Department for Environment Food & Rural Affairs

Darwin Initiative Main Project Annual Report

Darwin Project Information

Project reference	23-017
Project title	Building resilient landscapes and livelihoods in Burkina Faso's shea parklands.
Host country/ies	Burkina Faso
Contract holder institution	BirdLife International
Partner institution(s)	Naturama, RSPB, Trinity College Dublin, Global Shea Alliance, Vogelbescherming Nederland (VBN), and University of Ouagadougou.
Darwin grant value	£302,996.
Start/end dates of project	1st May 2016 – 30th April 2019.
Reporting period (e.g., Apr 2017 – Mar 2018) and number (e.g., Annual Report 1, 2, 3)	April 2017 – March 2018 Annual Report 2
Project Leader name	Elaine Marshall.
Project website/blog/Twitter	http://www.BirdLife.org/news/tag/shea http://www.birdlife.org/africa/news/learning-about-birds-and-bees-west-africa https://ww2.rspb.org.uk/our-work/conservation/projects/ecology-of-migrant-birds-in-africa/ http://www.naturama.bf/web/
Report author(s) and date	Elaine Marshall, Adama Nana, Assita Dembele and Aoife Delaney, with editorial support from Carol Stork and Nonie Coulthard. June 2017

1. Project rationale

Almost half of Africa's Sub-Saharan region is a fragile dryland habitat, much of which has become degraded and fragmented. The shea parklands form part of this critically threatened ecosystem which will play an important role in buffering the shocks and stresses associated with the effects of climate change. This parkland ecosystem is traditionally a food and fuelwood production system, founded on shifting agriculture with extended periods of fallow. This resting land became a vital seedbank of biodiversity, where shea and other native trees and shrubs could naturally regenerate. Increased population pressure arising from immigration and agricultural intensification during the last 40 years, has been a key driver of land use change, notably towards permanent agriculture associated with reduced biodiversity.

Shea (*Vitellaria paradoxa*) naturally occurs in 21 sub-Saharan countries, and is insect-pollinated, primarily by honey *(Apis melifera adansonii)* and stingless bees (*Hypotrigona sp*). It is the primary edible oil for 80 million people and the fruit-pulp is vital food during the 'hungry season', and rural women rely on the income generated by the sale of butter and associated value added goods, such as shea butter soap. Burkina Faso is one of the poorest countries in the world, with 1:10 children suffering from acute malnutrition[1]. Rural communities rely heavily on parkland resources including shea, parkia ('nere'), and tamarind among others, for nutritional security and income generation (see Table 1; Section 3.1, Output 2).

Current farmer management practices of 'cleaning out' natural regeneration, along with low cultural association of tree planting, has greatly reduced plant diversity. The loss of landscape biodiversity has directly contributed to a decline in insect pollinators and the provision of pollination services, which threatens longer term food security and rural livelihoods. This shea monoculture of low plant diversity is unlikely to maintain the pollinator richness required for optimal pollination services (Annex 4, Output 1, Stout *et al.,* 2018). Furthermore, sharp declines in migrant bird populations in Europe over the last two decades (suspected to be partly linked to landscape change on the non-breeding grounds), raised concern among bird conservationists. Upon investigation, habitat loss in the wintering grounds of West Africa was identified: scrub and forests cleared for agriculture, and fallow areas reduced in size and shorter-lived, or gone from the landscape completely. Only the fruit-bearing shea trees remained dotted through the fields. Such trends have been associated with wildlife losses elsewhere, and they are difficult to reverse because farmers need to make a living. However, if conservation friendly land-uses are shown to benefit local farmers, it might be possible to manage land better for people and for nature. As such, Year 2 of this project has seen significant contributions made towards developing an evidence base around understanding how landscape structure and composition can influence pollination services, and then using these research findings to refine the development of the "Trees, Bees and Birds" (TBB) strategy (See Section 3.2 Output 1). In this way, farmers are encouraged to farm in a way which actually enhances parkland biodiversity and increases sustainability and long-term security of shea (and other crop) production for local communities.

2. Project partnerships

BirdLife International (Secretariat) is responsible for overall project management and measuring progress, and the BirdLife Partner in Burkina Faso, Fondation Naturama is entirely autonomous in their implementation of the agreed workplan. The Darwin Project Leader has weekly email contact with Naturama, and has visited the region twice during this 2nd project year. She met with the Field Officer, Assita Dembele, in Tamale (Ghana) in November 2017 at the Global Shea Alliance (GSA) Sustainable Working Group meeting, where they jointly presented project progress and lobbied for the successful adoption of the biodiversity guidelines, informed by this project, in the GSA sustainability guidelines for parkland management. The Project Leader then made a field visit to Burkina Faso later in Project Year 2. This should have been undertaken in March 2018, but due to terrorist activities in Ouagadougou, the visit was postponed until April. The main objectives of the visit were for the Project Leader to work directly with the two field site managers, Assita Dembele (Pô), and Ismael Nombre (Nobéré), to monitor and report progress against the project log frame; discuss the development of a promotion and dissemination plan for key project outputs and a strategy for local, national and regional advocacy and policy engagement; and to review budget management with Naturama's Head of Finance. The post-doctoral researcher, Dr Aoife Delaney, also took part in this visit, to collect some final vegetation data for additional analysis, and to present the key pollination findings to Naturama and project communities.

The visit also coincided perfectly with the pollination ambassador[2] workshop to refine the TBB strategy (see Q4 Annex 2). The visit also included meetings with farmers who had received support to establish a composting pit (to mulch post-harvest organic matter and animal dung into organic fertiliser) and to establish bee hives on their farms; and meetings with women's shea producer groups in both Po and Nobéré, to discuss the positive impact of recent capacity building to help them process and produce soap.

[1] http://www1.wfp.org/countries/burkina-faso Accessed April 2018.

[2] Trained community representatives who manage 'model farms' and promote the TBB interventions to other farmers



In working directly with community members, and indirectly through pollination ambassadors, the project has been able to establish a growing network of farmers who are implementing components of the TBB approach and have contributed to refining the strategy (see Annex 4, Q4 report Annex 2 strategy revision workshop). The empowerment of 20 pollination ambassadors (local partners and local face of the project) through additional capacity and training to facilitate additional extension work across the regions of Pô and Nobéré , has cascaded support and training to hundreds of other farmers across the region (see Section 3.1 Output 2). This outreach has enabled a greater impact through wider implementation of practical agroforestry solutions to biodiversity loss across nearly 200 farms.

The BirdLife Partner RSPB (UK) has continued lead on implementation of 2 bird surveys this year in the TBB intervention plots, having established the baseline in Year 1. (See 3.1, Activity 1.3)This monitoring and assessment will continue after project completion, as part of wider regional assessment (Annex 4, J Mallord).

Year 2 has been a busy one for Trinity College Dublin (TCD) scientists, who have completed the pollinator research and analysis. The Pollinator Committee met twice. Firstly in October in Dublin (Project Leader, Professor Jane Stout, and Dr Aoife Delaney) to evaluate the data collection, early analysis and project reporting. Secondly, in Burkina Faso (Aoife Delaney & Project Leader), when AD also undertook a rapid vegetation assessment of the Nobéré sites, to complete the data sets for comparison with the field sites in Pô. The Pollinator Committee subsequently met in Cambridge outside of the reporting period (May 2018) to present the project findings to the Cambridge Conservation Initiative. The scientists have continued to work closely with the University of Ouagadougou to strengthen their research capacity in pollination science. In addition, TCD have established new relationships with pollinator scientists in the region, most notably in Ghana (http://stinglessbeecenter.com), and also in South Africa, where an expert has assisted in the identification of around 1500 bees, sampled during the field data collection phase. Naturama staff and Ouagadougou university students continue to benefit from an improved understanding of pollinators and pollination services in the shea parklands. See Section 3, Output XX for more detail of pollination research.

The Darwin Initiative project has fostered closer collaboration with VBN (BirdLife Partner in The Netherlands), stemming largely from their successful grant application to the Dutch Postcode Lottery, which will enable further work on restoration of the shea parklands, along with the development of the shea value chain (partnering with ICCO[3]). The Project Leader presented the Darwin project work at the GSA European meeting in Utrecht (April 2018), and helped facilitate a side session with VBN, presenting the new project “Birds, Bees and Business” (see photo). This builds on the Darwin shea project’s legacy in the region, continues to support Naturama’s work in ecosystem restoration and community development, and provides additional weight behind the ‘flag flying for biodiversity’ within the Global Shea Alliance and its members. Whilst in The Netherlands, the Project Leader was invited to participate in a meeting with the Dutch Ministry of Foreign Affairs in The Hague. Carola van Rijnsoever explained that the Ministry’s work will expand from a focus in Mali to the broader Sahel, including Senegal, Mali, Burkina Faso, Niger, Chad and possibly Mauritania. A note making this policy official was to be delivered by the Parliament on May 18th.

[3] https://www.icco-cooperation.org/en/

From the comments of the advisors in the Ministry, it seems our landscape restoration approach resonated with them.

GSA European meeting side event:

The project team has also successfully promoted project outputs across the shea industry, with the support of the Global Shea Alliance (GSA). A key advocacy objective of the project was to integrate a biodiversity component (guidelines prepared from the TBB strategy and farm model), into the actions of the GSA's Sustainability Working Group. This group has developed 'Parkland Management Guidelines' for sustainable shea production, including 'biodiversity recommendations' informed by the Darwin project. The GSA has a 450+ member strong network in 31 countries, and we hope that this contribution to environmental advocacy will improve policy and practice pertaining to sustainable management of shea resources, across the wider industry.

The GSA secretariat is based in Accra, and offers networking opportunities for women's groups, NGOs and small businesses, as well as international food and cosmetics retailers and suppliers. It liaises with governments to promote policy change, builds warehouses for women's groups and stimulates replanting. BirdLife International was invited to support the GSAs involvement in a Green Climate Fund REDD+ project to be administered by the government of Ghana. The project prepared a letter of support, highlighting the importance of landscape restoration across the parkland ecosystem (see Annex 4, Output 4, Letter of support GSA). The Project Leader continues to support the relationship between Naturama and the GSA Secretariat, and after much discussion around opportunities for a private sector partner for Naturama, the sustainability department of global natural skin care and cosmetics company, L'Occitaine, have invited Naturama to submit a tender for 'Parkland Management Training' to producer communities in Burkina Faso. If successful, this work would be co-financed by USAID, and further support the sustainability of the Darwin Project legacy and impact over the longer term.

A major achievement for Naturama in Year 2 was the expansion of the collaboration with HeidelbergCement Group (HC), achieved through BirdLife International/Europe, which has made it possible to mobilize additional financial resources to strengthen the implementation of the TBB strategy. In particular, supporting the composting and mulching activities (establishing the cement lined pits), and improving livelihoods through provision of equipment and capacity building of women's shea groups in soap processing.

3. Project progress

Project management and staffing

The interim Project Leader was contracted to continue in post when Cath Tayleur did not return to BirdLife after her maternity leave (September 2017) and the contribution of Francois Kamano ceased mid-way through the year. (See Change Request, September 2017), During the year, the Po field site coordinator resigned and was replaced by Ismael Nombre who was already working in the Po area. He has ensured that project activities remained on track, whilst continuing to oversee the community level work. Project management otherwise continued as planned, (including field visits by Project Leader and pollination scientist to work with Naturama staff on project M&E and annual reporting). See "Partnerships" above and Section 3.

In spite of the difficulties linked to the security situation which led to the postponement of the Project Leader visit in March 2018, the project was able to implement all the activities on time and had a very positive second year, achieving all its objectives and renewing its partnerships with the main stakeholders.

3.1 Progress in carrying out project Activities:

Output 1: Research outputs completed and used to educate the shea-growing community around KTNP via pollination demonstration sites. The entire evidence base reviewed and used to inform development of the "trees, bees and birds" agri-environment strategy.

Activity 1.3 Fieldwork to determine pollinators, tree species and fruit set. Taxonomic identification, data analysis.

Pollinator field work:
From May to the end of June 2017 the survey of stingless bee nests and honey bee hives was completed; fruit developing on shea trees selected for pollination limitation studies were counted, and insects visiting flowers of non-shea tree and shrub species within 10m of each site south of KTNP (Pô) were surveyed. Ripe fruit were collected and weighed, but many fruits had not ripened by the end of the field season. Tulle bags were attached to the branches carrying ripening fruit so that they would be caught in the bags as they ripened and fell. Field Assistant and Pollination Ambassador, Gnané Lirassé Franck, continued to support the fieldwork, collecting and weighing the shea fruit and nuts for a further two months after Aoife returned to Ireland, thereby contributing important additional knowledge to the project. The quality of his work and the documentation he provided demonstrate the high level of competency Franck has achieved as a field assistant, and when additional field research was carried out in April 2018 to collect additional data on the floristic composition of the sites in the Nobéré region, Franck was again employed by the project to assist in data collection and species identification.

All the tree and plant samples that had been preserved for identification or verification were identified where possible with the aid of Prof. Issa Nombre (University of Ouagadougu), with more than 90% identified to species, making it possible to carry out high quality biodiversity investigations. In March/April 2017, Aoife Delaney travelled to Ghana to work with Dr Rosefa Combey and Prof. Peter Kwapong at the University of Cape Coast, on identification of bee samples collected at project sites. Although some useful work was completed there, many samples remained to be identified on her return to Burkina Faso. Bee samples were subsequently sent for identification to Connal Eardley (job title/institution) in South Africa.

Data Management and Analysis:
In Q2, all field data collected were verified against field records (site characteristics, plant species records at each site, locations of bee hives, flower visitation, flower treatments and fruit set). The areas of natural and semi-natural habitat surrounding each site were mapped to a radius of 1km from the centre of each site using aerial photography in ArcGIS. Connal Eardley returned bee identification data, and although the identification of all 1500 insects remains incomplete, the majority of samples have been identified, making a significant contribution to our knowledge of bee visitation in the shea parklands, and providing the basis to analyse the effects of landscape factors on diversity of flower visitors.

As the result of these field activities, including data gathering, training activities and data management, a comprehensive dataset concerning plant diversity, fruit production and pollination services in the area surrounding the Kabore Tambi national park was compiled.

