

Darwin Initiative: Final Report

To be completed with reference to the “Writing a Darwin/IWT Report” Information Note:
(<https://www.darwininitiative.org.uk/resources-for-projects/reporting-forms-change-request-forms-and-terms-and-conditions/>).

It is expected that this report will be a **maximum** of 20 pages in length, excluding annexes)

Darwin Project Information

Project reference	25-020
Project title	Supply and Demand: Restoration in Uganda for People and Biodiversity
Country(ies)	Uganda
Lead organisation	Botanic Gardens Conservation International (BGCI)
Partner institution(s)	Tooro Botanical Gardens (TBG) International Union for Conservation of Nature (IUCN)
Darwin grant value	£318,076
Start/end dates of project	01/07/2018 – 31/03/2021
Project leader’s name	Kirsty Shaw
Project website/blog/social media	https://www.bgci.org/our-work/projects-and-case-studies/supply-and-demand-restoration-in-uganda-for-people-and-biodiversity/
Report author(s) and date	Kirsty Shaw, Alex Hudson (BGCI) and Musa Said Mutegeki, Godfrey Ruyonga (TBG)

1 Project Summary

The Uganda Forest Landscape Restoration (FLR) Opportunity Assessment, published by the Ugandan government and IUCN (2016), states that 17% of Uganda’s land is severely degraded, 30% highly degraded and 31% moderately degraded. This has serious implications for Uganda’s long-term development and causes the loss of 4-12% of Uganda’s GDP annually (Bolwig, 2002).

Average monthly household income in rural Uganda is US\$ [REDACTED] (UBOS, 2014). There is limited job creation for the poorest households, and employment opportunities for women are particularly restricted (World Bank, 2016).

Under the Bonn Challenge, Uganda has pledged to restore 2.5 million ha of land by 2020. The Uganda FLR report aims to plant 200 million trees in priority areas to improve human well-being and ecological productivity.

This pledge represents a huge opportunity for delivering species conservation, increasing biodiversity on farms, and delivering genetically and taxonomically diverse ecological restoration that benefits people and wildlife. Uganda has 849 native tree species; 30 are globally threatened.

However, key drivers for this project were:

- i) Little understanding of the benefits of delivering genetically biodiverse FLR (and the risks of not doing so)

- ii) High demand for, and availability of, exotic tree species
- iii) Limited availability of native seeds and seedlings due to a lack of knowledge about how to propagate native species among community nurseries, farmers and government
- iv) No up-to-date forest policy, and hence, no mandate for planting indigenous species.

As a result, there was a risk that exotic species from government nurseries would be planted instead, delivering species-poor FLR that misses biodiversity conservation and employment opportunities for rural people.

This risk was identified by project partners who have extensive knowledge and experience from working on forest conservation and restoration projects in Uganda.

To overcome this risk, the project **Supply and Demand: Restoration in Uganda for People and Biodiversity** has set up four nurseries next to areas identified as priorities for forest restoration in the FLR Opportunity Assessment. Locations of the nurseries are given below. This project supported the delivery of biodiversity conservation and created opportunities for livelihood improvement by employing people from rural areas to collect seed and cultivate native seedlings in the four nurseries. Over the timeframe of the project, the nurseries have produced seedlings of over 100 indigenous tree species.

Outreach activities have driven the demand for native species. Despite COVID-19 impacts on the nurseries' ability to sell seedlings in the final year of the project, over ██████ Ugandan Shillings were earned from seedling sales that are being managed in nursery association funds to support the nurseries as they continue operations, providing a buffer as the pandemic continues. The business plan 10 year forecast suggests that earnings will be lowest in the initial year after the project ends, with a subsequent increase in earnings, so managing the distribution of these funds will support them as they become self-sustaining businesses.

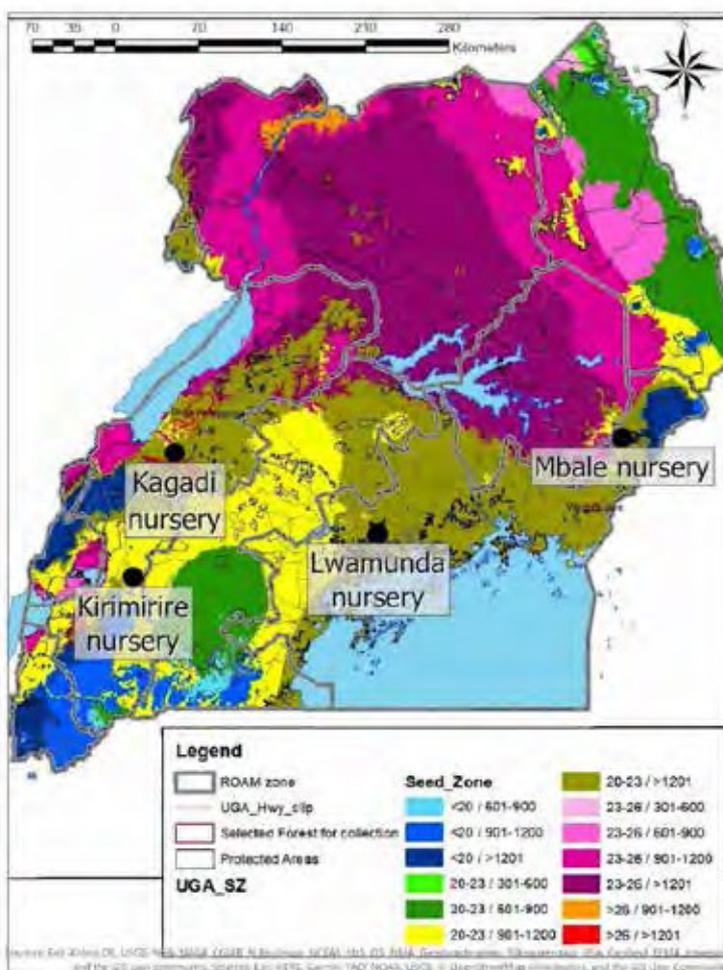


Figure 1: Map showing nursery sites and seed collecting zones delineated by the project

2 Project Partnerships

This project is co-led by Botanic Gardens Conservation International (BGCI), Tooro Botanical Gardens (TBG) and the International Union for Conservation of Nature (IUCN). Additional project partners include the National Forestry Authority (NFA), the Ministry of Water and Environment (MoW&E) and the National Environment Management Authority (NEMA). Representatives from all partner organisations formed a project Steering Committee and helped with project planning and monitoring and evaluation (See Annex 7.1 - Steering Committee minutes).

BGCI and TBG have worked together on forest restoration projects in Uganda since 2012 and both parties have been involved in all project activities. TBG led on collating monitoring information for project progress (e.g. figures for propagation at nurseries) with BGCI support. This included collation of information and feedback of results to other institutes at the Steering Committee meetings. BGCI and TBG used this jointly to write and prepare the project reports.

TBG is situated on land owned by NFA and has a close working relationship with them. NFA helped with the selection of sites for nursery establishment and demonstration restoration plots; helped to deliver training on seed collection and propagation, and nursery management. Representatives from NFA's GIS team also participated in the exercise to delineate seed collection zones. In the final year, NFA with TBG inspected the planted restoration sites to assess progress (See report in Annex 7.2).

IUCN and MoW&E were brought into the project as they produced the Forest Landscape Restoration Opportunities Assessment for Uganda and are therefore key implementing partners. IUCN and MoW&E also helped with selection of sites for nursery establishment. Both have been involved in promoting the project at the national level. This included, in partnership with TBG and BGCI, organising and delivering a side event to promote the project at the national Water and Environment Week in March 2021 (See Annex 7.3).

Key staff left IUCN in the second year of the project and alternative IUCN representatives were nominated to form part of the project team. Despite COVID restrictions on travel for face-to-face discussions, the new project team worked effectively together and this led to new project proposals being developed and the organisation of the above-mentioned events.

Partners are likely to maintain the relationship beyond the project and have applied for funds to continue restoration work in the four project areas promoting the use of native plant species in agroforestry systems to benefit people and nature. New relationships have also been formed with other institutes to further support the nurseries in the future, including private organisations interested in restoration and carbon capture (e.g. Terraformation and Plan Vivo Foundation).

TBG engaged local government in all project activities helping to ensure planting native trees is a key part of local development strategies. They also engaged schools, religious institutions and local community members who have bought trees to plant on their land – local farmers being the main customer groups purchasing seedlings from the nurseries in the final project year, outside of a specific restoration project funded by WWF that TBG and BGCI successfully applied for (See figure 1 in section 3).

Experts from Brackenhurst Botanic Garden in Kenya were also involved in training the community nursery teams in the project. In addition, representatives from the Botany Department of the University of Makerere participated in the project by contributing to the workshops on nursery siting and delineating seed zones, as well as some Steering Committee meetings.

In the project's first year, the Uganda Wildlife Authority (UWA) were identified as an additional important stakeholder to engage in the project. TBG obtained permission from UWA for the project to collect seed from National Parks close to the nursery sites. This led to the project team working with the park management at Kibale National Park and Mount Elgon National Park, with seed collected from these parks to supply the nurseries.

3 Project Achievements

3.1 Outputs

Output 1: Improved information generated on more than 150 native tree species, including improved information on distribution, wild populations and seed availability and propagation protocols improved / developed.

A project launch workshop was held in October 2018 with 23 participants, including project partners, government representatives and NGOs involved in tree planting. During the launch event, the project plan was communicated and the project team received feedback on proposed actions and proposed location of nurseries. Relevant authorities from the MoW&E and NFA attended, and follow up meetings were held to secure consent to carry out project activities. A report from the project launch is provided in Annex 7.4.

Steering Committee meetings were then held in July 2019 and November 2020. One was also planned for March 2020, but was postponed due to COVID-19. Project progress was discussed at the Steering Committee meetings along with any challenges and project decisions that needed to be made. For example, for project promotion, at the July 2019 meeting, the Steering Committee decided that regional and national events for the project should coincide with the regional and national events taking place as part of the National Water and Environment Week in March 2020 (Steering Committee minutes are found in Annex 7.1).

For the November 2020 Steering Committee meeting, due to COVID-19, some attendees joined using video conference facilities (e.g. BGCI staff from the UK). The group also discussed ways to strengthen support to the nurseries for the future by improving their accessibility to participate in government-led restoration activities across the country.

A total of four consultants were hired during the project to support improving the available information for the project target species:

1. Plant Conservation Project Consultant, working from the BGCI Africa office in Nairobi and travelling to project meetings and sites in Uganda
2. Seed collection expert - Andrew Bower, a geneticist from the United States Forest Service (USFS)
3. Marketing and business skills consultant - Kaahwa Alex, an agribusiness consultant from Mpanga Growers Tea Factory
4. Social scientist for socio-economic surveys - Professor Moses Muhumuza, lecturer at Mountains of the Moon University (MMU) and director of the Centre for Action and Applied Research for Development (CARD) Uganda Limited

Andrew Bower helped delineate seed collection zones in Uganda. He spent one week in Uganda with the project team and had meetings with NFA to review existing climatic maps for GIS work. They visited degraded and “pristine” forest areas and training was provided by Andrew to the project team on identifying and mapping mother trees for seed collection. Preliminary seed zone maps were produced by the consultant (see figure 1 in section 1 above) that were used to guide seed collecting activities in the project. The seed zone maps use average annual precipitation and average annual temperature climate data to define climatic zones.

Kaahwa Alex worked with the project team to develop a marketing tool to promote seedling sales (Annex 7.6), develop marketing materials (see Annex 7.7), and provide capacity building to nursery managers, nursery operators and demonstration plot managers in marketing and business skills and, identification, profiling and engaging key institutional stakeholders to buy seedlings. A report on activities undertaken is provided in Annex 7.8.

Professor Moses Muhumuza carried out the socio-economic surveys in the first and final years of the project (see the final year socio-economic survey in Annex 7.9).

An accepted change request allowed BGCI to carry out the activities internally that we originally intended to be done by a public outreach expert from BGCI's network. Following this, BGCI's Biodiversity Education Officer, supported by BGCI's Head of Education and Vocational Training, worked with TBG and the local marketing and business skills consultant to develop public outreach materials and to plan events (See Annex 7.10 for examples of materials

created). They also supported the team with evaluation of how public awareness activities had impacted sales in the final year of the project through the development of event feedback forms and analysis of seedling sales records (See Annex 7.11).

NFA and TBG produced a list of target species based on suspected / known presence in forests targeted for seed collection, historic presence in priority restoration areas, suitability for restoration (focusing on pioneer species for initial plantings), conservation value (IUCN status) and utility to people. Existing propagation information for these species was collated from literature and TBG nursery staff. The information was shared with nursery and seed collecting groups to guide their work.

During the project, more species were added to the list as they were located during collecting trips. The final list of targeted species was 182 species, including 6 species that were collected but could not be identified in the project timeframe and one that was identified as the exotic tree *Cedrela odorata*, which was collected by a seed collecting group, but no longer propagated or planted once the team confirmed it was not native. The full list of target species is provided in Annex 7.12.

Seed surveys were carried out in the following forest areas; Lwamunda Forest Reserve (FR), Busanyi Community FR, West Bugwe-Busitema FR, Mabira FR, Mount Elgon National Park, Kibale National Park, Itwara FR, Ibanda Hill FR, Kashyooha-kitoomi FR, Kagombe FR, and Budongo FR and Buhoiga Central Forest Reserve, and additional small community forests. Of the 182 targeted species, 142 species were located and monitored for seed set, with seed collecting calendars produced for 101 species collated for species in each project area (See Annex 7.13).

All four nurseries recorded when seeds were planted, when seeds germinated, germination rate, and maintained notes on propagation techniques including soil medium used, amount of shade, etc. Provenance of propagation material was also tracked by nursery teams to give advice on seedlings of suitable provenance for planting when making sales, using the seed zone maps as a guide. All information has been collated by TBG into an excel spreadsheet. This has record of 272 successful propagation techniques for 103 species (different nurseries were successful with different techniques). Example propagation protocols produced using this data can be found in Annex 7.5.

