated by both competent nurserymen/women and by the availability of stocks of native woody plants. This project is providing both resources.

7. Project support to gender equality issues

Gender equality in Madagascar is patchy: among the higher classes the situation is like that in the west; whereas in rural communities the roles of women and men in society are defined traditionally and are very different. This project aimed to train and then provide employment for field botanists and horticulturalists. These two are posts that would traditionally be filled by men. However, in our search and selection of candidates for this opportunity, we sought equality between women and men. When the post was advertised, we used text emphasising that applications from both women and men would be welcome and when, despite this approach, more men applied than women, we biased our selection of candidates for interview in favour of women. For the training and employment opportunity for field botanists we finally recruited 2 women and 2 men; while we recruited 2 women and 4 men for the posts of

conservation horticulturalist. We failed to achieve gender equity in the latter case because of a paucity of female candidates attaining the selection criteria.

8. Monitoring and evaluation

We are fortunate in this project that the proposed outcomes and outputs can be measured by objective, easy to measure and eloquent indicators: number of people trained; evaluation reports of trainees, number of seed samples made; number of species planted at Parc Ivoloina or preserved in a seed bank, etc. The Manager of Conservation Horticulture and the Fieldwork Manager have been responsible for collecting the raw data associated with the indicators, and the Project Focal Point has been responsible for making this available to the entire Darwin Initiative Team so that the progress of the Project can be tracked objectively and management changes considered. Through the year this tracking resulted in modest adjustments to our work including, for example, suggesting that the field botanists collect samples from fewer species but include more seeds in each sample (because seed banks are reluctant to process samples with few seeds).

Among the indicators presented in our original proposal we included none measuring success in valorising the project for education nor success in sharing this work with others. In Year 2 of this project, as we begin these communication activities, it is important to conceive and monitor a few additional indicators eloquent on the impact of these activities.

9. Lessons learnt

All the institutions implementing this project are used to working in a resource-poor environment and we have therefore become naturally prone to seeking savings wherever we can. Compared to our normal financial conditions, this project was adequately funded yet to some extent we persisted in trying to implement activities for the lowest possible cost. On reflection, our efficiency may sometimes have been compromised through this approach. Closer monitoring of funding spent over time would have helped this situation.

The ordering and shipping of equipment took much longer than anticipated and the project would have lost a lot of valuable time had MBG not been able to loan equipment for the initial months of the project. The initial grant payment took a very long time to process (in part due to general DEFRA delays in releasing DI funds and in part as funds had to be transferred to the US) and we didn't begin to order the equipment until the first advance was received. In hindsight, it would have been better to arrange with MFG to advance project funds to allow the purchase earlier.

In our original budget, we did not factor the need for intensive land preparation for seedling plantation at Parc Ivoloina due mainly to the presence of high density invasive plants. It is only through savings on projected salaries (due to the original budget using guideline salaries for Madagascar's capital, which would have been over-inflated compared to provincial salaries) that we had sufficient funds to pay extra labourers for the required land preparation at the end of Year 1. In hindsight, we should have planned for the land preparation from the outset and the work could have been carried out at a more relaxed pace. As it was the last-minute rush to use the final balance available under the salaries category for this important work was very stressful for the Project Focal Point. Again, a closer monitoring of funding spent over time would have helped this situation.

10. Actions taken in response to previous reviews (if applicable)

Not applicable.

11. Other comments on progress not covered elsewhere

Soon we will begin planting the young plants that are now attaining the optimal height for planting-out, and then over the next two years we anticipate planting a total of 10,000 plants (200 individuals of each of 500 species) into various locations within Parc Ivoloina. However, the climate over the last year gives us cause for concern because this period was unusually dry. Prompted by this observation we uncovered information on the historical (1917 to 1967) rainfall information for Parc Ivoloina (Appendix 4.14.) and discovered a remarkable variability: the annual precipitation of the wettest year was five times greater than for the driest year. In addition, this data also showed large variation in the rainfall received during each month of the year. Our experience elsewhere has shown high mortality rates among young plants after planting out if planting by a few dry weeks. Thus, there is the risk of high mortality among our seedlings if their plantation is followed by a few weeks of drought. To mitigate this risk, we therefore propose to plant our stock of a seedlings from a given seed sample, not only at several different locations within the Parc, but on several different dates too. Given the large number of seedlings that will be planted it is impossible to water them except perhaps if the

seedling is of especial importance (e.g. one of few seedlings of a critically endangered species).

12. Sustainability and legacy

To date we have done little to share information about this project with others – including representatives of the State and other conservation organisations. In part this is because we wanted to validate our methodology and be able demonstrate tangible results before show-casing our work. In part too this is because the message underlying this project must be presented with care: the destruction of Madagascar's forests is a catastrophe and we do not wish to suggest that our project attenuates this disaster in anyway. Shortly we will invite a selection of influential people to Parc Ivoloina to join the official opening of the Darwin Initiative tree nursery and to witness a ceremony at which our graduate trainees receive certificates for successfully completing training – but at this time we need to have developed a clear message concerning the importance of this project and how such work must complement but not substitute actions for in-situ conservation.

While information about the project has not been actively shared, we have placed collection information and images of all voucher specimens on the freely available on-line botanical database TROPICOS (http://www.tropicos.org/).

The ideal legacy for this project would be to continue similar work with a new geographical focus. It is highly desirable that the impressive capacity for ex-situ plant conservation now available at Parc Ivoloina should be used to save botanical diversity from another threatened part of Madagascar. We have already begun to consider whether we could access support for such a project focused on Madagascar's highly threatened littoral forests.

13. Darwin identity

As described above, during the last year, little has been done to share this project with others and consequently little has been done to acknowledge the role of the UK Government, through the Darwin Initiative, in its implementation. As also described above, this was not an oversight but a decision based on our desire to have tangible outputs that we could share rather than merely an untried project concept. We are now ready to proudly present this project and its actual and expected achievements to others and will ensure that this is done in a manner that fully recognises the role of the UK Government through the Darwin Initiative in supporting this work.

During the last year the methods used to share this project with others were through two twitter feeds (@MadaFaunaFlora and @c_birkinshaw) in which tweets on the progress of fieldwork and the development of the nursery were shared and a Facebook page. Each of the tweets was referenced @Darwin_Defra and several included associated Darwin Initiative logos. Likewise posts of milestones of the project were shared on Facebook at @MadagascarFaunaGroup again often using DI's logo. Problems were encountered formatting the DI logo to fit on Twitter and FB posts and it would be very helpful if specially formatted images for these specific purposes could be made available through the DI web pages.

14. Project expenditure

Table 1: Project expenditure during the reporting period (1 April 2016 – 31 March 2017)

Project spend (indicative) since last annual report	2016/17 Grant (£)	2016/17 Total Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)			-1.8	Agreed with finance team to switch some salary allocation for ground preparation
Consultancy costs			-1.1	Agreed with finance team for trainees to do study tour of Malagasy nurseries rather than bring all consultants to Ivoloina
Overhead Costs			0	
Travel and subsistence			-2.9	
Operating Costs			-16.1	One-month delay in starting project (agreed with DI).

				Unable to ship air pots before end period, further costs to 5th April
Capital items (see below)			-13.3	Further purchases to 5th April
Others (see below)			-3.2	
TOTAL			**-6.4**	**Further expenses to 5 April 2017**

Annex 1: Report of progress and achievements against Logical Framework for Financial Year 2016-2017

Project summary	Measurable Indicators	Progress and Achievements April 2016 - March 2017	Actions required/planned for next period
Impact Loss of Malagasy plant diversity avoided through ex-situ conservation		The progress to this impact is best described by the outputs below: it is premature to claim that any of the species we are now conserving ex-situ has become extinct in the wild.	[redacted]
Outcome Newly-trained Malagasy field botanists and nurserymen/women conserve the genetic diversity of threatened sub-populations of 500 endemic Malagasy flowering plant species as growing plants or in seed banks	0.1 Number of Malagasy plant species preserved using ex-situ conservation measures increases from baseline of ca. 2100 species (the number of species actually conserved ex-situ in the MSB and Parc Ivoloina) to ca. 2600 species 0.2 Ten newly-trained Malagasy field botanists and nurserymen/women intervene effectively to reduce the risk of extinction of their flora through ex-situ conservation	0.1. Seed samples from 321 species of native Malagasy plants collected and 253 of these found suitable for preservation in ex-situ conservation collections (growing plants at Parc Ivoloina or seed banks) 0.2 Ten newly-trained Malagasy field botanists and nurserymen/women intervene effectively to reduce the risk of extinction of their flora through ex-situ conservation – target indicator fully achieved!	Key actions planned for next period include: continue field trips to collect vouchered seed samples; continue propagation of seed samples (including completion of second nursery); continue dispatch of seed samples for storage in seed banks (SNGF and MSB); planting and caring for seedlings at Parc Ivoloina; monitoring of seedlings, valorisation of project for local environmental-awareness raising; outreach to share project approach, methods and results with others.
Output 1. Training and capacity building provided to enable four young Malagasy men/women to organise field trips, conduct botanical inventories, and collect high quality seed samples for ex-situ conservation	1.1 By end Year 1, four field botanists are able and independently capable of making vouchered, genetically diverse, and high quality seed samples of endemic Malagasy plants 1.2 The field botanists selected for training have an equitable distribution of genders	Indicator 1.1. is fully achieved with evidence provided in Section 3.2. of this report and in Appendix 4.4. Indicator 1.2. is fully achieved (2 female and 2 male field botanists were trained) and evidence provided in Appendix 4.3 These two indicators are appropriate.	
Activity 1.1. Project Leader, Director of Field Botany and Field Botany Manager select four trainees (most former graduates of ISSEDD)		Project Leader, Director of Field Botany and Field Botany Manager advertised the training/employment opportunity, interviewed 12 candidates and selected four trainees. Activity complete.	
Activity 1.2. The Project Leader obtains the required seed collection permits		The Project Leader obtained the required seed collection permit but this permit requires renewing every 6 months.	

Activity 1.3. Director of Field Botany and Field Botany Manager organises 12-month training course (3-month formal training and 9 months coaching with experienced field botanists)		Director of Field Botany and Field Botany Manager organised and provided 3 months of formal training and 7 months of coaching by experienced field botanists (less than anticipated due to late start). Coaching continues in Year 2.
Output 2. Training and capacity building provided to enable six young Malagasy men/women the skills necessary to propagate and nurture native Malagasy plants	2.1 By end of 3-month formal training six nurserymen/women are independently capable of propagating seeds of most endemic Malagasy plants and then nurturing resultant seedlings with <30% mortality and by end Year 1 six nurserymen/women are independently capable of propagating seeds of all endemic Malagasy plants and then nurturing resultant seedlings with < 10% mortality 2.2 The nurserymen/women selected for training have an equitable distribution of genders	Indicator 2.1. is fully achieved with evidence provided in Section 3.2. of this report and in Appendix 4.9 Indicator 2.2. was not fully achieved (2 female and 4 male conservation horticulturalists were trained) and evidence provided in Section 3.2. of this report and in Appendix 4.8. The first of these indicators was not well conceived because at the end of the training % mortality of seedlings cannot be known (normally this is based on 12-month survival of seedlings planted in their final growing positions).
Activity 2.1. Project Leader and Manager of Conservation Horticulture select six trainees		Project Leader and Manager of Conservation Horticulture selected six trainees. Activity complete.
Activity 2.2. Manager of Conservation Horticulture expands and improves the nursery at Parc Ivoloina		Manager of Conservation Horticulture and trainees expanded and improved the existing nursery at Parc Ivoloina and started to create a second nursery in March 2017. The second nursery will be completed in Year 2 of this project.
Activity 2.3. Project Leader and Manager of Conservation Horticulture conceives and implements 3-month formal training course and then the Manager of Conservation Horticulture coaches the trainees for the remainder of the project		Project Leader and Manager of Conservation Horticulture conceived and implemented a 3-month formal training course and the Manager of Conservation Horticulture then began coaching the trainees. The coaching will continue until the end of the project.
Output 3. Vouchered and genetically diverse seed samples collected for at least 500 endemic Malagasy species from remaining native forest fragments within Ivoloina-Ifontsy River Valleys	3.1 By end Year 1 and end Year 2 genetically diverse seed samples are collected from a total of 200 and 500 vouchered, endemic plant species respectively and collection information data-based	Indicator 3.1. as defined for end of Year 1 (i.e. 200 samples) is achieved and indeed exceeded. However, it is likely that many of the seed samples are not very genetically diverse because in the remaining forest fragments there are often only a few mature (sometimes only one) individuals of a given species. Evidence is provided in Section 3.2. of this report and Appendix 4.11. This indicator and the associated targets are well conceived although, in retrospect, we should have specified that genetically diverse samples would be collected <u>when possible</u>.
Activity 3.1. Two teams of field botanists organise expeditions to unprotected forest fragments in the Ivoloina-Ifontsy valleys and there collect vouchered seed samples of Malagasy plants		Five expeditions were organised to unprotected forest fragments in the Ivoloina-Ifontsy valleys and there collect vouchered seed samples of Malagasy plants. These expeditions will continue in Year 2.

Activity 3.2. Seed samples of species considered orthodox sent to the SNGF Seed Bank and the Millennium Seed Bank		84 seed samples have been sent to SNGF for inclusion in their seed bank and for dispatch to the MSB. This activity will continue in Year 2.
Activity 3.3. Seed samples of species considered recalcitrant sent to Parc Ivoloina for propagation		169 seed samples have been sown at Parc Ivoloina. This activity will continue in Year 2.
Activity 3.4. Voucher herbarium specimens processed so that replicates are both deposited at Madagascar's national herbarium and exported to international herbaria for expert identification		The voucher herbarium specimens have been processed but the samples have not yet been dispatched to the various recipient herbaria because it is more economical to dispatch large numbers of specimens in the same shipment. This dispatch will occur in Year 2.
Activity 3.5. Data from voucher herbarium specimens data-based		The field data from all specimens collected to date have been databased in the on-line botanical database "TROPICOS". Data capture of data associated with herbarium specimens will continue in Year 2.
Output 4. 4. At least 500 vouchered, genetically-diverse, endemic Malagasy flowering plant species conserved ex-situ	4.1. During each monitoring period seed sample germination, seedling survival, and survival of young plants at Parc Ivoloina all >80% 4.2. By end Year 2 and Year 3 respectively, 200 and 500 genetically distinct sub-populations of endemic Malagasy flowering plant species growing in final planting locations at Parc Ivoloina or included in the MSB and its national partner seed bank at SNGF	Indicator 4.1. Partly achieved (79% of seed samples have germinated to date but many samples have been sown for a few weeks only so this estimate is premature). Evidence is provided in Section 3.3 of this report. Indicator 4.2. No progress was made in planting seedlings at Parc Ivoloina – this activity will begin in Year 2 of the project and continue into Year 3. The indicators provided here are reasonable except that during project conception we did not consider that on some occasions it would be necessary to collect old seeds from the ground (with consequent lower germination rates). Also, as mentioned under Indicator 3.1., many of the seed samples are not genetically diverse because of the very small populations of some tree species in the forest vestiges.
Activity 4.1. Manager of Conservation Horticulture at Parc Ivoloina enters collection information for each seed accession into Living Plant Monitoring System and then updates history of each accession within the System throughout project and beyond		To date the collection information has been entered into an excel datasheet only but this data will be transferred to a specially tailored botanical database in Year 2.
Activity 4.2. Head of accessions at the SNGF seed bank and the Millennium Seed-bank enters collection information into their respective accessions systems		See above.
Activity 4.3. Manager of Conservation Horticulture at Parc Ivoloina and six nurserymen/women propagate seeds and nurture seedlings, and label all accessions with unique codes linked to LPMS		To date 169 seed samples (Appendix 4.12.) have been sown in the nursery and each sample has been labelled with a unique code. This activity will continue in Year 2.
Activity 4.4. Manager of Conservation Horticulture identifies appropriate planting locations for the seedlings within Park Ivoloina and directs planting out and labelling		The Project Focal Point, the Manager of Conservation Horticulture and the Director of Field Botany identified three planting locations for the seedlings within Park Ivoloina. Each site is now being prepared for planting.

Activity 4.5. Newly planted plants weeded until fully established	No progress – this activity is planned for Years 2 and 3.
Activity 4.6. Creation of educational display (panels and labelling) at Parc Ivoloina of some of the interesting plants included in the project	No progress – this activity is planned for Years 2 and 3.
Activity 4.7. Sharing results with local stakeholders through an open day at Parc Ivoloina for representatives of the communities where we worked	No Progress – this activity is planned for Years 2 and 3.
Activity 4.8. Organising visits of all Saturday school children to visit the project, coverage on radio show, MFG newsletters, website, Twitter and Facebook accounts	No progress – this activity is Panned for Years 2 and 3.
Activity 4.9. Publishing results in peer-reviewed journal	No progress – this activity is planned or Year 3.

Annex 2: Project's full current logframe as presented in the application form (unless changes have been agreed)

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Impact: Loss of Malagasy plant diversity avoided through ex-situ conservation (Max 30 words)			
Outcome: Newly-trained Malagasy field botanists and nurserymen/women conserve the genetic diversity of threatened sub-populations of 500 endemic Malagasy flowering plant species as growing plants or in seed banks (Max 30 words)	0.1 Number of Malagasy plant species preserved using ex-situ conservation measures increases from baseline of ca. 2100 species (the number of species actually conserved ex-situ in the MSB and Parc Ivoloina) to ca. 2600 species 0.2 Ten newly-trained Malagasy field botanists and nurserymen/women intervene effectively to reduce the risk of extinction of their flora through ex-situ conservation	0.1 Report (based on compilation of data from accession databases) listing species covered for the first time by ex-situ conservation measures as a result of this project 0.2 End of project independent evaluation of the strengths and weaknesses of the newly trained field botanists and nurserymen/women	- Most Malagasy plants can be either conserved long term in seed-banks or have seeds that can be germinated and grown thereby allowing conserved as growing plants - Young Malagasy are motivated to invest their career in the conservation of the Malagasy flora
Outputs: **1**. *Training and capacity building provided to enable four young Malagasy men/women to organise field trips, conduct botanical inventories, and collect high quality seed samples for ex-situ conservation*	1.1 By end Year 1, four field botanists are able and independently capable of making vouchered, genetically diverse, and high quality seed samples of endemic Malagasy plants 1.2 The field botanists selected for training have an equitable distribution of genders	1.1 Evaluation report elaborated by Manager of Field Botany of competence of each trainee and self-evaluation of competence by each trainee 1.2. Report on gender distribution of trainees	- Candidates for training are available who have the physical attributes and character to cope with the sometimes harsh conditions of fieldwork in Madagascar
2. *Training and capacity building provided to enable six young Malagasy men/women the skills necessary to propagate and nurture native Malagasy plants*	2.1 By end of 3-month formal training six nurserymen/women are independently capable of propagating seeds of most endemic Malagasy plants and then nurturing resultant seedlings with <30% mortality and by end Year 1 six nurserymen/women are independently capable of propagating seeds of all endemic Malagasy plants and then nurturing resultant seedlings with < 10% mortality 2.2 The nurserymen/women selected for training have an equitable distribution of genders	2.1 Evaluation report elaborated by Manager of Conservation Horticulture of competence of each trainee and self-evaluation of competence by each trainee 2.2. Report on gender distribution of trainees	- Candidates for training are available who have the physical attributes and empathy for plant life required by excellent horticulturalists.

3. *Vouchered and genetically diverse seed samples collected for at least 500 endemic Malagasy species from remaining native forest fragments within Ivoloina-Ifontsy River Valleys*	3.1 By end Year 1 and end Year 2 genetically diverse seed samples are collected from a total of 200 and 500 vouchered, endemic plant species respectively and collection information data-based	3.1 Download of collection information (voucher herbarium specimens) from TROPICOS database	-Specialist identification of voucher specimens can be obtained during the project's duration
4. *At least 500 vouchered, genetically-diverse, endemic Malagasy flowering plant species conserved ex-situ*	4.1. During each monitoring period seed sample germination, seedling survival, and survival of young plants at Parc Ivoloina all >80% 4.2. By end Year 2 and Year 3 respectively, 200 and 500 genetically distinct sub-populations of endemic Malagasy flowering plant species growing in final planting locations at Parc Ivoloina or included in the MSB and its national partner seed bank at SNGF	4.1. Download from Living Plant Monitoring System database from Parc Ivoloina 4.2. Download from Living Plant Monitoring System database from Parc Ivoloina and Accessions Register from the MSB and SNGF	-Nursery teams able to retain high standards at times when the field teams collect large numbers of samples (phenological periodicity of work)

Activities (each activity is numbered according to the output that it will contribute towards, for example 1.1, 1.2 and 1.3 are contributing to Output 1)

1.1. Project Leader, Director of Field Botany and Field Botany Manager select four trainees (most former graduates of ISSEDD)

1.2. The Project Leader obtains the required seed collection permits

1.3 Director of Field Botany and Field Botany Manager organises 12-month training course (3-month formal training and 9 months coaching with experienced field botanists)

2.1. Project Leader and Manager of Conservation Horticulture select six trainees

2,2, Manager of Conservation Horticulture expands and improves the nursery at Parc Ivoloina

2.3. Project Leader and Manager of Conservation Horticulture conceives and implements 3-month formal training course and then the Manager of Conservation Horticulture coaches the trainees for the remainder of the project

3.1. Two teams of field botanists organise expeditions to unprotected forest fragments in the Ivoloina-Ifontsy valleys and there collect vouchered seed samples of Malagasy plants

3.2. Seed samples of species considered orthodox sent to the SNGF Seed Bank and the Millennium Seed Bank

3.3. Seed samples of species considered recalcitrant sent to Parc Ivoloina for propagation

3.4. Voucher herbarium specimens processed so that replicates are both deposited at Madagascar's national herbarium and exported to international herbaria for expert identification

3.5. Data from voucher herbarium specimens data-based

4.1. Manager of Conservation Horticulture at Parc Ivoloina enters collection information for each seed accession into Living Plant Monitoring System and then updates history of each accession within the System throughout project and beyond

4.2. Head of accessions at the SNGF seed bank and the Millennium Seed-bank enters collection information into their respective accessions systems

4.3. Manager of Conservation Horticulture at Parc Ivoloina and six nurserymen/women propagate seeds and nurture seedlings, and label all accessions with unique codes linked to LPMS

4.4. Manager of Conservation Horticulture identifies appropriate planting locations for the seedlings within Park Ivoloina and directs planting out and labelling

4.5. Newly planted plants weeded until fully established

4.6. Creation of educational display (panels and labelling) at Parc Ivoloina of some of the interesting plants included in the project

4.7. Sharing results with local stakeholders through an open day at Parc Ivoloina for representatives of the communities where we worked

4.8. Organising visits of all Saturday school children to visit the project, coverage on radio show, MFG newsletters, website, Twitter and Facebook accounts

4.9. Publishing results in peer-reviewed journal

Annex 3: Standard Measures

Table 1 Project Standard Output Measures

Code No.	Description	Gender of people (if relevant)	Nationality of people (if relevant)	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
Established codes								
6A	Training in field botany 4 people for 3 months; Training in conservation horticulture 6 people for 3 months; training in best nursery practise 26 people for 4 days	Female (4), Male (32)	Malagasy	36				50
6B	Training in field botany 4 people x 12 weeks; Training in conservation horticulture 6 people x 12 weeks; training in best nursery practise 26 people x 0.5 weeks			133				250
13B	X voucher herbarium specimens enhancing the herbarium at PBZT			1				500
20	Includes camping and collecting equipment, installation of two plant nurseries, nursery equipment, rehabilitation of one building (using to house trainees during training)			20,000				20,000
21	This concerns the			1				1

	establishment of the ex-situ plant conservation facility at Parc Ivoloina							
23	From private donor to support training in best nursery practise at Parc Ivoloina for nurserymen from conservation organisatiuons			2000				8000

Table 2 Publications

Title	**Type** (e.g. journals, manual, CDs)	**Detail** (authors, year)	**Gender of Lead Author**	**Nationality of Lead Author**	**Publishers** (name, city)	**Available from** (e.g. weblink or publisher if not available online)
None						

Annex 4 Onwards – supplementary material (optional but encouraged as evidence of project achievement)

4.1. Agreement between the Madagascar Fauna and Flora Group and the *Silo National des Graines Forestières*

PROJET CONSERVATION EX-SITU DES PLANTES MENACEES
DANS LE BASSIN VERSANT D'IVOLOINA ET D'IFONTSY,
REGION ATSINANANA - MADAGASCAR

Convention de collaboration entre

Madagascar Fauna and Flora Group (MFG)

Et

Le Silo National des Graines Forestières (SNGF)

CONVENTION DE COLLABORATION
AU TITRE DE LA PERIODE 2016 - 2017

OBJET DE LA CONVENTION : Appui technique du SNGF dans les chaînes d'activités de la conservation ex-situ de 500 espèces endémiques de Madagascar dans les forêts non-protégées du bassin versant d'Ivoloina et Ifontsy (zone d'intervention de MFG).

