

## Biodiversity Challenge Funds Projects Darwin Initiative, Illegal Wildlife Trade Challenge Fund, and Darwin Plus Half Year Report

*Note: If there is any confidential information within the report that you do not wish to be shared on our website, please ensure you clearly highlight this.*

**Submission Deadline: 31<sup>st</sup> October 2023**

<b>Project reference</b>	28-012
<b>Project title</b>	Native grass forage management to feed people and protect forests.  Alternative titles: Harena Voajanahary sy Kijana Mamokatra; Darwin Initiative - Productive Pasture Partnership (DI-PPP)
<b>Country(ies)/territory(ies)</b>	Madagascar
<b>Lead partner</b>	Royal Botanic Gardens, Kew (Kew)
<b>Partner(s)</b>	Missouri Botanical Gardens Madagascar (MBG), Royal Botanic Garden Edinburgh (RBGE, Caroline Lehmann), University of Pretoria, Plant and Soil Sciences Department and Enterprises University of Pretoria (UP, Wayne Truter), Sarobidy Rakotonarivo, consultant sociologist (University of Antananarivo, School of Agronomy)
<b>Project leader</b>	Maria Vorontsova & Mamy Tiana Rajaonah
<b>Report date and number (e.g. HYR1)</b>	April 2023 – September 2023  HYR2
<b>Project website/blog/social media</b>	Project Facebook page <a href="https://www.facebook.com/KMCCMBG">https://www.facebook.com/KMCCMBG</a>  Twitter @vorontsovams; photos at <a href="https://www.flickr.com/photos/36803481@N06/">https://www.flickr.com/photos/36803481@N06/</a> ; videos at <a href="https://www.youtube.com/channel/UCF-lArgyzK3zMvdG0fCe7hw">https://www.youtube.com/channel/UCF-lArgyzK3zMvdG0fCe7hw</a>

**Outline progress over the last 6 months (April – Sept) against the agreed project implementation timetable (if your project has started less than 6 months ago, please report on the period since start up to end September).**

### **Output 0: project setup and wellbeing.**

The project's international experts visited the project sites in April 2023 (**Activity 0.3**), Pr Wayne Truter and Dr Maria Vorontsova. The visit provided an opportunity to adjust the project's approach in response to the situation on the ground and the progress of activities, as well as to give advice to project beneficiaries and technicians on zebu breeding and fodder management.

At the beginning of September, the Director of Protected Areas and Renewable Resources from Madagascar's Ministry of the Environment visited the project's activities at Itremo and showed great interest in the research being carried out as part of the project. He recommended sharing the results of the project with Madagascar's protected areas.

The project midline social survey assessment took place in July 2023 (**Activity 0.9**). It included 85 surveys with the beneficiaries (compared to 86 in the baseline) of the project and 71 surveys with control households (compared to 75 in the baseline). During this midline survey, beneficiaries were asked about the benefits they had gained most from the project and the responses were as follows:

- Increased knowledge on the various cattle fodders (hay making, crop residue, sorghum cultivation). Many of them perceived that the application of these new knowledge has led to tangible improvement in their cattle productivity, milk and manure production,
- Regular monitoring by the project staff and health checks: Many respondents highly valued this and reported that their cattle are in much better health and are stronger because of the monitoring,
- The job opportunities provided by the project, and its positive impacts on their livelihoods.

Many reported that the benefits exceeded their expectations and even if the project is only a couple years old, they've started seeing improved cattle health and productivity as a result of the project activities. Households in the three sites have comparatively low GPI scores (less than 12 on average), meaning they overall rated their well-being as average. These scores have not changed much across the baseline and midline assessment.