Output 2: Genetically diverse seedlings of 150 native tree species available for purchase from nurseries established in high priority restoration areas

In response to Darwin committee feedback at project initiation and after submitting the year 1 report, this target was adjusted from 150 to 110 species

In the project's first year a nursery siting working group (including representation from BGCI, TBG, NFA, IUCN, NEMA, MOW&E) was established which helped to select the final nursery sites close to Mbale Central Forest Reserve, Lwamunda Central Forest Reserve, Kagadi Central Forest Reserve and Kirimirire Local Forest Reserve. Visits to selected sites were then conducted to hold meetings with community members and local leaders, to identify people who would be trained and employed through this project.

With guidance from appointed contractors, 40 people from rural communities constructed the four nursery infrastructures. This included site clearance and levelling, construction of barbed wire perimeter fences, construction of pit latrine facilities, construction of mud and wattle stores, construction of shaded areas with metallic poles and construction of germination beds.

The nurseries became operational in Year 2. A Memorandum of Understanding (MoU) was signed with the District Local Governments for the nursery sites and demonstration restoration plots (see example MoU in Annex 7.14).

Due to COVID-19 restrictions being put in place, seed collection activities were halted for part of the project reducing the total number of species that were able to be collected and propagated in the project. Some species were not located during the project timeframe, some did not produce seed during the project timeframe, and some species did not produce viable

seeds (ca. 36 species of the original list). Despite this, adjusted species targets were very nearly achieved.

At the end of the project, 320,582 seedlings of 103 species were propagated in nurseries (A2.3, A2.4), including six species that await ID verification. An additional six species were collected but could not be successfully propagated by any of the four nurseries during the project timeframe (*Antrocaryon micraster*, *Beilschmeidia ugandensis*, *Khaya senegalensis*, *Tabernaemontana holstii*, *Harungana madagascariensis* and *Diospyros mespiliformis*).

Eight of the propagated species are globally threatened species (*Prunus africana* – VU, *Khaya anthotheca* – VU, *Khaya grandifoliola* – VU, *Warburgia ugandensis* – VU, *Turraeanthus africana* – VU, *Azelia africana* – VU, *Vitex keniensis* – EN, *Entandophragma angolense* - VU) and an additional 12 species that are threatened in Uganda according to the BGC1 ThreatSearch database (*Milicia excelsa* – EN, *Cordia millenii* – VU, *Chrysophyllum albidum* – VU, *Chrysophyllum muerense* – VU, *Chrysophyllum perpulchrum* – VU, *Citropsis articulata* – VU, *Olea welwitschii* – VU, *Fagaropsis angolensis* – VU, *Tamarindus indica* – VU, *Irvingia gabonensis* – EN, *Lovoa trichilioides* – EN, *Podocarpus latifolius* - VU).

A list of species propagated, the number of seedlings at each nursery at the project conclusion and numbers of seedlings planted, donated or sold in the project is provided in Annex 7.15. Compared to government and other commercial nurseries that typically sell non-native *Pinus* spp., *Eucalyptus* spp. and *Grevillea* spp., this project has dramatically increased the supply of appropriate planting material for degraded areas of Uganda.

Output 3: Increased demand for genetically and species diverse seedlings

23,183 seedlings of 67 species were sold at the four community nurseries for a total of [REDACTED] Uganda Shillings (£ [REDACTED] based on HM Revenue & Customs yearly average exchange rate to 31 March 2021) during the project timeframe (See table 4 below). These included sales to schools, associations, companies, councils, farmers, herbalists, religious institutions and in Kagadi a WWF Reforestation Grant project (see figure 1). A further 14,200 seedlings have been donated to institutes and at planting events to promote native species and increase their demand in future. Following the project conclusion a further 2,000 seedlings of 20 species were donated to the NFA in Mbale to plant at Busitema Forest Reserve.

% of Trees Sold per Purchaser Type

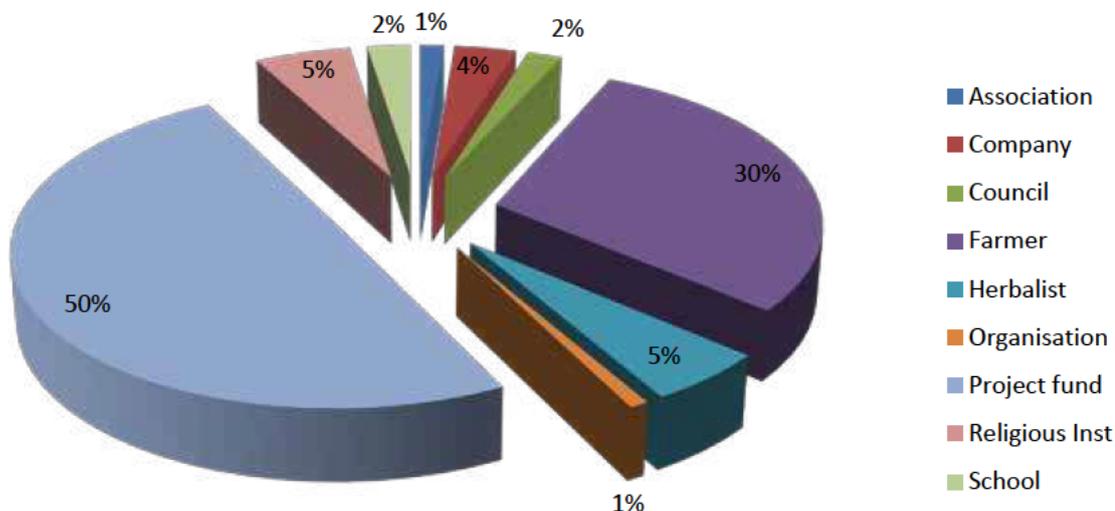


Figure 1: The percentage of trees sold to different categories of buyers based on surveys at the point of sale. Note: Project fund represents the sales at Kagadi nursery for the WWF Reforestation Grant project.

The main planting periods in Uganda are April – May and October – November. The COVID-19 pandemic hit Uganda just at the point of first anticipated seedling sales as part of this project. Sales in October – November 2020 were also lower than anticipated due to continued nursery closures as a result of the pandemic. The April – May 2021 seedling sales and planting figures are also not included in the reporting as they fall outside of the project period, however, an additional 970,000 Ugandan shillings have been raised from further seedling sales for nursery and seed collecting groups since the project officially ended in March 2021.

Across all four nurseries, the three most popular species were *Maesopsis eminii*, *Prunus africana* and *Khaya anthotheca*. The top ten most popular species for each nursery and across the whole project are shown in table 3.

Table 2: The top 10 most popular species sold from each nursery and across all nurseries (Full sales figures by nursery in Annex 7.24). Note: Blue are in the top 10 for all 4 nurseries; Green are in the top 10 for 3 nurseries; yellow are in the top 10 for 2 nurseries; White are in the top 10 for just 1 nursery

Ibanda	Kagadi	Lwamunda	Mbale	Total
<i>Maesopsis eminii</i>	<i>Phoenix reclinata</i>	<i>Maesopsis eminii</i>	<i>Khaya anthotheca</i>	<i>Maesopsis eminii</i>
<i>Monodora myristica</i>	<i>Bridelia micrantha</i>	<i>Prunus africana</i>	<i>Prunus africana</i>	<i>Prunus africana</i>
<i>Prunus africana</i>	<i>Prunus africana</i>	<i>Spathodea campanulata</i>	<i>Maesopsis eminii</i>	<i>Khaya anthotheca</i>
<i>Albizia coriaria</i>	<i>Maesopsis eminii</i>	<i>Albizia coriaria</i>	<i>Olea welwitschii</i>	<i>Spathodea campanulata</i>
<i>Warburgia ugandensis</i>	<i>Spathodea campanulata</i>	<i>Khaya anthotheca</i>	<i>Melia volkensii</i>	<i>Albizia coriaria</i>

<i>Tamarindus indica</i>	<i>Vepris nobilis</i>	<i>Monodora myristica</i>	<i>Cordia millenii</i>	<i>Monodora myristica</i>
<i>Garcinia buchananii</i>	<i>Khaya anthotheca</i>	<i>Melia volkensii</i>	<i>Kigelia africana</i>	<i>Phoenix reclinata</i>
<i>Spathodea campanulata</i>	<i>Mimusops bagshawei</i>	<i>Tamarindus indica</i>	<i>Garcinia buchananii</i>	<i>Tamarindus indica</i>
<i>Syzygium cordatum</i>	<i>Diospyros abyssinica</i>	<i>Treulia africana</i>	<i>Terminalia superba</i>	<i>Markhamia lutea</i>
<i>Khaya anthotheca</i>	<i>Syzygium cordatum</i>	<i>Markhamia lutea</i>	<i>Markhamia lutea</i>	<i>Warburgia ugandensis</i>

From the project, 18 hectares of Central and Local Forest Reserves have been planted and four community plots have been planted with 8,276 seedlings of 63 native tree species (see table 3). In addition, further funding was raised from the highly competitive WWF Reforestation Grants scheme to plant an extra 14 hectares of Kagombe Central Forest Reserve with 11,511 seedlings of 63 native tree species, including 1,850 seedlings of five globally threatened species and 552 seedlings of six nationally threatened species.

Table 3: Sites planted during the project

Site planted	Size (hectares)	Number of species planted	Number of seedlings planted
Ibanda Local Forest Reserve	3.5	30	1410
Kagombe Central Forest Reserve	2.5	32	1074
Lwamunda Central Forest Reserve	7	37	2842
Namatale Central Forest Reserve	5	38	2050
PEAS Noble High school-Rukiri-Ibanda	<1	16	250
Muhooro Village	<1	16	200
Nkambo catholic church	<1	16	200
Bufumbo Primary School	<1	16	250
Total	18-19	63 (some overlap of species between sites)	8,276

Promotional sponsorship packages were also created by the BGCI and TBG teams that local institutes and businesses could support. Three packages were created – Gold, Silver and Bronze – to restore 1 hectare of forest, 0.5 hectares of forest or plant community land (see Annex 7.16). COVID-19 in the final year meant that many institutes were unable to support the more expensive packages so that for the final six months only the bronze packages was updated to be a community twinning package (see Annex 7.17). However, in the future the other packages and information can be used further to engage with businesses to support funding of restoration that uses a diverse mix of native species from the community nurseries. For example, TBG are in discussions with Coca Cola who are interested to supporting native tree planting with community groups and schools. The favoured approach is for community

groups to make a request to Coca Cola for funds to purchase the seedlings from the nurseries. Discussions with corporate organisations and promotion of the tree planting packages will continue through 2021 and into the future.

Output 4: 104 people have increased capacity and improved livelihoods.

75 people received training in seed monitoring and collection, at TBG, Kibale National Park and the NFA National Tree Seed Centre. Trainers were Noelia Alvarez and Kirsty Shaw from BGCI, Alislam Said Musa Mutegeki from TBG, Ochwo Joseph and Mugisha Alex from the NFA National Tree Seed Centre.

75 contracts were signed by seed monitors and collectors, including 25 women. They were paid [REDACTED] Ugandan Shillings per month as a basic rate and operated increased hours during times of seed availability. This was reduced from [REDACTED] Uganda shillings in the second year in order to hire additional collectors located closer to collecting sites to reduce the need for travel when COVID-19 restrictions were in place. The teams monitored and collected from Central Forest Reserves, Local Forest Reserves, other forested areas and community farmlands. Example contracts are provided in Annex 7.18. Since October 2019, payments were made to additional people to support expansion of seed collection to new areas. This included costs for field assistants and patrol staff in National Parks to support seed collection.

Ten people from rural communities near each site (40 people in total including 22 women) were also trained in nursery establishment and propagation skills. Trainers included Alislam Said Musa and Richard Muhumuza from TBG, Christine Mugenyi from NFA and Herbert Migiro Ongubo from Brackenhurst Botanic Garden in Kenya. These were held at the nursery sites. The training was held at TBG, and TBG satellite sites. Top up training in propagation and nursery management was delivered in November 2019, by Herbert Ongubo, the nursery manager at Brackenhurst Botanic Garden in Kenya.

Those 40 trainees initially received payments for nursery construction, under the guidance of contractors. They then signed contracts to work Monday to Friday at the nurseries and were paid [REDACTED] Ugandan Shillings (ca. US\$ [REDACTED] per month in Year 2 and [REDACTED] Ugandan Shillings (ca. US\$ [REDACTED] in Year 3. This is equivalent to the average monthly income per household, but was earned by an individual.

Four nursery managers were identified and trained in business skills and marketing by Godfrey Ruyonga and Alislam Said Musa Mutegeki from TBG and Mr. Alex Kaahwa from Mpanga Growers Tea Factory, the marketing consultant for this project. They were appointed and are paid [REDACTED] Uganda Shillings (ca. US\$ [REDACTED] per month in Year 2 and [REDACTED] Ugandan Shillings (ca. US\$ [REDACTED] per month in Year 3.

A baseline socio-economic study was carried out in the project first year and repeated in the final year to measure the impact of the project on the 104 people employed.

In Year 3, the socio-economic survey was repeated to measure the impact from employment opportunities created through the project. Nursery groups were supported to develop 10-year business plans in Year 3, to support the nurseries to be sustainable when the project ends (see example in Annex 7.19).

Despite sales by nurseries being impacted by COVID-19, seedlings were sold raising [REDACTED] Ugandan Shillings (£ [REDACTED] see table 4 in section 3.1) with a further [REDACTED] Ugandan Shillings (£ [REDACTED] raised from seedling sales in the next rainy season (April-May 2021). Seedling sales will be used to support nurseries in the next year of the project as they transition to becoming fully self-sustaining nurseries (see further detail in poverty alleviation section).