DUREE DE MISE EN ŒUVRE DE LA CONVENTION : Décembre 2016 – Mars 2017 (renouvelable).

MODALITES DE COLLABORATION

Le SNGF accompagnera l'équipe locale de MFG et les intervenants des autres partenaires du Projet (Missouri Botanical Garden (MBG) et Kew Madagascar Conservation Centre (KMCC)) dans l'exécution des activités visant à la conservation ex-situ des espèces du site d'intervention.

Le MFG procède à un virement bimestriel du budget requis par le SNGF pour l'exécution des activités telles qu'elles sont détaillées dans la proposition en annexe.

Le SNGF établit un rapport technique et un rapport financier à la fin de chaque bimestre pour que MFG puisse débloquer le budget suivant. Le SNGF gardera les pièces justificatives des dépenses en archive au cas où les bailleurs du projet (Darwin Initiative) ont besoin de les consulter.

Les publications, rapports ou publicité qui concernent les activités de mise en œuvre de cette convention doivent avoir l'approbation conjointe des deux parties et inclure les logos des deux organismes.

BUDGET DE LA CONVENTION POUR 2016-2017

Pour la première période (décembre 2016 – mars 2017) de la convention, le budget est estimé à dix-sept millions six cent quarante mille Ariary (MGA 17 640 000). Les détails y afférents sont présentés en annexe dans la proposition du SNGF.

MODALITES DE PAIEMENT

Les modalités de paiement sont mentionnées en annexe dans les détails de la proposition du SNGF.

Antananarivo, 16 DEC 2016

Pour le MFG

16/12/16

Pour le SNGF

RAMAMONJISOA RANAIVOSON Lalaon
Directeur Hydrologie Forestière

ANNEXE : CONSERVATION EX-SITU DES PLANTES MENACEES DANS LE BASSIN VERSANT D'IVOLOINA ET D'IFONTSY, REGION ATSINANANA – MADAGASCAR

Projet de collaboration entre MFG, MBG, RBG Kew et PBZT

Financement : Darwin Initiative

Propositions d'intervention pour appui technique par le SNGF
Pour la période décembre 2016 – avril 2017
Antananarivo, 17 Novembre 2016.

1.- Objectif de l'intervention du SNGF

« Appuyer les chaînes d'activités de la conservation ex-situ de 500 espèces endémiques de Madagascar dans les forêts non-protégées du bassin versant d'Ivoloina et Ifontsy (zone d'intervention de MFG) »

2.- Méthodologie d'intervention du SNGF

Le SNGF accompagnera l'équipe de MFG et de MBG dans les travaux de production de graines et de plants de 500 espèces endémiques dans les zones du projet.

Il s'agit d'abord de participer aux activités sur le terrain et à l'encadrement des agents locaux en matière de : suivi phénologique, la reconnaissance de la maturité, les techniques de collecte, les techniques d'apprêt, de caractérisation et de choix des prétraitements préconisés pour améliorer la germination. Ensuite, une formation sera donnée aux pépiniéristes pour renforcer leur capacité dans la production de plants d'espèces endémiques. Puis, le SNGF contribuera également par la mise en conservation pour le long-terme d'échantillons de graines orthodoxes dans la banque nationale de semences et en expédier les doubles au Millennium Seed Bank.

Ces méthodes suivront les protocoles et standards internationaux (dont celui de Kew) en considérant les normes physiologiques et génétiques nécessaires.

3.- Démarche

Les propositions d'appui du SNGF se font par période annuelle bouclée à chaque 31 mars pendant les trois années du projet. La présente démarche porte sur la période allant de décembre 2016 à mars 2017. Les principales activités à réaliser durant cette période sont :

- La formation des agents locaux en pépinière englobe toutes les étapes et les techniques de la multiplication qui conviennent aux espèces endémiques dont : semis de graines, transplantation de sauvageon (après dépressage de la régénération naturelle) et bouturage. Un manuel technique bilingue (en malgache et en français) sera produit en guise de support de formation et pour que les pépiniéristes disposent en main d'un guide dans leurs futures activités.

- La participation aux travaux de collecte de graines sur le terrain tout en assurant l'encadrement des agents locaux du projet (les activités du processus de collecte étant détaillées dans la méthodologie ci-dessus).

- L'expédition des échantillons de graines orthodoxes au Millenium Seed Bank, avec des doubles gardés à la banque nationale de semences du SNGF.

L'équipe du SNGF sera composé d'un Ingénieur forestier (expérimenté sur les espèces endémiques des forêts orientales) et de deux techniciens pour assurer les activités sur le terrain et du Directeur pour superviser l'ensemble des travaux et participer à leurs suivis.

4.- Planning prévisionnel pour décembre 2016 – mars 2017

Pendant cette première période, l'équipe du SNGF fera une descente mensuelle étant donné que de très nombreuses espèces endémiques des forêts de l'Est sont en maturité en cette période pluvieuse. Pendant les autres périodes de l'année, les descentes de l'équipe pourraient être décalées par bimestre ou trimestre.

	Périodes des descentes			
	13 – 14 décembre 2016	10 – 22 janvier 2017	14 – 26 février 2017	14 – 28 mars 2017
Activités				
Visite de reconnaissance et prise de contact avec le responsable local de MFG				
Formation des pépiniéristes				
Participation et encadrement aux travaux sur le terrain				

5.- Livrables pour la période décembre 2016 – mars 2017

Le SNGF adressera aux partenaires les livrables suivants :

- ❖ Rapport de formation (Janvier 2017)
- ❖ Manuels techniques (Janvier 2017)
- ❖ Fiches techniques d'espèces (au fur et à mesure des collectes)
- ❖ Rapport technique et financier du premier bimestre (février 2017)
- ❖ Rapport annuel de l'appui (Fin mars 2017)

6.- Budget prévisionnel

Les rubriques budgétaires sont au nombre de quatre dont :

- Coûts des déplacements de l'équipe du SNGF ;
- Indemnités de mission de l'équipe du SNGF ;
- Frais divers de structure et de fonctionnement.
- Le tableau suivant donne les détails sur le montant du budget de la période décembre 2016 – mars 2017.

Rubriques	Quantité	Unité	PU (MGA)	Montant (MGA)
Déplacement (carburant, lubrifiant et entretien des véhicules)	4000	km	1 500	6 000 000
Indemnité Ingénieur	40	Homme-jour	60 000	2 400 000
Indemnité 2 techniciens	80	Homme-jour	40 000	3 200 000
Indemnité chauffeur	40	Homme-jour	40 000	1 600 000
Frais de structure (rapportage, édition, communication, petits matériels et consommables, etc.)	1	Forfaitaire	1 500 000	1 500 000
				14 700 000
			TVA 20%	***2 940 000***
			Total TTC	***17 640 000***

Pour cette première période (décembre 2016 – mars 2017), le budget est estimé à dix-sept millions six cent quarante mille Ariary (MGA 17 640 000). Ce montant inclut le paiement de TVA auquel le SNGF a des obligations depuis cette année 2016.

La modalité de paiement se fera par virement bancaire au compte des projets du SNGF :

Intitulé : EPIC-SNGF

Banque : BFV-SG Antaninarenina

Compte n° : 00008 00005 05003008497 32

Comme convenu le paiement se fera par avance de deux mois. Ainsi, le premier paiement requis pour la réalisation des activités de la période décembre 2016 – janvier 2017 est de huit millions huit cent vingt-mille Ariary (MGA 8 820 000). Le même montant sera demandé pour le deuxième bimestre février- mars 2017.

Remarque : pour les formalités administratives et financières, une convention ou un protocole de collaboration sera établi dans le cadre de la mise en œuvre de cet appui du SNGF dans le Projet.

4.2. Candidates for the posts of field botanist

Name	M/F	Single or Married	Age	Origin (Tamatave or other)	Current domicile	Highest qualificiation
Rakotonirina Arsene Giovanni	M	S	28	?	Toamasina	DEA Conservation Manager
Saran Antonelli Dino	F	S	24	Fenerive	Mangarano	Licence Geographie (Tamatave)
Rafanomezantiana Elsa Nirina	F	S	22	?	Tamatave	BAC + 2 ISSEDD
Kasy Judith	F	?	28	Fenerive	Tamatave	DTS Environnement; Licence third year Developpement Social)
Koesaka Miry	M	?	?	?	Tamatave	Masters ! Gestion des Ressources Naturelles
Rakotoson Mario	M	S	24	?	Tamatave	Master 1 en Environnement et Developpement Durable
Rajaijaona Benjamina	F	S	22	?	Tamatave	L3 Tourisme Durable et Biodiversite
Syde Remi Anthony	M	S	29	Foulpointe	Tamatave	Licence Ennvironnement et Developpment Durable
Rasoanindriana Maheninsoa Harisandy	F	S	26	Ambatondrazaka	**Tana**	Masters in plant biology and ecology
Patrick Maminirina Rabeharison	M	S	32	Ambatolampy	**Tana**	DEA (en cours)
Nantenaina Rindra Harilanto	F	S	?	Ambositra	**Tana**	Masters in plant biology and ecology
Manda Andrianahoatra Rolland	M	S	27	Tana	**Tana**	DEA plant ecology and palynologie

4.3. CVs of the successful applicants for the posts of field botanist

CURRICULUM VITAE

RASOANINDRIANA Mahenintsoa Harisandy
Née le : 01/ 09/1990 à Ambatondrazaka
Situation familiale : Célibataire
Nationalité : Malgache
Adresse 1 : Porte 558 Ankatso I, Antananarivo 101
Adresse 2 : Lot IPB 12 Bemasoandro Itaosy, Antananarivo 102
Tél : 033 32 105 30
Adresse électronique : mahenintsoasandy@gmail.com

DIPLOMES UNIVERSITAIRES

2014 : Maîtrise en biologie et écologie végétale, Département de Biologie et Ecologie Végétales, Faculté des Sciences, Université d'Antananarivo, Madagascar

2013 : Licence en Biologie Végétale, Département de Biologie et Ecologie Végétales, Faculté des Sciences, Université d'Antananarivo, Madagascar

2012 : Diplôme Universitaire d'Etudes Scientifiques DUES II, Faculté des Sciences, Université d'Antananarivo, Madagascar

2011 : Diplôme Universitaire d'Etudes Scientifiques DUES I, Faculté des Sciences, Université d'Antananarivo, Madagascar

AUTRE DIPLOME

2009 : Baccalauréat, Série D, L J R A, Antananarivo, Madagascar

AUTRES CONNAISSANCES

Maîtrise de l'informatique bureautique : Word, Excel, Power point, logiciel SPSS, logiciel ArcGis

EXPERIENCES PROFESSIONNELLES

Année 2014 : Assistance technique de chercheurs étrangers sur le thème de « Pollinisation des Orchidées » et « Pollinisation de *Symphonia* » au sein du Parc National Andasibe Mantadia et au sein du Parc de Kirindy (Morondava).

Année 2014 : Stage au sein du Parc National Andasibe Mantadia sur le thème de « Suivi de l'ACR (Appui aux communautés riveraines) du parc » et « Education environnementale dans la localité de Fanovana, Volove, Vohibazaha (secteur Est du parc National Mantadia)»

Avril- Mai 2013 : Stage au sein de MNP (Madagascar National Parks) à Ambatobe, ayant pour thème « Appui à la gestion des bases de données concernant les appuis de la communauté locale des parcs et le suivi des fiches d'activité ».

Année 2011-2012 : Enquêteur à l'ATW (Around The World), Antanimora

ACTIVITES EXTRA- PROFESSIONNELLES

- **Année 2014** : voyage d'étude à Angavokely : « Ethnobotanique »
- **Année 2013** : voyage d'étude dans la Réserve Spéciale d'Ambohitantely : application des différentes méthodes de relevés, étude de régénération naturelle
- **Année 2012** : voyage d'étude à Andasibe et Maromizaha : « Etude de la phytogéographie des sites d'Andasibe et de Maromizaha, pratique des méthodes d'études ethnobotaniques et acquisition des connaissances sur l'écologie factorielle d'une forêt dense humide de moyenne altitude. »

PERSONNES RESSOURCES

Nom et prénoms	Organisme	Contact
RAMAROSANDRATANA Aro Vonjy	Département Biologie et Ecologie Végétales	arovonjy@yahoo.fr
RALAZAMANANA Vonjy Gildas	Madagascar National Parks Ambatobe	vonjygildas@gmail.com
ANDRIAMAHEFASOA Rindra	Parc National Andasibe Mantadia	randriamahefasoa@yahoo.fr
RANDRIAMIHAJA Valentinah Lalaina	Parc National Andasibe Mantadia	rvalentinah@yahoo.fr

AUTRES QUALIFICATONS ET LOISIRS

Langues	Malgache	Français	Anglais
A l'écrit	Très bien	Très bien	Très Bien
A l'oral	Très bien	Très bien	Bien

Loisirs : Lecture et documentation, trekking, danse, jouer au football.

Je certifie sur l'honneur que les informations ci-dessus sont complètes et sincères.

RASOANINDRIANA Mahenintsoa Harisandy

RALAIJAONA Benjamina

CURRICULUM VITAE

ETAT CIVIL

- 22 ans
- Nationalité Malagasy
- Célibataire

COORDONNEES

Tel : 032 54 002 01/ 034 03 780 95
Mail :ralaijaonabenjamina@yahoo.fr
Adresse : lot 20F Bis, P/elle 11/33 cité Haras Toamasina

LANGUES

- Française : très bien
- Malagasy : langue maternelle
- Anglaise : bien
- Allemande : bien

INFORMATIQUE

- Bureautique
- Internet

CENTRE D'INTERETS

Loisirs : natation, danse, lecture

ETUDES ET FORMATIONS EFFECTUEES

2015 : L3 en Tourisme Durable et Biodiversité à l'ISSEDD Toamasina.

2014 : En cours en L2 à l'ISSEDD suivi d'un stage auprès de la Commune Urbaine de Vatomandry, pour l'obtention d'un certificat.

Obtention du diplôme de DELF B2

2013 : En L1, suivi d'un stage à la station forestière Ivoloina.

2012 : Obtention du diplôme de BACC

EXPÉRIENCES PROFESSIONNELLES

2012 : Stage au parc zoologique Ivoloina.

2014 : bénévolat au parc zoologique Ivoloina.

Je déclare sur l'honneur l'exactitude de mes renseignements.

L'intéressée,
RALAIJAONA
Benjamina

RAKOTONIRINA Arsène Giovanni

Né le 31/07/87 › 28 ans
Célibataire

Tanambao V, parcelle 13/72, Toamasina I
Tél. › +261 32 89 455 45
Email › arsenegiovanni@yahoo.fr

Dynamique – Sociable - Créatif

CURRICULUM VITAE

Expérience professionnelle

DEPUIS DÉCEMBRE 2012- JUSQU'À CE JOUR › RADIO TÉLÉVISÉE VIVA TAMATAVE › *PROGRAMMATEUR*

- Responsabilité sur la diffusion des films et des documentaires de la semaine

DEPUIS NOVEMBRE 2010 – JUSQU'À CE JOUR › RADIO TÉLÉVISÉE VIVA TAMATAVE › *ANIMATEUR*

- Animation d'une radio tous les dimanches à partir de 08h30 – 12h
- Lecture de messages des adolescents de Tamatave, invention de rubriques d'animation.
- Aide de technicien sur les prochainement télévisé.

Stage – Diplômes -Attestation - Entreprise

2013 – 2015 › STAGE DE 06 MOIS EN DIPLÔMES D'ÉTUDES APPROFONDIES EN MANAGER DE CONSERVATION (BACC+ 6) › *MADAGASCAR FAUNA AND FAUNA GROUP (MFG) – ASSOCIATION MITSINJO*

2011 – 2012 › STAGE DE 03 MOIS EN MASTER I EN MANAGER DE CONSERVATION (BACC + 4) › *MADAGASCAR FAUNA AND FLORA GROUP (MFG)*

2009 – 2010 › STAGE DE 03 MOIS EN LICENCE 3ième ANNÉE EN CONSERVATION DE LA BIODIVERSITÉ ET DE L'ENVIRONNEMENT (BACC + 3) › *DIRECTION RÉGIONALE DES EAUX ET FORÊTS ANTSINANANA (BRICKAVILLE)*

2010 › STAGE DE 04 MOIS D'ANIMATION RADIO › *STATION RADIO -TÉLÉ VIVA TOAMASINA*

2009 › STAGE DE 02 MOIS EN LICENCE 2ième ANNÉE (BACC + 2) › *DIRECTION RÉGIONALE DES EAUX ET FORÊTS ANALANJIROFO*

2006 › BACC SÉRIE A2

Compétences

FRANÇAIS ›
B2, courant

ANGLAIS ›
Parle et écrit

INFORMATIQUE ›
Word, Excel, PowerPoint, Montage vidéo (Corel)

PERMIS DE CONDUIRE ›
A, A', B

Centres d'intérêt

ASSOCIATION ›
Varecia

SPORT ›
Footing tous les matins

CURRICULUM VITAE

ETAT CIVIL

Nom et prénom : SYDE Rémi Anthony

Date et lieu de naissance : 04 Avril 1993 à Foulpointe

Parents : PIERRE et ARIELLE Anastasie

N° CIN : 301 071 029 405 délivrée le 26/05/2011 à Toamasina I

Sexe : Masculin

Situation familiale Célibataire

Adresse : Lot 96 – parcelle 13/72 Tanambao V

Contacte : +261 3256553455

E-mail : yremi96@gmail.com/ sydermianthony@yahoo.fr

DIPLOLES OBTENUS

2015 : Licence en Institut Supérieur de Sciences, Environnement et Développement Durable (ISSEDD)

2013 : DTS en Gestion de REssources Naturelles & Environnement (GRENE)

2011 : Baccalauréat de l'enseignement général, série A2

2008 : BEPC, option A

2005 : CEPE

FORMATIONS PROFESSIONNELLES

- 2015 - 2016 : Formation en Institut Supérieur de Sciences, Environnement et Développement Durable).

-09 Avril 2016 : Formation sur la création de jardin potager urbain et technique de la transformation des déchets urbain en composte.

-2014 - 2015: Stage pratique (élaboration de livre de mémoire)

- 2015 : Formation en Leadership et Management

-2014 – 2015 : Troisième année en Institut Supérieur de Sciences, Environnement et Développement Durable.

2013-2014 : Deuxième année en Gestion de REssources Naturelles et Environnement

2012 – 2011 : Première année en Gestion de Ressources Naturelles et Environnement

4.4. Mid-term and final evaluations of trainee field botanists

Trainee	Midway Evaluation (out of 20)	Final Evaluation (out of 20)
RASOANINDRIANA Mahenintsoa Harisandy	18.75	16
RALAIJAONA Benjamina	16.5	16
SYDE Rémi Anthony	16.25	17.5
RAKOTONIRINA Arsène Giovanni	17.0	18

MISSOURI BOTANICAL GARDEN

Programme de Recherche et de Conservation

" Découvrir, comprendre et conserver les plantes de Madagascar afin de soutenir et enrichir le Vie"

Projet de conservation ex-situ, Darwin initiative, Ivoloina, Toamasina

Evaluation de la fin de formation des nouveaux botanistes de terrain

16,25/20

Date : 21 octobre 2016

Durée : 3 heures

Nom et prénoms du stagiaire : SYDE Rémi Anthony

A- Questionnaires (10 points) 8/10

1. Donner les trois critères fondamentaux pour la collecte des graines pour la conservation ex-situ (1,5 pts)

1

a. Les graines à collecter sont issus (de la maturité de) aux fruits mûrs 0,5

b. graine orthodoxe 0,5

c. graine issus des plantes autochtone ?

2. Donner les trois conditions fondamentales pour la collecte des graines pour la conservation ex-situ (1,5 pts)

0,5

a. Prendre des échantillons des espèces à collecter 0,5

b. Faire d'identification des plantes cibles.

c. collecte proprement dite.

3. Donner cinq conditions nécessaires pour la mise en place d'une bonne installation de pépinière (3pts)

2,5

a. près de la route (accès de voiture pour transporter des sables 0,5

b. près de source d'eau (rivière, lacs...) 0,5

c. terrain plat 0,5

d. Exposé par le soleil durant toute la journée 0,5

e. Terrain sans inondation durant la période de pluie 0,5

f.

20/10/16

14/20

Nom : SYDO
Prénom : Rémi Anthony

7/ Famille : Pittosporaceae ✓) 2
Genre : Pittosporum ✓

6/ Famille : ERYTHROXYLACEAE ✓) 2
Genre : Erythroxylum ✓

4/ F: MELASTOMATACEAE ✓) 2
G: Dichaetanthera ✓

9/ F: RUBIACEAE ✓) 2
G: Saldinia ✓

10/ F: HAMAMELIDACEAE ✓) 2
G: Dicoryphe ✓

1/ F: MALPIGHIACEAE) 0
G: Acridocarpus.