Data preparation and analysis took place during September – November 2017 and owing to the variability present in the data and the small number of sites, selecting the optimum models to use to investigate pollination services proved challenging and time consuming. To determine whether

pollination limitation was occurring in shea parklands and whether the degree of pollen limitation was linked to landscape factors, an optimal combination of variables to include in the analysis was identified. As only 10 sites were visited, only the area of natural and semi-natural habitat were included as independent variables in the research linking pollination services to landscape factors. These have been shown to be relevant in other studies, and were not significantly correlated with each other. We also investigated whether the number of flower visitors and the nests of honey bees and stingless bees in the *Hypotrigona* genus were connected to landscape factors. Up until now we have dealt exclusively with bee abundance data and not diversity because identification of all bee species had not been completed. During this time, relevant literature regarding pollination services in tropical agro-ecology and agroforestry systems were sought to inform the progress of the analysis and aid in drafting scientific papers (see Annex 4, Output 1, Draft paper). Analysis will be finalised and published in Year 3.

Migrant Bird Surveys:
Field work to collect migrant bird data at intervention and control sites continued during Year 2. Species abundance and diversity data was collected during inventories conducted in November 2017, and again in February 2018, by Naturama bird experts Ali and Oumar. A total of 3985 individuals of 131 species were recorded across the sites during phase 1 (December 2017), which is a smaller sample size than Year 1 (5700) but with greater species diversity (116). The most abundant species overall were various dove species, and sunbirds. During phase 2 (February 2018) some 12,953 individuals, including 260 migrants, were recorded (see Annex 4, Output 1,'oiseaux' spreadsheet). The data will be added to the first 'baseline' survey taken PY1, and will continue to be monitored in Year 3 (and beyond the EOP), in the TBB intervention plots, to provide time series data around migratory bird abundance and species diversity in southern Burkina Faso.

Activity 1.4 Write scientific papers on shea pollination and habitat

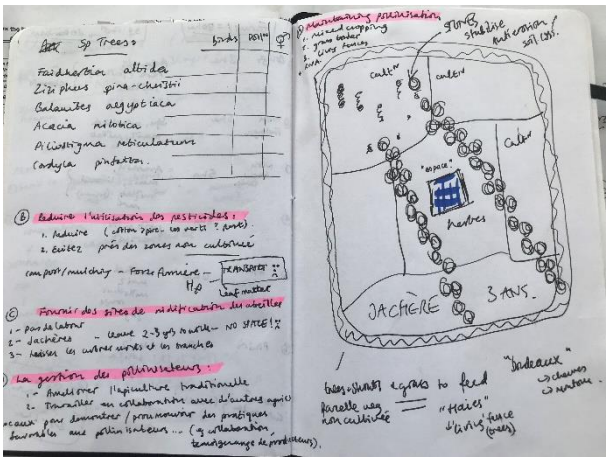
Two drafts of the scientific papers are being worked into publications: the first, 'how different landscape characteristics impact on pollinator visitation rates, pollination limitation and shea nut yield' is in Annex 4 (see Output 1, Draft Papershea Pollination). In order to assess whether pollination services to shea were affected by changes to farming practices in shea parkland we chose research sites in areas which had different amounts of scrub and fallow land. We counted the insects visiting shea flowers to see whether sites with different landscape structures had different numbers, or species, of flower visitors, and estimated the effectiveness of flower visitors as pollinators by saturating some sets of flowers with pollen and leaving others open for insects to pollinate (see photo for hand pollination). The number of fruits yielded by pollen-saturated flowers tells you the maximum amount of fruit you can expect if everything that can be pollinated is pollinated. The fruit yield of open flowers tells you whether pollination services are close to delivering this maximum pollination potential, or are much lower.

Honey bee visiting a thorn tree

As shea only flowers for a few months each year it was important to know what other resources were important to pollinators in the parklands. We recorded other flowering tree and shrub species, and what was visiting them.

Activity 1.6. Hold workshop to refine "trees, bees and birds" strategy and publish document

Naturama convened a workshop at their field office in Nobéré to evaluate the implementation of the TBB strategy, 2 years on. All 20 pollination ambassadors from the intervention sites (5 communities / villages from each of the Pô and Nobéré regions respectively), representing a total of 10 villages) attended and all the interventions of TBB were reviewed. The Project Leader also participated in the meeting which had been planned initially for March 2017 but was delayed owing to security concerns and took place on 24th April. See Mid pilot follow up 'TBB strategy review', Workshop Report, TBB self-assessment and report on visit to composting site, *March/April 2018* (see group photo).



Ambassador '*in situ'* feedback on implementing the TBB strategy on their farms was recorded. It was very positive, but also mentioned the challenges of space for fallow land (see the adoption of a 'border of semi-permanent fallow' shown in the sketch of the TBB model. Also, easier access is required to the water volumes needed to mulch, so that they can compost on farm (the pit is currently located near home for better water access (see photo below), which may be some way from the fields). The compost, made in a concrete-lined pit (1.20 deep x 9m cubed), requires 500l of water a week and is turned every 3 weeks, over a total of 9 weeks, at which point it is ready to be spread. This quantity is sufficient for 1ha land (see photo below of demonstration pit which has been installed and managed by a Nobéré community ambassador.

Activity 1.7 Pollinator education activities– a public meeting each year in the ten villages

A pollination information poster was designed by the Naturama team for use by the ambassadors as a farmer training aid and for other technical users. The poster has also been used to support school-based awareness and education work on pollination in 10 'primary' schools (6 – 15 years), across the project outreach zone (the TBB intervention zones) (See Annex 4: QR3, *Output 1,* Annex 1, pollination poster and Q4 Rapport Atelier auto-evaluation TBB et visite de site fosse fumiere, March/April 2018).

In addition, two environmental education and advocacy workshops on the content of the strategy were organized for the benefit of local elected officials. The workshops included a presentation of the Darwin project strategy to local elected representatives and their feedback was gathered, indicating a strong interest in increasing outreach of the TBB. These workshops brought together local elected representatives from all of the villages of the communes concerned (Mayor, Municipal Councillors, Village Development Committee, technical services). In total, 184 people participated, including 80 participants in Nobéré and 104 in Pô. (QR2 annex 1:'report of information workshops for local elected officials on the TBB strategy).

OUTPUT 2: 500 people from 10 communities around KTNP have implemented the "trees, bees and birds" parkland management strategy, while another 1000 via farmer-to-farmer education have the knowledge and capacity to do so. Access to market and potential revenue streams have increased through product diversification and training to improve butter quality

Activity 2.2: Hold TBB farmer training sessions for 100 stakeholders in the KTNP region initially followed by 400 after revision of the strategy

During Year 2, training to support the implementation of the TBB strategies continued in force. In total, 815 farmers / shea producers, 318 of whom were women, were trained in 5 different topics, Assisted Natural Regeneration (ANR); Tree Planting; Mulching and Composting; Apiculture and Income generating (training to establish soap making), in support of the TBB's four Strategic Axes:.

TBB Axis 1: Fodder/Pasture for pollinators

For the 2017 **reforestation** campaign, 10,120 trees, 5,060 for each commune, were distributed amongst the fieldwork communities. A total of 271 producers benefited from these plants, including 125 producers in the commune of Nobéré (89 men, 36 women) and 146 producers in the commune of Pô (123 men, 23 women). (Annex 4, Output 2 Reforestation Report 2017). Plant monitoring indicates that more than 80% of trees planted survived (Annex 4, Output 2, Monitoring Reports).

Assisted Natural Regeneration (**ANR**):
Capacity building in ANR was delivered during 10 days of community training across the communities in Pô and Nobéré. The trainers were two community members and previously trained pollination ambassadors, Ouédraogo Karim and Gnané Lirassé Franck (field research assistant to Aoife Delaney). In Pô, 250 producers participated (61 women and 189 men), including 20 TBB ambassadors, and in Nobéré, 125 producers participated, including 38 women.

The implementation of Assisted Natural Regeneration has already begun to strengthen and diversify the vegetation cover in the parklands. A total of 480ha of land under ANR has been established following the training (Annex 4, QR2 and QR3 and Monitoring Report – Reforestation Plots). The monitoring objectives were to confirm that the knowledge acquired had been put into practice; to address producers' knowledge gaps and challenges through advice and practical demonstrations; and to encourage producers to make regular inventories of the woody species conserved in the fields. The monitoring also made it possible to record the area of the ANR fields per ha for each commune: in Nobéré there were 297 ha of ANR recorded, and 181 ha in the commune of Pô. The woody species encountered most in the fields are *Vitellaria paradoxa, Piliostigma reticulatum, Terminalia, Détarium microcarpum, Diospyros mespiliformis, Lannea microcarpa, Parkia biglobosa, Tamarindus indica, Bombax costatum, Ficus, Faidherbia albida, Acacia machrostachya, A. nilotica, Adansonia digitata and Saba senegalensis.*

The 20 ambassadors each received 151 plants, 120 of which were from *Acacia nilotica*, to make living hedges, and 31 other species to improve the biological diversity of the fields. The remaining 7,100 plants were distributed among the 251 other producers, including the beneficiaries of the ANR training and the primary schools in the 10 villages of the project (see table 1).

Table 1. Parkland Tree Species: native species most commonly encouraged through natural assisted regeneration, with observed relative importance.

N°	Latin name	Local name	Food & Nutrition	Fuel wood	Livestock Forage	Birds	Insects
01	Karité, *Vitellaria paradoxa*	Taanga	*				*
02	*Pilliostigma reticulatum,*	Bagndé		*	*	Residents & migrants	
03	*Terminalia*	Kouinga		*			
04	*Détarium microcarpa*	Kaga	*	*	*	*	*
05	*Diospyros mespilliformis*	Ganka	*	*			
06	*Lannea microcarpa*	Saabga	*	*			*
07	Néré, *Parkia biglobosa*	Douanga	*	*	*	*	*
08	*Tamarindus indica*	Pousga	* pod & leaf	carpentry	*		
09	*Bombax costatum*	Vaaka	*				*
10	*Ficus*	Kankangha					
11	*Faidherbia albida*	Zangha			* fertiliser		*
12	*Acacia machrostachya,*	Zamenin	*	*			
13	*Acacia nilotica*	Peg-ninga			*		
14	Baobab, *Adansonia digitata*	Touèga	*			*	
15	Liane, *Saba*	Wêdga	*		*		
16	*Senegalensisglutinosum*			*			*

TBB Axis 2: Reduce the use of chemicals

The creation of manure pits: 100 producers (including 20 ambassadors) trained in organic manure production technique. The training in constructing manure pits was held concurrently in the two project intervention municipalities on February 16 to 21, 2018 (Annex 4 Output 2 'Training Report Nobéré' and ' Training Report Pô). It was arranged for the 'municipality Agricultural Extension Officer to visit each community to provide on-farm training at one of the model sites for the TBB (16 - 21 February). In the commune of Nobéré, 50 farmers (10 pollinator ambassadors and 40 invited neighbouring farmers) participated in practical training in digging, lining, stabilising, filling, requirements for maintenance / management, and spreading manure.

TBB Axis 3: Provide bee nesting sites

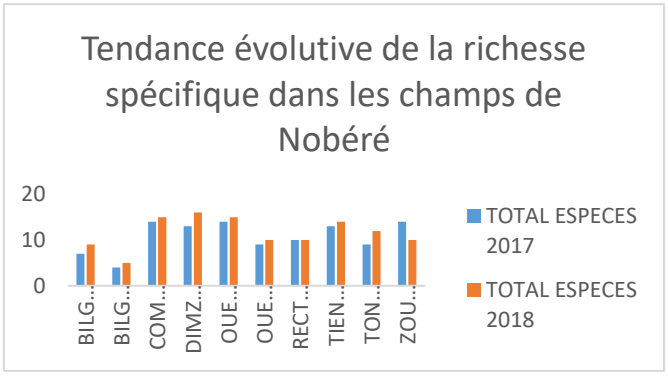
Discussions held with the ambassadors during the review of the TBB strategy revealed that leaving dead trees and branches in the fields, and refraining from ploughing, were more common practices than leaving land fallow, most probably because it was difficult to spare land.

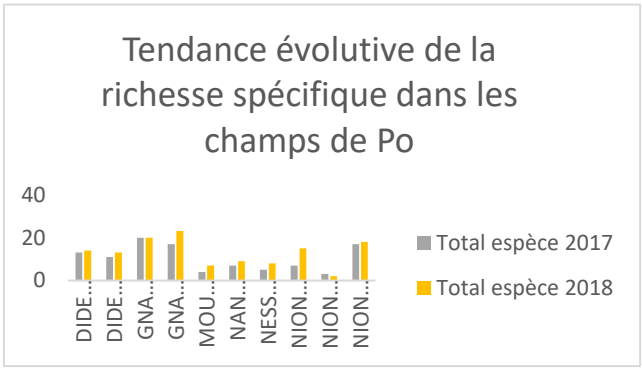
TBB Axis 4: Pollinator management – support for modern beekeeping

All twenty ambassadors were trained in modern beekeeping techniques (delivered by the Wendpuiré association for training with beekeeping equipment supplied by UFEMA (see Annex 4, Output 2, Rapport Annex 5 Apiculture Moderne). Training sessions were held in the field office in Nobéré from 6 -12 January 2018. The training further enhanced the ambassadors' understanding of the ecological and socio-economic importance of bees, and the production of honey through biodiversity-friendly parkland management conditions. At the end of the training each participant benefited from a set of beekeeping equipment comprising 5 Kenyan hives, 5 hive supports, 1 smoker, 1 protective suit, 1 pair of boots, 1 bee brush, 1 drinking trough, 1 pair of gloves, 3 embossed waxes, 1 frame lift, 1 raw wax, for priming the hive bars. (Annex 4, QR4 and Output 2 Spreadsheet for 'Beekeeping Revenue').

Activity 2.3: Surveys to monitor shea yields, socio-economics, biodiversity, habitat, including a review of the 100 pilot sites to inform TBB revision

Habitat monitoring was completed in both Pô and Nobéré regions by Aoife Delaney, and Prof Nombre and the Masters student. In addition to assessing the floristic diversity of the fields, an inventory of the ANR across the plots, and the 'woody vegetation', was monitored and compared across the sites. From these results it appears the most diversified field was found in Pô; 23 species on 'field assistant' Frank's land!, compared to 16 species on a farm in Nobéré. Vegetation regeneration showed a good diversity of species, 50 and 56 species in the Nobéré and Po zones respectively. Shea (*Vitellaria paradoxa*) dominates, with the species *Combretum glutinosum* next common in the Nobéré zone, and in the Pô zone '*Piliostigma thonningii*' and '*Diospyros mespiliformis'* are regenerating very well. Species richness is greater in all 2018 sites, with the exception of one in Po, where there has been a decline. The inventory results confirm the high species diversity in terms of regeneration and a fairly acceptable rate of regeneration in the fields of both zones.