Table 4: Seedling orders by nursery and type of purchaser with total incomes raised from sales (to 31 March 2021).

Nursery	Buyer type	Quantity of seedlings sold	Total income (Ugandan Shillings)
Ibanda	Company	392	[REDACTED]

	Council	350
	Farmer	1826
	Herbalist	304
	Religious Institution	600
	School	220
Kagadi	Farmer	1705
	Herbalist	54
	Organisation	45
	Project fund	11511
	Religious Institution	104
Lwamunda	Association	220
	Company	144
	Council	100
	Farmer	1710
	Herbalist	730
	Organisation	150
	Religious Institution	370
	School	250
Mbale	Association	90
	Company	270
	Farmer	1605
	Herbalist	160
	Religious Institution	173
	School	100
Totals		23,183

3.2 Outcome

The project Outcome statement was “Supply and demand for genetically and species diverse planting material is increased through nurseries and seed collecting networks that employ >100 people, for biodiverse Forest Landscape Restoration in Uganda.”

The project achieved its intended outcome. Although the marketing and demand components of the project were hindered by COVID-19, the project dramatically increased the supply of genetically and species diverse plant material compared to government and other commercial nurseries in Uganda. Seedlings were also sold within and shortly after the project timeframe (due to the planting period not aligning with the project timeframe). This was achieved by the establishment of four community nurseries, with associated seed collecting networks, that have provided employment for 119 people.

Seed collecting networks and nurseries were established successfully in four parts of Uganda, chosen due to an identified high priority need for restoration to be carried out by the Uganda FLR Opportunities Report produced in 2016. Nursery infrastructures were put in place to enable propagation of a genetically diverse supply of seedlings. Seed collectors and nursery

workers were trained to gather additional species-related information, including on species distribution, seed availability and optimum propagation techniques. As a result, information has been collated on seed set and propagation techniques of >140 native tree species (i0.1, see seed collecting calendars and propagation information provided in Annex 7.5 and Annex 7.13) to facilitate expansion of seed collection and propagation efforts to support biodiverse Forest Landscape Restoration across Uganda. More than 300,000 genetically diverse seedlings of 103 native species have been produced and made available for purchase from the nurseries (i0.2, see nursery seedlings production and sales figures in section 3.1 above).

A national publicity campaign was undertaken in the project to promote the demand for native species and availability of seedlings from the four nurseries. This included a national forum and four regional forums. A suite of public outreach materials and activities were designed to drive demand for native seedlings. This has increased the demand for native species, with the largest market outside of a specific restoration project funding coming from local farmers (see figure 1 above) (i0.3, see seedling sales figures in section 3.1 above and marketing materials in Annex 7.6).

119 people were identified, trained and employed through this project, 51 of which were women (4 women did drop out from the project and men were appointed in their positions, reducing the number of female beneficiaries to 47 by the project end). From the total number of trainees, 40 people were also involved in construction of the nurseries, ensuring trained community groups began to obtain incomes from the project early on (i0.4 see example employment contracts in Annex 7.18 and the socio-economic report in Annex 7.9).

The project was underpinned by the involvement of relevant government authorities and NGOs involved in restoration or tree planting in Uganda were part of the project launch workshop and the following Steering committee meetings. This has helped to ensure these organisations are aware of the project aims, activities and progress, and that a supply of seedlings will be available to purchase from the nurseries.

The project has produced a model that can be expanded in other places in Uganda and replicated in other countries. To facilitate the adoption of this model in other countries, BGCI and our network are linking the IUCN Global Forests Programme and other IUCN regional / national offices implementing Forest Landscape Restoration projects with local botanists to facilitate a shift towards wider planting of native species as part of Bonn Challenge pledges. In early 2021, BGCI co-hosted a conference with the Royal Botanic Gardens, Kew on Reforestation for Biodiversity, Carbon Capture and Livelihoods, during which this project was promoted (available here: <https://www.youtube.com/watch?v=eSGIIL-eaLI> - with the presentation slides in Annex 7.25).

3.3 Monitoring of assumptions

Assumption 1: Technical challenges can be overcome for difficult species (BGCI's network of experts will help solve problems)

An expert from the BGCI network delineated seed collecting zones and provided training in identification and mapping of mother trees in the project.

The nursery manager from Brackenhurst Botanic Garden in Kenya, also part of the BGCI network, helped to deliver training to nursery groups and to overcome propagation issues for species such as *Podocarpus latifolius*, *Margaritaria discoide* and *Olea welwitschii* during a visit. The nursery groups were in regular contact with TBG, BGCI and experts from BGCI's network to continue to address propagation difficulties.

Six species did remain particular challenges in the project - *Antrocaryon micraster*, *Beilschmeidia ugandensis*, *Khaya senegalensis*, *Tabernaemontana holstii* and *Harungana madagascariensis* and *Diospyros mespiliformis*.

Assumption 2: Employment opportunities (seed monitors, seed collectors and nursery workers) are appealing to communities.

Community groups were keen to join seed monitoring, collecting and nursery groups, which indicates that employment opportunities in the project were appealing to communities.

119 people received employment through the project. Whilst it was not difficult to appoint people to these positions, the seed collecting opportunities have turned out to be less appealing compared to the nursery jobs. This is because seed collection requires travel and is a part-time job so receives a lower salary, whereas nursery work is full-time and does not require travel.

To make seed collecting activities more appealing, in Year 2 groups were offered additional opportunities to collect outside of their local areas for additional payments. In Year 3, seed collectors were also involved in planting activities funded by the WWF Reforestation Grant providing them with more diverse incomes from the project.

Throughout the project, those employed have remained engaged and completed the activities they were contracted to complete. This can be evidenced by the good data recording that they have done throughout the project to the end.

Over the full project timeframe, four people decided to leave their positions, but were easily replaced by other members of the community.

Assumption 3: Sustainable sources of wild seed can be identified for all target species. Propagation information can be obtained or new protocols developed for species that do not have protocols (up to half of target species). Propagation experts from BGCI's network will be mobilised to work on difficult species (in-kind support).

By working in close collaboration with NFA and with some private landowners, 142 species were located and monitored for seed set. Seed monitoring and collecting activities were undertaken for the duration of the project. Although COVID-19 did put this on hold for a part of 2020, the methodology was then altered so that seed collection was done in smaller groups. This reduced the project's ability to collect and propagate all the target species, although 103 species have still been successfully propagated across all the community nurseries.

Propagation information of the target species was collated in Year 1 and records were kept of propagation techniques in nurseries, number of seedlings produced and number of seedlings sold. Those data were compiled into Excel datasheets on propagation and sales. The former is being used to develop and publish new propagation protocols for these species (See example protocols in Annex 7.5).

Assumption 4: New communities are receptive to nursery establishment.

Community groups were receptive to nursery establishment. Sites were identified with the support of local forest officers, and communities to be involved in nursery groups were identified with the help of local leaders. Community members were involved in seed collecting, nursery and planting activities throughout the project. There has also been good support for nursery establishment from local forest officers and local councils, offering land for nurseries and forest restoration plots, and showing interest in purchasing seedlings for community events.

Assumption 5: Demand can be created, to the extent that all seedlings are sold, and

Assumption 6: Seed sales are sufficient to continue employment.

Despite COVID-19 meaning that sales in the first rainy season of 2020 – the first main sales season - were not possible, sales were still seen in the project totalling ██████████ Ugandan Shillings (ca. £██████ for community nurseries (see table 4 above). This was due to the support of a strong group of partners, both government and non-governmental and because of a successful publicity and marketing campaign in the project using radio, television and mobile advertisement vans. Some additional sales have been made since the project officially ended, as well as additional donations for planting in community sites to promote the use of native species.

Business plans have also been developed for each nursery (see Annex 7.19) and funds received from seedling sales are being managed and distributed at intervals, which will allow groups to continue to operate and grow beyond the project.

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

In relation to biodiversity, at the start of the project, Forest Landscape Restoration (FLR) efforts in Uganda were constrained by a limited understanding of the benefits of biodiverse FLR, high demand for exotic species, and limited availability of native seeds/seedlings. This resulted in a very high risk that Ugandan restoration targets would be delivered with exotic species mostly sourced from government nurseries (see photo-reel at www.nfa.org.ug for typical NFA nurseries growing only exotic pine), delivering species-poor FLR that misses biodiversity conservation, ecosystem services and employment opportunities for rural people. The target species list developed for the project was of 145 species (expanding to 182 species), which included 23 threatened species (see species in Annex 7.12). The project collected and propagated 103 of these species. This has enabled expansion of conservation collections and recovery programmes to be initiated for threatened species as part of restoration efforts. By producing a supply of species diverse and genetically diverse planting material, this project will continue to enable restoration of resilient forests in Uganda, which will secure benefits for animal as well as plant diversity.

Increased information is being generated for native tree species, which further helps to scale up the production of native species and facilitate the adoption of native species restoration across Uganda. The project is working closely with NFA and MoW&E, to maximise their uptake and promotion of native species, in government and other planting efforts across Uganda. A WWF Reforestation Grant project focussed on Kagadi planted native seedlings from the nurseries during the final year of the project.

In relation to poverty alleviation, the project aimed to train and employ more than 100 people in Forest Landscape Restoration. 119 people have received paid employment opportunities through this project, and training in seed collection, nursery management and business skills (Output 4). They have seen a direct positive impact on their income from this employment, which has been further supplemented by seedling sale in the final year of the project.

The baseline and final project socio-economic surveys have shown that 160 people were contracted to do activities, those extra to the above mentioned doing one of activities, such as site clearance, fencing, tillage of land, pitting, planting, and staking of trees. The project-benefited respondents by providing them with employment and most stated monetary incomes of more than 400,000 Ugandan Shillings per month received from the project. This includes extra income, above the contracted amounts for the 4 roles outlined in section 3.1 (Output 4), from nursery set up activities, restoration plot set up, sales of seedlings etc. This met with expectations of benefits recorded in the baseline survey. The surveys also showed a significant increase of knowledge of tree propagation for those involved in the project. Respondents in the survey expected to continue to benefit from running the nurseries as their own businesses beyond the project.

This project is having a higher-level impact on biodiversity conservation and poverty alleviation by developing an important example of how landscape-scale restoration can benefit people, by establishing biodiverse FLR nurseries and innovative seed networks. This model is scalable and replicable, both within and outside of Uganda. BGCI and TBG are in touch with organisations within Uganda to establish additional indigenous nurseries or improve the biodiversity value of existing nurseries, for example, discussions are underway with ICRAF. BGCI is also working with the IUCN Global Forests Programme to promote this project as an example of how countries can meet their Bonn Challenge pledges with a strong focus on native species. With funding from the Rufford Foundation, BGCI is also mapping current native tree propagation and forest restoration efforts of botanic gardens globally. This will identify other countries where this kind of project would be successful, and working with the Ecological Restoration Alliance of Botanic Gardens to develop a set of guiding principles for biodiverse tree planting, which will include this project as an example.

In early 2021, BGCI and TBG staff co-authored a paper led by the Royal Botanic Gardens, Kew on Ten Golden Rules for Reforestation, which has received significant attention globally and been adopted by many organisations. Subsequently, BGCI held a joint conference on Reforestation for Biodiversity, Carbon Capture and Livelihoods with the Royal Botanic Gardens, Kew, which promoted biodiverse tree planting and this project was promoted as an example of best practice. As a result of the conference, a Declaration was produced which is currently

open for signature, which outlines key requests to policymakers, reforestation financiers and practitioners to enable better decision-making for global reforestation, particularly to benefit biodiversity.

The experience gained through this project has been extremely beneficial and will continue to be going forwards, with the aim to scale up the positive impact of FLR on biodiversity conservation and poverty alleviation in all countries that have made Bonn Challenge pledges.

4 Contribution to Darwin Initiative Programme Objectives

4.1 Contribution to Global Goals for Sustainable Development (SDGs)

The focus on creating a supply of and demand for biodiverse material for FLR by establishing nurseries and seed collecting networks, means that the project contributed to several of the United Nation's Sustainable Development Goals (SDG).

SDG 1 (no poverty) by improving the livelihoods of >100 people and SDG 8 (decent work and economic growth) through the creation of non-agricultural employment in rural communities: People were trained in seed monitoring and collection and nursery establishment and management, equipping them with the skills to be employed through the project. Payments were also received by communities for nursery construction.

SDG 13 (climate change) through facilitating the creation of more biodiverse landscapes which will have a greater capacity to adapt to a changing climate and SDG 15 (life on land) through delivering biodiverse FLR: In year 1, under Output 1, a list of target native species was developed and propagation information gathered for these species. Under Output 2, four nurseries were established, and under Output 4, people were trained in seed collection and propagation techniques. In years 2 and 3, trainees produced a diverse supply of native seedlings (Output 3) for biodiverse restoration which restores degraded land and decreases biodiversity loss.

SDG 5 (gender equality) by ensuring that women are employed and empowered by the project. In year 1, 51 women were trained (Output 4), who were subsequently employed through this project in years 2 and 3.

4.2 Project support to the Conventions or Treaties (e.g. CBD, Nagoya Protocol, ITPGRFA, CITES, Ramsar, CMS, UNFCCC)

The improved supply of biodiverse native seedlings and planting of demonstration restoration sites in all project areas, and a restoration site in Kagadi (funded by WWF Reforestation Grants) in the project lifetime has contributed to several Aichi Biodiversity Targets including: Target 5 by reversing land degradation and fragmentation and Target 14 by improving landscape resilience to ensure that essential ecosystem services are secured, Target 15 by increasing carbon sequestration through the planting of trees and woody plants, Target 12 by improving the conservation status of threatened species by reducing barriers for their inclusion in FLR (*Prunus africana* - VU and seven additional globally threatened species were produced by nurseries and included in in restoration plantings), Target 9 by decreasing reliance on exotic species and Target 1 by demonstrating the value of the inclusion of native species in FLR to a wide audience, including farmers, school groups, churches and NGOs.