2/ F: RUBIACEAE ✓) 2
G: Breonia ✓

5/ F: ANISOPHYLLACEAE) 0
G Anisophyllea

3/ F: Ebenaceae ✓) 2
G: Diospyros ✓

8/ F ✓ 0
G

Bonus : F: FABACEAE +1
G: Cynometra

MISSOURI BOTANICAL GARDEN

Programme de Recherche et de Conservation

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Projet de conservation ex-situ, Darwin initiative, Ivoloina, Toamasina

Evaluation de la fin de formation des nouveaux botanistes de terrain

17/20

Date : 21 octobre 2016

Durée : 3 heurs

Nom et prénoms du stagiaire : RAKOTONIRINA Arsène Giovanni

A- Questionnaires (10 points) 7,5/10

1. Donner les trois critères fondamentaux pour la collecte des graines pour la conservation ex-situ (1,5 pts)

1
   a. Il faut connaître la maturité de la graine 0,5
   b. Type de fruit (baie, drupe, etc...) 0,5
   c. Caractère de graine (récalcitrante, intermédiaire orthodox) 0,5

2. Donner les trois conditions fondamentales pour la collecte des graines pour la conservation ex-situ (1,5 pts)

0,5
   a. Avoir une autorisation de recherche (ou collecte)
   b. Avoir les matériels de collecte des graines
   c. Avoir un budget estimatif pour la collecte

3. Donner cinq conditions nécessaires pour la mise en place d'une bonne installation de pépinière (3pts)

2,5
   a. 1- Orientation de la pépinière se fait Est-Ouest 0,5
   b. 2- Elle doit se faire au bord de la route 0,5
   c. 3- Sur un terrain plat de préférence 0,5
   d. 4- Sur un terrain non immergé par l'eau
   e. 5- durant la saison de pluie
   A proximité d'une source d'eau 0,5
   f. Pas de village 0,5

RAG(RAKOTONIRINA Rivine Giovanni

N°	Famille	Genre
1	PITTOSPORACEAE	pittosporum 0
2	RUBIACEAE	Bresnia 2
3	EBENACEAE	Diospyros 2
4	MELASTOMATACEAE	Dichaetanthera 2
5	VIOLACEAE	Rinorea 2
6	ERYTHROXYLACEAE	Erythroxylum 2
7	PITTOSPARACEAE	pittosporum 2
8	MELIACEAE	Dichilia 0
9	RUBIACEAE	Saldinia 2
10	HATHELIDIACEAE	Dicoryphe 2
Bonus	RABACEAE	Cynometra +1

MISSOURI BOTANICAL GARDEN

Programme de Recherche et de Conservation

" Découvrir, comprendre et conserver les plantes de Madagascar afin de soutenir et enrichir le Vie"

Projet de conservation ex-situ, Darwin initiative, Ivoloina, Toamasina

Evaluation de la fin de formation des nouveaux botanistes de terrain

16,5/20

Date : 21 octobre 2016

Durée : 3 heurs

Nom et prénoms du stagiaire : RALAIJAONA Benjamina

A- Questionnaires (10 points) 8/10

1. Donner les trois critères fondamentaux pour la collecte des graines pour la conservation ex-situ (1,5 pts)

   a. Il faut que les graines soient matures ou médium 0,5
   b. des graines collectées devront être en bon état, ✓
   c. Savoir les caractéristiques de graines, si c'est orthodoxes ou récalcitrantes 0,5

2. Donner les trois conditions fondamentales pour la collecte des graines pour la conservation ex-situ (1,5 pts)

   a. Autorisation de recherche ✓
   b. Avoir un terrain pour planter les graines recoltées (Pepinières)
   c. Avoir une liste des espèces cibles, pour qu'on puisse faire une prospection

3. Donner cinq conditions nécessaires pour la mise en place d'une bonne installation de pépinière (3pts)

   a. au bord de la route 0,5
   b. Près du lac ou de la rivière (Point d'eau) 0,5
   c. Ensoleillé et orienté de Est - Ouest.
   d. Terrain plat 0,5 0,5
   e. Présentable pour une démonstration
   f. le terrain ne doit pas être installé sur le lieu inondé Pendant la saison de pluie. 0,5

20/10/16 RALAIJAONA Benjamin ??

TEST FINAL (Pratique)

13,5/20

17/20 (+1)

N°	Famille	Genre	
3	Ebenaceae	Diospyros	2
4	MELASTOMATACEAE	Dichaetanthera	2
5	VIOLACEAE	Rinorea	2
6	ERYTHROXYLACEAE	Erythroxylum	2
10	HAMAMELIDACEAE	Dicoryphe	2
9	RUBIACEAE	Saldinia	2
7	PITTOSPORACEAE	Pittosporum	2
1	EUPHORBIACEAE	Croton	1
2	CLUSIACEAE	Harungana	2
8	MELIACEAE	Khaya	0
BONUS (11)	FABACEAE	Cynometra	1

MISSOURI BOTANICAL GARDEN

Programme de Recherche et de Conservation

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Projet de conservation ex-situ, Darwin initiative, Ivoloina, Toamasina

Evaluation de la fin de formation des nouveaux botanistes de terrain

18,75/20

Date : 21 octobre 2016

Durée : 3 heurs

Nom et prénoms du stagiaire : RASOANINDRIANA Mahenintsoa Harisandy

A- Questionnaires (10 points) 7,5/10

1. Donner les trois critères fondamentaux pour la collecte des graines pour la conservation ex-situ (1,5 pts)
   a. Maturité des fruits 0,5
   b. Nombre de graines 0,5
   c. ~~Nombre de population~~
2. Donner les trois conditions fondamentales pour la collecte des graines pour la conservation ex-situ (1,5 pts)
   a. Période de fructification
   b. Graines saines et viables
   c. ~~Caractéristique des graines~~ (recalcitrantes / orthodoxes)
3. Donner cinq conditions nécessaires pour la mise en place d'une bonne installation de pépinière (3pts)
   a. Terrain plat ou facile à déniveler 0,5
   b. Présence d'un lac ou d'une rivière et présence d'un point d'eau disponible toute l'année 0,5
   c. Près de la route pour le transport des plants, du substrat (sable de rivière, sol alluvionaire, fumier, etc...) 0,5
   d. Présentable pour un parcelle de démonstration 2,5
   e. Exposé au soleil toutel la journée 0,5
   f. Pas submergé pendant la saison de pluie 0,5

RASOANINDRIANA
Mahenintsoa Harisandy

Date : 20/10/16.

14/20

18/20 +1

N° Echantillon	Famille	Genre	
01	EUPHORBIACEAE	Omphalea	1 + 1
02	RUBIACEAE	Breonia	1 + 1
03	EBENACEAE	Diospyros	1 + 1
04	MELASTOMATACEAE	Dichaetanthera	1 + 1
05	VIOLACEAE	Rinorea	1 + 1
06	ERYTHROXYLACEAE	Erythroxylum	1 + 1
07	PITTOSPORACEAE	Pittosporum	1 + 1
08	RUTACEAE	Chlorosyton	0 + 0
09	RUBIACEAE	Saldinia	1 + 1
10	HAMAMELIDACEAE	Dicoryphe	1 + 1
11	FABACEAE	Cynometra	1

4.5. Research permit

REPOBLIKAN'I MADAGASIKARA
Fitiavana-Tanindrazana-Fandrosoana

SECRETARIAT GENERAL

DIRECTION GENERALE DES FORETS

DIRECTION DU SYSTEME
DES AIRES PROTEGEES

AUTORISATION DE RECHERCHE

N° 356 /16/MEEF/SG/DGF/DSAP/SCB.Re

NOM BIRKINSHAW
PRENOMS Chris
ADRESSE B.P 4096 Antananarivo
FONCTION Chercheur

ACCOMPAGNE DE : Richard Randrianaivo, Patrice Antilahimena, Lalatahiana Randriatavy, Alexandre Ndriaka Joel Mamisoa, Solofo Rakotoarisoa, Syde Remi Anthony, Benjamina Ralaijaona, Giovani Arsen Rakotonirina, Harisandy Rasoanindriana, Jaqueline Razanatsoa, Hanta Razafindrabe, Vololotahiana Razafindrahaja, Jacky Andriantiana, un représentant du CAFF/CORE.

ORGANISME TUTELLE : Parc Botanique et Zoologique de Tsimbazaza (PBZT)

EST AUTORISE(E) A FAIRE DES RECHERCHES SUR:
Conservation ex-situ des plantes menacées.

LIEU : Bassin versant d'Ivoloina et Ifontsy (en dehors des aires protégées)

MENTION SPECIALE EVENTUELLE:
Collecte d'échantillons botanique pour herbier d'au maximum cinq (05) spécimens par espèce pour détermination et de référence
Collecte d'échantillons de tissus foliaires conservés dans du gel de silice
Collecte d'échantillons de fleurs et de fruits conservés dans l'alcool
Collecte d'échantillons des graines pour la conservation ex-situ
Prise de photos couleur.

EXPORTATION : Echantillons de: spécimens d'herbier, tissus foliaires dans du gel de silice, fleurs et fruits dans l'alcool.

DUREE : Six (06) mois à partir d'octobre 2016.

OBLIGATION DU TITULAIRE :
- Négocier avec les gestionnaires et/ou comité de gestion des sites ou forêts transférées pour y accéder, le cas échéant
- faire viser la présente par la Direction Régionale de l'Environnement, de l'Ecologie et des Forêts Atsinanana et/ou CEEF concernée avant toute descente sur terrain conformément à la note n° 394-10/MEF/SG/DGF/DVRN/SGFF du 18 Mai 2010 de la localité de recherche
- pour tout transport de produits de collecte (faune et flore), avoir un procès-verbal de constatation des collectes effectuées par le CEEF et autorisation de transport délivré par DREEF si le déplacement se fait en dehors de la région et remettre une copie au DSAP
- Pour toute exportation : remettre une copie du dépôt au DSAP et une autre au dossier d'exportation
- Pour toutes publications, référer le numéro et la date de l'autorisation de recherche.
- remettre à la Direction du Système des Aires Protégées, en quatre (04) exemplaires EN FRANÇAIS, le rapport préliminaire à la fin de sa mission et le rapport final avec les résultats des recherches au plus tard UN ans après la mission, en versions papier et électronique.

Antananarivo, le 12 OCT 2016

LE DIRECTEUR
DU SYSTEME DES AIRES PROTEGEES

AMPLIATIONS :
- CAFF/CORE
- DREEF: Ats
- CEEF: concernées
- Communes concernées
  « Pour contrôle et suivi »
- DGF
  « Pour compte-rendu »
- PBZT / MBG
  « Pour le rapport »

4.6. CV of the Manager of Conservation Horticulture

CURRICULUM VITAE

Monsieur MAMISOA Ndriaka Joël Alexandre

A l'âge de 31 ans, marié

Demeurant à analamalotra(E.A.S.T.A)

C. I .N : 501 091 008 669 du 18 juin 2004 à Toliara

E-mail : alexmamisoa@ yahoo.fr

Contact : 032 44 939 72

I - Formations

Année	Etablissement	Titre
2013	Business Training Center(Formation HSE normes HS- 1001)	Attestation
2009	LA PALMERAIE (Formation Paysagiste)	Attestation
2005-2007	E.A.S.T.A (Formation d'adjoint technique Agricole)	D.T.A
2002-2005	Lycée Fanantenana	B.A.C
1998-2002	Collège SE.MA	B.E.P.C
1994-1998	Collège Luthérien	C.E.P.E

II- EXPERIENCES PROFESSIONNELLES :

-2005-2007 : Stage monographie et sociologie Rural, Vulgarisation de SRI-SRA et encadrement technique des paysans ruraux sur toamasina II.

-2007-2008 : Encadrement technique sur le jardin d'école, potager/éducatif avec Programme ManaoD.E- C.E sur Toamasina II.

-2008-2010 : Responsable de production et pépinière à la société « LA PALMERAIE » Tamatave.

-2010-2014 : Gestionnaire des pépinières à la société « Phyto-Logic » Tamatave.

Titulaire d'un permis catégorie A-B-C-D

III-CONNAISSANCES LINGUISTIQUES :

Maîtrise de la langue Malagasy, français et débutant en anglais

IV- INFORMATIQUE :

Informatique bureautique et internet.

V- CENTRE D'INTERETS :

-Basket, musique

Je, soussigné, déclare sur l'honneur la véracité des renseignements fournis ci-dessus.

Toamasina le, 23 mai 2016

4.7. Candidates for the posts of conservation horticulturalist

Name	M/F	Age	Origin (Tamatave or other)	Current domicile	Highest qualification
TSARAMARO Mamitiana Stéphano	M	25	?	?	Bacc+2
BOTOUBE Annick Francki	M	24	?	Tamatve	Bacc+3
RivoZandry MAHEVITRA	M	25		Tamatave	Bacc+3
Solonge Ravaotiana	F	28	Sambava	Tamatave	Maitrise
Razafimandimy Nelson	M	30	Tana	Tamatave	Bacc+1
Francesca Pugette RATSARAMISY	F	29	Andapa	Tana	Bacc+4
Anthony Andriamanantena	M	24	Fetraomby	Toamasina	Bacc+2
Radovola Andrianjafy	M	27	Tamatave	Toamasina	Bacc+3
Nicoltas NOARISON	M	30	Manara Nord	Toamasina	Bacc+3
Njarasoa Randrianatenaina	M	28	?	Tana	Bacc+
Andriantsoa Mickaela RAKOTOZAFY	M	28	Tana	Toamasina	Bacc
Jean Parisy Tongoravo	M	30	Antalaha	Tamatave	Bacc+3
Elie RAMIARANA	M	25	?	Tamatave	Bacc+5
Randrianasolo Justin	M	42	Diego	Tamatave	Brevet d'Agent d'Exécution
MALALASOA Tahina Mickaëla	F	24	?	Tamatave	Bacc+4
Andre Jimmy	M	26		Tamatave	Bacc
ANDRIAMAMPIONONA HAJATIANA JOËL	M	28	?	?	Diplôme de Technicien Supérieur en Environnement
Jolie Rasoavololona	F	24	?	Tamatave	Bacc
BEANDALANA Marius	M	34	?	Tamatave	Bacc
RAKOTOMANANA Bodotahiana Sandra	F	35+	?	Tana	Bacc+3
Henri Dorissah RAMIANDRISOA	M	43	Tulear	?	Bacc+5
Jose Felixiene	M	23	Manansatrana	?	Bacc
Jese Rabelomanana	M	26	?	Tamatave	Bacc
RAJAONARIVELO David	M	36	?	Tana	Bacc+3
JOELIMANANA Théodore Antonio Platini	M	25	?	Tamatave	Bacc+3
MANDIMBISOA Lalaina Nina	F	24	Tamatave	Tamatave	Bacc+2
ZAKARIASY Anne Louise	F	26	?	Tamatave	Bacc+3
Marie Razafindrafara	F	28	Tamatave	Tamatave	Bacc
ANDRIANJATOVO Ando Niaina Zacharie	M	28	?	Tana	Bacc
Judith RAKOTOSON ANDRIAHARINALA	F	28	?	Tana	Bacc+5
Achille Randrianarisoa	M	27	?	Tamatave	Bacc
Zo Lantonirina	M	26	Tamatave	Tamatave	Bacc+1
RAKOTOZAFINDRABE Andriamahefa Lantaniaina	M	34	Ambatondrazaka	Ambatondrazaka	Bacc
Randrianasolo Onjanirina Suzannette	F	30		Tana	DEA
Rakotoson Benahina Sylvian	M	29	?	Tamatave	Bacc
Razafimanjaka Jeanphin	?	30	Andrambita	Tamatve	Diplome Technique Superieure
Jese Rabelomanana	M	26	?	Tamatave	Bacc
RAJAONARIVELO David	M	36	?	Tana	Bacc+3
JOELIMANANA Théodore Antonio Platini	M	25	?	Tamatave	Bacc+3
MANDIMBISOA Lalaina Nina	F	24	Tamatave	Tamatave	Bacc+2
Bakohasina Norosoa	F	?	Antananarivo	Antananarivo	Bacc+3 Agro
Razoeliniriasoa Nadya	F	28	Antananarivo	Antananarivo	Bacc
Ramarotafika Rina	M	26	Antananarivo	Antananarivo	Master en Chimie
Randriamanatena Helphin	M	30	Tulear	Tulear	Bacc + 3 géographie
Electon Ali Solo	M	26	Toamasina	Toamasina	Bacc
Ravaoharisoa Josephine	F	29	Tamatave	Tamatave	Bacc

4.8. CVs of the successful applicants for the posts of conservation horticulturalist

CURRICULUM VITAE

JOELIMANANA
Théodore Antonio Platini
Malagasy, célibataire, 25ans
P/lle 11/46 Mangarano I
CIN : 314 271 004 994 du 02/10/2009
joelimananaplatini@gmail.com
034 27 015 89

DIPLOMES OBTENUS

- **2014-2015** : BACC+3 en Sciences, Environement et Développement Durable
- **2013-2014** : BACC+2 en Gestion de REssources Naturelles et Environnement
- **2010** : BACC série D

CONNAISSANCES EN INFORMATIQUE

- Connaissance de l'informatique bureautique (Word, Excel, internet, PowerPoint, ...) avec certificat
- Connaissance en Maintenance ordinateur (Hardware et Software)
- Connaissance de la cartographie en utilisant le logiciel SIG MapInfo 6.0

EXPERIENCES PROFESSIONNELLES

- **2015-2016** : Agent enquêteur PMT Foulpointe et Mahanoro auprès du Hermès-Conseils concernant le projet présidentiel « Vatsin'ankohonana »
- **2015** : Agent enquêteur auprès de l'Observatoire National de l'emploi et de la formation concernant les entreprises, les sociétés et les centres de formation professionnelle dans le District de Toamasina I et II
- **2015** : Stagiaire au sein de l'association MITSINJO Andasibe concernant l'étude du *Ratsirakia legendrei* (Tsitohotoho) qui est une espèce endémique de la région Moramanga en vue d'une conservation.
- **2014-2015** : enquêteur au sein de l'ONG MFFG « Madagascar Fauna and Flora Group » sise à Salazamay Toamasina concernant le « Radaka Boka ».
- **2014** : Agent de traçabilité durant la campagne de letchis, au sein de la société RASSETA sise à Ambalamanasy Toamasina.
- **2013** : Stagiaire auprès d'un fournisseur & producteur en huile essentielle des plantes médicinales pour une étude sur la valorisation du *Cinnamomum camphora* (Ravintsara), Fokontany Ambohitranjavidy Commune Urbaine de Moramanga

- **2012** : formation en élevage de « Akoho Gasy » et en pépinière de « Ravintsara » avec les membres de VOI MAMAFI dans la Commune Rurale de Fierenana District de Moramanga.

CONNAISSANCE LINGUSTIQUE :

MALAGASY (maternelle)

FRANÇAIS (lire, écrire et parler)

ANGLAIS (Bonne compréhension)

QUALITES :

Sérieux, dynamique, ayant le sens de responsabilité, ayant le sens d'adaptation, habitué à travailler dans des conditions difficiles.

LOISIRS ET SPORTS :

Jouer à la guitare, se promener.

Je déclare sur l'honneur l'exactitude des renseignements énumérés ci-dessus

CURRICULUM VITAE

ETAT CIVIL

MANDIMBISOA
Lalaina Nina
Née le 15 Août 1993
TOAMASINA-I
CIN n°301052020683
Délivrée le 19 Août 2011 à Toamasina
Sexe : féminin
Célibataire

ADRESSE :

Lot 708 C1 parcelle 21/62 Morarano Toamasina

E-MAIL :

mandimbisoanina@yahoo.com

TELEPHONE :

032 93 738 17/ 033 63 262 97

EXPERIENCE PROFESSIONNELLE

Juillet-Août 2016 : Stage au sein de la Nouvelle Aire Protégée de Pointe à Larrée avec concernant « l'inventaire des plantes médicinales de la Nouvelle Aire Protégée de Pointe à Larrée, Région Analanjirofo »

Octobre 2014 : Enquêteur auprès de la MFFG concernant l'existence de « Radaka boka » dans la Commune Urbaine de Toamasina I et II

Juin 2014 : Stage auprès de Jean Richard RANDRIAMISATA fournisseur & producteur des huiles essentielles des plantes médicinales dans la Commune Urbaine de Moramanga concernant la procédure d'exploitation du Ravintsara (collecte des matières premières, mise en place des pépinières, extraction d'huile essentielle)

Août 2013 : Stage auprès d'un fournisseur & producteur en huiles essentielles des plantes médicinales pour une étude sur la valorisation du *Cinnamomum camphora* (Ravintsara), cas du fokontany Ambohitranjavidy Commune Urbaine de Moramanga

Septembre 2012 : Stage au sein de la Station Forestière Ivoloina concernant l'étude de *Prolemur simus* (Bokombolo)

FORMATION

2013-2014 : 3ème Année à l'Institut Supérieur de Sciences, Environnement et Développement Durable (ISSEDD), option tourisme durable et biodiversité, Université de Toamasina
2012-2013 : 2ème Année à l'Institut Supérieur de Sciences, Environnement et Développement Durable (ISSEDD), Université de Toamasina
2011-2012 : 1ère Année à l'Institut Supérieur de Sciences, Environnement et Développement Durable (ISSEDD), Université de Toamasina
2010-2011 : Terminale série D au Lycée Privé Stella Maris Toamasina

DIPLOMES OBTENUS

- Diplôme en Langues Françaises DELF B2 (Juin 2014)
- Attestation de BACC+2 en Gestion de Ressources Naturelles et Environnement (Septembre 2013)

AUTRES FORMATIONS

- Connaissance de l'outil informatique (Word, Excel, PowerPoint, ...) et de l'internet (Certifiée)
- Formation en assistante de direction (secrétariat, accueil, ...) (Certifiée)
- Connaissance du logiciel SIG MapInfo 6.0

LANGUES :

- Malagasy (maternelle)
- Français (lire, écrire et parler)
- Anglais (Moyen)

LOISIRS

- Musique, couture, suivre les actualités

Je déclare sur l'honneur l'exactitude et la sincérité de mes renseignements mentionnés ci-dessus

L'intéressée

MANDIMBISOA Lalaina Nina

INFORMATION	Nom : MALALASOA Tahina Mickaëla

RAJAONARIVELO David

Lot VS 52 KCE Avaratr'Ankatso Antananarivo 101

034 73 873 79

david_jaona@yahoo.fr

FORMATIONS ET DIPLOMES

2011-2012 : Licence en Gestion des Bassins Versants, des Bas-Fonds et Assainissement, **Institut des Sciences et Techniques de l'Environnement (ISTE), Université de** Fianarantsoa

2010-2011 : Diplôme de Technicien Supérieur en Conservation et Valorisation de la Biodiversité, ISTE, Université de Fianarantsoa

2007-2008 : Diplôme de **Baccalauréat de l'enseignement général** « série C », Lycée public d'Andramasina 106

EXPERIENCES PROFSSINNELES

Avril 2015 – Août 2016: Adjoint Chef d'exploitation agricole dans la société ISALO BIO, Hôtel le Relais de la Reine Isalo-Ranohira, Fianarantsoa

Septembre - Décembre 2013 : Stagiaire au GrandLyon Fianarantsoa pour le projet CAP'Eau

Août - Octobre 2012 : Stagiaire au FAFAFI Fianarantsoa« Etude de faisabilité du biogaz»

CONNAISSANCES LINGUISTIQUES

- ✓ **Français, anglais**: Lu, écrit et parlé couramment

COMPETENCES EN INFORMATIQUE

- ✓ **Bonne maîtrise :** Accès, SIG Q-GIS, Google Earth Pro, Arc-GIS avec bonne manipulation du GPS, Word, Excel, Internet, Power Point, Dactylographie

DIVERS

- ✓ Capable à conduire en moto et permis A en cours
- ✓ Membre de l'Association des Jeunes pour la Promotion de l'Energie Renouvelable à Fianarantsoa
- ✓ Pratique du Kung Fu

SPORTS ET LOISIRS

- ✓ Jouer au football, Lecture, Regarder la télévision

Je déclare sur l'honneur que les renseignements fournis ci-dessus sont sincères.