A comparative analysis of the data from the two inventories shows an increase in the number of species and especially in the abundance of species, as the TBB strategy is rolled out.

Activity 2.5: Provide support to stakeholders who have attended training sessions to facilitate farmer-farmer communication

One of the most important and exciting results from the second year has been the increasing commitments made by new farmers to adopt the TBB. During the exchanges with the ambassadors during the review of the strategy, it emerged from that more than 350 farmers had begun to adopt the TBB model and / or some additional interventions, as a result of ambassador field visits and seeing it in practice on other farms.

Taking advantage of stakeholders' participation in the TBB revision meeting, a site visit was made to the nearby intervention site to look at a mulch-composting unit. This was a concrete lined pit measuring 3m x 3m and was 1.2m deep with organic matter and animal droppings. Every week approximately 500l of water is added, and every 3 weeks the entire contents are turned and the compost is ready after 3 rotations, so just over two months (see report, Q4 rapport de formation en réalisation et gestion des fosse fumière Nobéré et Q4 rapport de formation en réalisation et gestion des fosse fumière Pô; Q4 *Rapport Atelier auto-evaluation TBB et visite de site fosse fumière, March/April 2018, and A*ctivity 2.2 also*)*.

Activity 2.6: Surveys to monitor capacity of community empowerment and ability to implement TBB including mid-point review of pilot

Community capacity monitoring was carried out (against Year 1 baselines), during plantation and ANR monitoring, and any additional practical advice or clarification was given by site managers, and other advisors including Naturama staff (see Annex 4, QR2 & 3; Rapport du suivi de la campagne

de reboisement 2017, dans le champ des ambassadeurs; Suivi champs Reforestation Natural Assiste Nobéré & Rapport Suivi champs RNA 2017 Pô).

Activity 2.7: Provide training in processing for improved butter quality and market access

In Q3 of project year 1, women producers received training in shea butter quality (PY 1, QR3 Report Nov 2016: training groups of entrepreneurs on improving product quality (butter and soap) and initiation to certification). During the second year, this capacity building support continued with a revision of the initial training, supplemented by additional training in improving processing quality by a local specialist butter producer, Madame Bilgo (see Annex 4, Output 4 Rapport de Mise en Place les unites de savon, Mme Bilgo), which showed the women how to use the second grade nuts to make soap. CIM Burkina PNKT (part of BirdLife International strategic corporate partner, HeidelbergCement) are keen to support the Darwin project (see above project progress), and stepped in to finance the additional soap processing training and capacity building from a local entrepreneur, Mme. Bilgo, together with IUCN Netherlands who financed training of two community groups.

In total, 174 women from 8 'TBB' villages: Torem, Yaro, Pighyiri, Dongo, Mantiongo, Tewaka, Passintinga and Barcé, received additional training for improved butter processing, and each of the 8 village groups also received soap making equipment. In late December 2017, each group received a batch of soap production equipment for ball and liquid soap, including shea butter, caustic soda, coconut oil and perfume, weighing scales, bags, moulds, buckets, cups and gloves, and some 100 litre storage drums. Alongside the training, this made it possible to produce liquid soap and soap tiles in each beneficiary group (see Annex 4, Output 2 Spreadsheets for 'revenue du savon'). Profits will be used to replenish raw materials and equipment, and bring other women into the production.

Output 3 Capacity of the host country for pollination research, long-term impact monitoring, and pollination education has been developed via mentoring by in-country and international pollination experts. Naturama have the capacity for ongoing development and monitoring of the "Trees, bees and birds" strategy.

Activity 3.5: Training of Masters Student in pollination research

The student supervision is reported to have experienced some difficulties with the student, who for reasons which remain unclear, was not able to validate his academic year. Exchanges between Professor Issa Nombré and the laboratory director of the University of Ouaga are underway to find a suitable alternative to continue the student placement. As the data collection and analysis for the project is now complete, this does not impact directly on project activities. Rather, that the current student will not realise his potential in pollination science and therefore contribute to the long-term legacy of the project. However it is hoped that ongoing capacity, built through the University's participation in the project, will serve to benefit a second student, who will be engaged in measuring TBB impact (see Annex 4, Output 3, Rapport de la Premiere Annee…).

Activity 3.6: Monitoring protocols for pollinators, birds, tree diversity and shea yields developed in collaboration with bird and pollinator experts.

Monitoring protocols have been developed and implemented through the completion of bird and habitat inventories at the intervention and control sites, in collaboration with RSPB (Year 1). During year 2, the continuation of the implementation of the protocols, through the repetition of inventories, took place from 5 to 14 December 2017 and again from 14 - 25 February and the

monitoring of habitats through the second floristic inventory in March 2017.

Activity 3.7: Legacy strategy developed for on-going monitoring of the efficacy of the TBB strategy

A stakeholder mapping exercise was carried out to identify beneficiaries who will benefit from the new knowledge and understanding in the locality, nationally and regionally throughout the Shea belt. The project team will promote and disseminate the TBB model in first half of year 3 and finalise the Darwin project advocacy and policy action plan in second half Year 3, to work towards EOP targets and measurement of project impacts. Naturama has identified a series of relevant events for dissemination of project findings and TBB strategy in Year 3. (See also Output 4).

Output 4. An advocacy programme for integration of the TBB management strategy into policy and practice leading to the integration of TBB into GSA sustainability guidelines.

Activity 4.1 Develop a policy and advocacy plan (see activity 3.7)

As referenced in the 6-month report, an advocacy and policy plan has been drawn up to map out the key stakeholders in the project locality, at national level, and regionally throughout the shea belt, who will benefit from the knowledge and understanding gained through the project. Naturama will, with the support of the Project Leader, finalise the plan of action and responsibilities for promoting and disseminating the TBB strategy and recommendations, during the first half of the final year.

Naturama has already identified a series of relevant events for dissemination of project findings, and a policy and practice recommendations workshop will be organised to communicate key policy messages, ideally to coincide with another planned conservation/resource management meeting happening in Burkina. The Project Leader will give an advocacy and policy findings presentation to the Sustainable Working Group of the GSA in Tamale in November 2018.

The project has already achieved the adoption of 'biodiversity guidelines' and the integration of TBB recommendations into GSA's best practice manual for its 400+ members from throughout the value chain (see annex 4, Output 4 Parkland Management Guidelines, March 2018, GSA Sustainability Working Group).

Activity 4.7 Participation in GSA working groups

BirdLife has continued to be an active member of the GSA's Sustainable Working Group (SWG), with PL and Assita Dembele form Naturama participating and presenting in Tamale (November 2017), to drive forward to adoption of the 'biodiversity guidelines' in the GSA's Parkland Management Guidelines (see Activities 3.7 and 4.1). After the SWG voted to accept the proposed 'biodiversity guidelines' there was a lot of initial interest in the integration of beehives into the shea parklands. Secondly, Naturama participated in a GSA meeting in February, in Ouagadougou, with the French luxury cosmetics company L'Occitaine, who have shown a keen interest in their NGO community partner 'Rongead' contracting Naturama to deliver training on implementation of the TBB parkland management, for some of its shea producing communities.

The PL also presented at the GSA European meeting 'More Than an Ingredient: Functionality and Sustainability Take Industry to New Heights', April 16, 2018 (see annex 4, output 4), and introduced VBN colleagues to the GSA Secretariat. The European conference objectives were to:

- present ingredient innovations that are driving global consumption in food and cosmetic products;
- share industry corporate sustainability targets to improve social and environmental impact through partnerships with governments, donors, and civil society;
- and promote agro-forestry approaches to landscape management, with BirdLife presenting specifically on site based interventions for parkland restoration, and ICRAF (The World Agroforestry Centre) on the wider benefits of agroforestry approaches in landscape management.

3.2 Progress towards project Outputs

Output 1. ***Research outputs completed and used to educate the shea-growing community around KTNP via pollination demonstration sites. The entire evidence base reviewed and used to inform development of the "trees, bees and birds" agri-environment strategy.***

The project team continued to build on the progress made in Year 1, and made impressive gains on delivering the remaining relevant Year 2 targets for Output 1.

The continued implementation of the TBB ("Trees, Bees and Birds") strategy, directly through training around the different axis of interventions, and indirectly via pollination ambassadors (see Output 2, and activity 2.2), ensures sustained delivery on refinement and roll-out/ implementation of the TBB strategy (***Indicator 1.1).*** The current land area under TBB intervention by pollination ambassadors is around 80ha. Progress on integration of this into wider Shea Parkland management is detailed under Output 4. In relation to ***Indicators 1.2 and 1.3***, the development of the entire evidence base around pollinators and shea yields, and optimum landscape diversity for pollination services, has been established and documented, linking also with baseline bird surveys in the same sites (see Annex 4, Output 1 reports, and QRs). The most relevant research findings for the refinement of the TBB strategy include:

- pollination limitation was more pronounced in sites which had less diversity of trees and shrubs, than in sites with greater diversity of trees and shrubs. This directly supports the efforts of the TBB interventions which serve to increase site-level diversity, and therefore in doing so, also promote pollination services;
- hand pollinated flowers are more likely to bear fruit than naturally pollinated flowers, indicating that more fruit could be produced by trees if more pollinating insects were present in the landscape;
- stingless bees are more abundant in sites with greater diversity of trees and shrubs, which again supports the integration of tree and shrub diversity into the agro-forestry model for shea production;
- whilst the diversity of trees and shrubs was related to provision of pollination services on farm, the area of natural and semi-natural habitat within 1km of the TBB sites, was not. This may indicate that only species adapted to function in agro-forestry systems are providing services there (considerably modified through a long history of exploitation), or, there may already be too little natural and semi-natural habitat remaining, sufficiently close to sites, to act as a refuge for additional pollinating insects.

Indicators 1.4 and 1.5 relate to the refining and finalisation of the TBB strategy which has taken place in year two, following feedback from TBB implementation across the demonstration sites, in conjunction with the findings of the pollination research (see Annex 4: Output 1 reports and presentations, QR4 '*Atelier auto evaluation de la stratégie TBB'*). Two main points were raised during the pollination ambassador feedback workshop, as to challenges to the successful implementation of the system: space for fallow, and provision of water on farm to mulch and compost (see Activity 2.2). An area of sustained fallow over many years remains one of the most important components of the strategy because it ensures a seedbank for ANR and landscape restoration. Naturama is working hard to communicate the value of fallow land and continue to change mind sets, as fallow is often seen as 'unproductive land', and difficult to justify when space is scarce.

Year 3 will focus on the communication and dissemination of the TBB recommendations (now supported by empirical evidence), through advocacy activities to mainstream practice into policy. Adoption of the TBB recommendations (by way of biodiversity guidelines) in the GSA Parkland Management Guidelines, has been achieved in Year 2 (see 3.1 Activities and Output 4, and Annex 4 for the Guidelines, and PPT presentations in Tamale and Utrecht). Furthermore, all project progress is document at implementation level, in the partner QRs, including photographs and maps and other technical reports.

Output 2. *500 people from 10 communities around KTNP have implemented the "trees, bees and birds" parkland management strategy, while another 1000 via farmer-to-farmer education have the knowledge and capacity to do so.* Access to market and potential revenue streams have increased through product diversification and training to improve butter quality.

Progress under Output 2 has exceeded expectation in TBB training for on-farm implementation and education and awareness. ***Indicator 2.1.*** By the end of PY 1, the pollination ambassadors had had direct contact with a total of 200 farmers around the various TBB strategies, and with an additional 184, via community level information workshops, in each of Pô and Nobéré. Through the continued implementation of the TBB, communities are actively engaged with the project and supportive of the vision that the strategy promotes. ***Indicator 2.2*** and **2.3.** There is various documentation (Annex 4, QR) on capacity building across the TBB strategy, delivering specific training and also using farmer exchange and site visits. In total, TBB implementation training has been delivered to 641 people (composting and mulching techniques, ANR, tree planting, and bee keeping - see below table 2, for training delivered), and an additional 192 women and 2 men, have been trained in shea butter processing and soap making, making an overall total of 835 people (See Annex 4, Output 2 for formal TBB feedback workshop to refine and finalise strategy).

Table 2 TBB Training Interventions

Training Intervention	Beneficiaries		Total
	Men	Women	
Training and Monitoring of Assisted Natural Regeneration.	189	61	250
Revised training on reforestation techniques during the 2017 season.	212	59	271
Training and support in compost and mulch pit construction and management	77	23	100
Training and support for ambassadors in modern beekeeping.	17	3	20
Additional training to more women in shea butter processing, and specifically on establishing soap production units.	2	192	194
TOTAL	**497**	**318**	**835**

Indicator 2.3 Over 200 farmers from the 10 villages where interventions are being made, participated in (3) pollinator ambassador led workshops to provide technical support on the TBB strategy. An additional 156 farmers have also been registered as receiving technical assistance from the 20 pollinator ambassadors. This indirect impact, via TBB demonstration training and 'farmer led outreach', has reached out to more than 350 farmers during project year 2. That's almost one farmer a day! In addition, Naturama have continuously promoted the strategy during Year 2, in national and international meetings and workshops, sharing information on good agricultural practices, etc, reaching out to an estimated 300 people, in addition to the 184 locally elected officials who have been formally aware of the TBB strategy (see Annex 4, QR 1, 2, 3, 4). ***Indicator 2.4*** targets relate to dissemination of the training through farmer-to-farmer education, community training and open days, and a good foundation for achieving these (EOP) targets has continued to be achieved through farmer training, the pollination ambassador network and demonstration sites and open days. The baseline surveys carried out will allow for (Year 3) assessment of project impact on community and other stakeholder awareness, capacity and women's involvement in decision-making. The approved change request in Year 1 changed ***Indicator 2.5*****:** "*By the end of Year 2, 100 women from 10 producer groups have received training in improving the quality of shea butter and obtaining access to market. By the end of the project at least 5 of the communities have women producer groups that have improved their market access.*" Progress was made in Year 1, with training of 39 women on the improvement of shea butter quality, and in Year 2 this training has been scaled out to reach 194 women, and whilst the impact of training will be more accurately measured at EOP, feedback at the end of Year 2 includes widespread reports of increased self confidence, better quality butter, (grading kernels – only the good ones for butter, and the less good ones for the soap) and the instant income benefits of product diversification.