The nurseries stocked with native species provides Uganda with the opportunity to carry out more biodiverse FLR shifting away from reliance on exotic species. The mapping of seed zones and careful recording of data during seed collection and propagation mean that seedling stocks can also be targeted to be planted in areas that are similar to where they were sourced from, increasing successful restoration outcomes. NEMA (the CBD focal point) has been part of the project Steering Committee and so has helped with national and regional promotion of the nurseries and promoting the use of native species in tree planting and restoration.

This project also contributes to the United Nations Framework Convention on Climate Change, by supporting forest restoration efforts under the Bonn Challenge and harmonising them with the aims of the Convention on Biological Diversity.

4.3 Project support to poverty alleviation

The beneficiaries in this project were 119 people from rural communities close to sites where nurseries were established. 75 of these (25 women) received training in seed monitoring and collection, 40 (22 women) received training in propagation and nursery techniques and 4 (2 women, although these women dropped out and the newly appointed people were men) received training in management of demonstration restoration plots. These all received payment for project activities (seed monitoring and collection - ██████ Ugandan Shillings per month, part time employment; nursery operations - ██████ Ugandan Shillings per month; nursery management -159,375; and restoration plot management - ██████ Ugandan Shillings per month) having a direct impact on their income (sample contracts are provided in Annex 7.18).

Seedling sales raised ██████ Ugandan Shillings in the final year, which have been saved as a nursery association fund. This fund will be used to support the nurseries further beyond the project when Darwin Initiative support for nursery infrastructure and equipment and wages from the project is removed. In the nurseries' business plans, the forecasts earnings from sales are expected to be lowest in the first year beyond the project (April 2021 – March 2022) with small deficits expected at Kagadi and Lwamunda nurseries (- ██████ and - ██████ UGX – See the business plans in Annex 7.19) which will be supplemented with the nursery association funds.

In the next rainy season following the project conclusion (April - May), a further ██████ Ugandan Shillings (£█████ were raised from sales. Additional seedlings were also donated for planting in community sites to promote the use of native species, and discussions are ongoing with some corporate organisations interested in supporting planting activities.

The socio-economic studies carried out in the first and final years showed that participants' knowledge of plant propagation increased through the training received in the project. The majority of respondents reported the project provided them with monthly incomes greater than ██████ Uganda Shillings – this includes extra income, above the contracted amounts for the 4 roles outlined in section 3.1 (Output 4), from nursery set up activities, restoration plot set up, sales of seedlings etc.. Most respondents also reported that they would continue to run the nurseries as a business beyond the project, using the training they have received as well as some suggesting that they would train others in nursery site management or even to set up other nurseries elsewhere.

4.4 Gender equality

There is limited non-agricultural job creation for the poorest households in Uganda, and employment opportunities for women are particularly restricted. This project employed 119 people including 47 women (25 women received training in seed monitoring and collection and 22 women were trained in propagation and nursery techniques (see training reports in Annex 7.20). Four women dropped out of positions in the duration of the project. This training and employment has empowered and enabled them to contribute income to their households.

- **Did the project lead to greater representation of local poor people in management structures of biodiversity?**

119 local poor people from rural parts of Uganda have become involved in seedling supply, which is an important part of the restoration value chain for the delivery of restoration practices that increase biodiversity. Greater representation in this kind of management structure for biodiversity was facilitated through this project, as at the start of the project, mainly exotic species were available from nurseries across the country, providing little opportunity to benefit biodiversity through FLR activities.

- **Were any management plans for biodiversity developed and were these formally accepted?**

Although no formal management plans for biodiversity were developed as part of this project, nor targets for planting indigenous species put in place, the nurseries were established in collaboration with national government. Following discussions with the relevant governmental departments, the project nurseries have all become formally registered entities, rather than

working under the umbrella of TBG (an NGO). This will allow them to provide seedlings to government contracts going forwards.

Business plans were also developed for the nurseries, which will enable the groups to continue to contribute to the management of biodiversity through their involvement in restoration supply chains, whilst benefiting economically as well.

- **Were they participatory in nature or were they ‘top-down’? How well represented are the local poor including women, in any proposed management structures?**

The nurseries are now independently registered entities, which are co-managed by nursery workers. A total of 25 women were employed at the nurseries (60% of nursery workers) and 22 were employed as seed collectors (37% of seed collectors), and these will continue to be part of seedling supply chains in future, continuing to benefit from the sale of native seedlings to contribute towards achieving Uganda’s Bonn Challenge pledge.

The business plans for nurseries were developed by a marketing consultant, who worked with nursery workers both on marketing materials and development of the plans.

- **How did the project positively influence household (HH) income and how many HHs saw an increase?**

119 people have received incomes from work in seed monitoring and collection; the establishment of nurseries; propagation activities at nurseries; management of nurseries; and management of demonstration restoration plots. These people are part of households in rural parts of Uganda, where farming is the major economic activity, wage employment is scarce, poverty rates are high and land is increasingly scarce. Average monthly household income in rural Uganda is US\$ [redacted] (UBOS, 2014). The project made monthly payments to individuals that were equivalent to the monthly household income. These payments were supplemented by payments for other activities in the project (e.g. nursery set up activities, restoration plot set up, sales of seedlings etc.) meaning that individuals reported an increase in household income of > [redacted] Ugandan Shillings (>US\$ [redacted]).

- **How much did their HH income increase (e.g. x% above baseline, x% above national average)? How was this measured?**

A socio-economic survey carried out in the final year was compared to data from a similar survey in the first year of the project. This used semi-structured interviews to ask respondents about the benefits they received from the project with three groups: community members around the project sites, those involved in the nurseries and other employed by the project. The survey reports that respondents provided with employment in the project stated it gave them monetary incomes of more than [redacted] Ugandan Shillings per month. This met with expectations of benefits recorded in the baseline survey.

4.5 Transfer of knowledge

The project has transferred plant seed collection and propagation knowledge to 119 local community members from a developing country – 47 of which were women. This was achieved through the delivery of in person training and provision of training materials. Participants received certificates for participating in the training courses. The impact of the transfer of knowledge is evidenced in a change in responses to a question asked in the project socio-economic surveys about plant propagation knowledge – with responses changing from mostly very poor/poor to all average and above. It is also reflected in the successful collection and propagation of >100 native species, achieved by 100 people without or with limited experience of seed collection or propagation prior to the project commencing.

4.6 Capacity building

The project manager at TBG, Said Mutegeki (male), presented the project as an example model for improving restoration practices to use native species at the BGCI and Royal Botanic Gardens, Kew Reforestation for Biodiversity, Carbon Capture and Livelihoods conference in February 2021.

TBG Executive Director, Godfrey Ruyonga (male) was also a named author of the scientific paper “Ten golden rules for reforestation to optimize carbon sequestration, biodiversity recovery and livelihood benefits” published in *Global Change Biology* in January 2021.

The project was also promoted at national and regional events for the Water and Environment Week (UWEWK) in Uganda (21st-26th March 2021) with TBG staff (male and female) involved in the organisation of events regionally and BGCI and TBG involved in the national events. The team organised a side event at UWEWK on 25th March 2021 called ‘Delivering Bonn Challenge pledges in a way that benefits people and biodiversity: the Uganda model’, which was held virtually because of COVID-19. This featured presentations from TBG (Said Mutegeki), BGCI, IUCN (Sophie Kutegeka – female) and the Forestry Sector Support Development department of the Ministry of Water and Environment (See the programme and presentations in Annex 7.3 and 7.21).

Representatives from nursery and seed collecting groups were able to share and demonstrate the capacity they have gained through the project during local, regional and national media events, including radio and TV, see for example:

<https://www.youtube.com/watch?v=Qsqp9dUNo5U>

5 Sustainability and Legacy

Training materials were all provided to trainees in printed and soft copy to allow for continued reference and learning (See example certificate from training in Annex 7.23) beyond the timeframe of the project. This also enables the trainees to become trainers going forwards, for example TBG is currently in discussions with ICRAF about improving the biodiversity benefits of one of their nurseries in Uganda, and nursery workers will provide training to the ICRAF nursery workers.

Species information developed through the project on phenology, propagation and care techniques is extremely valuable for scaling up the use of native species in forest restoration in Uganda. The project team has collated all of this information and it will all be presented on a project website to facilitate access, which will be launched shortly after submitting this report.

Throughout the project, the government (Ministry of Water and Environment, National Forestry Authority and the National Environment Management Authority) and IUCN in Uganda have been involved, including at the project launch, Steering Committee meetings, as well as through direct involvement in project activities. This has ensured that the aims of the project to deliver FLR in a way that benefits biodiversity and reduces poverty has been widely understood and adopted by key players in FLR in Uganda. This has also allowed them to understand the project progress and benefits. They have also provided input into ways to promote and support the community nurseries beyond the lifetime of the project, for example encouraging them to register as independent entities so nurseries can supply seedlings to government projects. Joint funding applications have also been developed and will continue to be developed going forwards.

The regional and national campaigns, although impacted due to COVID-19 in the project’s final year, also promoted the planting of native species and availability of diverse seedlings from the four nurseries established in this project. This included radio and TV programmes that were recorded and are still being aired repeatedly. Promotional and marketing materials were also developed by the project consultant Alex Kaahwa in partnership with the project team and nurseries (See Annexes 7.6 and 7.8) that the nurseries will continue to use beyond the timeframe of the project. Schools were also involved in tree planting activities spreading local awareness.

The total income from seedling sales during the project was impacted by COVID-19 since the final year was the main year sales were expected and the nurseries have had to close at key times, particularly in the rainy season from April to June/July 2020. Sales were still seen with the records kept by nurseries showing that the public awareness campaign had influenced their decisions since many were promoted to visit the nurseries by radio or television announcements. The total amount raised from seedling sales so far (including some sales made since April 2021) is £ [REDACTED]. This money is currently being managed by nursery associations and will be used as a buffer to support staff incomes over the next year.

The development of business plans for each nursery also puts the nursery groups in a strong position to continue to function and grow the sales of their seedlings in future. TBG and the nurseries will also be able to use the sponsorship packages developed in the project to continue to engage businesses and civil or government institutes to restore land using native species bought from the community nurseries (see section 3.1).

These actions mean that the nurseries that have been established are in a good position to be able to continue to function and provide incomes to the community members that were supported in this project.

TBG and technical experts from the BGCI network have agreed to continue to provide technical expertise where needed to support the nurseries going forwards. The project partners also continue to develop joint funding applications to expand this project, but this is anticipated to be in addition to sales achieved independently by the nurseries.

For example, BGCI has recently launched the Tree Conservation Fund, which aims to match corporate funders to tree planting projects, with a focus on threatened species. Six Ugandan species, all of which are being propagated in community nurseries, are currently promoted as “Species on the Brink” in need of support on the Tree Conservation Fund website: www.treeconservationfund.org. BGCI will work to match corporate funders and foundations to support the continued use of a wide mix of native, including threatened tree species, in planting programmes, to complement and support the efforts of TBG and the nurseries.

The project was also added to the Terramatch website: <https://www.terramatch.org/> and Restor platform www.restor.eco which aim to attract funding, and there are also ongoing discussions with Plan Vivo about the best way for nurseries to obtain carbon credits for planting activities.

Because seedling sales were impacted by COVID-19, partners are all committed to continuing to help to identify additional sources of funding for seedling sales / planting going forwards. It is hoped that the impact of COVID-19 will ease allowing nursery groups to fully utilise the knowledge gained, business plans and marketing materials developed through this project to become self-sustaining.

Three members of the project team (two from BGCI and one from TBG) were co-authors of the paper “Ten Golden Rules for reforestation to optimize carbon sequestration, biodiversity recovery and livelihood benefits” which has received a lot of attention and been adopted by many tree planting organisations. The project was also promoted as an example of best practice at the Royal Botanic Gardens, Kew and BGCI conference on Reforestation for biodiversity, carbon capture and livelihoods. A declaration was developed as a result of the conference, which is currently open for signature and promotes the kind of reforestation approach adopted in this project: <https://www.kew.org/science/engage/get-involved/reforestation-declaration>

6 Lessons learned

The project team worked very well together with regular communications that helped the project to progress well despite the complications of COVID-19. This has been strengthened by the fact that strong partnerships existed before the project, including for example between BGCI and TBG, between TBG and NFA and between BGCI and NEMA.

Engagement of Forest Officers and Environment Officers was essential for nursery site selection, and engagement of local leaders greatly helped with selection of people to be involved in nursery and seed collecting groups. For example, the District Forest and Environment Officers of Ibanda District helped in the selection of most of the trainees from Ibanda for Kimirire nursery and the district local government for Kagadi councillors also helped with identification of the local community people to be involved in the project at that site.

Nursery workers remained happy with their roles in the project; however, some seed collectors did become a little frustrated that their roles involved frequent travel and that the amount of work varied depending on seed availability, especially when compared to the full-time nursery positions. Establishing seed collecting networks is a key component of delivering species for propagation that supplies and genetically diverse forest restoration and so these networks will be a part of future projects. It is thought that employing people from across a wider area would

work better in future projects, to facilitate monitoring of seed set and reduce travel to seed collection sites (most collectors are based close to nurseries). The nature of seed collecting work is such that the work will always be variable depending on season. This (and the variation compared to nursery work) will be explained to groups better at the start of future projects.

The project would also have benefited from including increased funding for transportation of seeds to facilitate this, e.g. motorbikes. A higher equipment budget would also have benefited the project, enabling the purchase of better quality seed collecting equipment, e.g. buckets and more durable collecting bags.