PERSONNELLE						
	Lot F90 p/Celle 14/32 Ambohijafy SUD (Toamasina /MADAGASCAR) 032 28 162 78 / 034 80 426 41 tahmichaelah@yahoo.com **Sexe :** F**| Date de naissance :** 11 Août 1992 **| Nationalité :** Malagasy **Situation familiale :** Célibataire					
EXPÉRIENCE PROFESSIONNELLE	**2014**	Enquête sur le «*Duttaphrynus melanosticus* »RADAKA BOKA	En collaborations avec des agents des institutions tels que : Madagascar Fauna &Flora Groupe, WWF, ISSEDD (Institut de Science, Environnement et Développement Durable)			
FORMATION	**2014**	Formation en management et leadership.	ADESMA			
	2013	Formation en technique de communication.	CRJS			
	2012	Formation en ambassadeur verte	Madagascar Fauna &Flora Groupe			
ÉDUCATION	**2015-2016**	Master I en Science Environnement Durable	ISSEDD			
	2013-2014	Licence en Développement Social, Locale et Patrimoine(DSLP)	ISSEDD			
	Session 2011	Baccalauréat de l'enseignement général (série A2)	Lycée Jacques RABEMANANJARY			
	Session 2008	Brevet de l'Etude de Primaire Cycle(BEPC)	CEG Augagneur			
	Session 2004	Certificat de l'Etude Primaire et élémentaire (CEPE)	Les Rossignoles			
COMPÉTENCES PERSONNELLES	Langues		Très bon	Bon	Opérationnelle	Mauvais
Langue maternelle	Malagasy		**X**			
Autres langues	Français		**X**			
	Anglais				**X**	
Compétences informatiques	Word, Excel, internet, PowerPoint. Manipulation du système géographique(SIG) : mapinfo 6.0					
ANNEXES	Diplômes et lettre de motivation					

CIRRUCULUM VITAE

ETAT CIVIL

Nom : RAZAFIMANDIMBY
Prénom : Nelson Roger
Date et lieu de naissance : 22 Octobre 1986 à Antananarivo
Adresse : lot 45 A parcelle 13/81 Tanambao V Toamasina
Contact : 032 22 481 54
Situation matrimonial : marié
Filiation : - **Père** : RAZAFIMANDIMBY Norbert enseignant
- **Mère** : RATSISAKANANA Sophie (feue)

ETUDE ET DIPLOME OBTENUES

- **1998 – 1999** : C.E.P.E college Telonohorefy Toamasina
- **2003 – 2004** : B.E.P.C CEG Ratsimilaho toamasina
- **2007 – 2008** : BACCALAUREAT Série D Lycée Jacques RABEMANANJARA Toamasina
- **2008 – 2010** : premier cycle en économie à l'université Barikadimy Toamasina

FORMATION ET CERTIFICATS OBTENUS

- Animateur et Technicien agricole
- Conduite d'une nacelle élévatrice (HENRI FRAISE)
- Conduite de véhicule tout terrain (permit A et B)
- Secourisme de premier soin (CROIX ROUGE Toamasina)

EXPERIENCES PROFESSIONNEL

- 2007 - 2009 : animateur et Technicien agricole au sein du projet MIDEMI Toamasina
- 2009 – 2010 : électricien et soudeur au sein de la société CCG Ambatovy
- 2011 – Décembre 2015 : Chef d'équipe au sein du projet Ambatovy Toamasina
- 2016 – Aout 2016 : Animateur au sein de l'établissement Marie Stops

SAVOIRE FAIRE

- Utilisation de tout outilles de communication
- Manipulation des outilles informatiques (hardware et software)
- Réparation des pannes courantes des véhicules motorisés

EXPERIENCE LINGUISTIQUE

- **RUSSE** : Initiation
- **FRANÇAIS** : couramment
- **ANGLAIS** : couramment
- **MALAGASY** : matemelle

LOISIR

- Jouerau jeu d'chèque et lire

Je déclare sur l'honneur que les renseignements mentionnésci-dessus sont exacts et fiables

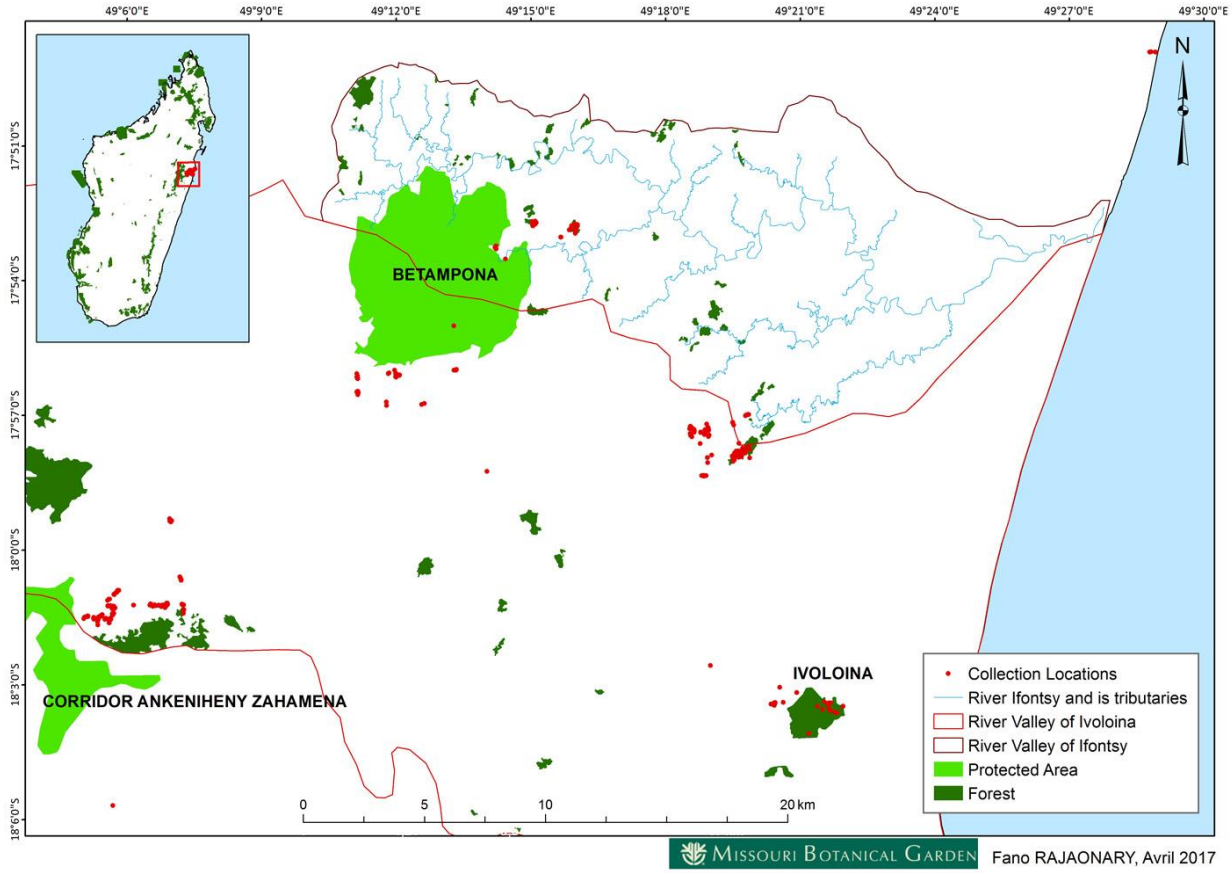
L'intéressé

RAZAFIMANDIMBY Nelson Roger

4.9. Mid-term and final evaluations of the trainee conservation horticulturalists

Trainee	Midway Evaluation (out of 20)	Final Evaluation (out of 20)
MALALASOA Tahina Michaela	14.25	13
RAZAFIMANDIMBY Nelson Roger	13.5	13.25
RAJAONARIVOLO David	14.5	17
MANDIMBISOA Lalaina Nina	14.5	15
JOELIMANANA Theodore Platini	14.5	16.5

4.10. Location of seed sample collections



4.11. Download from the database TROPICOS showing all the vouchered seed samples made during this project (to end of Year 1)

Date of collection	Collector	Coll. Numb.	Collector code	Family	Scientific Name	Locality	Coordinate Display	Latitude Decimal	Longitude Decimal
13-nov.-16	RAKOTONIRINA, A. Giovanni	11	100108914	Burseraceae	Protium Burm. f.	Ivoloina	17°56'05"S 049°12'04"E	-17.9347222	49.2011111
13-nov.-16	RAKOTONIRINA, A. Giovanni	12	100108914	Fabaceae	Dialium L.	Ivoloina	17°56'06"S 049°12'04"E	-17.9350000	49.2011111
13-nov.-16	RAKOTONIRINA, A. Giovanni	13	100108914	Arecaceae	Dypsis Noronha ex Mart.	Ivoloina	17°56'07"S 049°11'59"E	-17.9352777	49.1997222
13-nov.-16	RAKOTONIRINA, A. Giovanni	16	100108914	Ebenaceae	Diospyros L.	Ivoloina	17°56'08"S 049°11'59"E	-17.9355555	49.1997222
7-déc.-16	RAKOTONIRINA, A. Giovanni	18	100108914	Apocynaceae	Plectaneia Thouars	Ivoloina	18°00'37"S 049°07'11"E	-18.0102778	49.1197223
7-déc.-16	RAKOTONIRINA, A. Giovanni	19	100108914	Anacardiaceae	Abrahamia Randrian. & Lowry	Ivoloina	18°00'38"S 049°07'12"E	-18.0105556	49.1200000
7-déc.-16	RAKOTONIRINA, A. Giovanni	20	100108914	Ebenaceae	Diospyros L.	Ivoloina	18°00'38"S 049°07'12"E	-18.0105556	49.1200000
7-déc.-16	RAKOTONIRINA, A. Giovanni	21	100108914	Burseraceae	Canarium L.	Ivoloina	18°00'40"S 049°07'12"E	-18.0111111	49.1200000
12-déc.-16	RAKOTONIRINA, A. Giovanni	22	100108914	Malvaceae	Dombeya Cav.	Ivoloina	18°01'13"S 049°07'15"E	-18.0202778	49.1208334
12-déc.-16	RAKOTONIRINA, A. Giovanni	23	100108914	Arecaceae	Dypsis Noronha ex Mart.	Ivoloina	18°01'12"S 049°07'15"E	-18.0200000	49.1208334
12-déc.-16	RAKOTONIRINA, A. Giovanni	25	100108914	Primulaceae	Oncostemum A. Juss.	Ivoloina	18°01'12"S 049°07'14"E	-18.0200000	49.1205556
12-déc.-16	RAKOTONIRINA, A. Giovanni	26	100108914	Primulaceae	Oncostemum A. Juss.	Ivoloina	18°01'13"S 049°07'13"E	-18.0202778	49.1202778
12-déc.-16	RAKOTONIRINA, A. Giovanni	28	100108914	Didymelaceae	Didymeles Thouars	Ivoloina	18°01'12"S 049°07'14"E	-18.0200000	49.1205556
12-déc.-16	RAKOTONIRINA, A. Giovanni	29	100108914	Euphorbiaceae	Croton L.	Ivoloina	18°01'19"S 049°07'15"E	-18.0219445	49.1208334
12-déc.-16	RAKOTONIRINA, A. Giovanni	31	100108914	Myrtaceae	Syzygium P. Browne ex Gaertn.	Ivoloina	18°01'42"S 049°07'15"E	-18.0283334	49.1208334
13-janv.-17	RAKOTONIRINA, A. Giovanni	32	100108914	Oleaceae	Noronhia Stadtm. ex Thouars	Ivoloina	17°48'54"S 049°28'48"E	-17.8150000	49.4800000
13-janv.-17	RAKOTONIRINA, A. Giovanni	33	100108914	Lauraceae	Ocotea Aubl.	Ivoloina	17°48'54"S 049°28'47"E	-17.8150000	49.4797223
13-janv.-17	RAKOTONIRINA, A. Giovanni	35	100108914	Myrtaceae	Eugenia L.	Ivoloina	17°48'54"S 049°28'55"E	-17.8150000	49.4819445
13-janv.-	RAKOTONIRINA, A. Giovanni	36	100108914	Rubiaceae	Saldinia axillaris	Ivoloina	17°48'54"S	-	49.4819445

17					(Lam. ex Poir.) Bremek.		049°28'55"E	17.8150000	
2-févr.-17	RAKOTONIRINA, A. Giovanni	37	100108914	Asparagaceae	Dracaena L.	Ivoloina	18°01'26"S 049°05'40"E	-18.0238889	49.0944444
2-févr.-17	RAKOTONIRINA, A. Giovanni	38	100108914	Annonaceae	Xylopia L.	Ivoloina	18°05'41"S 049°05'41"E	-18.0947222	49.0947222
2-févr.-17	RAKOTONIRINA, A. Giovanni	39	100108914	Burseraceae	Canarium L.	Ivoloina	18°01'25"S 049°05'40"E	-18.0236111	49.0944444
2-févr.-17	RAKOTONIRINA, A. Giovanni	40	100108914	Lauraceae	Ocotea Aubl.	Ivoloina	18°01'25"S 049°05'40"E	-18.0236111	49.0944444
2-févr.-17	RAKOTONIRINA, A. Giovanni	48	100108914	Primulaceae	Embelia Burm. f.	Ivoloina	18°01'23"S 049°05'41"E	-18.0230556	49.0947222
2-févr.-17	RAKOTONIRINA, A. Giovanni	49	100108914	Rubiaceae	Bremeria Razafim. & Alejandro	Ivoloina	18°01'23"S 049°05'41"E	-18.0230556	49.0947222
2-févr.-17	RAKOTONIRINA, A. Giovanni	50	100108914	Myrtaceae	Myrtaceae Juss.	Ivoloina	18°01'25"S 049°05'41"E	-18.0236111	49.0947222
2-févr.-17	RAKOTONIRINA, A. Giovanni	51	100108914	Pittosporaceae	Pittosporum Banks ex Gaertn.	Ivoloina	18°01'37"S 049°05'36"E	-18.0269445	49.0933333
2-févr.-17	RAKOTONIRINA, A. Giovanni	54	100108914	Sapindaceae	Macphersonia Blume	Ivoloina	18°01'32"S 049°05'30"E	-18.0255556	49.0916666
2-févr.-17	RAKOTONIRINA, A. Giovanni	55	100108914	Ebenaceae	Diospyros L.	Ivoloina	18°01'31"S 049°05'32"E	-18.0252778	49.0922222
2-févr.-17	RAKOTONIRINA, A. Giovanni	56	100108914	Sarcolaenaceae	Eremolaena Baill.	Ivoloina	18°01'31"S 049°05'32"E	-18.0252778	49.0922222
2-févr.-17	RAKOTONIRINA, A. Giovanni	59	100108914	Ebenaceae	Diospyros L.	Ivoloina	18°01'28"S 049°05'26"E	-18.0244445	49.0905555
2-févr.-17	RAKOTONIRINA, A. Giovanni	60	100108914	Salicaceae	Casearia Jacq.	Ivoloina	18°01'29"S 049°05'08"E	-18.0247223	49.0855555
6-févr.-17	RAKOTONIRINA, A. Giovanni	63	100108914	Solanaceae	Solanum L.	Ivoloina	18°01'28"S 049°05'07"E	-18.0244445	49.0852777
6-févr.-17	RAKOTONIRINA, A. Giovanni	64	100108914	Euphorbiaceae	Euphorbiaceae Juss.	Ivoloina	18°01'27"S 049°05'07"E	-18.0241667	49.0852777
6-févr.-17	RAKOTONIRINA, A. Giovanni	65	100108914	Apocynaceae	Apocynaceae Juss.	Ivoloina	18°01'27"S 049°05'07"E	-18.0241667	49.0852777
6-févr.-17	RAKOTONIRINA, A. Giovanni	66	100108914	Clusiaceae	Garcinia L.	Ivoloina	18°01'28"S 049°05'06"E	-18.0244445	49.0850000
6-févr.-17	RAKOTONIRINA, A. Giovanni	68	100108914	Arecaceae	Arecaceae Bercht. & J. Presl	Ivoloina	18°01'29"S 049°05'03"E	-18.0247223	49.0841666
6-févr.-17	RAKOTONIRINA, A. Giovanni	69	100108914	Moraceae	Ficus L.	Ivoloina	18°01'29"S 049°05'03"E	-18.0247223	49.0841666
6-févr.-17	RAKOTONIRINA, A. Giovanni	71	100108914	Moraceae	Trilepisium	Ivoloina	18°00'35"S	-	49.1197223

					Thouars		049°07'11"E	18.0097222	
6-févr.-17	RAKOTONIRINA, A. Giovanni	72	100108914	Rubiaceae	Gaertnera Lam.	Ambodiriana	17°53'17"S 049°14'13"E	-17.8880555	49.2369444
5-mars-17	RAKOTONIRINA, A. Giovanni	73	100108914	Fabaceae	Dialium L.	Ambodiriana	17°53'17"S 049°14'13"E	-17.8880555	49.2369444
5-mars-17	RAKOTONIRINA, A. Giovanni	75	100108914	Dioscoreaceae	Tacca J.R. Forst. & G. Forst.	Ambodiriana	17°05'17"S 049°14'13"E	-17.0880555	49.2369444
5-mars-17	RAKOTONIRINA, A. Giovanni	76	100108914	Arecaceae	Arecaceae Bercht. & J. Presl	Ambodiriana	17°53'16"S 049°14'13"E	-17.8877777	49.2369444
5-mars-17	RAKOTONIRINA, A. Giovanni	77	100108914	Rubiaceae	Saldinia A. Rich. ex DC.	Ambodiriana	17°53'16"S 049°14'12"E	-17.8877777	49.2366666
5-mars-17	RAKOTONIRINA, A. Giovanni	78	100108914	Ebenaceae	Diospyros L.	Ambodiriana	17°53'15"S 014°14'13"E	-17.8875000	14.2369444
5-mars-17	RAKOTONIRINA, A. Giovanni	80	100108914	Moraceae	Trophis P. Browne	Ambodiriana	17°58'14"S 049°14'01"E	-17.9705556	49.2336111
5-mars-17	RAKOTONIRINA, A. Giovanni	81	100108914	Rubiaceae	Gaertnera Lam.	Ambodiriana	17°53'13"S 049°14'13"E	-17.8869444	49.2369444
24-mars-17	RAKOTONIRINA, A. Giovanni	84	100108914	Poaceae	Poaceae Barnhart	Ambodiriana	17°57'09"S 049°19'30"E	-17.9525000	49.3250000
24-mars-17	RAKOTONIRINA, A. Giovanni	85	100108914	Poaceae	Paspalum L.	Ambodiriana	17°53'09"S 049°19'30"E	-17.8858333	49.3250000
24-mars-17	RAKOTONIRINA, A. Giovanni	86	100108914	Poaceae	Poaceae Barnhart	Ambodiriana	17°53'09"S 049°19'30"E	-17.8858333	49.3250000
24-mars-17	RAKOTONIRINA, A. Giovanni	87	100108914	Melastomataceae	Dichaetanthera Endl.	Ambodiriana	17°57'12"S 049°19'31"E	-17.9533333	49.3252778
24-mars-17	RAKOTONIRINA, A. Giovanni	88	100108914	Poaceae	Paspalum L.	Ambodiriana	17°57'37"S 049°19'38"E	-17.9602778	49.3272223
24-mars-17	RAKOTONIRINA, A. Giovanni	89	100108914	Poaceae	Paspalum L.	Ambodiriana	17°57'37"S 049°19'38"E	-17.9602778	49.3272223
24-mars-17	RAKOTONIRINA, A. Giovanni	94	100108914	Arecaceae	Ravenea C.D. Bouché	Ambodiriana	17°57'45"S 049°19'46"E	-17.9625000	49.3294445
24-mars-17	RAKOTONIRINA, A. Giovanni	95	100108914	Arecaceae	Orania Zipp.	Ambodiriana	17°57'44"S 049°19'45"E	-17.9622222	49.3291667
24-mars-17	RAKOTONIRINA, A. Giovanni	97	100108914	Asparagaceae	Dracaena L.	Ambodiriana	17°57'49"S 049°19'46"E	-17.9636111	49.3294445
24-mars-17	RAKOTONIRINA, A. Giovanni	100	100108914	Rubiaceae	Psychotria L.	Ambodiriana	17°57'47"S 049°19'45"E	-17.9630556	49.3291667
24-mars-17	RAKOTONIRINA, A. Giovanni	101	100108914	Araliaceae	Polyscias J.R. Forst. & G. Forst.	Ambodiriana	17°57'48"S 049°19'44"E	-17.9633333	49.3288889
24-mars-17	RAKOTONIRINA, A. Giovanni	102	100108914	Monimiaceae	Tambourissa Sonn.	Ambodiriana	17°57'49"S 049°19'45"E	-17.9636111	49.3291667

24-mars-17	RAKOTONIRINA, A. Giovanni	106	100108914	Lauraceae	Ocotea Aubl.	Ambodiriana	17°57'50"S 049°19'47"E	-17.9638889	49.3297223
24-mars-17	RAKOTONIRINA, A. Giovanni	107	100108914	Fabaceae	Dialium L.	Vohitraivo	17°57'50"S 049°19'39"E	-17.9638889	49.3275000
24-mars-17	RAKOTONIRINA, A. Giovanni	110	100108914	Rubiaceae	Hyperacanthus E. Mey. ex Bridson	Vohitraivo	17°57'47"S 049°19'37"E	-17.9630556	49.3269445
24-mars-17	RAKOTONIRINA, A. Giovanni	111	100108914	Poaceae	Poaceae Barnhart	Vohitraivo	17°57'09"S 049°19'30"E	-17.9525000	49.3250000
26-mars-17	RAKOTONIRINA, A. Giovanni	112	100108914	Myrtaceae	Syzygium P. Browne ex Gaertn.	Vohitraivo	17°57'47"S 049°19'34"E	-17.9630556	49.3261111
26-mars-17	RAKOTONIRINA, A. Giovanni	114	100108914	Burseraceae	Canarium L.	Vohitraivo	17°57'49"S 049°19'36"E	-17.9636111	49.3266667
26-mars-17	RAKOTONIRINA, A. Giovanni	115	100108914	Ebenaceae	Diospyros L.	Vohitraivo	17°57'49"S 049°19'36"E	-17.9636111	49.3266667
26-mars-17	RAKOTONIRINA, A. Giovanni	116	100108914	Arecaceae	Dypsis Noronha ex Mart.	Vohitraivo	17°57'50"S 049°19'36"E	-17.9638889	49.3266667
26-mars-17	RAKOTONIRINA, A. Giovanni	117	100108914	Didymelaceae	Didymeles Thouars	Vohitraivo	17°57'53"S 049°19'41"E	-17.9647222	49.3280556
26-mars-17	RAKOTONIRINA, A. Giovanni	118	100108914	Rutaceae	Ravenia Vell.	Vohitraivo	17°57'54"S 049°19'41"E	-17.9650000	49.3280556
26-mars-17	RAKOTONIRINA, A. Giovanni	119	100108914	Asparagaceae	Dracaena L.	Vohitraivo	17°57'51"S 049°19'41"E	-17.9641667	49.3280556
26-mars-17	RAKOTONIRINA, A. Giovanni	120	100108914	Myrtaceae	Syzygium P. Browne ex Gaertn.	Vohitraivo	17°57'47"S 049°19'40"E	-17.9630556	49.3277778
28-mars-17	RAKOTONIRINA, A. Giovanni	121	100108914			Andilambalavao	17°57'46"S 049°19'53"E	-17.9627778	49.3313889
28-mars-17	RAKOTONIRINA, A. Giovanni	123	100108914	Erythroxylaceae	Erythroxylum P. Browne	Andilambalavao	17°57'45"S 049°19'52"E	-17.9625000	49.3311111
28-mars-17	RAKOTONIRINA, A. Giovanni	124	100108914	Didymelaceae	Didymeles Thouars	Andilambalavao	17°57'43"S 049°19'51"E	-17.9619444	49.3308334
28-mars-17	RAKOTONIRINA, A. Giovanni	126	100108914	Rubiaceae	Peponidium (Baill.) Arènes	Andilambalavao	17°57'42"S 049°19'51"E	-17.9616667	49.3308334
28-mars-17	RAKOTONIRINA, A. Giovanni	127	100108914	Rubiaceae	Gaertnera Lam.	Marotandrazana	17°57'42"S 049°19'51"E	-17.9616667	49.3308334
12-nov.-16	RALAIJAONA, Benjamina	8	100108915	Euphorbiaceae	Orfilea Baill.	Ivoloina	17°56'03"S 049°20'50"E	-17.9341666	49.3472222
12-nov.-16	RALAIJAONA, Benjamina	9	100108915	Hamamelidaceae	Dicoryphe Thouars	Ivoloina	17°56'03"S 049°11'50"E	-17.9341666	49.1972222
12-nov.-16	RALAIJAONA, Benjamina	11	100108915	Sapotaceae	Mimusops L.	Ivoloina	17°56'04"S 049°11'49"E	-17.9344444	49.1969444
16-nov.-	RALAIJAONA, Benjamina	12	100108915	Monimiaceae	Tambourissa Sonn.	Magnarivato	17°56'07"S	-	49.1855555