Output 3. ***Capacity of the host country for pollination research, long-term impact monitoring, and pollination education has been developed via mentoring by in-country and international pollination experts. Naturama have the capacity for ongoing development and monitoring of the "Trees, bees and birds" strategy.***

Progress towards this Output is very good, with all Naturama staff having received pollinator survey training (***Indicator 3.2)*** and continued to be mentored by the research team and advisors until the end of the field work in Year 2. The Burkinabe team now have the requisite understanding of pollination services and the capacity to produce educational materials for training (see Annex 4, Output 3 Pollination poster). Continued monitoring contact from RSPB scientists have ensured that Naturama staff have been supported in the continued implementation of their ongoing bird survey work. For ***Indicator 3.4*** The Masters student Mariam Konaté has replaced Kassoum, and will continue to be available to the project during Year 3 (see annex 4, QR4, and Output 3 'Annexe 12'). The targets under ***Indicator 3.5*** were fully achieved in Year 1 and the elaboration of the longer-term strategy for development and monitoring of the TBB strategy (***Indicator 3.6*****)** is a Year 3 target. The results from the field research will inform its preparation.

Output 4: ***An advocacy programme for integration of the 'trees, bees and birds' management strategy into policy and practice leading to the integration of TBB advice into GSA sustainability guidelines***

All the specific indicator targets were achieved, or exceeded. ***Indicator 4.1***: Work towards the policy and advocacy strategy for the project has begun, with Project Leader engaging key policy related stakeholders, across different policy thematic areas. In addition to the industry component of the project advocacy work (GSA), the Naturama team has prepared a provisional 'Advocacy and Policy plan' for the project, to identify the best means to communicate key findings and document the recommendations made for different stakeholder groups at village and commune level, and also local, national and regional government, and relevant overarching policy frameworks. This will be revised in Q2 of PY3, prior to a planned monitoring visit by the PL in Q3, to agree indicators for the EOP evaluation. Under ***Indicator 4.2***, (presentations to GSA meetings and participation in the GSA working groups) the PL and Assita Dembele have contributed extensively to GSA workshops and meetings, presenting the TBB strategy on workshop panels in Ghana and also the Netherlands (see Section 3.1, Activity 4.7). A major achievement of the project was to have the Sustainability Working Group of the GSA accept the 'biodiversity guidelines', based on the TBB strategy, for inclusion in their 'Parkland Management Guidelines' (see Annex 4, Output 4). The ***Indicator 4.3*** target was met, with a series of national and international meetings held to promote the TBB strategy. These included the Koudougou workshop on good practice (19 April 2018), and the Abu Dhabi CMS (Convention on Migratory Species) Flyways Summit (23-26 April)[4]. Specific targets for ***Indicators 4.4 to 4.6*** are relevant to Year 3 and EOP, but notable progress has been made towards these in the wider advocacy and dissemination of the "TBB strategy" and general project approach.

For all evidence of progress, see Annex 4 (QR; Output 4 GSA workshop presentations; Parkland Management Guidelines; and Advocacy and Policy Plan).

3.3 Progress towards the project Outcome

Project Outcome: "*Understanding of the relationship between tree diversity, pollination, shea yields, agricultural land use and migratory birds in Burkina Faso, informs management of 500 parkland smallholdings, and sector-wide guidance, promoting livelihood resilience and biodiversity."*

Progress made in Year 2 is on track to achieve the EOP targets for all 5 indicators – and hence to achieve the overall Outcome, promoting both livelihoods resilience and biodiversity in the shea Parklands in 500 smallholdings around KTNP.

[4] https://www.cms.int/en/news/ground-breaking-flyways-summit-held-abu-dhabi

Indicator 0.1 measures progress towards better understanding (and quantification) of the role and importance of insect pollinators for resilient shea production; establishment of the habitat requirements for healthy populations of pollinators and birds; and building capacity for pollinator and bird research and monitoring in Burkina Faso. The baseline was: "*The status of insect pollinators in West African agro-ecosystems poorly understood; in particular, only limited information on their role in the pollination and yield of shea trees*".

Field research on pollination, pollinators and shea production was completed in Q2 of Yr2, in line with the planned implementation timetable. Research and monitoring protocols have been implemented, data gathered and analysed and the research sites documented to ease follow up at some future point. The PAC met in October in Dublin to evaluate the data analysis progress and agree any additional analytical parameters. The most relevant research findings include:

- pollination limitation was more pronounced in sites which had less diversity of trees and shrubs, than in sites with greater diversity of trees and shrubs. This directly supports the efforts of the TBB interventions which serve to increase site-level diversity, and therefore in doing so, also promote pollination services;
- hand pollinated flowers were more likely to bear fruit than naturally pollinated flowers, indicating that more fruit could be produced by trees if more pollinating insects were present in the landscape;
- stingless bees (along with honey bees, the most important shea pollinator observed) were more abundant in sites with greater diversity of trees and shrubs, which again supports the integration of tree and shrub diversity into the agro-forestry model for shea production.

Two peer reviewed papers have been drafted (see annex 4, Output 1).

Indicator 0.2 is focussed on awareness-raising of the value of pollination services and diverse on-farm habitats to sustainable agriculture, among target communities. The workplan during Year 2 has worked continuously to raise awareness behind the logic of the TBB, and is on track to deliver against EOP targets (numbers of men, women, school children, NGOs and government stakeholders). The project baseline was "*little to no appreciation amongst shea-growing communities of the importance and value of pollination services*". As detailed in 3.2 (Output 2), a total of 1700 people have received a combination of direct and indirect influence regarding how the TBB strategy works, what it is set to achieve, and why this is important. The ongoing advocacy and communication work of the entire project team, in Burkina Faso and Internationally, via training, awareness, demonstrations, meeting and workshop presentations and other means of outreach - as to the importance of biodiversity in the shea parkland system and the importance of ecosystem services, in particular pollination – too all project stakeholders, has been an integral component of the Year 2 work plan. NGOs, regional and national governments, the Global Shea Alliance membership, etc, are targeted under the advocacy plan and Output 4 (see progress above and under Indicator 0.5, below).

Indicator 0.3 relates to testing and implementation of the pilot "trees, bees, and birds (TBB) strategy", with EOP targets for increased diversity and enhanced shea parkland habitats producing benefits for biodiversity and sustainable livelihoods: 'biodiversity intact, resilient ecosystems able to provide a sustained shea supply, fuelwood and other crops and NTFPs'. In Year 2, 835 shea producers and farmers have received capacity building and awareness training relating to the ecosystem management interventions promoted by the TBB strategy, and shea production training to strengthen women's capacity for enhanced income generation (See 3.1, 3.2: Output 2, and supporting documents in Annex 4). Research findings demonstrate that those farms who have a more established implementation of the TBB strategy, are already associated with reduced levels of pollination limitation resulting from increased levels of vegetation diversity on farm (Annex 4, Output 1, Draft paper AD).

Indicator 0.4 is designed to monitor increases in both shea yields and household income, derived from the benefits of NTFP diversification and sustainable fuelwood sources, and also women's empowerment. EOP targets include % increases in shea yield on those farms implementing the TBB strategy (relative to control farms); increases in incomes through improved prices and access to new markets from the ability to trade new products as a result of training (improved shea butter and both liquid and solid soap); increases in diversity of NTFPs and sustainable sources of

fuelwood, and a measure of women's involvement in on-farm decision making. Year 2 progress continues to record changes in shea yield, income from all trade in butter and soap, and other benefits - as set out against project baselines established in Year 1. Progress will be assessed and evidence collected, against indicators, at EOP. In the event some of the parameters have changed, proxies will be found to enable the continued assessment of, and recording of evidence of change, in relation to the indicators. PL and Naturama are planning to meet in Q2/3 of PY3 to prepare for the implementation of M&E activities for EOP. The targets for assessment of "improved market access" of shea producers in all 10 intervention villages, have being recorded in Year 2, and changes in these in relation to the baseline surveys conducted in Year 1 will be evaluated EOP. (See 3.1 activity 2.7, 3.2 output 2, and Annex 4 QR). The project does not expect to see changes in bird numbers/ densities etc, in a 3-year Darwin period, but the M+E programme has established both baselines and methodologies. With support, Naturama and other initiatives are expected to continue bird monitoring post-project, which will enable us to confirm the null hypothesis 'habitat diversity also good for birds in Shea Parklands', indeed stands.

Indicator 0.5. The EOP target for incorporation of biodiversity guidance (to optimise pollination services in the shea parklands) based on the TBB strategy, has already been met through formal adoption by the GSA Sustainability Working Group of the project Biodiversity Guidelines and recommendations (see Annex 4, Output 4, Parkland Management Guidelines). (The project baseline was: "*Current GSA sustainability guidelines do not include guidance in relation to improving pollination services or negating biodiversity loss*"). Continued participation in panel presentations at 2 international GSA meetings (Ghana and Netherlands) to increase awareness amongst the 400+ members of the GSA has generated significant interest, and L'Occitaine and the Body Shop are both exploring the feasibility of Naturama training the communities which they source from. The guidelines are for voluntary adoption, but the shift in thinking from the GSA has been significant, with the European meeting having an entire panel discussion centred on agroforestry approaches to parkland management, and the GSA invited BL to submit a letter of support to the Global Climate Fund (GCF funded) and UNDP / GCF Government of Ghana implemented bid (see Annex 4, Output 4, Letter of Support). The PL has asked the GSA to measure the uptake of the Parkland Management Guidelines, and it is intended that this will be evaluated at the SWG meeting in West Africa (scheduled for Q3 PY3), prior to EOP.

3.4 Monitoring of assumptions

Outcome level:

Assumption 1: Stability in the project area does not decline
Comment: During Project Year 2, (March 2018), there was a bomb and active shooter incident in Ouagadougou. There have been no further terrorist activities in country since, and FCO travel advice maintains it to be safe for visits to Ouagadougou and Southern Burkina.

Assumption 2: The production and processing of shea remains a high priority for regional development.
Comment: Burkina Faso production dominates the shea export market outside West Africa, with industry estimates at over 25% of total volume. GSA estimates are that the shea industry has increased 600% in the past 20 years and more than 350,000 tons are now exported from West Africa each year. Around 90% of this heads into the food and confectionary industries, with 10% into the cosmetic industry. GSA estimates that the trade is providing an annual income of 200 million USD and 4 million jobs for women collectors and processors.

Assumption 3: Communities and the wider shea industry find the sustainability arguments convincing.
Comment: the GSA Secretariat is committed to promoting sustainable use across the shea sector, and industry partners show a growing interest in following the development of sustainability guidelines. Adoption of these remains voluntary, but the findings from our pollinator research: that pollination limitation is least where the landscape is most biodiverse, and fruit set is greatest where pollination is maximised, provides an important hook to engage industry. The feedback from Pollination Ambassadors regarding the interest amongst fellow farmers to adopt the TBB practices, is also a strong indication that the communities find the sustainability arguments persuasive.

Assumption 4: There are no extreme or unseasonal weather patterns (drought, floods) that affect research results or the level of interest and uptake of management recommendations.
Comment: There have been no severe weather incidents which have affected the implementation of Project Year 2.

Assumption 5: Demand for certified shea remains high.
Comment: The log-frame change moved away from certification as the tool for improved market access (unlikely to be cost effective and deliver the necessary financial returns), and was instead replaced by two successive training inputs. These served to greatly improve processor butter quality and to allow producers to diversify their product range (adding product value making shea butter soap from lower grade nuts).

Output level:

Output 1 assumptions:

- Field work, including monitoring, is not adversely affected by weather conditions.
- Availability of key project stakeholders was timed to coincide with shea yield in Q1 of Yr 2.

No adverse weather, illnesses or accidents have impacted on the timetabling of the project's activities, and it was very helpful to have the pollinator scientist (Aoife Delaney) available and willing to come back to Burkina in Year 2 and present the key findings - that the TBB does indeed improve plant diversity on farm, and in doing so favours pollinators and pollination services - to Naturama and the pollination ambassadors.

Output 2 assumptions:

- All trained farmers go on to actually commit and implement the TBB strategies.
- Those whom participate in training sessions go on to disseminate the findings to an additional two people

Over 1000 farmers have so far been trained in the TBB strategy, or specific component parts, and 20 demonstration sites are implementing the landscape management practices. Pollination Ambassadors have used these sites to cascade training to additional farmers.

Output 4 assumptions:

- Industry and policy makers can see the importance in supporting and participating in sustainable parkland management to ensure a supply of shea, over the long term.

The project has increased its visibility to industry and policy-makers through 2 GSA member meetings, 3 additional discussions pertaining to parkland management and REDD+ activities in Ghana, ongoing work in Burkina, and Foreign Office engagement in the Netherlands. We have seen a shift within the GSA and a move within the Alliance Secretariat to recognise the wider importance of an agro-forestry approach to managing shea resources. It is hoped that continued support for this work and enthusiasm to engage in the advocacy recommendations that emerge in the final year will be high, and ensure a sustainable supply of shea over the long term, in Burkina, and across the region.

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

The full enjoyment of human rights, including the right to life, health, food and water, depends on the services provided by ecosystems: indeed *biodiversity is the foundation of these goods and services and food security depends on biodiversity: raising any single crop involves a multitude of species including microbes, insects, worms and small vertebrates in the soil, and a host of species above ground which control pests, fertilise soil, and pollinate flowers*[5]. The project is actively increasing tree diversity within the shea landscape around KTNP, and this improvement in on-farm biodiversity has been associated with improved pollination rates in shea, and most likely many other crops (this has not been measured).

[5] Millennium Ecosystem Assessment, ecosystems and Human well-being: Biodiversity Synthesis (WRI, Washington, D.C. 2005), p18.


Shea parkland and shea tree in a cultivated field

As noted by Erik Solheim, Executive Director UN Environment, "the growing threats globally to pollinators - which play an important role in food security - provides another compelling example of how connected people are to our environment, and how deeply entwined our fate is with that of the natural world. And as we work towards food security, it is important to approach the challenge with a consideration of the environmental impacts that drive the issue[6]." If many of the less profitable native trees and shrubs remain in the fields but do not produce flowers because they are cut back or browsed frequently, their potential to provide pollinator resources in the landscape will be limited. Ensuring that the wild bee pollinators have access to a continuous supply of food and adequate nest sites in the landscape, is an important component of securing pollination services. Nature in West Africa is under pressure as climate change and human population growth make themselves felt, but this project is already helping to show case how the conservation of natural habitats can benefit agricultural communities around the KTNP. Through the promotion of farming methods which are good for people and the planet, we can promote food and nutritional security. Enhancing pollinator services is important for achieving the Sustainable Development Goals, as well as for helping family farmers adapt to climate change" (José Graziano da Silva Director-General, Food and Agriculture Organization of the United Nations, FAO). The TBB interventions are actively changing the landscape for the better, and some 1500 farmers are already understanding how pollination services are an 'agricultural input' that ensures the sustained production of their crops. As one of our initial research results show, where the mix of plants is greatest, there is less pollination limitation. This affirms that the interventions associated with the TBB strategy, which supporting plant diversity, would appear to also directly support pollination services. This in turn enhances livelihood security, and farmers are already understanding the food security benefits from multi-cropping and trees on farm. This agroforestry approach not only offers a way to utilise land more effectively, but also creates resilient landscapes for Parkland farmers.