For the public awareness parts of the project, COVID-19 had a big impact on activities and we learnt the importance of secondary planning. For the development of sponsorship packages to engage the business and civil society sectors, we had to alter what was offered because budgets were reallocated to support the pandemic reaction.

To allow nurseries to apply to be part of government contracts for restoration activities, we learnt that the nurseries needed to be running as their own private enterprises rather than under the umbrella of TBG as an NGO. In particular, this related to the ability of applicants for government contracts to be able to provide VAT certificates and other documentation. By the project conclusion, this separation from TBG was achieved so that the nurseries can provide seedlings to government projects going forwards.

6.1 Monitoring and evaluation

There were no major changes to the project design or logframe. The project team was primarily responsible for project monitoring and evaluation. Project members from BGCI and TBG were in touch every week via phone or email to ensure the project was on track. In addition, BGCI staff travelled to Uganda on six separate occasions during the project, although all travel was cancelled due to COVID-19 in the final year of the project. The project team also ensured that the suggested means of verification in the logframe were in place to demonstrate progress against the indicators and Outputs.

In addition, a project Steering Committee was established in October 2018 to help monitor and evaluate progress. In between Steering Committee meetings, TBG kept Steering Committee members up to date with project progress by regularly meeting with and communicating with representatives. A total of 3 steering committee meetings were held in the project (See minutes in Annex 7.1)

BGCI also helped TBG to monitor the impact of public outreach materials and events.

Socio-economic studies were carried out in Year 1 and 3 of the project by an external consultant. The key findings of the socio-economic studies on the impact of the project were increased household incomes of mostly over 400,000 Ugandan Shillings for month and increased knowledge of tree propagation. The reported household income figure included income from nursery set up activities, restoration plot set up, sales of seedlings, on top of the contracted amounts for the 4 roles outlined in section 3,1 (Output 4). This evaluation was particularly helpful for the project, as this kind of expertise was not available within the project team, and it was also felt that an external review would be more representative of project impact.

Overall, the team is pleased with the M&E approach adopted and implemented through this project.

6.2 Actions taken in response to annual report reviews

The project team responded to all issues raised in the project report reviews in previous reports. This included reducing seedling production and species targets. There are no outstanding issues as far as we are aware. Responses to the comments from the Year 2 Annual Report are as follows:

Comment 2: Nursery groups are recording new and important propagation information on native tree species that will facilitate the scaling up of forest restoration - it would be helpful to include some technical information on fruiting and propagation of tree species with the next report.

Technical information on the collated data on tree fruiting and propagation is found in Annexes 7.5 and 7.13.

Comment 3: The Report cites the monthly wage paid to each of three positions, but it is not clear if the employees were in employment before taking up posts with the project, and how the project salary changes their household income. This may be included in the final year socio-economic study. The Report indicates that seedling sales will supplement these incomes but it is not clear how this will operate in practice.

From the socio-economic survey (See Annex 7.9) the nursery workers and those employed by the project were farmers, casual workers (including for government and business enterprises), or nursery workers. There was a mixture of education attainment levels, most being A-level, O-level or primary educated. The income raised from seedling sales is being managed by the Nursery Associations (representing all nursery workers and seed collectors) to be used in the year following the project to support the nurseries to become fully established. The business plans for each nursery forecast that incomes from sales are likely to be lowest in the first year (without factoring in continued impacts of COVID-19).

Comment 4: The project indicates that payments for full time posts equate to the average rural income per household per month, although in the Application, it proposed to employ people on salaries higher than the current average rural wage.

Responses captured in the socio-economic survey suggest that the majority of the people involved in the nurseries received more than 400,000 Ugandan shillings monthly from the project, which includes extra income, above the contracted amounts for the 4 roles outlined in section 3.1 (Output 4), from nursery set up activities, restoration plot set up, sales of seedlings etc. This matched expectations reported in the baseline socio-economic survey and equates to just over US\$110 a month, over twice the average monthly household income in rural Uganda is from 2014 - US\$45 (UBOS, 2014).

Comment 5: The Application indicates that wherever possible, other marginalised groups will be included such as disabled people and young women who do not have the opportunity to access formal education, but this is not discussed in the Report.

Other marginalised groups were included in the project including:

- Youth - 14 females between 18 and 25 years old were employed - four in seed collection and 10 in nursery management
- Little formal education - 5 of the contracted / employed respondents to the socio-economic survey reported primary education as highest educational attainment
- Elderly - One female and 2 males who were over 50 were trained and employed in nursery management.

7 Darwin identity

Recognition of funding has been made and the Darwin Initiative logo has been used in all presentations about this project. This included a presentation delivered by the Project Leader at the Sub-Saharan Africa Forest Genetic Resources Programme (SAFORGEN) regional workshop in Ghana in April 2019, presentations during the project launch in Uganda, and the Ugandan Project Manager's presentation at the BGCI-Kew Reforestation Conference in February 2021 (available here: <https://www.youtube.com/watch?v=eSGIIL-eaLI> - with the presentation slides in Annex 7.25).

The Darwin Initiative logo is also used on all public outreach materials associated with the project (see examples in Annex 7.16 and 7.17) and nursery signs (see image right).

The Darwin Initiative was also noted as the funder in both radio and TV programmes, see for example: <https://www.youtube.com/watch?v=Qsqp9dUNo5U>

The Darwin Initiative was also promoted at the Water & Environment Week activities, for example being mentioned as the project funder at the side event organised (see Annex 7.3 and 7.21).

There is a good understanding of the Darwin Initiative within Uganda, which is further helped through this project. The UK Government's contribution is well recognised by everyone involved in the project. This is a distinct project with a clear identity, but it is hoped that it will lead on to a larger programme of work in Uganda and elsewhere in future.

The project is promoted through the @BGCI and @globaltrees Twitter accounts and here is a link to the project page on the BGCI webpage: <https://www.bgci.org/our-work/projects-and-case-studies/supply-and-demand-restoration-in-uganda-for-people-and-biodiversity/>

8 Impact of COVID-19 on project delivery

COVID-19 made seed collection more difficult in the final project year. A new system was put in place so that individuals were able to continue to collect seed when available if working in smaller groups and if there was no health risk during collection. Seed was then either stored, or transported to the nurseries by motorbike, and a record of collections kept so that payments could be made.

The aim of the project was that wage incomes would be supplemented by seedling sales, but sales were not possible while nurseries were forced to close due to COVID-19 in the final project year. This reduced sales significantly in the wet season sales period (April-June 2020). Sales of [REDACTED] Ugandan Shillings (£ [REDACTED] see table 4 in section 3.1) were made during the October 2020 rainy season and start of the first 2021 rainy season (March 2021). More sales have been made following the project officially ending raising an additional [REDACTED] Ugandan shillings (£ [REDACTED] for the nurseries (April - May 2021).

Overall seedlings sales have been much lower than anticipated. This is due to nursery closures and also that marketing materials were largely targeted at corporate organisations, and based on discussions with them, their Corporate Social Responsibility budgets have either been reduced or directed towards COVID-19 impacts. Farmers and community groups were also projected to be bigger seedling purchasers, but again their spending abilities have reduced because of COVID-19.

Project staff and beneficiaries health and safety during the pandemic was ensure by closure of the nurseries to the public during the worst periods of the outbreak in Uganda, by providing the nurseries with soap and washing facilities and by reducing seed collection activities in larger groups.



Despite COVID-19 having a large impact on this project, particularly in terms of seedling sales, the project team is still extremely pleased with the achievements, the resilience of nursery workers and seed collecting teams throughout this project and their determination and enthusiasm to continue operations going forwards although the last year has not been easy.

Communication between institutes over Zoom because of COVID-19 has been successful in the final year of the project and this will continue to be a key method of increased communication in the future.

9 Finance and administration

9.1 Project expenditure

Project spend (indicative) since last annual report	2020/21 Grant (£)	2020/21 Total actual Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)				
Consultancy costs				
Overhead Costs				
Travel and subsistence				
Operating Costs				
Capital items (see below)				
Others (see below)				
TOTAL				

Staff employed (Name and position)	Cost (£)
Kirsty Shaw – Project Leader	
Alex Hudson – Project Manager	
Helen Miller – Head of Education and Public Engagement	
Gail Bromley – Education and Public Engagement Specialist	
IUCN Uganda staff	
Godfrey Ruyonga – Project Leader Uganda	
Said Musa – Project Manager Uganda	
Harriet Kokugonza – Public Outreach Uganda	
Juliet Kobusinge – Bookkeeper Uganda	
Seed collectors/monitors	
Nursery workers	
Nursery managers	
Demonstration plot manager	

TOTAL

Capital items – description

Water system repair
Bed repair and maintenance
Bed repair and maintenance
Seed bed repair and maintenance
Site repair and maintenance

TOTAL

Other items – description

Procurement of polytubes
Procurement of pesticides
Procurement of soil media
Clearing and planting Namatale restoration site
Clearing and planting Lwamunda restoration site
Restoration planting Ibanda restoration site
Completion planting Kagadi-Kagombe restoration site
Demonstration plot maintenance Kagadi and Lwamunda
Planting indigenous tree plots in four community sites
Improve water supply at Mbale and Kagadi community nurseries
Radio announcements and audio advertisements Kagadi & Mbale
Public van campaign Mpigi and Ibanda

TOTAL

9.2 Additional funds or in-kind contributions secured

Source of funding for project lifetime

In-kind support from BGCI Secretary General and other staff to influence policy at global level (est. 10 days @ £■■■■ / day)
--

In-kind support from Andrew Bower at USFS (est. 10 days @ £■■■■ / day)
--

In-kind support from Herbert Ongubo at Brackenhurst Botanic Garden (est. 5 days @ £■■■■ / day)
--

WWF Reforestation Grants

Rufford grant to BGCI to promote this project and identify opportunities to replicate the project in other countries
Seedling sales
TOTAL

Source of funding for additional work after project lifetime
Rufford grant to BGCI to promote this project and identify opportunities to replicate the project in other countries
Seedling sales
TOTAL

9.3 Value for Money

This project is deemed to be good value for money for the following reasons;

- The amount of staff time charged to the project by lead project partners was supplemented by an estimated >£ [REDACTED]
- In-kind contributions were also made to this project from experts from the BGCI network, to an estimated value of £ [REDACTED]
- The public outreach campaign which cost the project £ [REDACTED] had a good impact (though not as effective as expected if COVID-19 had not happened) and has developed materials that can be used to continue to promote the demand for native seedlings and support the nurseries beyond the timeframe of the project. Opportunities were also sought to combine project promotional activities with other national (Water and Environment week side event – See Annex 7.22) and international events (the Royal Botanic Gardens, Kew and BGCI Reforestation for Biodiversity, Carbon Capture and Livelihoods conference – See Darwin Identity section 7) increasing their impact.
- The project was able to mobilise other funds for restoration (WWF Reforestation Grant and Rufford Grant in section 9.2 above).
- The project was able to build strong relationships between TBG, and local and national government that will continue to support the nurseries beyond the project.
- Data on the uses of known species in the project target list that act as traditional sources of food was also compiled by BGCI, TBG and other Ugandan institutes with knowledge (e.g. Entebbe Botanical Gardens and Makerere University) in order to investigate their use in new agroforestry systems in the future.

10 OPTIONAL: Outstanding achievements of your project during the (300-400 words maximum). This section may be used for publicity purposes

I agree for the Darwin Secretariat to publish the content of this section (please leave this line in to indicate your agreement to use any material you provide here)

Because of this project, the availability of native seedlings for restoration in Uganda has increased dramatically. Uganda has made a 2.5 million ha pledge to the Bonn Challenge, but the majority of nurseries in the country supply either 100% exotic species or a small number of native species. The four nurseries set up in this project, collectively supply >100 native tree

species, including eight globally threatened species, the majority of which were not available for planting before the project began. The first year of the project involved training and construction of nurseries. That means that within the two remaining years of the project, >300,000 seedlings of >100 species were propagated, demonstrating that species diversity in supply chains can be quickly increased using this project model.

This project has employed more than 100 people in seed collecting networks and nursery groups to achieve this outcome. Prior to the initiation of this project, the majority of people involved had not taken part in seed collecting or nursery activities. The successful propagation of >300,000 seedlings of >100 species, demonstrates that trainees are putting the skills learnt from the botanical community to good use, and are now able to operate as independent nurseries, playing an active role in improving the biodiversity outcomes of Forest Landscape Restoration in Uganda.

This project is scalable, both within Uganda and in other countries. At a time when huge pledges are being made to tree planting and restoration, largely driven by carbon capture, this project has developed a valuable model, which engages the support of botanic gardens and the BGCI network, to show that Forest Landscape Restoration projects can be delivered in a way that benefits biodiversity and livelihoods as well as capturing carbon.

Annex 1 Project’s original (or most recently approved) logframe, including indicators, means of verification and assumptions.