16							049°11'08"E	17.9352777	
16-nov.-16	RALAIJAONA, Benjamina	13	100108915	Rubiaceae	Rubiaceae Juss.	Magnarivato	17°56'04"S 049°11'07"E	-17.9344444	49.1852777
16-nov.-16	RALAIJAONA, Benjamina	14	100108915	Malvaceae	Dombeya Cav.	Magnarivato	17°56'08"S 049°11'07"E	-17.9355555	49.1852777
16-nov.-16	RALAIJAONA, Benjamina	15	100108915			Magnarivato	17°56'11"S 049°11'08"E	-17.9363889	49.1855555
16-nov.-16	RALAIJAONA, Benjamina	18	100108915	Rubiaceae	Mantalania Capuron ex J. Leroy	Magnarivato	17°56'47"S 049°11'47"E	-17.9463889	49.1963889
16-nov.-16	RALAIJAONA, Benjamina	19	100108915	Malvaceae	Nesogordonia Baill.	Magnarivato	17°56'42"S 049°11'47"E	-17.9450000	49.1963889
11-déc.-16	RALAIJAONA, Benjamina	20	100108915	Dichapetalaceae	Dichapetalum Thouars	Sahavongo	18°01'23"S 049°06'56"E	-18.0230556	49.1155556
11-déc.-16	RALAIJAONA, Benjamina	21	100108915	Lauraceae	Cryptocarya R. Br.	Sahavongo	18°01'19"S 049°07'13"E	-18.0219445	49.1202778
11-déc.-16	RALAIJAONA, Benjamina	22	100108915	Hamamelidaceae	Dicoryphe Thouars	Sahavongo	18°01'19"S 049°07'13"E	-18.0219445	49.1202778
11-déc.-16	RALAIJAONA, Benjamina	26	100108915	Asphodelaceae	Dianella Lam. ex Juss.	Sahavongo	18°01'23"S 049°07'13"E	-18.0230556	49.1202778
11-déc.-16	RALAIJAONA, Benjamina	27	100108915	Annonaceae	Polyalthia Blume	Sahavongo	18°01'25"S 049°07'13"E	-18.0236111	49.1202778
11-déc.-16	RALAIJAONA, Benjamina	28	100108915	Arecaceae	Dypsis fibrosa (C.H. Wright) Beentje & J. Dransf.	Sahavongo	18°01'25"S 049°07'12"E	-18.0236111	49.1200000
11-déc.-16	RALAIJAONA, Benjamina	30	100108915	Annonaceae	Huberantha Chaowasku	Sahavongo	18°01'23"S 049°06'54"E	-18.0230556	49.1150000
11-déc.-16	RALAIJAONA, Benjamina	31	100108915	Moraceae	Streblus Lour.	Analambo	18°03'24"S 049°20'26"E	-18.0566667	49.3405555
12-janv.-17	RALAIJAONA, Benjamina	32	100108915	Loganiaceae	Strychnos L.	Analambo	18°03'24"S 049°20'26"E	-18.0566667	49.3405555
12-janv.-17	RALAIJAONA, Benjamina	33	100108915	Fabaceae	Dialium L.	Analambo	18°03'24"S 049°20'26"E	-18.0566667	49.3405555
12-janv.-17	RALAIJAONA, Benjamina	34	100108915	Sapindaceae	Tina Schult.	Analambo	18°03'24"S 049°20'26"E	-18.0566667	49.3405555
12-janv.-17	RALAIJAONA, Benjamina	36	100108915	Sapotaceae	Mimusops L.	Analambo	18°03'24"S 049°20'26"E	-18.0566667	49.3405555
12-janv.-17	RALAIJAONA, Benjamina	38	100108915	Combretaceae	Combretum Loefl.	Analambo	18°03'25"S 049°20'26"E	-18.0569444	49.3405555

12-janv.-17	RALAIJAONA, Benjamina	39	100108915	Ochnaceae	Ouratea Aubl.	Analambo	18°03'25"S 049°20'26"E	-18.0569444	49.3405555
12-janv.-17	RALAIJAONA, Benjamina	40	100108915	Ochnaceae	Ochna L.	Analambo	18°03'26"S 049°20'25"E	-18.0572222	49.3402777
12-janv.-17	RALAIJAONA, Benjamina	43	100108915	Rubiaceae	Coffea L.	Analambo	18°03'26"S 049°20'25"E	-18.0572222	49.3402777
1-févr.-17	RALAIJAONA, Benjamina	44	100108915	Celastraceae	Salacia L.	Ambatoharagnana	18°01'28"S 049°05'26"E	-18.0244445	49.0905555
1-févr.-17	RALAIJAONA, Benjamina	45	100108915	Lauraceae	Potameia Thouars	Ambatoharagnana	18°01'28"S 049°05'26"E	-18.0244445	49.0905555
1-févr.-17	RALAIJAONA, Benjamina	46	100108915	Anacardiaceae	Campnosperma Thwaites	Ambatoharagnana	18°01'28"S 049°05'26"E	-18.0244445	49.0905555
1-févr.-17	RALAIJAONA, Benjamina	47	100108915	Lauraceae	Cryptocarya R. Br.	Ambatoharagnana	18°01'28"S 049°05'26"E	-18.0244445	49.0905555
1-févr.-17	RALAIJAONA, Benjamina	48	100108915	Sarcolaenaceae	Eremolaena Baill.	Ambatoharagnana	18°01'28"S 049°05'25"E	-18.0244445	49.0902777
1-févr.-17	RALAIJAONA, Benjamina	49	100108915	Phyllanthaceae	Uapaca Baill.	Ambatoharagnana	18°01'28"S 049°05'26"E	-18.0244445	49.0905555
1-févr.-17	RALAIJAONA, Benjamina	52	100108915	Lauraceae	Ocotea Aubl.	Ambatoharagnana	18°01'28"S 049°05'25"E	-18.0244445	49.0902777
1-févr.-17	RALAIJAONA, Benjamina	55	100108915	Apocynaceae	Landolphia P. Beauv.	Ambatoharagnana	18°01'28"S 049°05'25"E	-18.0244445	49.0902777
1-févr.-17	RALAIJAONA, Benjamina	58	100108915	Malvaceae	Grewia L.	Ambatoharagnana	18°01'25"S 049°05'22"E	-18.0236111	49.0894444
1-févr.-17	RALAIJAONA, Benjamina	59	100108915	Annonaceae	Annonaceae Juss.	Ambatoharagnana	18°01'31"S 049°05'22"E	-18.0252778	49.0894444
1-févr.-17	RALAIJAONA, Benjamina	61	100108915	Lauraceae	Ocotea Aubl.	Ambatoharagnana	18°01'32"S 049°05'21"E	-18.0255556	49.0891666
1-févr.-17	RALAIJAONA, Benjamina	62	100108915	Menispermaceae	Burasaia Thouars	Ambatoharagnana	18°01'32"S 049°05'21"E	-18.0255556	49.0891666
1-févr.-17	RALAIJAONA, Benjamina	64	100108915	Rubiaceae	Breonadia Ridsdale	Ambatoharagnana	18°01'32"S 049°05'22"E	-18.0255556	49.0894444
1-févr.-17	RALAIJAONA, Benjamina	65	100108915	Monimiaceae	Tambourissa Sonn.	Ambatoharagnana	18°01'26"S 049°05'27"E	-18.0238889	49.0908333
1-févr.-17	RALAIJAONA, Benjamina	66	100108915	Apocynaceae	Landolphia P. Beauv.	Ambatoharagnana	18°01'26"S 049°05'27"E	-18.0238889	49.0908333
5-févr.-17	RALAIJAONA, Benjamina	68	100108915	Moraceae	Trilepisium Thouars	Ambavadilana	18°01'18"S 049°05'42"E	-18.0216667	49.0950000
5-févr.-17	RALAIJAONA, Benjamina	69	100108915	Moraceae	Trilepisium Thouars	Ambavadilana	18°01'18"S 049°05'42"E	-18.0216667	49.0950000
5-févr.-17	RALAIJAONA, Benjamina	70	100108915	Annonaceae	Xylopia L.	Ambavadilana	18°01'18"S	-	49.0952777

							049°05'43"E	18.0216667	
5-févr.-17	RALAIJAONA, Benjamina	72	100108915	Primulaceae	Oncostemum A. Juss.	Ambavadilana	18°01'17"S 049°05'44"E	-18.0213889	49.0955555
5-févr.-17	RALAIJAONA, Benjamina	73	100108915	Myrtaceae	Syzygium P. Browne ex Gaertn.	Ambavadilana	18°01'16"S 049°05'43"E	-18.0211111	49.0952777
5-févr.-17	RALAIJAONA, Benjamina	74	100108915	Annonaceae	Xylopia L.	Ambavadilana	18°01'16"S 049°05'42"E	-18.0211111	49.0950000
5-févr.-17	RALAIJAONA, Benjamina	76	100108915	Celastraceae	Salacia L.	Ambavadilana	18°00'34"S 049°07'11"E	-18.0094444	49.1197223
10-mars-17	RALAIJAONA, Benjamina	77	100108915	Sapotaceae	Sideroxylon L.	Andrakônkôgno	17°52'52"S 049°13'46"E	-17.8811111	49.2294445
10-mars-17	RALAIJAONA, Benjamina	78	100108915	Poaceae	Paspalum L.	Andrakônkôgno	17°52'50"S 049°13'44"E	-17.8805556	49.2288889
10-mars-17	RALAIJAONA, Benjamina	79	100108915	Rubiaceae	Psychotria L.	Andrakônkôgno	17°52'49"S 049°13'45"E	-17.8802778	49.2291667
10-mars-17	RALAIJAONA, Benjamina	80	100108915	Poaceae	Imperata Cirillo	Andrakônkôgno	17°52'48"S 049°14'45"E	-17.8800000	49.2458333
10-mars-17	RALAIJAONA, Benjamina	81	100108915	Celastraceae	Salacia L.	Andrakônkôgno	17°52'46"S 049°13'47"E	-17.8794445	49.2297223
10-mars-17	RALAIJAONA, Benjamina	82	100108915	Moraceae	Trilepisium Thouars	Analamangahazo	17°52'48"S 049°14'08"E	-17.8800000	49.2355555
10-mars-17	RALAIJAONA, Benjamina	83	100108915	Sapindaceae	Plagioscyphus Radlk.	Analamangahazo	17°52'48"S 049°14'08"E	-17.8800000	49.2355555
13-mars-17	RALAIJAONA, Benjamina	87	100108915	Connaraceae	Rourea Aubl.	Analamangahazo	17°52'46"S 049°15'02"E	-17.8794445	49.2505556
13-mars-17	RALAIJAONA, Benjamina	89	100108915	Ebenaceae	Diospyros L.	Analamangahazo	17°52'44"S 049°15'03"E	-17.8788889	49.2508333
13-mars-17	RALAIJAONA, Benjamina	91	100108915	Primulaceae	Embelia Burm. f.	Analamangahazo	17°52'44"S 049°15'04"E	-17.8788889	49.2511111
13-mars-17	RALAIJAONA, Benjamina	92	100108915	Rubiaceae	Gaertnera Lam.	Analamangahazo	17°52'44"S 049°15'04"E	-17.8788889	49.2511111
13-mars-17	RALAIJAONA, Benjamina	94	100108915	Ebenaceae	Diospyros L.	Analamangahazo	17°52'42"S 049°15'04"E	-17.8783334	49.2511111
13-mars-17	RALAIJAONA, Benjamina	95	100108915	Erythroxylaceae	Erythroxylum P. Browne	Analamangahazo	17°52'42"S 049°15'07"E	-17.8783334	49.2519444
13-mars-17	RALAIJAONA, Benjamina	96	100108915	Fabaceae	Dialium L.	Analamangahazo	17°52'44"S 049°15'06"E	-17.8788889	49.2516667
13-mars-17	RALAIJAONA, Benjamina	99	100108915	Araliaceae	Polyscias J.R. Forst. & G. Forst.	Analamangahazo	17°52'42"S 049°15'04"E	-17.8783334	49.2511111
13-mars-17	RALAIJAONA, Benjamina	100	100108915	Annonaceae	Annonaceae Juss.	Analamangahazo	17°52'42"S 049°15'02"E	-17.8783334	49.2505556

13-mars-17	RALAIJAONA, Benjamina	101	100108915	Celastraceae	Polycardia Juss.	Analamangahazo	17°52'41"S 049°15'02"E	-17.8780556	49.2505556
13-mars-17	RALAIJAONA, Benjamina	103	100108915	Elaeocarpaceae	Elaeocarpus L.	Analamangahazo	17°52'41"S 049°15'02"E	-17.8780556	49.2505556
26-mars-17	RALAIJAONA, Benjamina	104	100108915	Ebenaceae	Diospyros L.	Sahasandana	17°57'15"S 049°18'57"E	-17.9541667	49.3158333
26-mars-17	RALAIJAONA, Benjamina	107	100108915	Malvaceae	Grewia L.	Ambatoharagnana	17°57'20"S 049°18'54"E	-17.9555556	49.3150000
26-mars-17	RALAIJAONA, Benjamina	108	100108915	Annonaceae	Fenerivia Diels	Ambatoharagnana	17°57'19"S 049°18'38"E	-17.9552778	49.3105556
28-mars-17	RALAIJAONA, Benjamina	110	100108915	Rubiaceae	Peponidium (Baill.) Arènes	Ambatoharagnana	17°57'24"S 049°18'32"E	-17.9566667	49.3088889
28-mars-17	RALAIJAONA, Benjamina	111	100108915	Hypericaceae	Hypericum L.	Ambatoharagnana	17°57'27"S 049°18'34"E	-17.9575000	49.3094444
28-mars-17	RALAIJAONA, Benjamina	112	100108915	Malvaceae	Nesogordonia Baill.	Ambatoharagnana	17°57'28"S 049°18'36"E	-17.9577778	49.3100000
28-mars-17	RALAIJAONA, Benjamina	113	100108915	Dichapetalaceae	Dichapetalum Thouars	Ambatoharagnana	17°57'37"S 049°18'47"E	-17.9602778	49.3130556
28-mars-17	RALAIJAONA, Benjamina	114	100108915	Asparagaceae	Dracaena L.	Ambatoharagnana	17°57'23"S 049°18'47"E	-17.9563889	49.3130556
28-mars-17	RALAIJAONA, Benjamina	119	100108915	Rubiaceae	Psychotria L.	Ambatoharagnana	17°57'23"S 049°18'36"E	-17.9563889	49.3100000
28-mars-17	RALAIJAONA, Benjamina	121	100108915	Malvaceae	Grewia L.	Ambatoharagnana	17°57'23"S 049°18'36"E	-17.9563889	49.3100000
9-nov.-16	RASOANINDRIANA, M. Harisandy	7	100108912	Phyllanthaceae	Uapaca densifolia Baker	Analamaimbo	17°56'00"S 049°13'16"E	-17.9333333	49.2211111
9-nov.-16	RASOANINDRIANA, M. Harisandy	8	100108912			Analamaimbo	17°55'59"S 049°13'17"E	-17.9330556	49.2213889
9-nov.-16	RASOANINDRIANA, M. Harisandy	9	100108912	Meliaceae	Malleastrum gracile J.-F. Leroy	Analamaimbo	17°55'59"S 049°13'17"E	-17.9330556	49.2213889
9-nov.-16	RASOANINDRIANA, M. Harisandy	10	100108912	Arecaceae	Dypsis lastelliana (Baill.) Beentje & J. Dransf.	Analamaimbo	17°55'59"S 049°13'19"E	-17.9330556	49.2219445
9-nov.-16	RASOANINDRIANA, M. Harisandy	13	100108912	Physenaceae	Physena Noronha ex Thouars	Analamaimbo	17°55'58"S 049°13'20"E	-17.9327778	49.2222223
9-nov.-16	RASOANINDRIANA, M. Harisandy	14	100108912	Clusiaceae	Garcinia L.	Analamaimbo	17°55'58"S 049°13'20"E	-17.9327778	49.2222223
14-nov.-16	RASOANINDRIANA, M. Harisandy	15	100108912	Annonaceae	Xylopia L.	Vohodakatra	17°56'41"S 049°12'34"E	17.9447222	49.2094444
9-déc.-16	RASOANINDRIANA, M. Harisandy	17	100108912	Clusiaceae	Garcinia L.	Ihambotoaka	18°01'16"S 049°06'51"E	-18.0211111	49.1141667

9-déc.-16	RASOANINDRIANA, M. Harisandy	18	100108912	Proteaceae	Dilobeia Thouars	Ihambotoaka	18°01'14"S 049°06'51"E	-18.0205556	49.1141667
9-déc.-16	RASOANINDRIANA, M. Harisandy	20	100108912	Rubiaceae	Mussaenda arcuata Lam. ex Poir.	Ihambotoaka	18°01'13"S 049°06'54"E	-18.0202778	49.1150000
9-déc.-16	RASOANINDRIANA, M. Harisandy	23	100108912			Ihambotoaka	18°01'10"S 049°06'53"E	-18.0194445	49.1147222
9-déc.-16	RASOANINDRIANA, M. Harisandy	26	100108912	Melastomataceae	Gravesia Naudin	Ihambotoaka	18°01'12"S 049°06'52"E	-18.0200000	49.1144444
9-déc.-16	RASOANINDRIANA, M. Harisandy	27	100108912	Moraceae	Treculia Decne. ex Trécul	Ihambotoaka	18°01'12"S 049°06'52"E	-18.0200000	49.1144444
9-déc.-16	RASOANINDRIANA, M. Harisandy	28	100108912	Malvaceae	Byttneria Loefl.	Ihambotoaka	18°01'15"S 049°06'15"E	-18.0208334	49.1041667
13-déc.-16	RASOANINDRIANA, M. Harisandy	29	100108912	Asteraceae	Asteraceae Bercht. & J. Presl	Ihambotoaka	18°01'13"S 049°06'42"E	-18.0202778	49.1116667
13-déc.-16	RASOANINDRIANA, M. Harisandy	30	100108912	Euphorbiaceae	Croton L.	Ihambotoaka	18°01'12"S 049°06'42"E	-18.0200000	49.1116667
13-janv.-17	RASOANINDRIANA, M. Harisandy	33	100108912	Araliaceae	Polyscias fraxinifolia (Baker) R. Vig.	Ihambotoaka	18°01'11"S 049°06'42"E	-18.0197223	49.1116667
13-janv.-17	RASOANINDRIANA, M. Harisandy	34	100108912	Malvaceae	Hildegardia Schott & Endl.	Ihambotoaka	18°01'10"S 049°06'43"E	-18.0194445	49.1119444
13-janv.-17	RASOANINDRIANA, M. Harisandy	36	100108912	Apocynaceae	Mascarenhasia A. DC.	Ihambotoaka	18°01'20"S 049°00'37"E	-18.0222223	49.0102778
13-janv.-17	RASOANINDRIANA, M. Harisandy	37	100108912	Acanthaceae	Mendocina Walp.	Ihambotoaka	18°01'20"S 049°06'37"E	-18.0222223	49.1102778
13-janv.-17	RASOANINDRIANA, M. Harisandy	39	100108912	Araliaceae	Polyscias J.R. Forst. & G. Forst.	Ihambotoaka	18°01'20"S 049°06'33"E	-18.0222223	49.1091667
13-janv.-17	RASOANINDRIANA, M. Harisandy	40	100108912	Anacardiaceae	Anacardiaceae R. Br.	Ihambotoaka	18°01'32"S 049°05'38"E	-18.0255556	49.0938889
29-janv.-17	RASOANINDRIANA, M. Harisandy	41	100108912	Vitaceae	Vitaceae Juss.	Ihambotoaka	18°01'31"S 049°05'38"E	-18.0252778	49.0938889
29-janv.-17	RASOANINDRIANA, M. Harisandy	42	100108912	Ebenaceae	Diospyros L.	Analamasina	17°59'21"S 049°06'58"E	-17.9891666	49.1161111
29-janv.-17	RASOANINDRIANA, M. Harisandy	43	100108912	Moraceae	Trilepisium Thouars	Analamasina	17°59'21"S 049°06'58"E	-17.9891666	49.1161111
29-janv.-17	RASOANINDRIANA, M. Harisandy	48	100108912	Hamamelidaceae	Dicoryphe Thouars	Analamasina	17°59'20"S 049°06'59"E	-17.9888889	49.1163889
29-janv.-17	RASOANINDRIANA, M. Harisandy	51	100108912	Ebenaceae	Diospyros L.	Analamasina	17°59'21"S 049°06'57"E	-17.9891666	49.1158333
29-janv.-	RASOANINDRIANA, M. Harisandy	52	100108912	Moraceae	Moraceae	Analamasina	17°59'21"S	-	49.1158333

17					Gaudich.		049°06'57"E	17.9891666	
29-janv.-17	RASOANINDRIANA, M. Harisandy	53	100108912	Burseraceae	Canarium L.	Analamasina	17°59'18"S 049°06'57"E	-17.9883333	49.1158333
29-janv.-17	RASOANINDRIANA, M. Harisandy	54	100108912	Moraceae	Trilepisium Thouars	Analamasina	17°59'18"S 049°06'57"E	-17.9883333	49.1158333
3-févr.-17	RASOANINDRIANA, M. Harisandy	55	100108912	Aphloiaceae	Aphloia theiformis (Vahl) Benn.	Analamasina	17°01'18"S 049°05'40"E	-17.0216667	49.0944444
3-févr.-17	RASOANINDRIANA, M. Harisandy	57	100108912	Annonaceae	Annonaceae Juss.	Analamasina	17°01'18"S 049°05'42"E	-17.0216667	49.0950000
3-févr.-17	RASOANINDRIANA, M. Harisandy	59	100108912	Rubiaceae	Bremeria Razafim. & Alejandro	Analamasina	18°01'17"S 049°05'41"E	-18.0213889	49.0947222
3-févr.-17	RASOANINDRIANA, M. Harisandy	60	100108912	Rutaceae	Vepris Comm. ex A. Juss.	Ambavadilana	18°01'16"S 049°05'41"E	-18.0211111	49.0947222
3-févr.-17	RASOANINDRIANA, M. Harisandy	61	100108912	Rubiaceae	Saldinia A. Rich. ex DC.	Ambavadilana	18°01'17"S 049°05'41"E	-18.0213889	49.0947222
3-févr.-17	RASOANINDRIANA, M. Harisandy	62	100108912	Lauraceae	Cryptocaria Gay	Ambavadilana	18°01'17"S 049°05'41"E	-18.0213889	49.0947222
3-févr.-17	RASOANINDRIANA, M. Harisandy	63	100108912	Erythroxylaceae	Erythroxylum P. Browne	Ambavadilana	18°01'16"S 049°05'42"E	-18.0211111	49.0950000
3-févr.-17	RASOANINDRIANA, M. Harisandy	66	100108912	Fabaceae	Entada Adans.	Ambavadilana	18°01'16"S 049°05'41"E	-18.0211111	49.0947222
3-févr.-17	RASOANINDRIANA, M. Harisandy	67	100108912	Moraceae	Ficus L.	Ambavadilana	18°01'15"S 049°05'42"E	-18.0208334	49.0950000
3-févr.-17	RASOANINDRIANA, M. Harisandy	69	100108912			Ambavadilana	18°01'15"S 049°05'41"E	-18.0208334	49.0947222
3-févr.-17	RASOANINDRIANA, M. Harisandy	71	100108912	Orchidaceae	Vanilla Mill.	Ambavadilana	18°01'14"S 049°05'40"E	-18.0205556	49.0944444
3-févr.-17	RASOANINDRIANA, M. Harisandy	72	100108912	Moraceae	Ficus L.	Ambavadilana	18°01'15"S 049°05'42"E	-18.0208334	49.0950000
3-févr.-17	RASOANINDRIANA, M. Harisandy	73	100108912	Lauraceae	Cryptocarya R. Br.	Ambavadilana	18°01'14"S 049°05'38"E	-18.0205556	49.0938889
3-févr.-17	RASOANINDRIANA, M. Harisandy	74	100108912	Hamamelidaceae	Dicoryphe Thouars	Ambavadilana	18°01'14"S 049°05'38"E	-18.0205556	49.0938889
3-févr.-17	RASOANINDRIANA, M. Harisandy	75	100108912	Celastraceae	Elaeodendron Jacq.	Ambavadilana	18°01'15"S 049°05'38"E	-18.0208334	49.0938889
7-févr.-17	RASOANINDRIANA, M. Harisandy	76	100108912	Moraceae	Ficus L.	Bisifika	18°01'30"S 049°05'16"E	-18.0250000	49.0877777
7-févr.-17	RASOANINDRIANA, M. Harisandy	77	100108912	Hamamelidaceae	Dicoryphe Thouars	Bisifika	18°01'30"S 049°05'16"E	-18.0250000	49.0877777
7-févr.-17	RASOANINDRIANA, M. Harisandy	78	100108912	Melastomataceae	Dichaetanthera Endl.	Bisifika	18°01'30"S 049°05'16"E	-18.0250000	49.0877777