### **Output 1: Improved preservation, understanding and more efficient exploitation of native and endemic forage grasses and forbs, in native grasslands near villages.**

To protect the experimental pastures on the 3 sites from fire, the firebreaks around them are maintained (**Activity 1.1**). Each 1 ha pasture, whether burnt or unburnt, was split into 4 plots in order to set up a grazing rotation trial (**Activity 1.2**). In Ibity and Ankafobe, the project cows like to graze on burnt pasture rather than unburnt pasture. Half hectare of burnt experimental is enough for 4 cattle during 4 days with silage supplementation in Ibity. At Itremo, the project's cows do not like to graze on the two unburnt pastures. The causes of this result at Itremo will be identified later.

Our Grass Botanist carried out 3 missions as part of the project to monitor the grass and forb frequency and diversity (**Activity 1.4**) in the project sites to collect data on GGG plots, visit to the experimental pasture and focus group. The results of this monitoring and collection are as follows: 15 GGG plots are done and recorded into GGG field datasheet with 5 GGG plots in Ibity and 10 GGG plots in Ankafobe, collection of 60 specimens in all sites with 33 specimens in Ibity, 20 specimens in Ankafobe and 07 specimens in Itremo. The following table shows the identification made both in the field and with expert in the grassland and in the forest (only Poaceae) of all sites. In total 152 specimens are identified at least to family level.

FAMILY	SPECIMENS
Poaceae	82
Cyperaceae	17
Asteraceae	14
Fabaceae	13
Rubiaceae	4
Lamiaceae	3
Oxalidaceae	3
Malvaceae	2
Orchidaceae	2
Dioscoreaceae	2
Amaryllidaceae	1
Apocynaceae	1
Caryophyllaceae	1
Cleomaceae	1
Convolvulaceae	1
Euphorbiaceae	1
Gentianaceae	1
Melastomataceae	1
Taccaceae	1
Velloziaceae	1
Total	152

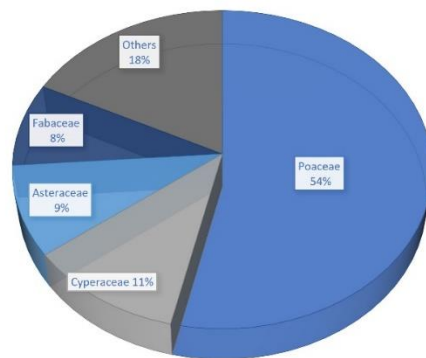


Figure 1: Grasses and Forbes specimens identification

Biomass sample collection is carried out in the experimental pasture both burned (1ha) and unburned (1ha) across the three experimental project sites. The following figure represents the annual biomass productivity in the project site.

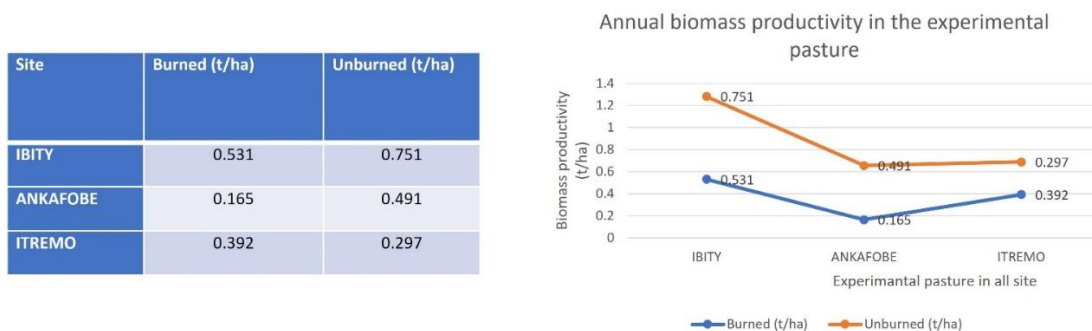


Figure 2: Biomass productivity across the 03 sites experimental pastures.

Compared with the previous biomass productivity, there is 3 times increase for unburnt pasture. For the burnt pastures, the result will have to wait after the second burning scheduled for next year.

The grazing capacity assessments are carried out on the experimental and the communal pastures (**Activity 1.5**). The following table summarise the result of this calculation for this year:

Table 1: Summary of the results of the grazing capacity calculation for experimental and communal pastures.