Note: Insert your full logframe. If your logframe was changed since your Stage 2 application and was approved by a Change Request the newest approved version should be inserted here, otherwise insert the Stage 2 logframe.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Impact: Forest Landscape Restoration in Uganda provides long term biodiversity conservation and sustainable employment benefits			
<p>Outcome:</p> <p>Supply and demand for genetically and species diverse planting material is increased through nurseries and seed collecting networks that employ >100 people, for biodiverse Forest Landscape Restoration in Uganda.</p>	<p>0.1 Improved information available for 150 native tree species – information on distribution, populations, seed availability improved by the end of year 2, information on propagation protocols and growing conditions made available / developed / improved by the end of year 3.</p> <p>0.2 300,000 genetically diverse seedlings of 100 native tree species available for purchase from four nurseries established in high priority restoration areas, by end of year 2 and an additional 500,000 genetically diverse seedlings of 150 native tree species available by end of year 3.</p> <p>0.3 Increased demand for genetically and species diverse seedlings, sufficient that by the end of year 3 the nurseries are fully-funded by seedling sales.</p> <p>0.4 104 people (including at least 50% women) have increased capacity and improved livelihoods years 1 – 3, and after the project ends.</p>	<p>0.1 Distribution maps, seed collecting calendars, open access propagation protocols.</p> <p>0.2 Nursery records, nursery website showing locations and seedling availability.</p> <p>0.3 Posters and painted buildings, nursery records and accounts, workshop reports, Biodiverse FLR implementation report.</p> <p>0.4 Workshop reports, training certificates, payslips (or equivalent), socio-economic survey report.</p>	<ul style="list-style-type: none"> · Technical challenges can be overcome for difficult species (BGCI’s network of experts will help solve problems) · Employment opportunities (seed monitors, seed collectors and nursery workers) are appealing to communities.
<p>Outputs:</p> <p>1. Improved information generated on more than 150 native tree species, including improved information on distribution, wild populations and seed availability and propagation</p>	<p>1.1. Project infrastructure established, including project management, employment of experts, full stakeholder engagement, acquiring Prior Informed Consent and Monitoring & Evaluation methodology defined.</p> <p>1.2 Seed collection zones defined using forest and degradation maps (Figs 8 and 9, Uganda FLR report, p16 & 17 https://portals.iucn.org/library/sites/library/files/documents/2016-</p>	<p>1.1 Employment contracts, Workshop minutes, Steering Committee minutes, consultant contracts, permits, M & E reports.</p> <p>1.2 Maps of seed collection zones.</p>	<ul style="list-style-type: none"> · Sustainable sources of wild seed can be identified for all target species. Propagation information can be obtained or new protocols developed for species that do not have protocols (up to

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p>protocols improved / developed.</p>	<p>076.pdf) and working with a geneticist from BGCI network, within the first six months of the project.</p> <p>1.3 150 target species identified depending on suspected / known presence in collecting zones, historic presence in priority restoration areas, suitability for restoration (focus on pioneer species for initial plantings), conservation value (IUCN status – target 20 species) within first 9 months of project.</p> <p>1.4 Seed collecting calendars produced for 150 target species (end of year 2).</p> <p>1.5 Existing propagation protocols published online and new protocols developed / improved and published online for 150 target species (end of year 3), including 20 globally threatened species.</p>	<p>1.3 Target species list.</p> <p>1.4 Seed collecting calendars.</p> <p>1.5 Nursery log books, propagation protocols printed and available online (using BGCI template).</p>	<p>half of target species). Propagation experts from BGCI's network will be mobilised to work on difficult species (in-kind support).</p>
<p>2. Genetically diverse seedlings of 150 native tree species available for purchase from nurseries established in high priority restoration areas</p>	<p>2.1 Sites selected for nursery establishment, working with IUCN, Ministry of Water and Environment, and NGOs working on restoration.</p> <p>2.2 Four nursery infrastructures established close to high priority restoration areas by end of year 1.</p> <p>2.3 Seed collected from 150 target species, initiated in year 1 (as part of training), 100 species by end of year 2 and 150 species by end of year 3, by 30 seed trained seed collectors (see Output 4).</p> <p>2.4 300,000 seedlings produced by nursery workers and available for purchase from 100 target species by end of year 2 and an additional 500,000 seedlings from 150 species by end of year 3.</p>	<p>2.1 Report from site visits and working group meeting</p> <p>2.2 Infrastructures and consumables in place.</p> <p>2.3 Seed collecting data forms, nursery records.</p> <p>2.4 Nursery records, seedling sales.</p>	<ul style="list-style-type: none"> · Employment opportunities (seed monitors, seed collectors and nursery workers) are appealing to communities. · New communities are receptive to nursery establishment.
<p>3. Increased demand for genetically and species diverse seedlings</p>	<p>3.1 National forum held to increase understanding by government ministries, tree planting NGOs (incl. International Tree Foundation partners) and farmer associations (incl. Rainforest Alliance and Agroforestry Alliance for Africa partners) of the importance of biodiverse and genetically diverse FLR and the diverse range of species available in Uganda, led by BGCI, IUCN and NEMA in year 2.</p>	<p>3.1 Forum report, evidence of attendance list.</p> <p>3.2 Workshop reports, attendance lists.</p> <p>3.3 Leaflets promoting the benefits of native trees, painted houses and shops,</p>	<ul style="list-style-type: none"> · Demand can be created, to the extent that all seedlings are sold. Confident that this will be the case (see exit strategy and letters of support)

Project summary	Measurable Indicators	Means of verification	Important Assumptions
	<p>3.2 Four regional workshops held in high priority restoration areas to increase understanding of local government, tree planters and farmers of the importance of biodiverse and genetically diverse FLR and the diverse range of species available by end of year 3.</p> <p>3.3 National campaign launched to promote planting a diverse range of native species, in years 2 and 3.</p> <p>3.4 Four forest restoration demonstration plots set up, 1 per nursery, to demonstrate planting techniques and growth rates by end of year 2.</p> <p>3.5 10-year business plan produced by each nursery, including marketing strategies, opportunity areas and partners for sales.</p> <p>3.6 Demand for native species increased by at least 50% by end of year 3, based on baseline level identified during year 1 survey to farmers, NGOs and other tree planters and repeated in year 3.</p> <p>3.7 500,000* native tree species seedlings sold by end of year 3, enough that by the end of year 3 the nurseries are fully-funded by seedling sales.</p>	<p>transcripts of radio and TV programmes.</p> <p>3.4 Photos of demonstration restoration plots.</p> <p>3.5 Baseline and year 3 native species survey figures, records of seedling sales and orders.</p> <p>3.6 Records of seedling sales and orders.</p>	
<p>4. 104 people have increased capacity and improved livelihoods.</p>	<p>4.1 Following mapping of seed collecting zones (1.2 above), 60 people, at least 50% women, will be trained as seed monitors to track seed set and develop seed collecting calendars, and as seed collectors, by end of year 1.</p> <p>4.2 60 trainees will be employed as seed monitors and collectors for years 2 and 3 of the project.</p> <p>4.3 40 people, at least 60% women, trained in propagation, nursery management and records keeping, by BGCI network, by end of year 1.</p> <p>4.4 Four nursery managers identified (from the 40 trained) and trained in business skills by end of year 1.</p> <p>4.5 40 trainees employed in nurseries by end of year 1.</p>	<p>4.1 Attendance list, trainee certificates.</p> <p>4.2 Payslips (or equivalent).</p> <p>4.3 Attendance list, trainee certificates.</p> <p>4.4 Payslips (or equivalent).</p> <p>4.5 Attendance list, trainee certificates.</p> <p>4.6 Attendance list, trainee certificates.</p>	<ul style="list-style-type: none"> · Employment opportunities (seed monitors, seed collectors and nursery workers) are appealing to communities. · Seed sales are sufficient to continue employment (see exit strategy and letters of support)

Project summary	Measurable Indicators	Means of verification	Important Assumptions
	<p>4.6 Four people, at least 50% women, trained as demonstration plot managers by TBG in year 1.</p> <p>4.7 Four people employed as demonstration plot managers by end of year 1 and four demonstration plots set up by end of year 2 to support species selection.</p> <p>4.8 104 people employed at more than the average rural household income rate (initially part supported by the project and fully supported by seed sales at end of year 3) and livelihood impact measured through baseline socio-economic survey in year 1, repeated in year 3.</p>	<p>4.7 Payslips (or equivalent).</p> <p>4.8 Payslips, socio-economic baseline survey, repeated in year 1 and 3.</p>	
<p>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)</p> <p>1.1. Inaugural Project Workshop held with all stakeholders present. Project plan communicated, refined and all necessary mechanisms for acquiring permits and Prior Informed Consent defined and implemented.</p> <p>1.1. Project Steering Committee established, including all existing stakeholders (national and local authorities, communities, NGOs, academics etc.).</p> <p>1.1. Detailed briefs written for external consultants</p> <p>1.1. Monitoring and evaluation methodology defined and implemented.</p> <p>1.2 Geneticist works with NFA and TBG to map wild seed collection zones, using forest and degradation maps.</p> <p>1.2 Seed collecting zone maps produced to guide wild seed collection.</p> <p>1.3 TBG, BGCI and NFA develop target list of 150 species, based on suspected / known presence in collecting zones, historic presence in priority restoration areas, suitability for restoration, conservation status.</p> <p>1.4 Seed surveys carried out by trained seed monitors (trained in activity 4.1)</p> <p>1.4 Seed collecting calendars produced for 150 target species (by people trained in activity 4.1).</p> <p>1.5 Existing propagation information gathered from literature and TBG nursery staff.</p> <p>1.5 New protocols developed / improved through propagation trials at nurseries (established in activity 2.2)</p> <p>1.5 Protocols published online for 150 target species by end of year 3, including 20 globally threatened species.</p> <p>2.1 Working group established to identify sites for nursery establishment: BGCI, TBG, IUCN, NEMA, MoW&E, NGOs by end of first quarter.</p> <p>2.1 Visits to candidate sites to hold meetings with community members by end of year 1.</p> <p>2.1 Working group meeting to finalise siting of nurseries by end of year 1.</p>			

Project summary	Measurable Indicators	Means of verification	Important Assumptions
	<p>2.2 Four nursery infrastructures built by nursery workers by end of year 1.</p> <p>2.3 Seed collected from 150 target species, initiated in year 1 (as part of training), 100 species by end of year 2 and 150 species by end of year 3.</p> <p>2.4 300,000 seedlings produced and available for purchase from 100 target species by end of year 2 and an additional 500,000 seedlings from 150 species by end of year 3.</p> <p>3.1 Hold national forum to increase understanding by government ministries, tree planting NGOs (incl. International Tree Foundation partners) and farmer associations (incl. Rainforest Alliance and Agroforestry Alliance for Africa partners) of the importance of biodiverse and genetically diverse FLR and the diverse range of species available in Uganda, led by BGCI, IUCN and NEMA by end of year 2.</p> <p>3.2 Hold four regional workshops in high priority restoration areas (where nurseries are located) to increase understanding of local government, tree planters and farmers of the importance of biodiverse and genetically diverse FLR and the diverse range of species available by end of year 3.</p> <p>3.3 Design and launch national campaign to promote planting a diverse range of native species, in collaboration with public outreach expert from BGCI's network, years 2 and 3.</p> <p>3.4 Set up four forest restoration demonstration plots, 1 per nursery, to demonstrate planting techniques and growth rates by end of year 3.</p> <p>3.5 10-year business plan produced by each nursery, including marketing strategies, opportunity areas and partners for sales by end of year 3.</p> <p>3.6 Year 1 baseline survey to farmers, NGOs and other tree planters carried out by marketing consultant in 10km radius around nurseries, and repeated in year 3 to measure demand for / planting of native species.</p> <p>3.7 Nurseries supported to sell 500,000* native tree species seedlings by end of year 3, enough that by the end of year 3 the nurseries are fully-funded by seedling sales.</p> <p>4.1 Following mapping of seed collecting zones (1.2 above), 60 people, at least 50% women, trained by BGCI, TBG and NFA as seed monitors to track seed set and develop seed collecting calendars and as seed collectors by end of year 1.</p> <p>4.2 60 trainees employed as seed monitors and collectors by end of year 1.</p> <p>4.3 40 people, at least 60% women, trained in propagation, nursery management and records keeping, by BGCI network by end of year 1.</p> <p>4.4 Four nursery managers identified (from the 40 trained) and trained in business skills by end of year 1.</p> <p>4.5 40 trainees employed in nurseries by end of year 1.</p> <p>4.6 Four people, at least 50% women, trained as demonstration plot managers by TBG by end of year 1.</p> <p>4.7 Four people employed as demonstration plot managers by end of year 1 and four demonstration plots set up by end of year 2 to support species selection.</p>		

Project summary	Measurable Indicators	Means of verification	Important Assumptions
4.8 Baseline socio-economic study carried out in year 1 and repeated in year 3, to measure impact of employing 104 people at more than the average rural household income rate (initially part supported by the project and fully supported by seed sales at end of year 3).			