3-févr.-17	RASOANINDRIANA, M. Harisandy	79	100108912	Phyllanthaceae	Uapaca Baill.	Bisifika	18°01'31"S 049°05'15"E	-18.0252778	49.0875000
7-févr.-17	RASOANINDRIANA, M. Harisandy	82	100108912	Loganiaceae	Strychnos L.	Bisifika	18°01'32"S 049°05'16"E	-18.0255556	49.0877777
7-févr.-17	RASOANINDRIANA, M. Harisandy	84	100108912	Melastomataceae	Memecylon L.	Bisifika	18°01'40"S 049°05'21"E	-18.0277778	49.0891666
9-mars-17	RASOANINDRIANA, M. Harisandy	85	100108912	Burseraceae	Canarium L.	Andriambôla	17°53'14"S 049°13'59"E	-17.8872222	49.2330556
9-mars-17	RASOANINDRIANA, M. Harisandy	86	100108912	Arecaceae	Ravenea C.D. Bouché	Andriambôla	17°53'05"S 049°13'53"E	-17.8847222	49.2313889
9-mars-17	RASOANINDRIANA, M. Harisandy	87	100108912	Rubiaceae	Hyperacanthus E. Mey. ex Bridson	Andriambôla	17°53'14"S 049°13'59"E	-17.8872222	49.2330556
6-mars-17	RASOANINDRIANA, M. Harisandy	90	100108912	Clusiaceae	Symphonia L. f.	Andriambôla	17°53'03"S 049°13'57"E	-17.8841666	49.2325000
9-mars-17	RASOANINDRIANA, M. Harisandy	92	100108912	Ebenaceae	Diospyros L.	Analamangahazo	17°53'02"S 049°15'40"E	-17.8838889	49.2611111
12-mars-17	RASOANINDRIANA, M. Harisandy	93	100108912	Ochnaceae	Ouratea Aubl.	Analamangahazo	17°53'02"S 049°15'40"E	-17.8838889	49.2611111
12-mars-17	RASOANINDRIANA, M. Harisandy	94	100108912	Erythroxylaceae	Erythroxylum P. Browne	Analamangahazo	17°53'02"S 049°15'40"E	-17.8838889	49.2611111
12-mars-17	RASOANINDRIANA, M. Harisandy	95	100108912	Rubiaceae	Gaertnera Lam.	Analamangahazo	17°53'02"S 049°15'40"E	-17.8838889	49.2611111
12-mars-17	RASOANINDRIANA, M. Harisandy	96	100108912	Myrtaceae	Syzygium P. Browne ex Gaertn.	Analamangahazo	17°53'02"S 049°15'40"E	-17.8838889	49.2611111
12-mars-17	RASOANINDRIANA, M. Harisandy	98	100108912	Rubiaceae	Chasalia DC.	Vohindrofito	17°52'52"S 049°16'00"E	-17.8811111	49.2666667
29-janv.-17	RASOANINDRIANA, M. Harisandy	100	100108912	Vitaceae	Leea D. Royen ex L.	Vohindrofito	17°52'49"S 049°16'01"E	-17.8802778	49.2669445
12-mars-17	RASOANINDRIANA, M. Harisandy	101	100108912	Burseraceae	Canarium L.	Vohindrofito	17°52'44"S 049°16'01"E	-17.8788889	49.2669445
12-mars-17	RASOANINDRIANA, M. Harisandy	102	100108912	Loganiaceae	Strychnos L.	Vohindrofito	17°52'44"S 049°15'59"E	-17.8788889	49.2663889
12-mars-17	RASOANINDRIANA, M. Harisandy	104	100108912	Rubiaceae	Gaertnera Lam.	Vohindrofito	17°52'52"S 049°16'00"E	-17.8811111	49.2666667
25-mars-17	RASOANINDRIANA, M. Harisandy	105	100108912	Cyperaceae	Cyperaceae Juss.	Ambodihasina	17°57'52"S 049°19'02"E	-17.9644444	49.3172223
25-mars-17	RASOANINDRIANA, M. Harisandy	106	100108912	Euphorbiaceae	Euphorbiaceae Juss.	Vohitraivo	17°57'50"S 049°19'32"E	-17.9638889	49.3255556
25-mars-17	RASOANINDRIANA, M. Harisandy	107	100108912	Ochnaceae	Ouratea Aubl.	Vohitraivo	17°57'50"S 049°19'33"E	-17.9638889	49.3258334
25-mars-	RASOANINDRIANA, M. Harisandy	109	100108912	Arecaceae	Dypsis Noronha ex	Vohitraivo	17°57'51"S	-	49.2258334

17					Mart.		049°13'33"E	17.9641667	
25-Mar-17	RASOANINDRIANA, M. Harisandy	112	100108912	Rubiaceae	Rubiaceae Juss.	Vohitraivo	17°57'52"S 049°19'34"E	-17.9644444	49.3261111
25-Mar-17	RASOANINDRIANA, M. Harisandy	113	100108912	Erythroxylaceae	Erythroxylum P. Browne	Vohitraivo	17°57'54"S 049°19'36"E	-17.9650000	49.3266667
25-Mar-17	RASOANINDRIANA, M. Harisandy	114	100108912	Myristicaceae	Brochoneura Warb.	Vohitraivo	17°57'55"S 049°19'38"E	-17.9652778	49.3272223
25-Mar-17	RASOANINDRIANA, M. Harisandy	115	100108912	Rubiaceae	Rubiaceae Juss.	Vohitraivo	17°57'55"S 049°19'39"E	-17.9652778	49.3275000
25-Mar-17	RASOANINDRIANA, M. Harisandy	116	100108912	Euphorbiaceae	Anthostema madagascariense Baill.	Vohitraivo	17°57'55"S 049°19'39"E	-17.9652778	49.3275000
27-Mar-17	RASOANINDRIANA, M. Harisandy	118	100108912	Rubiaceae	Psychotria L.	Ambidivohangy	17°56'58"S 049°19'51"E	-17.9494444	49.3308334
27-Mar-17	RASOANINDRIANA, M. Harisandy	119	100108912	Icacinaceae	Icacinaceae Miers	Ambidivohangy	17°56'58"S 049°19'51"E	-17.9494444	49.3308334
27-Mar-17	RASOANINDRIANA, M. Harisandy	120	100108912	Malvaceae	Grewia L.	Ambidivohangy	17°56'58"S 049°19'51"E	-17.9494444	49.3308334
27-Mar-17	RASOANINDRIANA, M. Harisandy	121	100108912	Myrtaceae	Syzygium P. Browne ex Gaertn.	Ambidivohangy	17°56'58"S 049°19'50"E	-17.9494444	49.3305556
27-Mar-17	RASOANINDRIANA, M. Harisandy	122	100108912	Araliaceae	Polyscias J.R. Forst. & G. Forst.	Ambidivohangy	17°56'58"S 049°19'50"E	-17.9494444	49.3305556
17-Mar-17	RASOANINDRIANA, M. Harisandy	125	100108912	Burseraceae	Canarium L.	Ambidivohangy	17°56'59"S 049°19'48"E	-17.9497222	49.3300000
17-Mar-17	RASOANINDRIANA, M. Harisandy	126	100108912	Arecaceae	Dypsis Noronha ex Mart.	Ambidivohangy	17°56'00"S 049°19'47"E	-17.9333333	49.3297223
29-Mar-17	RASOANINDRIANA, M. Harisandy	127	100108912	Ebenaceae	Diospyros L.	Ambidivohangy	17°57'54"S 049°19'29"E	-17.9650000	49.3247223
29-Mar-17	RASOANINDRIANA, M. Harisandy	128	100108912	Myrtaceae	Syzygium P. Browne ex Gaertn.	Vohitraivo	17°57'54"S 049°19'30"E	-17.9650000	49.3250000
10-nov.-16	SYDE, Rémi Anthony	8	100108913	Myrtaceae	Syzygium P. Browne ex Gaertn.	Rendrirendry	17°55'55"S 049°12'01"E	-17.9319445	49.2002778
10-nov.-16	SYDE, Rémi Anthony	9	100108913	Clusiaceae	Garcinia L.	Rendrirendry	17°55'59"S 049°11'57"E	-17.9330556	49.1991666
10-nov.-16	SYDE, Rémi Anthony	10	100108913	Oleaceae	Noronhia Stadtm. ex Thouars	Rendrirendry	17°56'04"S 049°11'59"E	-17.9344444	49.1997222
15-nov.-16	SYDE, Rémi Anthony	12	100108913	Burseraceae	Canarium L.	Antanetilava	17°56'29"S 049°11'09"E	-17.9413889	49.1858333
15-nov.-16	SYDE, Rémi Anthony	13	100108913	Moraceae	Ficus lutea Vahl	Antanetilava	17°56'29"S 049°11'09"E	-17.9413889	49.1858333

15-nov.-16	SYDE, Rémi Anthony	14	100108913	Phyllanthaceae	Uapaca Baill.	Antanetilava	17°56'32"S 049°11'09"E	-17.9422222	49.1858333
15-nov.-16	SYDE, Rémi Anthony	15	100108913	Hamamelidaceae	Dicoryphe Thouars	Antanetilava	17°56'28"S 049°11'08"E	-17.9411111	49.1855555
15-nov.-16	SYDE, Rémi Anthony	16	100108913	Oleaceae	Noronhia Stadtm. ex Thouars	Antanetilava	17°56'28"S 049°11'07"E	-17.9411111	49.1852777
10-déc.-16	SYDE, Rémi Anthony	19	100108913	Malvaceae	Dombeya Cav.	Vohimihambagna	17°01'32"S 049°06'48"E	-17.0255556	49.1133333
10-déc.-16	SYDE, Rémi Anthony	20	100108913	Elaeocarpaceae	Sloania St. Lager & St.-Lag.	Vohimihambagna	18°01'37"S 049°06'48"E	-18.0269445	49.1133333
10-déc.-16	SYDE, Rémi Anthony	22	100108913	Boraginaceae	Tournefortia puberula Baker	Vohimihambagna	18°01'37"S 049°06'48"E	-18.0269445	49.1133333
10-déc.-16	SYDE, Rémi Anthony	27	100108913	Melastomataceae	Medinilla Gaudich. ex DC.	Vohimihambagna	18°01'42"S 049°06'53"E	-18.0283334	49.1147222
10-déc.-16	SYDE, Rémi Anthony	28	100108913	Myrtaceae	Syzygium P. Browne ex Gaertn.	Vohimihambagna	18°01'27"S 049°07'09"E	-18.0241667	49.1191667
10-déc.-16	SYDE, Rémi Anthony	29	100108913	Moraceae	Ficus L.	Vohimihambagna	18°01'27"S 049°07'09"E	-18.0241667	49.1191667
14-déc.-16	SYDE, Rémi Anthony	30	100108913	Clusiaceae	Garcinia L.	Antanetilava	18°01'15"S 049°07'35"E	-18.0208334	49.1263889
14-déc.-16	SYDE, Rémi Anthony	31	100108913	Didymelaceae	Didymeles Thouars	Antanetilava	18°01'14"S 049°07'34"E	-18.0205556	49.1261111
14-déc.-16	SYDE, Rémi Anthony	32	100108913	Euphorbiaceae	Suregada Roxb. ex Rottler	Antanetilava	18°01'14"S 049°07'34"E	-18.0205556	49.1261111
14-déc.-16	SYDE, Rémi Anthony	33	100108913	Euphorbiaceae	Macaranga Thouars	Antanetilava	18°01'11"S 049°06'32"E	-18.0197223	49.1088889
14-déc.-16	SYDE, Rémi Anthony	34	100108913	Anacardiaceae	Micronychia Oliv.	Andalangy	18°01'11"S 049°06'31"E	-18.0197223	49.1086111
14-déc.-16	SYDE, Rémi Anthony	35	100108913	Araliaceae	Polyscias fraxinifolia (Baker) R. Vig.	Andalangy	18°01'12"S 049°06'31"E	-18.0200000	49.1086111
14-déc.-16	SYDE, Rémi Anthony	36	100108913	Araliaceae	Polyscias fraxinifolia (Baker) R. Vig.	Andalangy	18°01'12"S 049°06'31"E	-18.0200000	49.1086111
31-janv.-17	SYDE, Rémi Anthony	38	100108913	Burseraceae	Canarium L.	Sahavongo	18°01'32"S 049°05'37"E	-18.0255556	49.0936111
31-janv.-17	SYDE, Rémi Anthony	40	100108913	Euphorbiaceae	Omphalea L.	Sahavongo	18°01'32"S 049°05'38"E	-18.0255556	49.0938889
31-janv.-17	SYDE, Rémi Anthony	41	100108913	Rubiaceae	Bremeria Razafim. & Alejandro	Sahavongo	18°01'31"S 049°05'38"E	-18.0252778	49.0938889
31-janv.-	SYDE, Rémi Anthony	42	100108913	Rubiaceae	Bremeria Razafim.	Sahavongo	18°01'33"S	-	49.0936111

17					& Alejandro		049°05'37"E	18.0258334	
31-janv.-17	SYDE, Rémi Anthony	43	100108913	Salicaceae	Casearia Jacq.	Sahavongo	18°01'33"S 049°05'37"E	-18.0258334	49.0936111
31-janv.-17	SYDE, Rémi Anthony	46	100108913	Rubiaceae	Gaertnera Lam.	Sahavongo	18°01'33"S 049°05'37"E	-18.0258334	49.0936111
31-janv.-17	SYDE, Rémi Anthony	47	100108913	Moraceae	Ficus L.	Sahavongo	18°01'33"S 049°05'37"E	-18.0258334	49.0936111
31-janv.-17	SYDE, Rémi Anthony	48	100108913	Lauraceae	Cryptocaria Gay	Sahavongo	18°01'32"S 049°05'35"E	-18.0255556	49.0930555
31-janv.-17	SYDE, Rémi Anthony	50	100108913	Myrtaceae	Eugenia L.	Sahavongo	18°01'32"S 049°05'36"E	-18.0255556	49.0933333
31-janv.-17	SYDE, Rémi Anthony	51	100108913	Lauraceae	Ocotea Aubl.	Ambatoaragnana	18°01'32"S 049°05'37"E	-18.0255556	49.0936111
31-janv.-17	SYDE, Rémi Anthony	53	100108913	Clusiaceae	Garcinia L.	Ambatoaragnana	18°01'32"S 049°05'38"E	-18.0255556	49.0938889
31-janv.-17	SYDE, Rémi Anthony	54	100108913	Salicaceae	Scolopia Schreb.	Ambatoaragnana	18°01'32"S 049°05'38"E	-18.0255556	49.0938889
31-janv.-17	SYDE, Rémi Anthony	55	100108913	Sapotaceae	Mimusops L.	Ambatoaragnana	18°01'30"S 049°05'38"E	-18.0250000	49.0938889
8-févr.-17	SYDE, Rémi Anthony	56	100108913	Poaceae	Coix L.	Ambatoaragnana	18°01'14"S 049°05'35"E	-18.0205556	49.0930555
8-févr.-17	SYDE, Rémi Anthony	57	100108913	Apocynaceae	Apocynaceae Juss.	Ambatoaragnana	18°01'14"S 049°05'35"E	-18.0205556	49.0930555
8-févr.-17	SYDE, Rémi Anthony	58	100108913	Malvaceae	Dombeya Cav.	Ambatoaragnana	18°01'14"S 049°05'34"E	-18.0205556	49.0927777
8-févr.-17	SYDE, Rémi Anthony	63	100108913	Flagellariaceae	Flagellaria L.	Ambatoaragnana	18°01'07"S 049°05'34"E	-18.0186111	49.0927777
8-févr.-17	SYDE, Rémi Anthony	65	100108913	Moraceae	Ficus L.	Ambatoaragnana	18°01'05"S 049°05'37"E	-18.0180556	49.0936111
8-févr.-17	SYDE, Rémi Anthony	66	100108913	Annonaceae	Annonaceae Juss.	Ambatoaragnana	18°00'01"S 049°05'42"E	-18.0002778	49.0950000
8-févr.-17	SYDE, Rémi Anthony	67	100108913	Araliaceae	Polyscias J.R. Forst. & G. Forst.	Ambatoaragnana	18°00'59"S 049°05'43"E	-18.0163889	49.0952777
8-févr.-17	SYDE, Rémi Anthony	68	100108913	Sapindaceae	Plagioscyphus Radlk.	Ambatoaragnana	18°00'57"S 049°05'45"E	-18.0158333	49.0958333
8-févr.-17	SYDE, Rémi Anthony	69	100108913	Rubiaceae	Gaertnera Lam.	Ambatoaragnana	18°00'56"S 049°05'46"E	-18.0155556	49.0961111
8-févr.-17	SYDE, Rémi Anthony	70	100108913	Ebenaceae	Diospyros L.	Ambinany Bisifika	18°00'53"S 049°05'47"E	-18.0147222	49.0963889
8-févr.-17	SYDE, Rémi Anthony	71	100108913	Ebenaceae	Diospyros L.	Sahavongo	18°00'53"S 049°05'49"E	-18.0147222	49.0969444

8-févr.-17	SYDE, Rémi Anthony	72	100108913	Ebenaceae	Diospyros L.	Sahavongo	18°00'53"S 049°05'49"E	-18.0147222	49.0969444
10-févr.-17	SYDE, Rémi Anthony	73	100108913	Arecaceae	Dypsis Noronha ex Mart.	Andalangy	18°01'12"S 049°06'32"E	-18.0200000	49.1088889
9-mars-17	SYDE, Rémi Anthony	74	100108913	Primulaceae	Embelia Burm. f.	Marovato	17°53'08"S 049°13'53"E	-17.8855555	49.2313889
9-mars-17	SYDE, Rémi Anthony	75	100108913	Pittosporaceae	Pittosporum Banks ex Gaertn.	Sahananto	17°52'58"S 049°13'49"E	-17.8827778	49.2302778
9-mars-17	SYDE, Rémi Anthony	76	100108913	Myrtaceae	Syzygium P. Browne ex Gaertn.	Sahananto	17°52'58"S 049°13'48"E	-17.8827778	49.2300000
9-mars-17	SYDE, Rémi Anthony	77	100108913	Linaceae	Hugonia L.	Sahananto	17°52'58"S 049°13'48"E	-17.8827778	49.2300000
9-mars-17	SYDE, Rémi Anthony	78	100108913	Annonaceae	Huberantha Chaowasku	Sahananto	17°52'58"S 049°13'48"E	-17.8827778	49.2300000
9-mars-17	SYDE, Rémi Anthony	79	100108913	Burseraceae	Canarium L.	Sahananto	17°52'58"S 049°13'48"E	-17.8827778	49.2300000
9-mars-17	SYDE, Rémi Anthony	81	100108913	Annonaceae	Annonaceae Juss.	Sahananto	17°52'53"S 049°13'46"E	-17.8813889	49.2294445
9-mars-17	SYDE, Rémi Anthony	84	100108913			Sahananto	17°52'51"S 049°13'45"E	-17.8808334	49.2291667
9-mars-17	SYDE, Rémi Anthony	85	100108913	Primulaceae	Oncostemum A. Juss.	Sahananto	17°52'53"S 049°13'45"E	-17.8813889	49.2291667
12-mars-17	SYDE, Rémi Anthony	86	100108913	Primulaceae	Oncostemum A. Juss.	Vodrofito	17°52'52"S 049°13'51"E	-17.8811111	49.2308334
12-mars-17	SYDE, Rémi Anthony	87	100108913	Burseraceae	Canarium L.	Vodrofito	17°52'52"S 049°15'52"E	-17.8811111	49.2644444
12-mars-17	SYDE, Rémi Anthony	90	100108913	Ochnaceae	Ouratea Aubl.	Vodrofito	17°52'50"S 049°15'54"E	-17.8805556	49.2650000
12-mars-17	SYDE, Rémi Anthony	91	100108913	Burseraceae	Canarium L.	Vodrofito	17°52'50"S 049°15'54"E	-17.8805556	49.2650000
25-mars-17	SYDE, Rémi Anthony	92	100108913	Phyllanthaceae	Antidesma L.	Ambodihasins	17°57'33"S 049°19'00"E	-17.9591667	49.3166667
25-mars-17	SYDE, Rémi Anthony	93	100108913	Erythroxylaceae	Erythroxylum P. Browne	Ambodihasins	17°57'28"S 049°18'58"E	-17.9577778	49.3161111
25-mars-17	SYDE, Rémi Anthony	94	100108913	Rubiaceae	Gaertnera Lam.	Ambodihasins	17°57'26"S 049°18'58"E	-17.9572222	49.3161111
25-mars-17	SYDE, Rémi Anthony	95	100108913	Vitaceae	Cissus L.	Ambodihasins	17°57'18"S 049°18'58"E	-17.9550000	49.3161111
25-mars-17	SYDE, Rémi Anthony	96	100108913			Ambodihasins	17°57'18"S 049°18'57"E	-17.9550000	49.3158333
25-mars-	SYDE, Rémi Anthony	97	100108913	Poaceae	Poaceae Barnhart	Ambodihasins	17°57'18"S	-	49.3158333