As Output 2 (section 3.2) details, the growing interest in training and in implementation of different TBB components, amongst the project communities, alongside the work with women to improve the profitability of shea, through product diversification, both serve to make a positive impact on biodiversity conservation and also poverty reduction, and set to benefit from yield increases. As Year 2 closes and we reflect on the research findings coming to light (publications in press), we have been drafting a Policy and Advocacy strategy (see Annex 4, Output 4, Draft Politique Plaidoyer), which will allow us to achieve a broad dissemination of the approaches tested and subsequent recommendations by the project (the "TBB strategy"). Achieving integration of the biodiversity component in the GSA's Parkland management guidelines is a positive step forward, but we do not feel that alone this is sufficient. We are ambitious and recognise the need to also target other stakeholder groups, decision-makers and development organizations working in the locality, and at a National level in Burkina, to highlight the importance of best practice for biodiversity conservation and sustainable livelihoods.

[6] *http://www.ipbes.net/publication/thematic-assessment-pollinators-pollination-and-food-production. Online access May, 2018*

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

Sustainable development, including improving food security for the world's population, necessitates an approach that embraces the environment, and the most up to date reports highlight the global growing threats to pollinators and associated implications thereof for global food security. The protection of pollination services, and pollinator density and diversity will have a direct positive impact on crop yields, promoting food and nutrition security and ultimately achieving the SDGs[7]. But we cannot achieve this without protecting biodiversity at a landscape level. As such there is an urgent need to protect ecosystem resilience in order to maintain the productivity of natural habits to sustain livelihoods millions of small holder farmers, and to adapt to the effects and impacts of climate change. During the implementation of Year 2 various project activities made contributions towards the achievement of certain SDGs, as summarised in Table 3.

Table 3. Project contributions towards relevant Sustainable Development Goals in Year 2:

GOAL 1 No Poverty.	• Improving stocks of natural capital with improved information and awareness sessions for the communities around PNKT area on the sustainable management of natural resources and the promotion of the TBB strategy • Women empowered through analysis of their contribution to decision-making around NTFPs and resource management; • Improving equity and reducing vulnerability through diversification of income generation opportunities (beekeeping, production and marketing of quality butter and soap).
GOAL 2 Eradicate hunger, ensure food security, improve nutrition & promote sustainable agriculture.	• Reinforcement of food security for 250 producers through the improvement of field productivity (75.5 hectares farmed by ambassadors as full TBB model farms, and 478.5 hectares for producers who have adopted elements of the TBB strategy).
GOAL 5 Achieving gender equality, and empowering all women and girls.	• Promotion of gender equality in the planning and implementation of activities: 318 women out of 815 people (39%) were positively impacted by training etc, during Year 2.
GOAL 12 Establishing sustainable consumption and production patterns.	• Education and awareness activities around the TBB strategy and practices associated with it, and through promotion of pollinator-friendly activities; reduction of chemical use in the parklands, and instead the promotion of organic manure; training in good practice of harvesting shea nuts, and processing methods to obtain butter.
GOAL13 Urgent action to combat climate change and its impacts.	• Improving local farmer and other stakeholder decision-maker knowledge on good practices for strengthening the resilience of the parkland landscape. Through promotion of reforestation, assisted natural regeneration, and composting and mulching techniques, helping ensure the longer term ecosystem productivity and create more diverse agroforestry habitats to spread risk and improve soils.
GOAL 15 Preserve and restore terrestrial ecosystems, ensuring their sustainable use, sustainably manage forests, combat desertification, halt and reverse land degradation and halt biodiversity loss.	• As above. The implementation of the TBB strategy by growing numbers of farmer, so larger swathes of the parkland landscape are beginning to benefit from increased floristic diversity and other improvements for pollinator management. Increased pollinator services from modern beekeeping, ongoing research on landscape change dynamics, and bird abundance and diversity, through inventories and ongoing monitoring of flora and fauna.
GOAL 17 Strengthen the capacity to implement and revitalize the Global Partnership for Sustainable Development	• The project developed and strengthened several partnerships notably at the national level with local elected officials, the CBD focal point, the Forest Investment Programme, and at the international level with the Sustainable Working Group of the GSA, with VBN and ICCO for the extension of project activities to other villages in the Kabore Tambi National Park area, and Birdlife Europe for the additional private sector support for Darwin project activities.

5. Project support to the Conventions, Treaties or Agreements

Naturama is a member of IUCN (International Union for Conservation of Nature) and of several national consultation frameworks on environmental and development issues in Burkina Faso. Naturama maintains a close working relationship with the CBD focal point, Mr Sonmanagre, with

[7] http://www.ipbes.net/publication/thematic-assessment-pollinators-pollination-and-food-production. *Online access May, 2018*

whom quarterly reports are shared, facilitating a closer engagement in project activities and outputs, and highlighting how they are supporting the achievement of Burkina's National Biodiversity Strategy and Action Plan (NBSAP). The BirdLife Secretariat continues to support Naturama's engagement with the shea industry via the GSA, to promote the mainstreaming of biodiversity (now included in the Parkland Management Guidelines (Annex 4, Output 4). With respect to communication and dissemination of project findings and recommendations, a project Advocacy and Policy plan has been drafted to highlight what messages will be communicated to which audiences, and through which medium, during the final project Year 3 (Annex 4, Output 4, Draft Politique Plaidoyer).

During Year 2, Naturama staff contributed to various project evaluations through participation in different thematic meetings, including the national workshop to validate the study on good practices in the DGM/PAPF (Dedicated Grant Mechanism /Project to Support Forest Dependent Populations – a component of REDD+ fund for Civil Society administered by the World Bank). During the workshop, Assita Dembélé made the case for more projects to consider including beekeeping activities as a means of promoting pollinator services in the landscape, and by way of generating additional sources of rural income for practitioners.

Naturama also participated in the Global Summit for the Flyways , organised by BirdLife, and held on 23-26 April 2018 in Abu Dhabi, and used the opportunity to highlight the lessons and results of NATURAMA's projects, particularly those of this Darwin project (https://www.birdlife.org/flyways-summit). The Naturama project team were also able to establish a working partnership with the Forest Investment Programme (FIP) and assist five communes in planning their Integrated Development Projects for REDD+ (PDIC/REDD+). During this process, the results and lessons of the Darwin project were highly valued, particularly the activities of the TBB strategy.

Finally, the project sent a letter of support to the UNDP, regarding the Green Climate Fund REDD+ grant to be administered by the Government of Ghana, concerning the tender for a component of the wider grant, to be focussed on the shea parklands of Northern Ghana. The project made explicit the need for any future interventions in parkland management to prioritise first and foremost biodiversity restoration within the landscape, and that it was not sufficient alone to reforest only shea trees as is often proposed (see Annex 4, Output 4, GSA letter of support).

Aichi targets:

Strategic Goal A: Addressing the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society.

- The project has used empirical evidence to support the case for the TBB strategy, and successfully influenced the GSA Sustainability Programme to adopt these recommendations as the biodiversity component of the Parkland Management Guidelines. These serve for voluntary member uptake across the 450+ member network, of shea industry stakeholders. Naturama led tree-planting programmes and local government engagement, will continue to address the underlying causes of biodiversity loss around the KTNP area (Output 4, Annex 4). Specifically Targets 1 (biodiversity value), 2 (incorporation into national and local biodiversity and poverty strategies, and 4 (government and business stakeholder plans for sustainable production and consumption). See Activity 4.1.

Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use.

- The Biodiversity guidelines based on Darwin project evidence are incorporated within the GSA's Parkland Management Strategy, thereby helping them in their sustainability advocacy work. We hope that this will ultimately provide a mechanism for influencing policy, from local to international levels, in conjunction with the Burkinabe advocacy work to be undertaken by Naturama (see sections 3.4; Annex 4, Output 4). Specifically Target 7 (sustainable agriculture), 8 (pollution and excess nutrient load brought to sustainable levels through organic mulching and composting in favour of external agro chemical input), and 13 (maintaining plant genetic diversity), 14 and 15.

Strategic Goal D: Enhance implementation through participatory planning, knowledge management, and capacity building.

- Specifically Targets 14 (ecosystem services restored and safeguarded) – in particular pollination services, and 15 (ecosystem resilience). See Sections 3.4 and 4 (Contribution to SDG 13).

6. Project support to poverty alleviation

The World Food Programme's Human Development Index now ranks Burkina Faso 2 places lower than last year, at 185 out of 188, making it amongst the poorest countries in the world. The average citizen in Pô and Nobéré districts survives on US$0.41 a day. The direct impact of increased income generation by improvements in shea butter activities will be measured as part of the EOP indicators. It was however very clear during the Project Leaders' field visit in April, from speaking with women's producer groups in both Pô and Nobéré districts, that the Year 2 project interventions to diversify shea processing, has resulted in increased household incomes from the sale of soap. This allows women to benefit from the trade in their second grade shea kernels which process into perfectly good soap. The project has facilitated the donation of basic soap making kit, including moulds and external ingredients (see Annex 4, Output 2, Rapport mise en place des unites de savon), and provided 10 days of training to 174 women across 5 communities. All women evaluated the training course very positively and had already sold their entire first batch of soap within the first month, which generated an income of USD1 for each bar of soap. Both the contribution of improved high grade quality shea butter, and solid and liquid soap sales to household income, along with the number of income generating activities derived from natural resources, will be measured at EOP. The positive effects of knowledge and awareness resulting in improved land management for increased natural capital and enhanced food security, are keenly anticipated. In the longer term, a biodiverse shea agro-ecosystem will help regenerate dryland habitat and protect ecosystem services (including pollination), and make a sustainable contribution to livelihood resilience.

Indirect contributions to poverty alleviation through interventions to reduce vulnerability have been made directly via a series of education and capacity building interventions, around the 5 strands of TBB activities. A total of 815 community farmers of whom 318 were female, have participated in awareness and training activities. Together with the number trained in Year 1, this equates to two thirds of the total project goal of 1500. (see Output 2, Annex 4). The result of these interventions is that farms are already implementing more resilient land management strategies which is reducing their vulnerability. Furthermore, active community engagement in the project continues to enhance decision-making participation, especially of women. Women's contribution to on-farm decision-making will be evaluated at the EOP.

7. Project support to gender equality issues

The project aims to achieve joint positive impact upon both men and women, through their equal access to capacity building, training, and employment opportunities, including model farmers and pollination ambassadors, of which 3 are women (Annex 4, Output 2). Naturama works hard to achieve equality in the impact of their work, and actively encourages the involvement of women. Indeed the women pollination ambassadors have spoken about their ability to reach out to other women and encourage more uptake around training in the TBB strategy, in a way that may not have been possible with only male ambassadors.

The processing training given to improve shea butter quality, and the involvement of women in all other TBB training courses (see Section 3.2, Output 2) specifically recognises the value they must make to natural resource management, and has helped reinforce the capacity for women and men to work together. The contribution women made to natural resource management was assessed at project inception, and this baseline data will be analysed and used in advocacy work around resource management decision-making processes, and re-evaluated at EOP.

Table 3 shows how the project fully supports equal opportunities for training and capacity building, and is committed to supporting women's engagement in resource management. Indeed, some 40% of the total training recipients were women (including shea processing training), and almost one-quarter of the recipients in the TBB intervention training alone. The true definition of a "gender focus" is to recognize why or how interventions may have different impacts on men and women. And, as PL, I am very impressed by what I consider to be one of the real successes of Naturama's work in that men and women community members work very well together. Indeed, in some communities men have played key roles in supporting women's participation and empowerment, for example in relation to organisation to facilitate trade, and accessing markets and negotiating prices. This is really important when it comes to long-term sustainability of any project intervention.

Table 4: Participation in capacity building activities by gender.

TBB STRATEGY	Women trained	% Women of TOTAL	Men trained	TOTAL
Apiculture	3	**18%**	17	20 (All Pollination ambassadors)
Assisted Natural Regeneration (ANR)	61	**32%**	189	250
Tree Planting (10,120 trees distributed between both communities)	59	**28%**	212	271
Composting & Mulching	23	**30%**	77	100
Sub Total Trained TBB ACTIVITIES	**146**	**29%**	**495**	641
Shea butter processing & Soap making	192	**99%**	2	194
TOTAL TRAINING RECEIVED	**340**	**41%**	**495**	**835**

8. Monitoring and evaluation

Operational management:

The Project Leader oversees the project reporting, and monitors and evaluates the implementation. Technical assistance required by Naturama is limited, due to the experience and dedication of the team. The PL predominantly supports project communication and visibility: networking with industry and within a wider group of private and public sector actors, and also within the context of Conventions and International agreements - IPBES, CBD, etc. The planning and monitoring framework established at project launch is centred on Naturama's quarterly activities and outputs reporting (logframe), and when they are scheduled (gant chart). Operational communication and management is achieved with email and what's app. Partners are always prompt to respond to any questions and all additional detail and evidence of meetings, workshop participants, photos, and training sessions etc, is provided as annexes. In addition to technical reporting, quarterly financial reporting is undertaken on a standard template, and a spreadsheet detailing all transactions and rolling balance is submitted prior to approval of subsequent tranches of money. Original receipts are posted or collected in country, and held by the PL at BirdLife, for future auditing purposes.

The PL is also in regular contact with the Pollination Advisory Committee (PAC), to review the research findings and implications thereof. The PAC presented the project components of ecosystem restoration and landscape changes on pollinator services in Cambridge (see Annex 4, Cambridge Conservation Initiative, PPT Output 1), and the key findings around the TBB and measured fruit set, to the Naturama team in Burkina.

Output 1: Pollinator data collection and analysis complete. Internal project reports and external presentations submitted and given, and the two peer-reviewed journal papers are close to full first draft (see Annex 4, Output 1, Draft Paper AD). The Stout et al paper (In Press, 2018) confirmed that the shea tree is insect pollinated, and the experimental design from this 'pilot project' helped inform the Darwin work and improve fieldwork efficiency to ensure timely delivery of planned and additional data collection and analysis. The wider species identification of insect pollinators netted during the data collection was additional to the original project plan, but an important component to the assessment of who was using what resources in the landscape and when.