Site	Burned (ha/zebu/year)	Unburned (ha/zebu/year)	Communal pasture (ha/zebu/year)
IBITY	0.7	0.7	0.6-0.7
ANKAFOBE	0.8	0.8	0.7-0.8
ITREMO	0.8	0.8	0.7-0.8

Compared with previous grazing capacity estimates, the area needed by a zebu during the year has also decreased for Itremo. The results of the analysis of the 10 grass species done in South Africa have been received. These results indicate that there are two species (*Leersia hexandra* and *Cenchrus purpureus*) of good quality for haymaking and silage. Here are the ideas and knowledge of the beneficiaries on the points discussed led by the project grass botanist, to exchange ideas and information on the project, native grasses, zebu nutrition and fire management (**Activity 1.6**):

- The most project beneficiaries are aware about the project and its main objectives.
- Participants have raised their knowledge on the importance of grasses and grassy biomes in daily life and the threats causing their destruction.

- Participants exchanged the appropriate time for practicing pasture fires.
- Participants are aware about the impacts of uncontrollable fires and poor fire management into Malagasy biodiversity.

**Output 2: Fodder flow supplemented by crop residue preservation and exploitation of new forage crop.**

This year was marked by the adoption of the techniques introduced by the project, both for the demonstration sites and for the project householders. For demonstration sites, the project produced in Itremo 176 Kg of Sweet sorghum from South Africa (SS1000) silage and 1910 kg of local sorghum silage, in Ankafobe 765 Kg of local sorghum silage, and 90 kg of hay from native grass forages, and in Ibity 410 kg of local sorghum silage, 890.5 Kg of SS1000 silage (**Activity 2.4 and activity 2.6**). It should be noted that due to the delay in the arrival of SS1000 sorghum during the growing season, only Itremo and Ibity were able to plant this sorghum. The sorghum production was 4 times higher than the previous year in each site. For the beneficiaries, 61 out of 88 succeeded in making sorghum silage, producing an average of 50 kg per household, and these are mainly the beneficiaries in Ibity and Itremo (**Activity 2.5**). Beneficiaries other than Ibity have also started using native grass hay this year. They have stored an average of 10 kg (dry matter) per household (**Activity 2.6**). They are also stored the crop residues especially the rice straw and peanut and maize stalks.

Milk production, body condition score and calving rate of both project and beneficiary cattle continue (**Activity 2.8 and 2.9**). Compared to the baseline survey, milk production was multiplied by three for the zebus on the demonstration farm and those of the beneficiaries. Thanks to the feed available on the demonstration farms, the body condition score of the zebus in the project remains good (score 3) even throughout the dry season. Most beneficiaries currently obtain 2 or 3 calves from a female zebu that has been monitored by the project since its inception. According to our individual visits to beneficiaries, beneficiaries in Itremo prefer to increase the number of cattle rather than produce milk, while in Ibity, beneficiaries prefer to have good milk production even if they also want to have many cattle.

The project participated in the XXV International Grassland Congress (IGC) in Kentucky, USA through an oral and poster presentation. The restitution of this IGC to the project staff and beneficiaries were done to share with them the things which can be realisable in their own farm. The project also received a visit from NIRAS in Ibity to see the project's activities and its monitoring and reporting methodology.

According to the second quarantine inspection of forage sorghum SS1000 by the Plant Quarantine Service last June, the quarantine restriction on the use of this sorghum has been lifted.

**Output 3: fire management and Protected Areas**

The project set up the Itremo preventive fire in the Ambazimbamena forest patches in May 2023. In fact, 3 km of firebreaks have been created with the project beneficiaries (**Output 3.4**). The firebreaks in the Ankafobe forest were maintained by early fires. The regular photography of fixed points in each forest plot is continuing. The number of fixed points at Ankafobe has been reduced to 13, given the large number of these points, which numbered 44. (**Activity 3.7**).