17							049°18'57"E	17.9550000	
25-mars-17	SYDE, Rémi Anthony	98	100108913	Myrtaceae	Syzygium P. Browne ex Gaertn.	Ambodihasins	17°57'18"S 049°18'57"E	-17.9550000	49.3158333
25-mars-17	SYDE, Rémi Anthony	99	100108913	Erythroxylaceae	Erythroxylum P. Browne	Ambodihasins	17°57'16"S 049°18'57"E	-17.9544444	49.3158333
25-mars-17	SYDE, Rémi Anthony	100	100108913	Araliaceae	Polyscias J.R. Forst. & G. Forst.	Ambodihasins	17°57'16"S 049°18'57"E	-17.9544444	49.3158333
25-mars-17	SYDE, Rémi Anthony	101	100108913	Ebenaceae	Diospyros L.	Vôtrokolahy	17°57'16"S 049°18'57"E	-17.9544444	49.3158333
25-mars-17	SYDE, Rémi Anthony	102	100108913	Rubiaceae	Rubiaceae Juss.	Vôtrokolahy	17°57'16"S 049°18'57"E	-17.9544444	49.3158333
25-mars-17	SYDE, Rémi Anthony	103	100108913	Asparagaceae	Dracaena L.	Vôtrokolahy	17°57'16"S 049°18'56"E	-17.9544444	49.3155556
25-mars-17	SYDE, Rémi Anthony	106	100108913	Linaceae	Hugonia L.	Vôtrokolahy	17°57'25"S 049°18'52"E	-17.9569444	49.3144444
27-mars-17	SYDE, Rémi Anthony	108	100108913	Monimiaceae	Tambourissa Sonn.	Agnalabe	17°57'16"S 049°18'36"E	-17.9544444	49.3100000
27-mars-17	SYDE, Rémi Anthony	110	100108913	Malvaceae	Nesogordonia Baill.	Agnalabe	17°57'14"S 049°18'33"E	-17.9538889	49.3091667
27-mars-17	SYDE, Rémi Anthony	112	100108913	Cardiopteridaceae	Leptaulus Benth.	Agnalabe	17°57'15"S 049°18'33"E	-17.9541667	49.3091667
29-mars-17	SYDE, Rémi Anthony	114	100108913	Primulaceae	Embelia Burm. f.	Ambatoaragnana	17°57'56"S 049°18'56"E	-17.9655556	49.3155556
29-mars-17	SYDE, Rémi Anthony	115	100108913	Fabaceae	Entada Adans.	Ambatoaragnana	17°57'56"S 049°18'56"E	-17.9655556	49.3155556
29-mars-17	SYDE, Rémi Anthony	116	100108913	Lecythidaceae	Barringtonia J.R. Forst. & G. Forst.	Ambatoaragnana	17°57'56"S 049°18'56"E	-17.9655556	49.3155556
29-mars-17	SYDE, Rémi Anthony	117	100108913	Lamiaceae	Premna L.	Ambatoaragnana	17°58'03"S 049°18'57"E	-17.9675000	49.3158333
29-mars-17	SYDE, Rémi Anthony	118	100108913	Annonaceae	Annonaceae Juss.	Ambatobe	17°58'20"S 049°18'48"E	-17.9722223	49.3133333
29-mars-17	SYDE, Rémi Anthony	119	100108913	Melastomataceae	Memecylon L.	Ambatobe	17°58'20"S 049°18'50"E	-17.9722223	49.3138889
29-mars-17	SYDE, Rémi Anthony	120	100108913	Annonaceae	Monanthotaxis Baill.	Ambatobe	17°58'21"S 049°18'52"E	-17.9725000	49.3144444
29-mars-17	SYDE, Rémi Anthony	121	100108913	Araliaceae	Polyscias J.R. Forst. & G. Forst.	Ambatobe	17°58'21"S 049°18'52"E	-17.9725000	49.3144444
29-mars-17	SYDE, Rémi Anthony	122	100108913	Rubiaceae	Chassalia Comm. ex Poir.	Ambatobe	17°58'21"S 049°18'53"E	-17.9725000	49.3147222
29-mars-17	SYDE, Rémi Anthony	128	100108913	Fabaceae	Fabaceae Lindl.	Ambatobe	17°58'20"S 049°18'51"E	-17.9722223	49.3141667

29-mars-17	SYDE, Rémi Anthony	129	100108913	Araliaceae	Polyscias J.R. Forst. & G. Forst.	Ambatobe	17°58'20"S 049°18'51"E	-17.9722223	49.3141667

4.12. Seed samples propagated in the nursery

Reception in nursery	State of seeds	Sowing date	Propagation Bed	Responsible	Collection Code	Family	Taxa	Local name	Number of seeds received in nursery
11/11/2016	Bon	11-18-2016	3	Equipe	RMS007	PHYLLANTACEAE	*Uapaca densifolia*	*	1010
11/11/2016	Bon	11-14-2016	1	Equipe	RMS009	MELIACEACE	*Maleastrum gracile*	*	260
11/11/2016	Bon	11-16-2016	2	Equipe	RMS010	ARECACEAE	*Dypsis lastelliana*	*	1100
11/11/2016	Bon	11-14-2016	1	Equipe	RMS013	PHYSENACEAE	*Physena*	*	160
11/11/2016	Mauvais	*	*	Equipe	RMS014	CLUSIACEAE	*Garcinia*	*	300
21/11/2016	Bon	11-23-2016	3	Equipe	RMS015	ANNONACEAE	*Xylopia*	*	582
21/11/2016	Bon	11-24-2016	4	Equipe	RBM008	EUPHORBIACEAE	*Orfilea*	*	2400
21/11/2016	Mauvais	*	*	Equipe	RBM009	HAMAMELIDACEAE	*Dicoryphe*	*	22
21/11/2016	Bon	11-23-2016	3	Equipe	RBM011	SAPOTACEAE	*Mimusops*	*	38
21/11/2016	Bon	11-23-2016	4	Equipe	RBM013	RUBIACEAE	_	*	148
21/11/2016	Mauvais	12/02/2016	4	Equipe	RBM014	MALVACEAE	*Dombeya*	*	3000
21/11/2016	Bon	23/11/2016	3	Equipe	RBM015	OLEACEAE	*Noronhia*	Tsilaitra	161
21/11/2016	Bon	23/11/2016	3	Equipe	RBM018	RUBIACEAE	*Mantalania*	*	96
21/11/2016	Bon	24/11/2016	4	Equipe	RBM019	MALVACEAE	*Nesogordonia*	*	151
11/11/2016	Bon	17/11/2016	1	Equipe	SRA008	MYRTACEAE	*Syzygium*	Vorotra	300
11/11/2016	Bon	17/11/2016	1	Equipe	SRA010	OLEACEAE	*Noronhia*	Tsilaitra	442
21/11/2016	Bon	24/11/2016	4	Equipe	SRA012	BURSERACEAE	*Canarium*	Ramy	500
21/11/2016	Bon	23/11/2016	4	Equipe	SRA014	PHYLLANTACEAE	*Uapaca*	Voapaka	900
21/11/2016	Bon	11-24-2016	4	Equipe	SRA015	HAMAMELIDACEAE	*Dicoryphe*	Hazombato	46
21/11/2016	Bon	23/11/2016	4	Equipe	SRA016	OLEACEAE	*Noronhia*	Tsilaitra	37
21/11/2016	Bon	11-23-2016	3	Equipe	RAG 013	ARECACEAE	*Dypsis*		82
21/11/2016	Bon	11-23-2016	3	Equipe	RAG012	FABACEAE	*Dialium*	*	200

21/11/2016	Mauvais	23/11/2016	4	Equipe	RAG016	MALVACEAE	*Nesogordonia*	*	32
16/12/2016	Bon	12-16-2016	4	Equipe	RMS016	BIGNONIACEAE	*Phyllarthron*	*	20
16/12/2016	Bon	12-16-2016	4	Equipe	RMS027	MORACEAE	*Treculia*	*	200
16/12/2016	Mauvais	20/12/2016	6	Equipe	RMS029	ASTERACEAE	_	*	200
16/12/2016	Mauvais	19/12/2016	5	Equipe	RMS033	ARALIACEAE	*Polyscias*	*	200
16/12/2016	Bon	12-19-2016	5	Equipe	RMS034	MALVACEAE	*Hildegardia*	*	18
16/12/2016	Bon	12-19-2016	5	Equipe	RMS035	MALVACEAE	*Dombeya*	*	54
16/12/2016	Mauvais	19/12/2016	5	Equipe	RMS038	PRIMULACEAE	*Oncostemum*	*	18
16/12/2016	Bon	12-16-2016	4	Equipe	RMS040				22
16/12/2016	Bon	12-16-2016	5	Equipe	SRA019	MALVACEAE	*Dombeya*	Kolaimagna	200
16/12/2016	Bon	12-19-2016	5	Equipe	SRA020	ELEOCARPACEAE	*Sloanea*	Vontsanaka	138
16/12/2016	Bon	12-16-2016	4	Equipe	SRA028	MYRTACEAE	*Syzygium*	vorotra	200
16/12/2016	Bon	12-20-2016	6	Equipe	SRA029	MORACEAE	*Ficus*	Nonoka	200
16/12/2016	Bon	12-20-2016	5	Equipe	SRA033	EUPHORBIACEAE	*Macaranga*	Makaranana	200
16/12/2016	Mauvais	20/12/2016	6	Equipe	SRA034	ANACARDIACEAE	*Micronychia*	Tarantana	200
16/12/2016	Mauvais	19/12/2016	5	Equipe	SRA036	ARALIACEAE	*Polyscias fraxinifolia*	*	200
16/12/2016	Bon	12-16-2016	4	Equipe	RBM027	ANNONACEAE	*Polyalthia*	*	37
16/12/2016	Bon	12-16-2016	4	Equipe	RBM021	LAURACEAE	*Cryptocaria*	*	27
14/01/2017	Bon	21/01/2017	1	Equipe	RBM 022	HAMAMELIDACEAE	*Dicoryphe*		10
16/12/2016	Bon	12-16-2016	5	Equipe	RBM031	MORACEAE	*Streblus*	Tsipatika	200
16/12/2016	Bon	12-20-2016	6	Equipe	RBM030	ANNONACEAE	*Polyalthia*	*	16
14/01/2017	Bon	14/01/2017	1	Equipe	RBM034	SAPINDACEAE	*Tina*	*	18
14/01/2017	Bon	14/01/2017	1	Equipe	RBM033	FABACEAE	*Dialium*	*	115
16/12/2016	Bon	12-14-2016	1	Equipe	RBM039	OCHNACEAE	*Ouratea*	*	152
16/12/2016	Mauvais	19/12/2016	5	Equipe	RAG020	EBENACEAE	*Diospyros*	*	27
16/12/2016	Bon	12-16-2016	4	Equipe	RAG026	PRIMULACEAE	*Oncostemum*	*	200
16/12/2016	Bon	12-16-2016	5	Equipe	RAG031	MYRTACEAE	*Syzygium*	*	200
16/12/2016	Bon	12-20-2016	6	Equipe	RAG022	MALVACEAE	*Dombeya*	*	200
16/12/2016	Bon	12-20-2016	6	Equipe	RAG025	PRIMULACEAE	*Oncostemum*		200

16/12/2016	Bon	14/01/2017	1	Equipe	RAG032	OLEACEAE	*Noronhia*	Tsilaitra	250
16/12/2016	Bon	12-21-2016	2	Equipe	RAG023	ARECACEAE	*Dypsis*	*	200
13/02/2017	Bon	02-15-2017	7	JPH	RBM 045	LAURACEAE	*Potameia*	*	2
13/02/2017	Bon	02-16-2017	10	MTM	RBM 048	SARCOLAENACEAE	*Eremolaena*	Amaninaombilahy	14
13/02/2017	Bon	02-14-2017	7	JPH	RBM 048	SARCOLAENACEAE	*Eremolaena*	Amaninaombilahy	23
13/02/2017	Bon	02-16-2017	11	MTM	RBM 049	PHYLLANTACEAE	*Uapaca*	Voapaka	10
13/02/2017	Bon	02-16-2017	10	MTM	RBM 068	MORACEAE	*Trilepisium*	Voalelintrova	10
13/02/2017	Bon	02-16-2017	9	RVD	RBM 062	MENISPERMACEAE	*Burasaia*	Ambora	187
13/02/2017	Bon	02-15-2017	7	JPH	RBM 073	MYRTACEAE	*Sizygium*	*	2
13/02/2017	Bon	02-16-2017	9	RVD	RBM 074	ANNONACEAE	*Xylopia*	Hazoambo	20
13/02/2017	Bon	02-16-2017		RDV	RBM 061	LAURACEAE	*Ocotea*	Antafognana	40
13/02/2017	Bon	02-16-2017	10	MTM	RBM 055	APOCYNACEAE	*Landolfia*	*	10
13/02/2017	Bon	02-16-2017	10	MTM	RBM 052	LAURACEAE	*Ocotea*	Antafognana	129
13/02/2017	Bon	02-15-2017		JPL	RBM 058	MALVACEAE	*Grevia*	Afompontsy	110
13/02/2017	Bon	02-16-2017	10	MTM	RBM 046	ANACARDIACEAE	*Campinosperma*	Hazombaroragna	250
13/02/2017	Bon	02-15-2017	7	JPH	SRA 030	CLUSIACEAE	*Garcinia*	Vongo	69
13/02/2017	Bon	02-17-2017	*	ROG	SRA 073	ARECACEAE	*Dypsis*	*	Nombreux
13/02/2017	Bon	02-17-2017	3	JPL_ MTM	SRA 038	BURSERACEAE	*Canarium*	Ramy	50
13/02/2017	Bon	02-14-2017	7	JPH	SRA 040	EUPHORBIACEAE	*Omphalea*	Voasalakoho	110
13/02/2017	Bon	02-16-2017	11	JPH	SRA 041	RUBIACEAE	*Bremeria*	Sadoko misy Volony	250
13/02/2017	Bon	02-15-2017	7	JPH	SRA 043	SALICACEAE	*Casearia*	*	250
13/02/2017	Bon	02-16-2017	11	JPL	SRA 046	RUBIACEAE	*Gaertnera*	Sadoka	Nombreux
13/02/2017	Bon	02-15-2017	1	JPL	SRA 047	MORACEAE	*Ficus*	*	Nombreux
13/02/2017	Bon	02-16-2017	11	JPH	SRA 048	LAURACEAE	*Cryptocaria*	Tavolo	74
13/02/2017	Bon	02-14-2017	7	JPH	SRA 050	MYRTACEAE	*Eugenia*	Voarotra	9
13/02/2017	Bon	02-16-2017	11	JPH	SRA 051	LAURACEAE	*Ocotea*	Antafognana	11
13/02/2017	Bon	02-14-2017	7	JPH	SRA 053	CLUSIACEAE	*Garcinia*	Vongo	100
13/02/2017	Bon	02-16-2017	11	JPH	SRA 055	SAPOTACEAE	*Mimusops*	*	75
13/02/2017	Bon	02-15-2017	1	JPL	SRA 062	RUBIACEAE	_	*	250

13/02/2017	Bon	02-16-2017	4	JPL	SRA 065	MORACEAE	*Ficus*	Orondry	Nombreux
13/02/2017	Bon	02-16-2017	12	ROG, MLN	SRA 067	ARALIACEAE	*Polyscias*	*	Nombreux
13/02/2017	Bon	02-16-2017	4, 7	JPL_JPH	SRA_069	RUBIACEAE	*Gaertnera*	*	Nombreux
13/02/2017	Bon	02-16-2017	11	JPH	SRA 070	EBENACEAE	*Diospyros*	Hazomainty	250
13/02/2017	Bon	02-16-2017	11	JPH	SRA 072	EBENACEAE	*Diospyros*	Hazomainty	98
13/02/2017	Bon	02-16-2017	12	ROG; MLN	RMS017	CLUSIACEAE	*Garcinia*	*	46
13/02/2017	Bon	02-16-2017	10	MTM	RMS042	EBENACEAE	*Diospyros*	*	20
13/02/2017	Bon	02-16-2017	10, 12	MTM, ROG, MLN	RMS043	MORACEAE	*Trilepisium*	*	186
13/02/2017	Bon	02-16-2017	9	RDV	RMS052	MORACEAE	_	*	177
13/02/2017	Bon	02-16-2017	10	MTM	RMS053	BURSERACEAE	*Canarium*	*	60
13/02/2017	Bon	02-16-2017	10, 7	MTM, JPH	RMS055	APHLOIACEAE	*Aphloia theiformis*	*	Nombreux
13/02/2017	Bon	02-16-2017	10	MTM	RMS061	RUBIACEAE	*Saldinia*	*	70
13/02/2017	Bon	02-15-2017	7	JPH	RMS063	MALVACEAE	*Grevia*	*	250
13/02/2017	Bon	02-16-2017	10	MTM	RMS064	ERYTHROXYLACEAE	*Erythroxylum*	*	22
13/02/2017	Bon	02-15-2017	7	JPH	RMS067	MORACEAE	*Ficus*	*	250
13/02/2017	Bon	02-16-2017	10	MTM	RMS070	CLUSIACEAE	*Garcinia*	*	6
13/02/2017	Bon	02-16-2017	12	ROG; MLN	RMS072	MORACEAE	*Ficus*	*	Nombreux
13/02/2017	Bon	02-16-2017	9	RDV	RMS073	LAURACEAE	*Cryptocaria*	*	100
13/02/2017	Bon	02-16-2017	10	MTM	RMS074	HAMAMELIDACEAE	*Dicoryph*	*	10
13/02/2017	Bon	02-16-2017	2	ROG, MLN	RMS075	CELASTRACEAE	_	*	200
13/02/2017	Bon	02-17-2017	3	JPL_ MTM	RMS077	HAMAMELIDACEAE	*Dicory*	*	140
13/02/2017	Bon	02-17-2017	3	JPL_ MTM	RAG021	BURSERACEAE	*Canarium*	*	77
16/12/2016	Bon	21/12/2016	6	MLN_MTM	RAG 028	DIDYMELACEAE	*Didymeles*	Malefakantavy	108
13/02/2017	Bon	02-16-2017	11	JPH	RAG037	CONVALARIACEAE	*Dracaena*	*	250
13/02/2017	Bon	02-16-2017	9	RDV	RAG038	ANNONACEAE	*Xylopia*	*	519
13/02/2017	Bon	02-16-2017	SD	RDV	RAG040	LAURACEAE	*Ocotea*	*	9
13/02/2017	Bon	02-16-2017	9	RDV	RAG043	RUBIACEAE	_	*	100
13/02/2017	Bon	02-16-2017	10	RDV	RAG049	RUBIACEAE	_	*	Nombreux
13/02/2017	Bon	02-16-2017	8	ROG, MLN	RAG050	MYRTACEAE	_	*	11

13/02/2017	Bon	02-16-2017	9	RDV	RAG054	SAPINDACEAE	*Macpheisonia*	*	175
13/02/2017	Bon	02-14-2017	7	JPH	RAG055	EBENACEAE	*Diospyros*	*	139
13/02/2017	Bon	02-16-2017	7	JPH	RAG056	SARCOLAENACEAE	*Eremolaena*	*	71
13/02/2017	Bon	02-16-2017	9	RDV	RAG060	SALICACEAE	*Casearia*	*	250
13/02/2017	Bon	02-17-2017	SD	RDV	RAG065	APOCYNACEAE	_	*	6
13/02/2017	Bon	02-16-2017	9	RDV	RAG066	CLUSIACEAE	*Garcinia*	*	41
13/02/2017	Bon	02-16-2017	9,7	RDV, JPH	RAG068	ARECACEAE	_	*	48
13/02/2017	Bon	02-15-2017	7	JPH	RAG069	MALVACEAE	*Ficus*	*	250
28/03/2017	Bon	28/03/2017	25	MTM	RAG 087	MELASTOMATACEAE	*Dicaethantera*	Voatrotroka	250
28/03/2017	Bon	29/03/2017	25	MTM	RAG 090	ICACINACEAE	*Leptolus*		6
28/03/2017	Bon	28/03/2017	25	MTM	RAG 094	ARECACEAE	*Ravenea*	Anivona	620
28/03/2017	Bon	31/03/2017	4	MTM/MLN	RAG 095	ARECACEAE	*Oronia*	Ovibola	69
28/03/2017	Bon	28/03/2017	25	MLN_ROG	RAG 097	CONVALARIACEAE	*Dracaena*	Hasina	90
28/03/2017	Bon	28/03/2017	25	MLN_ROG	RAG 100	RUBIACEAE	*Psychotria*		251
28/03/2017	Bon	28/03/2017	25	MLN_ROG	RAG 101	ARALIACEAE	*Polyscias*		120
28/03/2017	Bon	28/03/2017	25	MLN_ROG	RAG 102	MONIMIACEAE	*Tambourissa*	Amboraha	250
28/03/2017	Bon	28/03/2017	25	MLN	RAG 106	LAURACEAE	*Ocotea*	Antafognana	35
28/03/2017	Bon	28/03/2017	25	MLN	RAG 107	FABACEAE	*Dialium*		140
28/03/2017	Bon	28/03/2017	25	MLN	RAG 110	RUBIACEAE	*Hyperachantus*		185
28/03/2017	Bon	28/03/2017	25	MTM	SRA 092	EUPHORBIACEAE	*Antidesima*		380
28/03/2017	Bon	28/03/2017	25	MTM	SRA 093	ERYTHROXYLACEAE	*Erythroxylum*	Sakairano	210
28/03/2017	Bon	28/03/2017	25	MTM	SRA 094	RUBIACEAE	*Gaertnera*	Sadodoka	1110
28/03/2017	Bon	28/03/2017	3	JPL	SRA 096			Telotritra	30
28/03/2017	Bon	28/03/2017	3	JPL	SRA 098	MYRTACEAE	*Syzygium*	Rodambo	250
28/03/2017	Bon	28/03/2017	3	JPL	SRA 099	ERYTHROXYLACEAE	*Erthroxylum*	Sakay ala	12
28/03/2017	Bon	28/03/2017	3	JPL	SRA 101	EBENACEAE	*Diospyros*	Hazo Mainty	170
28/03/2017	Bon	28/03/2017	3	JPL	SRA 102	RUBIACEAE			12
28/03/2017	Bon	28/03/2017	3	JPL	SRA 103	CONVALARIACEAE	*Dracaena*	Hasina	260
28/03/2017	Bon	04/04/2017	25	MLN	SRA 108	MONIMIACEAE	*Tambourissa*		77