*There is a mistake in the initial logframe where it says 800,000 and should have said 500,000

Annex 2 Report of progress and achievements against final project logframe for the life of the project

Project summary	Measurable Indicators	Progress and Achievements
<p>Impact:</p> <p>Forest Landscape Restoration in Uganda provides long term biodiversity conservation and sustainable employment benefits</p>		<p>The project created jobs for 119 people in four rural parts of Uganda. Over 300,000 of 103 species native tree species were produced by nurseries by the end of the project from the four nurseries established close to high priority areas for restoration. The project has generated increased information on native species seed set and propagation techniques, which will continue to help to scale up the supply of native tree seedlings in future. The project worked closely with the Ministry of Water and Environment and the National Forest Authority to maximise uptake and promotion of native species to increase demand in the long term.</p> <p>The project planted four restoration demonstration restoration plots in forest reserve land and four demonstration community plots, with 8,276 seedlings of over 60 native tree species.</p> <p>Numerous local groups (e.g. farmers, companies, councils, religious institutions and schools) purchased seedlings to plant on community land and restoration sites, and additional seedlings were purchased and planted with a WWF Reforestation Grant.</p>
<p>Outcome Supply and demand for genetically and species diverse planting material is increased through nurseries and seed collecting networks that employ >100 people, for biodiverse Forest Landscape Restoration in Uganda.</p>	<p>0.1 Improved information available for 150 native tree species – information on distribution, populations, seed availability improved by the end of year 2, information on propagation protocols and growing conditions made available / developed / improved by the end of year 3.</p> <p>0.2 200,000 genetically diverse seedlings of 100 native tree species available for purchase from four nurseries established in high priority restoration areas, by end of year 2 and an additional 500,000 genetically diverse seedlings of 150 native tree species available by end of year 3.</p> <p>0.3 Increased demand for genetically and species diverse seedlings, sufficient that by the end of year 3 the nurseries are fully-funded by seedling sales.</p>	<p>0.1 142 native tree species were monitored for seed set in the project with seed collecting calendars created for 101 native tree species. Existing information was gathered on propagation techniques of native species, and nursery workers recorded additional information, with over 100 species propagated in the community nurseries. A seed zone map for Uganda was produced to guide collection efforts and supply of seedlings to planting sites.</p> <p>0.2 The project established and supported four community nurseries with workers trained to propagate native tree seedlings. By the project end, 320,582 seedlings of 103 native tree species had been propagated by nurseries.</p> <p>0.3 Public outreach materials were developed, TV and radio programmes held, and four regional events held to</p>

Project summary	Measurable Indicators	Progress and Achievements
	<p>0.4 104 people (including at least 50% women) have increased capacity and improved livelihoods years 1 – 3, and after the project ends.</p>	<p>promote the planting of native species and sale of seedlings from nurseries. Promotional vans were also part of the public outreach campaign in each area to promote the same messages. The four nurseries made sales worth ██████ Ugandan Shillings (£█████ see table 4 in section 3.1). The impact of COVID-19 caused nursery closures during the first season for sales in Uganda (April – May 2020) that reduced the total sales the nurseries were able to make in the project. Further sales beyond the project conclusion also made raising ██████ Ugandan Shillings (£█████) more. In the nurseries' 10-year business plans, the forecast includes expenditure budget for further promotion activities if expected yearly sales predictions are met (See Annex 7.19). However, continued temporary nursery closures, travel restrictions and a reduction in spending from corporate organisations and individuals because of COVID-19 makes it hard to measure demand at this point.</p> <p>0.4 119 people, including 47 women, were trained in Year 1 and employed in Years 2 and 3 as seed monitors and collectors, nursery workers, and demonstration plot managers. These will be further supported as nursery groups have formed associations that will use the funds made from seedling sales so far to support nursery staff for the next year.</p>
<p>Output 1. Improved information generated on more than 150 native tree species, including improved information on distribution, wild populations and seed availability and</p>	<p>1.1. Project infrastructure established, including project management, employment of experts, full stakeholder engagement, acquiring Prior Informed Consent and Monitoring & Evaluation methodology defined.</p> <p>1.2 Seed collection zones defined using forest and degradation maps (Figs 8 and 9, Uganda FLR report, p16 & 17 https://portals.iucn.org/library/sites/library/files/documents/2016-076.pdf) and working with a geneticist from BGCI network, within the first six months of the project.</p>	<p>1.1 Project consultants were appointed by BGCI and TBG (see section 3.1 Output 1). Stakeholders were brought together for a project launch meeting and project Steering Committee meetings throughout the project (evidence provided in section 3.1 and Annex 7.1 and 7.4). Steering Committee meetings discussed project monitoring & evaluation, reported on progress and project issues. All partners identified as key for this project have been actively involved, including the Ministry of Water and</p>

Project summary	Measurable Indicators	Progress and Achievements
propagation protocols improved / developed.	<p>1.3 150 target species identified depending on suspected / known presence in collecting zones, historic presence in priority restoration areas, suitability for restoration (focus on pioneer species for initial plantings), conservation value (IUCN status – target 20 species) within first 9 months of project.</p> <p>1.4 Seed collecting calendars produced for 150 target species (end of year 2).</p> <p>1.5 Existing propagation protocols published online and new protocols developed / improved and published online for 150 target species (end of year 3), including 20 globally threatened species.</p>	<p>Environment (MWE) and the National Forestry Authority (NFA).</p> <p>1.2 Andrew Bower, a geneticist from United States Forest Service, worked with TBG and NFA to produce maps that delineate seed zones in Uganda (see figure 1 in section 1 of this report).</p> <p>1.3 A target species list was produced by TBG with updates throughout the project so that it was up to 182 species by the project end (see Annex 7.12). These will be targeted for further collection and propagation beyond the project, particularly those 6 species that proved difficult to propagate in this project (see section 3.1 Output 2)</p> <p>1.4 Seed collection calendars have been produced for 101 species (See Annex 7.13). This was created by the 75 people trained do seed collection and staff at TBG.</p> <p>1.5 Existing propagation information was compiled by TBG for target species and supplemented by the work carried out at community nurseries (see examples in Annex 7.5).</p>
Activity 1.1 Inaugural Project Workshop held with all stakeholders present. Project plan communicated, refined and all necessary mechanisms for acquiring permits and Prior Informed Consent defined and implemented.		Completed. The inaugural project workshop involved 23 people from 13 institutions.
Activity 1.1. Project Steering Committee established, including all existing stakeholders (national and local authorities, communities, NGOs, academics etc.).		Completed. Steering Committee meetings were held in all three years of the project.
Activity 1.1. Detailed briefs written for external consultants.		Completed. The briefs and contracts put in place guided the work of external consultants throughout the project.
Activity 1.1. Monitoring and evaluation methodology defined and implemented.		Completed. Monitoring and evaluation was carried out by the project team and progress was also evaluated in Steering Committee meetings. An independent evaluation of socio-economic impact was also carried out.
Activity 1.2 Geneticist works with NFA and TBG to map wild seed collection zones, using forest and degradation maps.		Completed. The maps were developed during a workshop with NFA and TBG staff, led by a geneticist from the US Forest Service.

Project summary	Measurable Indicators	Progress and Achievements
Activity 1.2 Seed collecting zone maps produced to guide wild seed collection.		Completed. The maps were used to guide collection and advise on where seedlings can be planted and will survive well.
Activity 1.3 TBG, BGCI and NFA develop target list of 150 species, based on suspected / known presence in collecting zones, historic presence in priority restoration areas, suitability for restoration, conservation status.		Completed. The target species list was produced, with additional species added as a result of demand and locating additional species during survey work.
Activity 1.4 Seed surveys carried out by trained seed monitors (trained in activity 4.1)		Completed. Training was delivered in year 1 and seed surveys carried out by trainees for the rest of the project.
Activity 1.4 Seed collecting calendars produced for 150 target species (by people trained in activity 4.1).		Completed for 101 species. Seed monitors, with support from TBG, produced the calendars.
Activity 1.5 Existing propagation information gathered from literature and TBG nursery staff.		Completed. Existing propagation information was collated from books and online information sources by TBG.
Activity 1.5 New protocols developed / improved through propagation trials at nurseries (established in activity 2.2).		Completed for over 100 species. Nursery staff recorded additional information on propagation techniques to improve existing protocols.
Activity 1.5 Protocols published online for 150 target species by end of year 3, including 20 globally threatened species.		In progress. The propagation information has been collated and the protocols and information on phenology will soon be published on a project website to scale up the use of native species in Uganda going forwards.
Output 2. Genetically diverse seedlings of 150 native tree species available for purchase from nurseries established in high priority restoration areas	<p>2.1 Sites selected for nursery establishment, working with IUCN, Ministry of Water and Environment, and NGOs working on restoration.</p> <p>2.2 Four nursery infrastructures established close to high priority restoration areas by end of year 1.</p> <p>2.3 Seed collected from 150 target species, initiated in year 1 (as part of training), 100 species by end of year 2 and 150 species by end of year 3, by 30 seed trained seed collectors (see Output 4).</p> <p>2.4 300,000 seedlings produced by nursery workers and available for purchase from 100 target species by end of year 2 and an additional 500,000 seedlings from 150 species by end</p>	<p>2.1 Four nursery sites were selected with support from IUCN, the Ministry of Water and Environment and TBG.</p> <p>2.2 Nurseries were established in the project first year close to high priority areas for restoration and remain operational at the project conclusion.</p> <p>2.3 Seeds were collected from 109 species and delivered to community nurseries for propagation. Despite monitoring 142 species, seed collection for 36 of these was not possible in the project timeframe. This was partly due to disruption of COVID-19 on seed collecting activities in the project final year, and some species did not produce seed in the project timeframe.</p> <p>2.4 In response to Year 2 report feedback, targets were reduced. This revised target was almost met, with 320,582 seedlings of 103 native tree species (see species and</p>

Project summary	Measurable Indicators	Progress and Achievements
	of year 3. <i>Reduced in response to feedback to 450,000 seedlings from 110 species.</i>	seedling production information in section 3.1). Five of the species collected could not be propagated.
Activity 2.1 Working group established to identify sites for nursery establishment: BGCI, TBG, IUCN, NEMA, MoW&E, NGOs by end of first quarter.		Completed. The working group was established to identify sites for the nurseries in the first year of the project.
Activity 2.2 Visits to candidate sites to hold meetings with community members by end of year 1.		Completed. Meetings were held with local community members in regards to the nursery establishment.
Activity 2.1 Working group meeting to finalise siting of nurseries by end of year 1.		Completed. The sites were finalised by the working group in year 1.
Activity 2.2 Four nursery infrastructures built by nursery workers by end of year 1.		Completed. Four nurseries were constructed in the first year using infrastructure provided by the project and local community members paid to provide the labour.
Activity 2.3 40 nursery staff (trained in activity 4.5) employed to construct nurseries, propagate and sell seedlings.		Completed. 40 local community members (including 25 women) that constructed nurseries were employed as nursery workers for the project.
Activity 2.4 60 seed collectors (trained in activity 4.3) employed across Uganda.		Completed. 75 seed collections (including 22 women) that had been trained to carry out monitoring and seed collection were employed in the project (60 in year 2 with 15 more employed in year 3)
Activity 2.4 Seed collected from 150 target species, initiated in year 1 (as part of training), 100 species by end of year 2 and 150 species by end of year 3.		Target almost achieved. Seeds were collected from 109 species in the project with COVID-19 impacting the total that could be collected, as well as biological difficulties of some species not producing seed for collection within the project timeframe.
Activity 2.4 200,000 seedlings produced and available for purchase from 100 target species by end of year 2 and an additional 500,000 seedlings from 150 species by end of year 3.		Target almost achieved. 320,582 seedlings of 103 native tree species were propagated and made available from nurseries over the timeframe of the project.
Output 3. Increased demand for genetically and species diverse seedlings	3.1 National forum held to increase understanding by government ministries, tree planting NGOs (incl. International Tree Foundation partners) and farmer associations (incl. Rainforest Alliance and Agroforestry Alliance for Africa partners) of the importance of biodiverse and genetically	3.1 The national event was initially organised to coincide with the National Water and Environment Week in Uganda in year 2 (March 2020), but it was cancelled due to COVID-19. This was rescheduled and carried out in year 3 (April 2021) – evidenced in report section 3.1 and Annex 7.3 and 7.21.

Project summary	Measurable Indicators	Progress and Achievements
	<p>diverse FLR and the diverse range of species available in Uganda, led by BGCI, IUCN and NEMA in year 2.</p> <p>3.2 Four regional workshops held in high priority restoration areas to increase understanding of local government, tree planters and farmers of the importance of biodiverse and genetically diverse FLR and the diverse range of species available by end of year 3.</p> <p>3.3 National campaign launched to promote planting a diverse range of native species, in years 2 and 3.</p> <p>3.4 Four forest restoration demonstration plots set up, 1 per nursery, to demonstrate planting techniques and growth rates by end of year 2.</p> <p>3.5 10-year business plan produced by each nursery, including marketing strategies, opportunity areas and partners for sales.</p> <p>3.6 Demand for native species increased by at least 50% by end of year 3, based on baseline level identified during year 1 survey to farmers, NGOs and other tree planters and repeated in year 3.</p> <p>3.7 500,000* native tree species seedlings sold by end of year 3, enough that by the end of year 3 the nurseries are fully-funded by seedling sales.</p>	<p>3.2 Four regional events took place to promote the purchase of native seedlings from nurseries with 286 participants in total.</p> <p>3.3 A public outreach campaign was launched in Year 2, promoting the purchase of native seedlings through promotional materials (see Annexes F and G) and TV, radio programmes and publicity vans.</p> <p>3.4 Four restoration plots were established with native species close to nurseries to provide demonstration of growth rates and promote planting of native species. In the final year, 4 further community plots were also established to promote the sponsorship packages developed in the project. £11,000 was also secured from WWF Reforestation Grants to plant a further 14 hectares in Kagadi (evidence in section 3.1 and Annex 7.26).</p> <p>3.5 10-year business plans were produced for each of the project nurseries, including a forecast of expenditures and incomes for each year as evidenced in section 3.1 Output 4 and Annex 7.19.</p> <p>3.6 Despite COVID-19 impacting sales during the initial rainy season (April – May 2020), ██████████ Ugandan Shillings was raised from seedling sales (£██████ see table 4 in section 3.1) across the four nurseries. Additional sales were made in the rainy season immediately after the project conclusion (April – May 2021) and further sales are expected as the nursery groups continue to use promotional materials for marketing.</p> <p>3.7 By the end of the project, 23,183 native seedlings were sold by the community nurseries to various groups, 7,376 seedlings were planted on restoration demonstration restoration plots, 900 were planted on demonstration community plots and 16,200 were donated at events to promote native tree species and for planting in forest reserves (See section 3.1 Output 3 and Annex 7.15 for evidence). The sponsorship packages developed by TBG and BGCI (evidence in section 3.1 Output 3 and Annex 7.16) had to be</p>