Fire management plans are being drawn up for the 3 PA, with Ankafobe and Itremo being designed and Ibity being updated (**Activity 3.11**).

**2. Give details of any notable problems or unexpected developments/lessons learnt that the project has encountered over the last 6 months. Explain what impact these could have on the project and whether the changes will affect the budget and timetable of project activities.**

A theft of project property which took place at the Ankafobe project site in Madagascar. One cow was stolen from the project cowshed at night and could not be successfully recovered during the resulting police investigation (**Output 2.8**). This will affect the project's objective in terms of grazing and the calving rate on the demonstration farm.

The project needs to analyse grass species candidates at all stages of development to determine at what stage each species is suitable for hay, silage, or direct grazing (**Activity 1.5**). This will take some time, given the procedures related to obtaining the export permit.

According to the result of the soil analysis, the project should consider soil health during the forage cultivation. So, the reduction in grazing land due to agricultural activities for human food, and to ensure the continuation of these activities, a combined crop must be set up to balance production for human food and fodder for zebus.

A part of the Ambazimbamena forest patches was affected by the fire on late July. The fire entered through a rocky section where the firebreak is difficult to create. The fire did not affect the forest but only the savannahs in front of the forest, which burnt an area of 4 ha. A more detailed report on this fire is available.

The Ibity Protected Area was also affected by a natural fire from 13 to 18 October 2023. The fire was brought under control thanks to the intervention of several parties, including the staff of the Ibity MBG led by the site manager, the local communities of the Fokontany surrounding the PA and the gendarmeries of Ibity and Manandona. Ten of the 68 patches were affected by the natural fire, representing 16% of the total area of the Ibity PA. As for the core area, the equivalent of 02 monitoring blocks were affected, i.e., around 200 ha, representing around 13% of its total surface area, made up of around 60% high altitude rocky savannah and 40% saxicolous vegetation. The DI-PPP gallery forest is not affected by the fire. A more detailed report on this fire is available.

**3. Have any of these issues been discussed with NIRAS and if so, have changes been made to the original agreement?**

Discussed with NIRAS:	Yes, zebu theft has been reported
Formal Change Request submitted:	No
Received confirmation of change acceptance	No
Change request reference if known: N/A	

**4a. Please confirm your actual spend in this financial year to date (i.e. from 1 April 2023 – 30 September 2023)**

Actual spend: ██████████

**4b. Do you currently expect to have any significant (e.g. more than £5,000) underspend in your budget for this financial year (ending 31 March 2024)?**

Yes  No

**4c. If yes, then you need to consider your project budget needs carefully.** Please remember that any funds agreed for this financial year are only available to the project in this financial year.

**If you anticipate a significant underspend because of justifiable changes within the project, please submit a re-budget Change Request as soon as possible. There is no guarantee that Defra will agree a re-budget so please ensure you have enough time to make appropriate changes if necessary. Please DO NOT send these in the same email as your report.**

**NB: if you expect an underspend, do not claim anything more than you expect to spend this financial year.**

**5. Are there any other issues you wish to raise relating to the project or to BCF management, monitoring, or financial procedures?**

No

**If you are a new project and you received feedback comments that requested a response, or if your Annual Report Review asked you to provide a response with your next half year report, please attach your response to this document.**

**All new projects (excluding Darwin Plus Fellowships and IWT Challenge Fund Evidence projects) should submit their Risk Register with this report if they have not already done so.**

**Please note: Any planned modifications to your project schedule/workplan can be discussed in this report but **should also** be raised with NIRAS through a Change Request. **Please DO NOT send these in the same email.****

Please send your **completed report by email** to [BCF-Reports@niras.com](mailto:BCF-Reports@niras.com). The report should be between 2-3 pages maximum. **Please state your project reference number, followed by the specific fund in the header of your email message e.g. Subject: 29-001 Darwin Initiative Half Year Report**