Output 2: Targets on TBB roll out reached as planned and Naturama undertook a mid-project evaluation on the strategy, with all 20 pollination ambassadors and Project Leader participating. Information on farm size and variety of crops sown were recorded and used to calculate the total area of shea parklands currently 'under the TBB farmer model (~80ha of pollinator ambassador farms). (Burkina March / April 2018). Proposed amendments were recorded (see Annex 4, Output 1, Rapport d'atelier). Training across the 5 TBB intervention themes was delivered to a total of 815 producers, of whom 318 were women (see Section 3.1).

Output 3: Naturama's capacity in relation to raising awareness of the importance of pollination and how to strengthen pollination services increased during Year 2, through development of educational materials on pollination, and through the direct TBB training to 1500 farmers. Burkinabe partners have made valuable contributions to the pollination research, and have contributed to peer-review papers and Master's thesis.

Output 4: Success of the advocacy programme will be evaluated by the change in knowledge of, and willingness to incorporate, management approaches which *promote and protect biodiversity* and *consider pollination services in policy, industry sustainability guidelines, and tree-planting programs*.

9. Lessons learnt

Year 2 has seen a continued strengthening of the project partnerships. All partners have developed a good understanding of how best to work together as a team, and Naturama has engaged well in this reporting phase, and reiterated that the implementation of Year 2 activity has been a success for them - benefitting from ongoing technical and management support from BirdLife International – and enabling Naturama to both keep on track with ongoing activities, and to build its organisational capacity and presence in the region. Effective collaboration via BirdLife's membership of the GSA has led to the inclusion of biodiversity in their Parkland Guidelines, securing a wider advocacy audience to support the principles behind the "Trees, Bees, Birds" strategy. The international project team remain committed and keen to mobilize additional resources to scale up the application of project methodology and of project findings, to achieve greater impact and a larger project legacy.

Specific lessons learned from pollinator field work, and suggestions for future studies

Bee taxonomy:

In West Africa, as in much of the world, interest in insect taxonomy developed primarily in response to agricultural pests, and although some university departments carry out entomological studies, it is widely acknowledged (IPBES, 2017), that there is a relatively small knowledge base regarding beneficial insects including pollinators in West Africa - particularly francophone West Africa. As a result, those taxonomic experts who are working on the continent struggle to support the identification of large numbers of samples resulting from comprehensive studies of pollinating insects, and francophone West African countries are very poorly represented in the GBIF Atlas of African Bees. In the absence of good knowledge of pollinators and pollinator services, and given the small number of African bee experts, there is a risk of loss of species which are important for

food security and nature conservation. There is an urgent need to build pollinator knowledge networks so that pollinating species can be identified and their role in food production and in maintaining a healthy ecosystem can be investigated.

Mass flowering:

Because mass flowering was observed in shea trees, a different approach is needed to investigate honey bee pollination. A more labour intensive approach, where several sites are observed on a daily basis during the flowering season, may permit assessment of the role of environmental processes in honey bee flower visitation.

Local knowledge:

Local village people, in particular farmers, represent an important source of knowledge in West Africa. The diversity of languages and dialects make it difficult for scientists and policy makers to access this knowledge. However, this project has demonstrated that scientists, nature conservation NGOs and farmers can collaborate to investigate important ecosystem processes affecting conservation and food production and provides a model with potential to be rolled out to a large number of communities. Furthermore, there is a need to promote the dissemination of local knowledge to farmers who have migrated from other regions to support the incorporation of shrub and tree diversity into agricultural fields.

Sample size

This study was focussed on a relatively small area in the Centre-Sud region of Burkina Faso. While it has provided evidence of a relationship between small-scale plant diversity and pollination services in that area, different processes may be at work elsewhere in Burkina Faso. It would be beneficial to assess processes affecting shea pollination services over a wider area to inform land management, especially as population changes are affecting traditional agricultural practices. Any such projects could help to gather information on flower visitors over a wider range in Africa.

Natural and semi-natural habitats

The area of land exempted from cultivation each year has decreased over recent decades in this part of Africa. As a result, cultivated fields tend to be farther away from uncultivated areas. In order to explore the effects of this on pollination service provision, it would be necessary to design an experiment specifically targeting this aspect of landscape structure.

Non-native species

As well as shea, other fruit trees occur within shea parklands. Some, such as tamarind, cashew and neem are non-native species which are grown for specific products. It would be useful to investigate the pollination ecology of these non-native crops in the shea parkland habitat both to understand how non-native species affect delivery of pollination services to native species and to assess the pollination requirements of these species in the Sudano-Sahel zone.

10. Actions taken in response to previous reviews

Not applicable. No comments were made by the reviewer of the first annual report.

11. Other comments on progress not covered elsewhere

The team are continuing to monitor any potential impacts on exchange rates resulting from the ongoing Brexit negotiations. These do not appear to have been problematic thus far to this Darwin project.

12. Sustainability and legacy

Promotion of the project has been undertaken in many ways and at different levels since the involvement of project stakeholders. Decision makers and partners in the launch workshop; the promotion and endorsement of the project approach and the TBB strategy in the development of new partnerships; negotiation of additional resources to strengthen the project and extend the activities and impact to other villages. Specifically, the collaboration with VBN and the NGO ICCO,

will strengthen the activities of the Darwin Project in the 10 intervention communities, and double the outreach to an additional 10 intervention villages, located in two other communes in the KTNP area. The activities of this new 4-year planned project (Birds, Bees and Business) should contribute to the sustainability of actions and the promotion of the TBB strategy at regional, national and international levels. Naturama's increased capacity, and enhanced profile as a nature conservation organisation within Burkina Faso will strengthen its national and international advocacy in relation to mainstreaming biodiversity and ecosystem services into landscape management.

13. Darwin identity

The Darwin Initiative logo is used on all documents and presentations produced/given by the project, and it is even appearing as a stamp on bars of shea butter soap! Naturama continues to reiterate the purpose of the Darwin project with the stakeholder communities and other beneficiaries. The Darwin logo has also been added to Naturama's website where partnership work is promoted (www.naturama.bf), and the project is recognized as a distinct research initiative financed by the UK Government, and implemented by Naturama in Burkina Faso. Strategically, it sits within a broader programme of work (the Local Engagement and Empowerment Programme of BirdLife International), coordinated from BirdLife's Secretariat in Cambridge. A project story was published for BirdLife's global partner newsletter 'star tern':

https://extranet.birdlife.org/display/LE/2018/02/28/Shea+Parklands+News

https://campusbuzz.blog/2017/11/17/birds-bees-and-butter-pollination-services-in-shea-parklands-of-burkina-faso/

https://extranet.birdlife.org/display/LE/2018/02/28/Shea+Parklands+News

http://www.darwininitiative.org.uk/assets/uploads/2018/05/Darwin-Newsletter-May-2018-IDB-FINAL.pdf

Discussions are continuing with BirdLife's Communications team regarding how best to profile the key outcomes and findings of multiple Darwin Initiative-supported projects, being implemented by BirdLife International (and by BirdLife partners), that will be completed in 2019.'

Social media based opportunities (including Twitter) are also used for sharing key project findings and progress https://twitter.com/BirdLife_News. The Project Leader follows the Darwin Initiative on Twitter, and tweets about key project outputs @ Darwin Initiative.

14. Project expenditure during <u>reporting period</u> (1 April 2017 – 31 March 2018).

Project spend (indicative) since last annual report	**207/18**	**2017/18**	**Variance**	**Comments (please explain significant variances)**
	Grant	Total Darwin Costs (£)	%	
	(£)			
Staff costs (see below)			102%	
Consultancy costs			105%	
Overhead Costs			103%	
Travel and subsistence			97%	
Operating Costs			96%	
Capital items (see below)			0%	
Monitoring & Evaluating			93%	
Others (see below)			100%	
TOTAL			**-31.26**	

Annex 1: Report of progress and achievements against Logical Framework for Financial Year 2017-2018

Project summary	Measurable Indicators	Progress and Achievements April 2017 - March 2018	Actions required/planned for next period
Impact Shea parklands in sub-Saharan Africa are managed for improved tree diversity and pollination, enhancing food and livelihood security for 80 million people, and enhancing habitat for wintering Afro-Palearctic migrant birds.		It is too early to make direct measures of impact in terms of biodiversity and food and livelihood security. But the development of a working model and "TBB" strategy for Parkland Management is making very good progress. Preliminary results show that increases in on-farm habitat diversity and improved management of the Shea Parklands for biodiversity and pollination services can reduce "pollination limitation" and increase yields (and hence benefits). The uptake and interest in adopting the biodiversity guidelines and best practice at all levels (local, national and international) have exceeded project targets and expectations in Year 2. Progress against all Outcome indicator targets in Year 2 suggests that the development of a working model that will be adopted and successfully implemented by communities and stakeholders across the Shea Parklands will be achieved and will result (in the longer-term) in the anticipated positive impacts on biodiversity, livelihoods and maintenance of ecosystem services and benefits.	
Outcome Understanding of the relationship between tree diversity, pollination, shea yields, agricultural land use and migratory birds in Burkina Faso, informs management of	**0.1** By the mid-point of the project, the role and importance of insect pollinators for resilient shea production has been quantified, and habitat requirements for healthy populations of pollinators and birds established, through field research undertaken at 10 pairs of sites in habitats of differing tree diversity around KTNP. Capacity for pollinator and bird research and monitoring in Burkina Faso will have increased	Significant advances have been made in understanding the relationship between habitat diversity, pollinators and Shea production. See Output 1 for key research findings on pollination, pollinators, Shea yields and consequent recommendations for habitat management for biodiversity and Shea production in Burkina Faso Parklands Capacity of national researchers and field workers has been built through "learning by doing" – Naturama staff, University staff and students and local pollination "ambassadors" carrying out field work and dissemination	Research findings are being fed into the management guidelines for biodiversity in the Shea Parklands and are being widely disseminated/ advocated (Output 4) and published in Year 3. At least 2 peer-reviewed scientific papers on pollinators and habitat management will be published Year 3

500 parkland smallholdings, and sector-wide guidance, promoting livelihood resilience and biodiversity	*Baseline: The status of insect pollinators in West African agro-ecosystems poorly understood; in particular, only limited information on their role in the pollination and yield of shea trees.*	of best practice, while also learning from mentors (the project team and external advisors and experts).	
	0.2 By the end of the project, awareness of the value of pollination services and diverse on-farm habitats to sustainable agriculture and availability of non-timber forest products (NTFP) has increased from a baseline assessment in year one, amongst: 1800 adults (800 men and 1000 women); 900 school children in the 10 target communities[8]; 20 agroforestry NGOs; 3 certification schemes; regional and national government stakeholders as defined in the project's advocacy plan. *Baseline: Pilot socio-economic work highlighted little to no appreciation amongst shea-growing communities of the importance and value of pollination services.*	Messages about the importance of pollination, pollinators and pollination services and the need for appropriate management in the Shea Parklands to maintain biodiversity and pollination services continue to be effectively disseminated in all project activities. Locally a total of 1700 people have now received a combination of direct and indirect influence and awareness-raising regarding the TBB strategy and recommendation for on-farm management and best practice methods to promote biodiversity and livelihoods and maintain ecosystem services. Nationally and internationally, the research findings and evidence base for the TBB and best practice continue to be widely promoted and advocated to GSA and other stakeholders, through attendance at meetings (GSA Sustainability Working Group), presentations, publications, and the advocacy programme (Output 4)	In Year 3, repeat surveys will be carried out among the project communities (for comparison with baselines established in Year 1) Wider project policy and advocacy plan will be rolled out
	0.3 By the end of the project, 500 smallholdings within 10 villages in the KTNP region are being managed under the pilot 'trees, bees, and birds' strategy, optimising tree diversity for pollination, increasing supply of sustainable fuelwood, NTFP and habitat for migrant birds. Sapling removal will have halved, while migrant bird densities and pollinator levels	A total of over 800 farmers have now received direct training (to build capacity and raise awareness) in relation to the ecosystem management interventions promoted by the TBB strategy. Research and monitoring findings are showing that farms with well-established implementation of the TBB strategy are already associated with reduced levels of pollination limitation resulting from increased levels of vegetation diversity on the farm. The Year 2 TBB Strategy review (Output 1) provided feedback from all 20 pollination ambassadors to evaluate	Year 3 M+E programme will assess the total capacity building delivered across the case study communities, directly by the project staff, and also indirectly via the pollination ambassadors, across the different elements of the TBB strategy. In addition, the increases in on-farm implementation, in relation to baselines, will be measured.