Project summary	Measurable Indicators	Progress and Achievements
		<p>scaled back to a twinning sponsorship package to support communities plant native species for restoration (See Annex 7.17) due to corporate organisations shifting funding to support COVID-19 relief strategies. BGCI and TBG have also connected up with other institutes interested in restoration in Uganda (e.g. Fauna and Flora International, Terraformation and Plan Vivo Foundation) so that the nurseries may supply their future work. TBG has ensured the nurseries are now run as private enterprises that can be used to provide seedlings to government restoration work.</p>
<p>Activity 3.1 Hold national forum to increase understanding by government ministries, tree planting NGOs (incl. International Tree Foundation partners) and farmer associations (incl. Rainforest Alliance and Agroforestry Alliance for Africa partners) of the importance of biodiverse and genetically diverse FLR and the diverse range of species available in Uganda, led by BGCI, IUCN and NEMA by end of year 2.</p>		<p>Completed. This was postponed in year 2 because of COVID-19 and went ahead in April 2021 instead.</p>
<p>Activity 3.2 Hold four regional workshops in high priority restoration areas (where nurseries are located) to increase understanding of local government, tree planters and farmers of the importance of biodiverse and genetically diverse FLR and the diverse range of species available by end of year 3.</p>		<p>Completed. Four events were held with 286 participants in total.</p>
<p>Activity 3.3 Design and launch national campaign to promote planting a diverse range of native species, in collaboration with public outreach expert from BGCI's network, years 2 and 3.</p>		<p>Completed. The national campaign included television and radio advertisement and the use of publicity vans in each of the four project areas.</p>
<p>Activity 3.4 Set up four forest restoration demonstration plots, 1 per nursery, to demonstrate planting techniques and growth rates by end of year 3.</p>		<p>Completed. Four demonstration restoration plots were established and assessed by NFA and TBG (see section 3.1 and Annex 7.2 for evidence). Four extra demonstration community plots were also set up in December 2020 to be examples for sponsorship twinning initiative developed by TBG and BGCI (see Annex 7.17). A further 14 hectares was planted by a WWF Reforestation Grant project in Kagadi.</p>

Project summary	Measurable Indicators	Progress and Achievements
Activity 3.5 10-year business plan produced by each nursery, including marketing strategies, opportunity areas and partners for sales by end of year 3.		Completed. 10-year business plans have been developed for all four community nurseries (See Annex 7.19)
Activity 3.6 Year 1 baseline survey to farmers, NGOs and other tree planters carried out by marketing consultant in 10km radius around nurseries, and repeated in year 3 to measure demand for / planting of native species.		Partially completed. The marketing consultant completed a baseline survey to measure demand for native species which was then used to create a Marketing tool in year 2 (see Annex 7.6)
Activity 3.7 Nurseries supported to sell 500,000* native tree species seedlings by end of year 3, enough that by the end of year 3 the nurseries are fully-funded by seedling sales.		23,183 native tree seedlings were sold by the project conclusion. The target of all seedlings sold was therefore not reached. The main reason is that COVID-19 impacts hindered sales. Some seedlings in the nursery are too small for sale and will be ready for the next planting season. Marketing efforts will continue to promote seedling sales and funding applications have been developed.
Output 4. 104 people have increased capacity and improved livelihoods.	<p>4.1 Following mapping of seed collecting zones (1.2 above), 60 people, at least 50% women, will be trained as seed monitors to track seed set and develop seed collecting calendars, and as seed collectors, by end of year 1.</p> <p>4.2 60 trainees will be employed as seed monitors and collectors for years 2 and 3 of the project.</p> <p>4.3 40 people, at least 60% women, trained in propagation, nursery management and records keeping, by BGCI network, by end of year 1.</p> <p>4.4 Four nursery managers identified (from the 40 trained) and trained in business skills by end of year 1.</p> <p>4.5 40 trainees employed in nurseries by end of year 1.</p> <p>4.6 Four people, at least 50% women, trained as demonstration plot managers by TBG in year 1.</p> <p>4.7 Four people employed as demonstration plot managers by end of year 1 and four demonstration plots set up by end of year 2 to support species selection.</p> <p>4.8 104 people employed at more than the average rural household income rate (initially part supported by the project and fully supported by seed sales at end of year 3) and</p>	<p>4.1 75 people trained as seed monitors and collectors in the project.</p> <p>4.2 75 trainees were employed in Years 2 and 3 (see example contracts in Annex 7.18).</p> <p>4.3. 40 people trained in propagation, nursery management and records keeping in Year 1.</p> <p>4.4 Four nursery managers were identified from the 40, and trained in business skills in Year 1.</p> <p>4.5 40 people have been employed in four nursery teams in Years 2 and 3, including a nursery manager at each nursery (see example contracts in Annex 7.18).</p> <p>4.6 Four people were identified as demonstration plot managers in Year 1 and trained in Year 2.</p> <p>4.7 Four people were employed as demonstration plot managers in Years 2 and 3 (see example contracts in Annex 7.18).</p> <p>4.8 A socio-economic baseline survey was carried out in Year 1 and second survey in Year 3 to measure progress (see evidence in section 3.1 Output 4 and Annex 7.9).</p>

Project summary	Measurable Indicators	Progress and Achievements
	livelihood impact measured through baseline socio-economic survey in year 1, repeated in year 3.	
Activity 4.1	Following mapping of seed collecting zones (1.2 above), 60 people, at least 50% women, trained by BGCI, TBG and NFA as seed monitors to track seed set and develop seed collecting calendars and as seed collectors by end of year 1.	Completed. In total 75 people were trained to carry out seed monitoring and collecting activities in the project.
Activity 4.2	60 trainees employed as seed monitors and collectors by end of year 1.	Completed. 60 trainees were employed in Year 2 and a further 15 in Year 3 to deal with COVID-19 travel restrictions and to increase the distance covered for collection activities.
Activity 4.3	40 people, at least 60% women, trained in propagation, nursery management and records keeping, by BGCI network by end of year 1.	Completed. In total 40 people were trained in propagation, nursery management and records keeping in the project.
Activity 4.4	Four nursery managers identified (from the 40 trained) and trained in business skills by end of year 1.	Completed. Six nursery managers (Two dropped out) were identified in the project and received training in business skills through the project
Activity 4.5	40 trainees employed in nurseries by end of year 1.	Completed. 40 trainees were employed throughout the project
Activity 4.6	Four people, at least 50% women, trained as demonstration plot managers by TBG by end of year 1.	Completed. In total four people were trained as demonstration plot managers in the project.
Activity 4.7	Four people employed as demonstration plot managers by end of year 1 and four demonstration plots set up by end of year 2 to support species selection.	Completed. Four demonstration plot managers were employed in years 2 and 3 of the project
Activity 4.8	Baseline socio-economic study carried out in year 1 and repeated in year 3, to measure impact of employing 104 people at more than the average rural household income rate (initially part supported by the project and fully supported by seed sales at end of year 3).	Completed. A baseline survey was completed in Year 1 and second survey in Year 3.

*There is a mistake in the initial logframe where it says 800,000 and should have said 500,000

Annex 3 Standard Measures

We use these figures as part of our evaluation of the wider impact of the Darwin Initiative programme. Projects are not evaluated according to quantity. That is – projects that report few standard measures are not seen as being of poorer quality than those projects which can report against multiple standard measures.

Please quantify and briefly describe all project standard measures using the coding and format of the Darwin Initiative Standard Measures. Download the updated list explaining standard measures from <http://darwin.defra.gov.uk/resources/reporting/>. If any sections are not relevant, please leave blank.

Code	Description	Total	Nationality	Gender	Title or Focus	Language	Comments
Training Measures							
1a	Number of people to submit PhD thesis	0					
1b	Number of PhD qualifications obtained	0					
2	Number of Masters qualifications obtained	0					
3	Number of other qualifications obtained	0					
4a	Number of undergraduate students receiving training	0					
4b	Number of training weeks provided to undergraduate students	0					
4c	Number of postgraduate students receiving training (not 1-3 above)	0					
4d	Number of training weeks for postgraduate students	0					
5	Number of people receiving other forms of	0					

	long-term (>1yr) training not leading to formal qualification (e.g., not categories 1-4 above)						
6a	Number of people receiving other forms of short-term education/training (e.g., not categories 1-5 above)	119					Local community members that received training for seed monitoring and collection, propagation and nursery management and business skills.
6b	Number of training weeks not leading to formal qualification	4					
7	Number of types of training materials produced for use by host country(s) (describe training materials)	4 PowerPoint presentations and 5 GTC guidance briefs shared					
Research Measures		Total	Nationality	Gender	Title	Language	Comments/ Weblink if available
9	Number of species/habitat management plans (or action plans) produced for Governments, public authorities or other implementing agencies in the host country (ies)	103					Propagation protocols
10	Number of formal documents produced to assist work related to species identification, classification and recording.	0					

11a	Number of papers published or accepted for publication in peer reviewed journals	0					
11b	Number of papers published or accepted for publication elsewhere	1					Ten Golden Rules for reforestation to optimize carbon sequestration, biodiversity recovery and livelihood benefits https://onlinelibrary.wiley.com/doi/10.1111/gcb.15498
12a	Number of computer-based databases established (containing species/generic information) and handed over to host country	1					Database of propagation information prepared with in-country partners
12b	Number of computer-based databases enhanced (containing species/genetic information) and handed over to host country	0					
13a	Number of species reference collections established and handed over to host country(s)	7					Species that were not in the collection at TBG were planted in the gardens for <i>ex situ</i> conservation there.
13b	Number of species reference collections enhanced and handed over to host country(s)	0					

Dissemination Measures		Total	Nationality	Gender	Theme	Language	Comments
14a	Number of conferences/seminars/workshops organised to present/disseminate findings from Darwin project work	6			Project launch workshop, national & regional forums & side event at Uganda Water and Environment week (April 2021) to promote planting of native species.		
14b	Number of conferences/seminars/ workshops attended at which findings from Darwin project work will be presented/ disseminated.	3			Presentation of project at global & regional conferences, including the Kew Reforestation for Biodiversity, Carbon Capture and Livelihoods (February 2021)		

Physical Measures		Total	Comments
20	Estimated value (£s) of physical assets handed over to host country(s)	£ [REDACTED]	For the set up and maintenance of four community nurseries (infrastructure, tools and equipment, water supplies)

Physical Measures		Total	Comments
21	Number of permanent educational, training, research facilities or organisation established	0	
22	Number of permanent field plots established	8	For demonstration restoration plots and four demonstration community plots were established, one of each in Kagadi, Ibanda, Lwamunda and Mbale.

Financial Measures		Total	Nationality	Gender	Theme	Language	Comments
23	Value of additional resources raised from other sources (e.g., in addition to Darwin funding) for project work <i>(please note that the figure provided here should align with financial information provided in section 9.2)</i>	£ [REDACTED]			WWF Reforestation Grant and seedling sales at nurseries		

Annex 4 Aichi Targets

Please note which of the Aichi targets your project has contributed to.

Please record only the **main targets** to which your project has contributed. It is recognised that most Darwin projects make a smaller contribution to many other targets in their work. You will not be evaluated more favourably if you tick multiple boxes.

	Aichi Target	Tick if applicable to your project
1	People are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.	√
2	Biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.	
3	Incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.	
4	Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.	
5	The rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.	
6	All fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.	
7	Areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.	
8	Pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.	
9	Invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.	
10	The multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.	
11	At least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.	√
12	The extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.	√

13	The genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.	
14	Ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.	
15	Ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.	√
16	The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.	
17	Each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.	
18	The traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.	
19	Knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.	
20	The mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties.	

Annex 5 Publications

Provide full details of all publications and material that can be publicly accessed, e.g. title, name of publisher, contact details. Mark (*) all publications and other material that you have included with this report

Type *	Detail (title, author, year)	Nationality of lead author	Nationality of institution of lead author	Gender of lead author	Publishers (name, city)	Available from (e.g. web link, contact address etc)
Journal	<p>Title: Ten golden rules for reforestation to optimize carbon sequestration, biodiversity recovery and livelihood benefits</p> <p>Authors: Alice Di Sacco, Kate A. Hardwick, David Blakesley, Pedro H. S. Brancalion, Elinor Breman, Loic Cecilio Rebola, Susan Chomba, Kingsley Dixon, Stephen Elliott, Godfrey Ruyonga, Kirsty Shaw, Paul</p>	Italian	UK	Female	Global Change Biology	https://onlinelibrary.wiley.com/doi/10.1111/gcb.15498

	Smith, Rhian J. Smith, Alexandre Antonelli					

Annex 6 Darwin Contacts

To assist us with future evaluation work and feedback on your report, please provide details for the main project contacts below. If you are providing personal details on behalf of someone else, please ensure that they have agreed to sharing their information with us.

Please add new sections to the table if you are able to provide contact information for more people than there are sections below.

Please see our Privacy Notice on how contact details will be used and stored:

<https://www.gov.uk/government/groups/the-darwin-initiative#privacy-notice>.

Ref No	25-020
Project Title	Supply and Demand: Restoration in Uganda for People and Biodiversity
Project Leader Details	
Name	Kirsty Shaw (Botanic Gardens Conservation International)
Role within Darwin Project	Project Leader
Address	
Phone	
Fax/Skype	
Email	
Partner 1	
Name	Godfrey Ruyonga
Organisation	Tooro Botanical Gardens
Role within Darwin Project	Uganda project lead
Address	
Fax/Skype	
Email	
Partner 2 etc.	
Name	Sophie Kutegeka
Organisation	International Union for Conservation of Nature
Role within Darwin Project	Supporting awareness raising
Address	
Fax/Skype	
Email	

Checklist for submission

	Check
Is the report less than 10MB? If so, please email to Darwin-Projects@ltsi.co.uk putting the project number in the Subject line.	Y
Is your report more than 10MB? If so, please discuss with Darwin-Projects@ltsi.co.uk about the best way to deliver the report, putting the project number in the Subject line.	
If you are submitting photos for publicity purposes, do these meet the outlined requirements (see section 10)?	Y
Have you included means of verification? You should not submit every project document, but the main outputs and a selection of the others would strengthen the report.	Y
Do you have hard copies of material you need to submit with the report? If so, please make this clear in the covering email and ensure all material is marked with the project number. However, we would expect that most material will now be electronic.	N
Have you involved your partners in preparation of the report and named the main contributors	Y
Have you completed the Project Expenditure table fully?	Y
Do not include claim forms or other communications with this report.	