28/03/2017	Bon	04/04/2017	25	MLN	SRA 110	MALVACEAE	*Nesogordonia*		140
28/03/2017	Bon	28/03/2017	25	MTM/MLN	SRA 112	ICACINACEAE	*Leptolus*		19
28/03/2017	Bon	28/03/2017	25	MLN	RBM 104	EBENACEAE	*Diospyros*	Hazo Mainty	8
28/03/2017	Bon	28/03/2017	25	MLN_ROG_DVD	RBM 108	ANNONACEAE	*Fenerivia*	Ombavy	166
28/03/2017	Bon	28/03/2017	25	MLN	RBM 110	RUBIACEAE	*Peponidium*		120
28/03/2017	Bon	28/03/2017	25	MLN	RBM 111	CLUSIACEAE	*Hypericum*	hazo Handatra	40
28/03/2017	Bon	28/03/2017	25	MLN	RBM 112	MALVACEAE	*Nesogordonia*		6
28/03/2017	Bon	28/03/2017	25	DVD	RMS 106	EUPHORBIACEAE			250
28/03/2017	Mauvais	28/03/2017	25	DVD	RMS 107	OCHNACEAE			3
28/03/2017	Bon	28/03/2017	25	DVD	RMS 109	ARECACEAE	*Dypsis*		61
28/03/2017	Bon	28/03/2017	25	DVD	RMS 112	RUBIACEAE	*Dypsis*		19
28/03/2017	Bon	28/03/2017	25	DVD	RMS 113	ERYTHROXYLACEAE			10
28/03/2017	Bon	28/03/2017	25	DVD	RMS 114	MYRISTICACEAE			14
28/03/2017	Bon	28/03/2017	25	DVD	RMS 115	RUBIACEAE			66
28/03/2017	Bon	31/03/2017	4	MTM/MLN	RMS 116	EUPHORBIACEAE			80
28/03/2017	Bon	31/03/2017	4	MTM/MLN	RMS 118	RUBIACEAE		Kafe ala	83
28/03/2017	Bon	31/03/2017	25	MTM/JPL	RMS 119	ICACINACEAE		Hazoandatra	72
28/03/2017	Bon	04/04/2017	25	JPL	RMS 121	MYRTACEAE			380
28/03/2017	Bon	31/03/2017	4	MTM/MLN	RMS 122	ARALIACEAE	*Polyscias*		110
28/03/2017	Bon	31/03/2017	4	MTM/MLN	RMS 125	BURSERACEAE	*Canarium*	Ramy	4
28/03/2017	Bon	31/03/2017	4	MTM/MLN	RMS 126	ARECACEAE	*Dypsis*		210
28/03/2017	Bon	28/03/2017	4	DVD	RAG 112	MYRTACEAE	*Syzygium*		396
28/03/2017	Bon	28/03/2017	7	JPH	RAG 114	BURSERACEAE	*Canarium*	Ramy	17
28/03/2017	Bon	28/03/2017	25	DVD	RAG 115	EBENACEAE	*Diospyros*		111
28/03/2017	Bon	28/03/2017	1	JPH	RAG 116	ARECACEAE	*Dypsis*	Hasinkara	55
28/03/2017	Bon	28/03/2017	1	JPH	RAG 117	DIDYMELACEAE	*Didymeles*		66
28/03/2017	Bon	28/03/2017	1	JPH	RAG 119	CONVALARIACEAE	*Dracaena*	Hasina	94
28/03/2017	Bon	28/03/2017	1	JPH	RAG 120	MYRTACEAE	*Syzygium*	Rotra	120
03/04/2017	Bon	04/04/2017	25	MLN	SRA 116	LECYTHIDACEAE	*Barringtonia*	Fotatra	11

03/04/2017	Bon	04/04/2017	25	MLN	SRA 117	LAMIACEAE	*Premna*		59
03/04/2017	Bon	04/04/2017	25	MLN	SRA 118	ANNONACEAE		Voantsoko' ala	625

4.13. Seed samples dispatched to SNGF for inclusion in seed banks

Shipment	Code	Collection date	Familly	Taxa	Vernacular name	Numberr	Pre-treatment
1	SRA_035	08/12/2016	ARALIACEAE	*Polyscias*	Ambonambona	896	Depulpage_vannage
1	RMH_033	08/12/2016	ARALIACEAE	*Polyscias*	Ambonambona	500	Depulpage_vannage
1	RAG_023	08/12/2016	ARECACEAE	*Dypsis*	*	135	Depulpage_vannage
1	RMH_037	08/12/2016	ACANTHACEAE	*Mendocia*	*	11	Depulpage_vannage
1	SRA_027	08/12/2016	MELASTOMATACEAE	*Medinella*	*	100	Depulpage_vannage
1	SRA_018	07/11/2016	BURSERACEAE	*Canarium*	Ramy	500	Depulpage_vannage
1	RMH_020	08/12/2016	RUBIACEAE	*Bremeria*	*	Nombreux	Depulpage_vannage
1	RBM_031	08/12/2016	MORACEAE	*Streblus*	Tsipatika	330	Depulpage, nettoyage
1	RBM_026	08/12/2016	LILIACEAE	*Diannella*	Rangazaha	210	Decoticage, vannage
1	SRA_028	08/12/2016	MYRTACEAE	*Syzygium*	Rotro	1000	Decoticage, vannage
1	RAG_026	08/12/2016	PRIMULACEAE	*Oncostemum*	*	500	Depulpage, nettoyage
1	RMH_028	08/12/2016	MALVACEAE	*Bittneria*	*	Nombreux	Decorticage
1	RMH_029	08/12/2016	ASTERACEAE	*	*	500	Decortcage, vannage
1	RAG_018	07/11/2016	APOCYNACEAE	*Plectaneia*	*	510	Decorticage
1	RMH_010	07/11/2016	ARECACEAE	*Dypsis lasteliana*	Menavozona	648	Depulpage, nettoyage
1	SRA_012	07/11/2016	BURSERACEAE	*Canarium*	Ramy	323	Nettoyage
1	RBM_008	07/11/2016	EUPHORBIACEAE	*Orfilea*	*	380	Decorticage,nettoyage
1	RMH_015	07/11/2016	ANNONACEAE	*Xylopia*	Hazoambo	90	Decorticage
1	RAG_012	07/11/2016	FABACEAE	*Dialium*	*	116	Decorticage
1	SRA_008	07/11/2016	MYRTACEAE	*Syzygium*	Rotro	171	Nettoyage
2	RMS_083	01/03/2017	ONAGRACEAE	*Ludwigia*	*	Nombreux	Depulpage_nettoyage
2	SRA_038	01/03/2017	BURSERACEAE	*Canarium*	Ramy	3	Depulpage_nettoyage
2	SRA_041	01/03/2017	RUBIACEAE	*Bremeria*	Sadoko_misy_Volony	Nombreux	Depulpage_nettoyage
2	SRA_043	01/03/2017	SALICACEAE	*Casearia*	*	Nombreux	Depulpage_nettoyage
2	SRA_046	01/03/2017	RUBIACEAE	*Gaertnera*	Sadoka	Nombreux	Depulpage_nettoyage
2	SRA_056	01/03/2017	POACEAE	*Coix*	Fatakana	230	Depulpage_nettoyage
2	SRA_063	01/03/2017	POACEAE	*Flagelaria*	Vahipiky	Nombreux	Depulpage_nettoyage

2	SRA_065	01/03/2017	MORACEAE	*Ficus*	Orondry	Nombreux	Depulpage_nettoyage
2	SRA_066	01/03/2017	ANNONACEAE	*	*	658	Depulpage_nettoyage
2	SRA_067	01/03/2017	ARALIACEAE	*Polyscias*	*	Nombreux	Depulpage_nettoyage
2	SRA_067	01/03/2017	ARALIACEAE	*Polyscias*	*	Nombreux	Depulpage_nettoyage
2	SRA_068	01/03/2017	SAPINDACEAE	*	*	123	Depulpage_nettoyage
2	SRA_069	01/03/2017	RUBIACEAE	*Gaertnera*	*	Nombreux	Depulpage_nettoyage
2	SRA_070	01/03/2017	EBENACEAE	*Diospyros*	Hazomainty	Nombreux	Depulpage_nettoyage
2	SRA_073	01/03/2017	ARECACEAE	*Dypsis*	*	269	Depulpage_nettoyage
3	RAG_072	30/03/2017	RUBIACEAE	*Gaertnera*	*	3200	Depulpage_nettoyage
3	RAG_075	30/03/2017	TACCACEAE	*Tacca*	*	320	Depulpage_nettoyage
3	RAG_076	30/03/2017	ARECACEAE	*	*	141	Depulpage_nettoyage
3	RAG_080	30/03/2017	MORACEAE	*Trophis*	*	1983	Depulpage_nettoyage
3	RAG_081	30/03/2017	RUBIACEAE	*Gaertnera*	*	714	Depulpage_nettoyage
3	RBM_078	30/03/2017	POACEAE	*Paspalum*	Ramily	9500	Depulpage_nettoyage
3	RBM_079	30/03/2017	POACEAE	*Paspalum*	Ahitsoavaly	54000	Depulpage_nettoyage
3	RBM_082	30/03/2017	MORACEAE	*Trilepsium*	Voalelintrova	1054	Depulpage_nettoyage
3	RBM_087	30/03/2017	CONNARACEAE	*	*	131	Depulpage_nettoyage
3	RBM_091	30/03/2017	TRIMULACEAE	*Embelia*	*	1000	Depulpage_nettoyage
3	RBM_092	30/03/2017	RUBIACEAE	*Gaertnera*	*	339	Depulpage_nettoyage
3	RBM_100	30/03/2017	ANNONACEAE	*	*	5	Depulpage_nettoyage
3	RBM_080	30/03/2017	POACEAE	*Imperata*	Tenina	Nombreux	Depulpage_nettoyage
3	RMS_086	30/03/2017	ARECACEAE	*	*	4370	Depulpage_nettoyage
3	RMS_087	30/03/2017	RUBIACEAE	*	*	56	Depulpage_nettoyage
3	SRA_074	30/03/2017	*	*	*	3060	Depulpage_nettoyage
3	SRA_075	30/03/2017	PITTOSPORACEAE	*Pittosporum*	Maimbovitsika	11264	Depulpage_nettoyage
3	SRA_077	30/03/2017	LINACEAE	*Hugonia*	*	206	Depulpage_nettoyage
3	RMS_095	30/03/2017	*	*	*	120	Depulpage_nettoyage
4	RAG_084	24/04/2017	POACEAE	*	Tsiposiposy	Nombreux	Depulpage_nettoyage

4	RAG_085	24/04/2017	POACEAE	*Paspalum*	Ramilihy	Nombreux	Depulpage_nettoyage
4	RAG_086	24/04/2017	POACEAE	*	Ahidroranga	Nombreux	Depulpage_nettoyage
4	RAG_088	24/04/2017	POACEAE	*Paspalum*	Fotsivody	Nombreux	Depulpage_nettoyage
4	RAG_089	24/04/2017	POACEAE	*Paspalum*	Ahitsoavaly	Nombreux	Depulpage_nettoyage
4	RAG_096	24/04/2017	POACEAE	*	Bambou	0	Depulpage_nettoyage
4	RAG_104	24/04/2017	POACEAE	*	*	0	Depulpage_nettoyage
4	RAG_105	24/04/2017	POACEAE	*	Bozaka	0	Depulpage_nettoyage
4	RAG_108	24/04/2017	ANNONACEAE	*Monanthotaxis*			Depulpage_nettoyage
4	RAG_111	24/04/2017	POACEAE	*	Tenina	0	Depulpage_nettoyage
4	SRA_095	24/04/2017	VITACEAE	*Cissus*	Vahindavenona	42	Depulpage_nettoyage
4	SRA_097	24/04/2017	POACEAE	*	*	0	Depulpage_nettoyage
4	SRA_106	24/04/2017	LINACEAE	*Hugonia*	Vahipen_omby	4436	Depulpage_nettoyage
4	SRA_113	24/04/2017	ANNONACEAE	*	*	0	Depulpage_nettoyage
4	RAG_102	24/04/2017	MONIMIACEAE	*Tamborissa*	Ambora	100	Depulpage_nettoyage
4	RAG_118	24/04/2017	ARECACEAE	*Ravenea*		6350	Depulpage_nettoyage
4	RMS_105	24/04/2017	CYPERACEAE	*	*	Nombreux	Depulpage_nettoyage
4	RAG_094	24/04/2017	ARECACEAE	*Ravenea*		370	Depulpage_nettoyage
4	RAG_112	24/04/2017	MYRTACEAE	*Syzigium*		146	Depulpage_nettoyage
4	SRA_092	24/04/2017	EUPHORBIACEAE	*Antidesima*	Hazombato	130	Depulpage_nettoyage
4	SRA_094	24/04/2017	RUBIACEAE	*Gaertnera*	Sadodoka	860	Depulpage_nettoyage
4	SRA_114	24/04/2017	PRIMULACEAE	*Ombelia*	Vahimasina	3525	Depulpage_nettoyage
4	SRA_115	24/04/2017	FABACEAE	*Antanda*	Vahinkarabo	12	Depulpage_nettoyage
4	SRA_118	24/04/2017	ANNONACEAE	*	Voantsokonala	375	Depulpage_nettoyage
4	SRA_120	24/04/2017	ANNONACEAE	*Monanthotaxis*	Vahintsirotra	236	Depulpage_nettoyage
4	RBM_113	24/04/2017	DICHAPETALACEAE	*Dichapetalum*	Vahimazana	206	Depulpage_nettoyage
4	RBM_121	24/04/2017	MALVACEAE	*Grewia*	Afopotsy	1645	Depulpage_nettoyage
4	RMS_121	24/04/2017	MYRTACEAE	*Syzigium*		130	Depulpage_nettoyage
4	RAG_100	24/04/2017	RUBIACEAE	*Psychotria*		28	Depulpage_nettoyage
4	RBM_107	24/04/2017	MALVACEAE	*Grewia*	Afopotsy	1300	Depulpage_nettoyage

Appendix 4.14. Historical rainfall data from Parc Ivoloina, Toamasina: 1917 to 1967 (Source: Dufournet, R. and de Haute de Sigy, G. 1968. Document No. 151. IRAM.)

	Rainfall (in mm)												
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	total
1917	266.5	663.8	230.4	172.4	93.3	86.4	143.5	272.6	141.2		175.3	270.0	2248.9
1918	424.5	200.6	207.4	188.1	148.0	140.0	174.1	110.6		51.2	133.1	75.1	1428.2
1919	319.8	357.7	257.4	353.9	192.3	320.6	312.3	116.6		92.9	147.9	313.3	2464.9
1920													
1921	294.0	152.3	179.9	148.4	119.7	119.7	117.8	188.6	195.5	161.5	125.3	200.3	1709.0
1922	249.9	89.1	159.4	378.5	235.9	201.2	268.7	343.8	127.0	154.8	26.3	65.4	2050.1
1923	319.9	437.9	134.3	748.8	283.6	150.2	333.0	247.1	101.3	41.6	30.4	190.8	2699.0
1924	800.3	173,4	937.0	244.1	376.4	312.4	279.8	254.6	141.1	49.0	110.6	243.0	2948.0
1925	744.4	205.8	415.6	385.0	64.1	73.0	89.2	208.9	248.4	235.9	296.2	832.0	3054.1
1926	391.3	419.5	296.4	120.2	444.4	127.1	536.7	230.1	266.8	106.0	104.3	566.7	3218.2
1927	417.3	643.1		573.4	259.0	95.4	372.7	347.2	92.5	71.5	154.5	265.4	2874.7
1928	247.9	474.2	324.7	374.4	199.2	123.8	278.7	163.4	107.4	30.1	153.7	396.7	2626.3
1929	317.9	578.4	280.7	234.7	156.6	104.2	224.1	107.5	128.0	30.5	9.7	242.7	2097.1
1930	530.9	586.5	601.3	238.6	333.0	90.5	83.0	212.5	107.3	76.6	73.9	98.3	2501.5
1931	447.4	511.5	1044.9	495.2	343.3	186.6	179.5	153.8	85.1	200.1	722.5	274.5	4197.0
1932	405.5	276.1	184.4	580.5	258.1	127.5	114.5	132.9	291.9	107.4	244.5	478.2	2796.0
1933	518.5	797.0	539.5	803.3	154.4	836.7	204.7	272.5	181.2	15.3	66.5	529.7	4400.8
1934	461.0	515.2	466.3	551.1	484.9	254.5	186.6	387.3	141.8	54.9	148.7	377.2	3568.5
1935	327.9	509.8	282.1	538.7	204.7	212.5	263.9	120.0	81.9	19.4	118.5	429.0	2780.5
1936	327.8	97.6	577.7	272.4	243.7	423.7	338.7	164.9	154.8	68.8	74.2	214.4	2630.9
1937	276.0	325.3	766.5	110.2	256.0	195.5	145.5	299.8	119.5	84.2	27.1	140.4	2470.0
1938	397.9	588.0	513.5	275.3	295.6	329.8	250.7	98.5	140.7	144.3	70.9	112.5	2819.8
1939	191.9	364.5	234.8	414.6	181.6	159.6	480.9	250.9	140.4	42.5	66.0	183.0	2518.8
1940	414.6	1194.8	597.9	264.0	91.0	113.7	211.6	271.8	87.8	64.7	213.6	142.0	3252.9
1941	583.8	275.4	265.5	359.5	150.4	244.9	283.1	231.1	130.9	217.7	275.7	147.6	2581.8
1942	437.4	110.8	463.3	192.7	174.5	240.7	203.4	202.9	132.3	113.2	104.7	256.9	2195.4

	Number of days of rainfall												
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	total
1917	18	18	15	15	7	10	10	23	14		14	17	143
1918	19	10	13	16	11	17	19	14		9	8	11	128
1919	11	10	14	13	15	14	28	16		8	6	11	135
1920													
1921	9	7	9	16	11	21	21	24	16	14	9	7	155
1922	15	11	15	18	23	21	24	26	15	10	8	9	180
1923	18	18	11	18	18	15	24	23	12	12	6	16	173
1924	26	14	24	18	20	15	21	16	15	9	9	13	174
1925	15	12	17	22	7	9	15	11	9	8	13	20	143
1926	14	15	14	10	15	16	20	15	13	10	11	17	156
1927	16	19		15	18	14	22	19	14	11	12	22	166
1928	21	15	20	17	19	17	26	17	18	7	19	21	196
1929	20	19	24	12	11	15	23	13	16	7	4	20	164
1930	21	15	24	14	16	10	11	21	11	13	10	15	160
1931	25	21	26	20	15	18	22	22	15	15	19	17	210
1932	20	22	19	28	25	16	19	27	26	23	20	23	248
1933	19	22	22	23	21	22	30	25	20	9	13	21	228
1934	22	22	23	23	23	27	19	29	20	12	13	26	146
1935	16	17	23	24	16	25	25	15	17	6	18	21	207
1936	19	15	18	21	15	29	24	15	18	8	11	5	179
1937	19	18	21	13	15	12	16	26	13	9	6	16	165
1938	18	18	19	15	9	18	19	13	15	15	8	9	158
1939	17	16	16	25	17	17	18	22	17	12	17	20	197
1940	23	24	21	20	13	19	18	21	15	16	14	14	195
1941	24	18	14	15	20	20	20	23	15	10	16	16	187
1942	23	11	18	19	19	19	26	23	126	16	14	20	311

1943	544.2	318.0	315.1	34.6	94.5	309.6	130.4	99.6	147.5	36.6	30.9	68.6	1585.4
1944	224.6	213.4	382.8	575.5	91.9	152.1	225.4	89.5	146.4	103.7	236.3	128.8	2345.8
1945	110.4	588.2	112.8	225.1	181.7	52.4	114.5	350.1	53.8	57.2	160.9	330.2	2226.9
1946	667.2	393.3	587.2	475.8	156.4	205.0	157.7	331.4	114.5	85.2	473.3	281.7	3261.5
1947	209.6	227.1	560.8	401.1	161.4	145.7	31.9	154.7	136.6	5.4	35.0	62.2	1921.9
1948	181.8	40.9	143.0	141.3	172.1	140.6	136.7	180.5	120.8	36.7	43.6	93.3	1249.5
1949	111.8	457.3	898.0	666.3	591.9	239.3	228.2	60.2	42.0	26.9	41.9	44.0	3296.0
1950	526.0	504.3	170.9	211.5	67.0	127.4	345.0	98.3	110.8	57.5	105.8	168.3	1966.8
1951	516.8	657.5	363.4	102.3	70.3	129.0	183.5	260.4	167.5	64.1	444.7	135.4	2578.1
1952	429.0	514.3	727.7	501.1	1401.5	646.0	307.0	441.5	104.5	99.9	107.9	145.8	4997.2
1953	140.7	126.7	208.2	183.1	83.5	298.3	314.9	250.9	220.8	161.4	117.3	118.5	2083.6
1954	337.9	285.2	236.2	169.4	278.5	294.5	115.7	150.3	118.6	54.4	97.0	163.3	1963.1
1955	344.6	314.0	384.6	129.8	184.3	274.3	119.6	88.4	122.8	36.3	91.3	337.0	2082.4
1956	556.7	1215.7	568.7	288.4	391.1	141.8	174.2	77.8	48.3	43.0	107.6	347.0	3403.6
1957	281.5	202.7	456.1	402.3	95.0	167.4	163.7	125.3	119.1	16.1	21.8	402.2	2171.7
1958	275.2	379.9	538.1	430.9	177.9	256.0	57.5	319.4	124.2	215.7	159.4	226.6	2885.6
1959	557.6	360.1	1084.6	144.0	149.3	196.9	227.8	106.7	97.8	83.5	350.7	77.1	2878.5
1960	506.7	148.2	231.9	118.6	185.5	239.7	172.0	115.6	177.9	52.4	42.2	100.1	1584.1
1961	185.3	98.4	133.0	154.3	111.8	280.5	388.8	257.5	134.1	29.5	205.0	588.7	2381.6
1962	247.2	446.9	286.2	121.8	236.8	122.8	134.5	326.2	163.7	125.1	84.0	133.5	2181.5
1963	336.8	582.8	1020.3	254.1	181.4	88.4	260.0	94.7	81.3	46.6	366.8	594.2	3570.6
1964	120.1	376.3	560.0	183.7	151.6	429.5	392.0	185.1	173.0	185.4	194.1	243.2	3073.9
1965	457.6	166.9	1021.3	141.7	164.3	57.7	410.2	376.5	127.6	122.5	359.6	629.1	3577.4
1966	221.1	482.1	298.0	219.2	137.0	352.5	274.8	178.9	75.5	52.1	179.6	346.1	2595.8
1967	262.9	202.8	360.7	256.8	333.2	314.9	307.1	351.8	49.7	245.2	100.0	543.6	3065.8
mean	369.4	401.6	441.0	311.0	231.9	218.7	229.0	209.2	131.7	87.3	156.6	267.1	2661.2
st dev	159.3	247.3	267.6	182.4	202.6	143.5	108.9	97.7	51.9	62.5	136.6	179.2	743.1
min	110.4	40.9	112.8	34.6	64.1	52.4	31.9	60.2	42.0	5.4	9.7	44.0	1249.5
max	800.3	1215.7	1084.6	803.3	1401.5	836.7	536.7	441.5	291.9	245.2	722.5	832.0	4997.2

21	22	19	9	13	25	13	17	20	12	8	9	167
17	17	20	19	13	12	25	15	15	16	14	15	181
15	15	17	17	16	13	24	29	18	6	21	21	197
22	22	27	20	19	20	26	29	19	16	24	18	240
19	17	24	24	16	21	10	22	12	7	10	13	176
21	8	17	17	20	23	24	23	15	14	12	17	190
13	20	22	26	27	13	12	11	13	6	5	8	163
17	14	13	17	16	14	22	13	14	5	8	11	147
16	15	17	14	7	11	20	28	14	10	20	13	169
20	16	19	22	21	22	21	22	15	12	9	7	186
11	10	11	18	9	16	21	22	19	19	12	11	168
14	17	15	18	20	22	17	18	18	8	18	15	186
20	19	24	23	16	23	21	15	19	13	13	19	205
26	27	23	19	26	22	17	16	12	14	14	15	205
17	21	26	21	14	16	18	18	19	9	10	22	194
20	15	20	14	21	27	13	20	21	19	14	18	202
22	18	25	17	17	20	29	20	15	25	20	12	218
25	21	23	19	20	23	22	28	21	16	20	19	232
16	15	24	22	17	17	29	30	22	14	14	26	230
18	20	24	25	22	15	24	22	19	23	14	17	225
24	19	26	23	22	18	25	19	23	13	19	24	231
16	22	20	23	23	19	27	23	23	17	17	19	233
23	16	21	18	18	16	20	24	22	21	28	27	231
26	21	24	15	18	25	26	27	17	18	14	21	226
23	20	20	19	27	25	23	28	18	19	15	21	235
19	17	20	19	17.1	18.3	21	21	19	13	13	17	191
4.1	4.3	4.5	4.2	5.01	4.83	4.9	5.3	16	4.9	5.2	5.3	35.5
9	7	9	9	7	9	10	11	9	5	4	5	128
26	27	27	28	27	29	30	30	126	25	28	27	311

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