[8] Calculations are based on 60 adults attending each dissemination event, 1 held each year in each village, and 30 schoolchildren attending each education event, 1 held in each village each year.

	will remain steady or improved relative to the year one baseline.	implementation progress in both target communities (See Activity 1.6). This provided additional data relating to on-farm experience of implementing the TBB strategy and the needs for additional support or refinement of the model (e.g. challenges of finding space for fallow land and need for easier access to the volumes of water needed for mulching and compost on-farm). Bird monitoring data continue to be collected according to the established protocol (see Output 1). It is not likely that changes in bird densities (attributable to the project interventions) will be seen during the 3-year Darwin period but the M+E programme has established baselines. Ideally, Naturama and other initiatives will be able to continue bird monitoring post-project (to confirm the hypothesis that habitat diversity and management which benefits pollinators is also good for birds in Shea Parklands).	Bird monitoring will continue; results will be fully analysed in Year 3 and means (funding) sought to continue monitoring of birds and habitats in the same areas using same methodologies, post-project
	0.4 By the end of the project 100 household incomes will have increased via a combination of increased shea yields (10% increase) on farms implementing TBB and through better prices and market access resulting from training in processing techniques to improve butter quality (20% price premium, increasing total household cash incomes by 5%). Livelihood benefits generated through a more diverse supply of NTFP (at least 3 extra products) and sustainable fuelwood on 100 farms. 200 female shea producers will be empowered to contribute to on-farm decision making.	The M+E programme continued in Year 2, recording changes in shea yield, income from all trade in butter and soap, and other benefits. Data from Year 2 and 3 will be evaluated at EOP, against project baselines established in Year 1. Capacity building support continued in Year 2 with follow-up and additional training to women's groups in improved processing quality. 8 'TBB' villages and 194 women received additional training for improved butter processing, and also donations of soap making equipment.	Year 3 M+E programme will continue to monitor progress, review data collection and preliminary findings and complete Year 3 follow-up socio-economic data collection for comparison with baselines (EOP evaluation)
	0.5 By the end of the project, guidance on optimising pollination for shea yields and sustainable habitat diversity, informed by the "trees, bees and birds" strategy pilot, incorporated into GSA sustainability	The EOP target for incorporation of biodiversity and pollination guidance was met during Year 2 through formal adoption by the GSA Sustainability Working Group of the project TBB strategy/ Biodiversity Guidelines and	Continued input to GSA meetings/ sustainability discussions and promotion of Biodiversity Guidelines for management of the Shea Parklands

	programme[9] and awareness and willingness to implement raised amongst at least half of GSA's 380 members – compared to baseline survey in year one. *Baseline: Current GSA sustainability guidelines do not include guidance in relation to improving pollination services or negating biodiversity loss.*	recommendations (see Annex 4, Output 4, GSA Parkland Management Guidelines). Use of the guidelines by GSA members is voluntary. Other means of promotion of the TBB strategy and guidelines continued in Year 2, with GSA and other advocacy targets (see Output 4). L'Occitaine and Body Shop are both exploring the feasibility of Naturama training the communities from which they source Shea (in sustainable Parkland Management based on the guidance). The European GSA meeting held a panel discussion on agroforestry approaches to parkland management, and BirdLife submitted a letter of support for the Green Climate Fund grant to the Government of Ghana, to be implemented with the support of UNDP. UNDP had approached GSA to tender for the shea parklands component of the wider project, and it was this aspect of sustainable parkland management, which BL were asked to support (Annex 4, Output 4, Letter of Support).	GSA will support the project to measure the uptake of the Parkland Management Guidelines, (to be evaluated at the 2018 GSA West Africa Sustainability Working Group meeting)
Output 1. Research outputs completed and used to educate the shea-growing community around KTNP via pollination demonstration sites. The entire evidence base reviewed and used to inform development of the "trees, bees and birds" agri-	1.1. A working group formed, and workshop held in Quarter 1 of Year 1, bringing together key stakeholders and experts to draft a "trees, bees and birds" shea parkland management strategy.	*Completed Yr 1* Strategy implementation, refinement, capacity building and dissemination/ advocacy reported under other indicators, Outputs 1, 2, 3 and 4	
	1.2 By the mid-point of the project, a study of the impact of pollination on shea yields and optimum diversity of tree species for pollinators, planned and carried out at 10 degraded and 10 non-degraded sites around KTNP	Field work completed (including research on pollinators/ pollination, fruit set and Shea yield; species identification (trees, insects); habitat/ site characteristics and mapping). Preliminary data analysis (Sept-Nov); additional field data collected in March 2018 to allow comparison between Pô and Nobéré field sites. Results were presented (at the Cambridge Conservation Initiative HQ in Cambridge) in May 2018 and 2 draft papers have been submitted for publication. Key results plus recommendations for policy and practice include: Shea is very dependent on pollinators (stingless and honey bees); there are more stingless bees (and a smaller "pollination gap") in more diverse sites/ habitats; the pollination "gap" can be reduced and Shea yields increased by manual pollination and improved management (fewer chemical inputs, increased habitat plant diversity, bee-keeping/ enhancing bee populations in Shea parklands).	

[9] Current GSA sustainability guidelines for shea do not include any specific guidance in relation to improving pollination services or negating biodiversity loss.

environment strategy.		Migrant Bird Surveys continued at intervention and control sites. Species abundance and diversity data were collected by Naturama ornithologists in December 2017 (3,985 individuals of 131 species), with repeat surveys in February (12,953 individuals, including 260 migrants). See Activities 1.3, 1.4 below; main report Sections 3.1, 3.2; Annex 4 Output 1 supporting documents: Quarterly Progress reports; Pollination science and bird survey reports; draft publications and presentations.
	1.3 By end of Quarter 2 Year 2, 20 "pollination ambassadors" (2 per village, including at least 10 women) from the shea farming community, along with at least 2 local government officials, will have visited an experimental pollination plot leading to increased awareness of the link between pollinators and yield. Pollinator ambassador network established.	20 pollination ambassadors were recruited (from 10 villages), trained and working with their communities in Year 1, continuing into Year 2. A workshop was convened (delayed into April 2018), attended by all 20 ambassadors at the Nobéré field office of Naturama, to evaluate implementation progress with feedback from the ambassadors (**See Activity 1.6**). Feedback was very positive, but also mentioned challenges of space for fallow land in the TBB model and a need for easier access to the volumes of water needed for mulching and compost on-farm instead of away from the fields near houses. See Activities 1.5, 1.6 and 1.7 below and Annex 4; Output 1: '**TBB strategy review'**: *Workshop Report, TBB self-assessment and report on visit to composting site, March/April 2018*; **QR3,** *Output 1, Documents d'information sur la strategie TBB, annex 1, pollination poster*; **QR2**, annex 1: *'Report of information workshops for local elected officials on the TBB strategy*.
	1.4 By the beginning of Quarter 3 in Year 2, a "Trees, bees and birds" strategy revised and finalised incorporating updated information from pilot implementation and pollination research and feedback from the wider shea industry	The TBB strategy was trialled and implemented across the demonstration sites, and feedback fed into revision of the strategy, in conjunction with the results of the pollination research. (See feedback from pollination ambassadors and "pilots" under Indicator 1.3 above and Activities under Output 2). Continued progress was made on dissemination of the TBB through the GSA member network in Year 2 (see Section 3.1 and Output 4 Activities) for promotion and advocacy relating to wider Shea Parkland management and policy. The strategy was presented/ discussed at GSA and other meetings (see Output 4), finalized and incorporated into the GSA Sustainability Working Group guidelines. Year 3 will focus on dissemination of the strategy and guidelines, advocacy activities and mainstreaming into policy and practice. See Annex 4 (Outputs 4) for the Biodiversity Guidelines, the GSA Parkland Management Guidelines and TBB presentations (Tamale, Utrecht, Abu Dhabi)
	1.5 A final assessment of the efficacy of the TBB strategy is completed in the final Quarter of the project and the strategy published. A launch event will be timed to coincide with a GSA meeting. Social media campaign to promote the strategy.	*Year 3 activities*

Activity 1.1 Form TBB working group and hold a workshop to draft a preliminary strategy.	*activity completed year 1*. Year 2: Implementation and testing/ refinement of the strategy (see Activity 1.9 and Output 2).
Activity 1.2 Plan fieldwork, including site selection and GIS analysis of habitat degradation and tree density.	*year 1 activity* Year 2: implementation of fieldwork and habitat improvement activities continued (Assisted Natural Regeneration; tree planting); site monitoring (habitats and tree and shrub species diversity); diversification of production/ livelihoods activities. See habitat research Activity 1.3 and Output 2
Activity 1.3 Fieldwork to determine pollinators, tree species and fruit set. Taxonomic identification, data analysis.	Field work was completed (including research on pollinators/ pollination, fruit set and Shea yield; species identification (trees, insects); habitat/ site characteristics and mapping). Data preparation and preliminary analysis took place in September – November and additional field data were collected in March 2018 (rapid vegetation assessments in Nobéré) to allow comparison between Pô and Nobéré field sites. Visits were made to the stingless bee centre and University of Cape Coast in Ghana for bee identification and further samples sent to South Africa for more comprehensive identification.
Activity 1.4 Write scientific papers on shea pollination and habitat management.	Two drafts of papers are being worked into publications. See Annex 4, Output 1: Draft Paper Shea Pollination: 'How different landscape characteristics impact on pollinator visitation rates, pollination limitation and shea nut yield' and presentations of preliminary findings were made to the Cambridge Conservation Initiative in May 2018.
Activity1.5 Recruit pollination ambassadors and facilitate visits to pollination research sites. Establish ambassador network.	*year 1 activities completed*
Activity 1.6 Hold workshop to refine "trees, bees and birds" strategy and publish document.	A Year 2 workshop was convened (delayed into April 2018), attended by all 20 ambassadors from Pô and Nobéré, at the Nobéré field office of Naturama, to evaluate implementation progress. Feedback from ambassadors on their experience of implementing the TBB strategy on their farms was very positive, but also mentioned challenges of space for fallow land in the TBB model and a need for easier access to the volumes of water needed for mulching and compost on-farm instead of away from the fields (near houses).
Activity 1.7 Pollinator education activities– one public meeting a year in each of the ten villages.	A pollination information poster was finalized by the Naturama team for use by the ambassadors and others as a farmer training aid. It has also been used in 10 'primary' schools (6 – 15 years) across the project outreach zone to support pollination awareness and education work. Two environmental education and advocacy workshops on the TBB strategy brought together local elected officials and to get their feedback. Presentations covered the Darwin project, the TBB strategy and there was a strong interest in increasing outreach of the TBB. Elected representatives from all the villages of the communes concerned attended (Mayors, Municipal Councillors, Village Development Committee, technical services). In total, 184 people, including 80 participants in Nobéré (and 104 in Po.

Activity1.8 Surveys to establish knowledge of pollinators.		Baselines completed and reported year 1. Follow-up surveys Year 3.
Activity1.9 Final assessment of TBB efficacy.		*No activities Yr 2*
Activity 1.10 Publication of TBB, launch event and social media campaign.		*No activities Yr 2*
Output 2. 500 people from 10 communities around KTNP have implemented the "trees, bees and birds" parkland management strategy, while another 1000 via farmer-to-farmer education have the knowledge and capacity to do so. Access to market and potential revenue streams have increased through product diversification and training to improve butter quality.	**2.1** Development of a training and capacity building plan for the wider KTNP region for the "trees, bees and birds" strategy completed by the end of Quarter 1 in Year 1.	*Year 1 activity completed.* Year 2 capacity building plan implemented: Activities 2.2 onwards.
	2.2 100 small-holders (including 40 women) from the pilot region will have attended "trees, bees and birds" training sessions led by Naturama, will have implemented key on-farm management measures (tree retention, fallow, shrub) in the strategy by the end of year 1 and a further 400 (including 160 women) from the KTNP region will have undergone direct training by Naturama by the end of year 2. Women who participate in TBB training increase their contribution to on-farm decision making.	In total, 835 farmers / shea producers (318 women) received training in various aspects of the TBB strategy and then implemented this on their farms with support from pollination ambassadors and project teams (significantly exceeding the training targets for numbers of trainees). See also indicator 2.4 below. Training covered 5 themes and various techniques relating to the 4 axes of the TBB strategy: Assisted Natural Regeneration (RNA); Tree Planting; Mulching and Composting, Apiculture, and Income generating (training to establish soap making). See Activity 2.2 below (and Section 3) for more details; supporting documents in Annex 4, including spreadsheet revenue d'apiculture).
	2.3 10 "trees, bees, birds" demonstration sites (1 per village) drawn from the initial 100 pilot farms used to illustrate the "trees, bees and birds" strategy during open-days for farmer-to-farmer	*Activity completed Year 1*

	education and training purposes by the beginning of year 2.	
	2.4 By the end of the project, the 500 who have received direct training have participated in farmer-to-farmer education, each trained individual disseminating information to 2 more[10], educating a further 1000 people in the TBB strategy. Knowledge will be reinforced through a mix of community training sessions, and visits to pilot site open days. Women in the project area show an increase in their empowerment to contribute to farm management decisions.	Year 2 Progress towards this target was very good. See Indicator 2.2 (In total, 815 farmers / shea producers (318 women) received training in various aspects of the TBB strategy and then implemented this on their farms with support from pollination ambassadors and project teams). The increase in women's contribution to on-farm decision making will be measured in Yr3 against Yr 1 baseline. The indirect impact, via TBB demonstration training and 'farmer led outreach', has engaged an additional 350+ farmers in Year 2 (almost one farmer a day). See activities 2.5, 2.6, below and supporting documents Annex 4: Q4 *rapport de formation en réalisation et gestion des fosse fumière Nobéré* et Q4 *rapport de formation en réalisation et gestion des fosse fumière Po*; Q4 *Rapport Atelier auto-evaluation TBB et visite de site fosse fumière)*. (Annex 4, QR2 & 3; *Rapport du suivi de la campagne de reboisement 2017, dans le champ des ambassadeurs*; *Suivi champs Reforestation Natural Assiste Nobéré & Rapport Suivi champs RNA 2017* Pô).
	2.5 By the end of Year 2, 100 women from 10 producer groups have received training in improving the quality of shea butter and obtaining access to market. By the end of the project at least 5 of the communities have women producer groups that have improved their market access.	(Note this is a **change of wording to Output Indicator 2.5** in year 1). In Year 2, capacity building support continued with follow-up and additional training to women's groups in improved processing quality. In total, 8 'TBB' villages and 194 women received additional training for improved butter processing and product quality and also soap making equipment. See Annex 4, Output 4: '*Rapport de Mise en Place les unites de savon* 'and Output 2: *Spreadsheets for 'revenue du savon'*
Activity 2.1. Develop the training and capacity building plan for education of KTNP stakeholders on "trees, bees and birds"		*Year 1 activity completed.* Year 2 capacity building plan implemented: Activities 2.2 onwards.
Activity 2.2. Hold "trees, bees and birds" farmer training sessions for 100 stakeholders in the KTNP region initially, followed by 400 after revision of the strategy.		Training to support the implementation of the TBB strategy continued in Year 2, across the 5 themes of the TBB strategy: Assisted Natural Regeneration (RNA); Tree Planting; Mulching and Composting, Apiculture, and Income generating (training to establish soap making). In total, 815 farmers / shea producers received training, of whom 318 were women. **Under TBB axis 1** (*Fodder/ pasture for pollinators*) reforestation was carried out with 10,120 plants of native tree species with multiple benefits (birds, insects and livelihoods), distributed to 271 producers including 59 women, as well as 10 primary schools in the project area. Monitoring indicated that more than 80% of trees planted survived and also made it possible to record the total area of RNA carried out

[10] A dissemination reach of two people is based on work by Naturama for the 'Living on the Edge' project which trained famers in natural regeneration techniques and tree-planting.

	in each commune: 297 ha in Nobéré (125 producers, 38 women) and 181 ha in the commune of Po (250 producers, 61 women). (See Annex 4, Output 2: *Reforestation Report* 2017; *rapports de suivi*). **Under TBB axis 2** (*Reduce the use of chemicals*), 100 producers were trained in the Organic Manure Production Technique. Training in manure pit construction, maintenance and use/ application of manure was carried out in February with support of the 'Service technique de l'Agriculture' to visit each community to provide on farm training at one of the model sites for the TBB. (See Annex 4 Output 2 *'Rapport de formation Nobéré' and 'Rapport de formation Pô*). Under **TBB axes 3** (*Provide bee nesting sites*) **and 4** (*Pollinator management – support for modern beekeeping*) techniques for leaving dead wood in fields and fallow land were developed and promoted as part of the strategy and training. All 20 pollination ambassadors were trained in beekeeping techniques at the field office in Nobéré in January and given a set of modern beekeeping equipment (with support from a local (Wendpuiré) association for training). Training enhanced their understanding of the ecological and socioeconomic importance of bees, and ways to support the production of honey by communities through biodiversity-friendly parkland management.
Activity 2.3. Surveys to monitor shea yields, socio-economics, biodiversity, habitat, including a review of the 100 pilot sites to inform TBB revision.	Habitat (plant diversity) monitoring and an inventory of the extent and success of RNA and the 'woody vegetation' across the plots, was monitored and compared in both Pô and Nobéré. The most diverse field was found in Po (23 species) compared to maximum 16 species on a farm in Nobéré. Regeneration showed a good diversity of species, 50 in the Nobéré and 56 species in Po zones, respectively and Shea dominating, with other species regenerating well. All but one plot showed an increase in species richness in 2018 (compared with 2017). Income generation from apiculture and soap making activities was measured in Yr 2 and preliminary data are presented in spreadsheets (Annex 4, Output 2, Revenu). A total of £800 across the 20 pollination ambassadors was recorded from insipient apiculture activities, and over £500 for the women from all 8 soap making communities.
Activity 2.4. Identify 10 suitable "trees, bees and birds" demonstration sites.	*year 1 activity completed*
Activity 2.5. Provide support to stakeholders who have attended training session to facilitate farmer-to-farmer communication.	Regular support and advice is given to farmers on a daily basis through site visits by the project site managers and ambassadors. During the TBB revision workshop (Activity 1.6), a visit was made to a mulch-composting unit provided very welcome exchange of experience and techniques. In the TBB strategy review, the ambassadors' feedback also showed that more than 350 farmers had begun to adopt the TBB model and / or some additional interventions, as a result of ambassador field visits and seeing the practices on other farms. See Activities 1.6; 2.2 and Annex 4: Q4 *rapport de formation en réalisation et gestion des fosse fumière Nobéré* et Q4 *rapport de formation en réalisation et gestion des fosse fumière Po*; Q4 *Rapport Atelier auto-evaluation TBB et visite de site fosse fumière)*.
Activity 2.6. Surveys to monitor capacity of community empowerment and ability to implement TBB, including mid-point review of pilot.	Community capacity monitoring was carried out during plantation and RNA monitoring, during which any additional advice was given by site managers, and Naturama project team. See also Activity 1.6 above: field workshop (all 20 pollination ambassadors) for feedback, review of implementation and to refine the TBB strategy.

Activity 2.7. Provide processing training in improving butter quality and access to markets.		See (Year 1) **change of wording to Output Indicator 2.5 above.** (In year 1, women producers received training on improvement to quality of shea butter and soap and initiation to certification). In Year 2, this capacity building support continued with a revision and additional training in improved processing quality. This was supported by CIM Burkina PNKT (Heidelberg) with finance for the community training and capacity building. IUCN Netherlands also financed training of two community groups. In total, 8 'TBB' villages and 194 women received additional training for improved butter processing, and also soap making equipment. See Annex 4, Output 4: '*Rapport de Mise en Place les unites de savon* 'and Output 2: *Spreadsheets for 'revenue du savon'*
Output 3. Capacity of the host country for pollination research, long-term impact monitoring, and pollination education has been developed via mentoring by in-country and international pollination experts. Naturama have the capacity for ongoing development and monitoring of the "Trees, bees and birds" strategy.	3.1 Pollination advisory team formed by the end of the first quarter, consisting of local expert (Issa Nombré), international expert (Jane Stout). Expert recruited for Conservation Scientist research role, plus student recruited for local Masters project.	*Activities completed in Year 1* However, the student recruited in Year 1 was unable to complete validation of his University academic year. A second student, Mariam Konaté, was recruited in Year 2. See Activity 3.5.
	3.2 By the end of Year 1, 4 Naturama staff, involved in pollination education, via mentoring via the Pollination advisor team, have an understanding of pollination services that allows them to develop and lead an educational program.	*Activities completed in Year 1* See education activities and pollination poster under Output 1; Activity 1.7
	3.3 By the end of Year 1, a Naturama research assistant trained in methods for surveying of pollinators and birds.	*Activity completed in Year 1* Naturama staff trained and implementing field work; continued mentoring by project staff and research advisors
	3.4 By the end of Year 3, 1 Masters student gains training in pollination fieldwork, contributing to degree.	*Activity underway Year 2* See Activity 3.5
	3.5 Monitoring protocols for surveys of pollinators, bird populations, tree diversity and shea yields by the end of Quarter 2 Year 1.	*Activities completed in Year 1. Surveys ongoing Year 2 (Output 1)*
	3.6 Strategy for continued support of monitoring and development of "Trees, bees and birds" by the end of Year 3.	A stakeholder mapping exercise was carried out (Activity 3.7) to identify beneficiaries who will benefit from the new knowledge and understanding in the locality, nationally and regionally throughout the Shea belt. The project team will promote and disseminate the TBB model in first half of year 3 and finalise the Darwin project advocacy and policy action plan in second half Year 3, to work towards EOP

		targets and measurement of project impacts. Naturama has identified a series of relevant events for dissemination of project findings and TBB strategy in Year 3. (See also Output 4).
Activity 3.1 Form pollination advisory committee.		*Activity completed in Year 1*
Activity 3.2 Recruit Pollination Scientist and Masters Student.		*Activities completed in Year 1* Replacement MSc student, Konaté Mariama, recruited in Year 2 and actively collecting data in Year 2. See Activity 3.5 and reports: (QR, an2, annexe12)
Activity 3.3 Education of Naturama staff about the role of insect pollinators.		*Activity completed in Year 1*
Activity 3.4 Training of Naturama research assistant in survey methods for pollinators and birds.		*Activity completed in Year 1*
Activity 3.5 Training of Masters student in pollination research.		Replacement MSc student, Konaté Mariama, recruited in Year 2 and actively collecting data in Year 2 to measure impact of TBB strategy implementation, with University supervision by Prof. Nombré Issa.
Activity 3.6 Monitoring protocols for pollinators, birds, tree diversity and shea yields developed in collaboration with bird and pollinator experts.		All monitoring protocols developed (Year 1) and under implementation. See Output Indicator 1.2 above and Activities 1.3 for details and sources of results/ evidence (pollinators, birds, trees, shea yields).
Activity 3.7 Legacy strategy developed for on-going monitoring of the efficacy of the TBB strategy.		A mapping exercise was carried out, of key stakeholders who would benefit from the new knowledge and understanding in the locality, at national level, and regionally throughout the Shea belt. Naturama and Project Leader will finalise the promotion and dissemination of the TBB model recommendations in first half of year 3 and finalise the Darwin project advocacy and policy action plan in second half Year 3, to work towards EOP targets and measurement of project impacts. Naturama has identified a series of relevant events for dissemination of project findings in Year 3.
Output 4 An advocacy programme for integration of the 'trees, bees and birds' management strategy into policy and practice leading to the integration of TBB advice into GSA	**4.1.** By end of Quarter 3, Year 1, a policy and advocacy plan prepared by BirdLife, under guidance from the RSPB and Naturama, identifying key sector-wide organisations and decision-makers and advocacy channels.	An advocacy plan was drafted by the project team in Year 2 and is out for stakeholder consultation and review in Year 3. Advocacy related activities carried out include formal and informal exchanges on the project's experience during various national and international meetings held or attended in Year 2 to promote the TBB strategy. e.g. Good Practice workshop in Koudougou and the BirdLife Flyways Summit in Abu Dabi (both April 2018). See Activity 4.1 (to 4.5) and Annex 4 documents: QR4, an2 annexe 13.
	4.2 Presentations at the AGM of the Global Shea Alliance in 2017 and 2018. Participation in the GSA working groups from 2016 onwards.	In Year 2, Naturama participated in 2 Global Shea Alliance Sustainability Working Group meetings and presented the TBB model and associated yield benefits: in November, in Tamalé, Ghana and in February, in Ouagadougou, with the French luxury cosmetics company L'Occitaine, who have shown interest in their NGO community partner 'Rongead' contracting Naturama to carry out training on the TBB and parkland management for some of its shea producing communities. Also a GSA meeting in The Netherlands; Activity 4.7. The SWG voted to accept the proposed (project) 'Biodiversity Guidelines' into GSA's best practice manual ('Parkland Management Guidelines') for its 400+ members throughout the value chain. Following

sustainability guidelines.		this there was much initial interest in the integration of beehives into the Shea Parklands. In Year 3, the project will again attend the Sustainable Working Group of the GSA, in Tamale in November 2018. See Annex 4, Output 4 Parkland Management Guidelines, March 2018, GSA Sustainability Working Group.
	4.3 Presentations at the annual AEMLAP meetings from 2016 onwards. And discussed within the sustainable land use working group.	No AEMLAP Meeting in 2018 but the project presented at various international meetings, See 4.1 above
	4.4 Advocacy workshops held in Years 2 and 3 of the project in collaboration with the GSA with the aim of disseminating the results of the "Trees, bees and birds" more widely throughout the shea industry and receiving stakeholder feedback.	See 4.2 above
	4.5 By end of Year 2 policy briefs prepared that include executive summaries following completion of the "trees, bees and birds" strategy development.	*See 4.1, 4.2 above*
	4.6 An end of project advocacy workshop with the aim of integrating the "Trees, bees and birds" into policy held for government, NGOs and certification standards.	*Yr 3 activities.*
Activity 4.1 Develop a policy and advocacy plan.		A draft advocacy plan was developed and circulated to project stakeholders and partners for assessment before it is finalised for implementation. Many advocacy activities are underway: formal and informal exchanges on the project's experience during national and international meetings (GSA and others) and the acceptance of the biodiversity contribution to the finalization of the GSA sustainability guidelines (Parkland Management Guide). See also Indicator 4.4 and sources of evidence.
Activity 4.2 Hold advocacy workshops for Shea Industry.		See Activity 4.1 and 4.4
Activity 4.3 Prepare and distribute policy briefs.		See Activity 4.1
Activity 4.4 Participation at the Global Shea Alliance AGMs.		Naturama participated in 2 Global Shea Alliance Sustainability Working Group meetings and presented the TBB model and associated yield benefits. See also Activity 4.1 and 4.7

Activity 4.5 Participation at annual AEMLAP meetings.	In Year 2, there was no formal meeting of AEMLAP, but other opportunistic meetings made it possible to present the results of the project, see Indicator 4.1, above.
Activity 4.6 Advocacy workshop for government, NGOs and certification schemes.	*No activities Yr 2.*
Activity 4.7 Participation in GSA working groups.	BirdLife continued to be an active member of the GSA Sustainability Working group SWG. (See Activities 3.7 and 4.1, 4.4), A presentation was also made at the GSA European meeting in The Netherlands, April 2018: 'More Than an Ingredient: Functionality and Sustainability Take Industry to New Heights', April 16, 2018 (See Annex 4, Output 4; Activity 4.7: in *QR4, An2).*

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

Project summary	Measurable Indicators	Means of verification		Impor
	Impact: Shea parklands in sub-Saharan Africa are managed for improved tree diversity and pollination, enhancing food and livelihood sec and enhancing habitat for wintering Afro-Palearctic migrant birds. (Max 30 words)			
Outcome: (Max 30 words) Understanding of the relationship between tree diversity, pollination, shea yields, agricultural land use and migratory birds in Burkina Faso, informs management of 500 parkland smallholdings, and sector-wide guidance, promoting livelihood resilience and biodiversity.	**0.1.** By the mid-point of the project, the role and importance of insect pollinators for resilient shea production has been quantified, and habitat requirements for healthy populations of pollinators and birds established, through field research undertaken at 10 pairs of sites in habitats of differing tree diversity around KNTP. Capacity for pollinator and bird research and monitoring in Burkina Faso will have increased. Baseline: The status of insect pollinators in West African agro-ecosystems poorly understood; in particular, only limited information on their role in the pollination and yield of shea trees. **0.2.** By the end of the project, awareness of the value of pollination services and diverse on-farm habitats to sustainable agriculture and availability of non-timber forest products (NTFP) has increased from a baseline assessment in year one, amongst: 1800 adults (800 men and 1000 women); 900	**0.1.1** Two open-access peer-reviewed scientific papers on pollinators and habitat management co-authored by Naturama and University of Ouagadougou employees. Executive lay summary of research Update to the CBD Pollination Information Management System. **0.1.2** Baseline and end of project survey of the communities to examine the change in understanding and valuation of pollination services		Politic area d The p of she region Comm indust argum There unsea (droug resear interes manag Dema remair

	school children in the 10 target communities[11]; 20 agroforestry NGOs; 3 certification schemes; regional and national government stakeholders as defined in the project's advocacy plan. Baseline: Our pilot socio-economic work highlighted little to no appreciation amongst shea-growing communities of the importance and value of pollination services. **0.3.** By the end of the project, 500 smallholdings within 10 villages in the KTNP region are being managed under the pilot 'trees, bees, and birds' strategy, optimising tree diversity for pollination, increasing supply of sustainable fuelwood, NTFP and habitat for migrant birds. Sapling removal will have halved, while migrant bird densities and pollinator levels will remain steady or improved relative to the year one baseline. **0.4** By the end of the project 100 household incomes will have increased via a	and NTFPs (Gender disaggregated statistics collected). Baseline and end of project surveys of attitudes to sapling removal, fallows and tree-planting on farms. Quarterly training reports and materials **0.1.3** Baseline and end of project participatory surveys within the pilot region measuring willingness and capacity to implement "trees, bees and birds", uptake of the scheme. Baseline and end of project measures of on-farm tree diversity and density, including number of coppice and NTFP species.		

[11] Calculations are based on 60 adults attending each dissemination event, 1 held each year in each village, and 30 schoolchildren attending each education event, 1 held in each village each year.

	combination of increased shea yields (10% increase) on farms implementing TBB and through better prices and market access resulting from training in processing techniques to improve butter quality (20% price premium, increasing total household cash incomes by 5%). Livelihood benefits generated through a more diverse supply of NTFP (at least 3 extra products) and sustainable fuelwood on 100 farms. 200 female shea producers will be empowered to contribute to on-farm decision making. and through better prices and improved market access achieved by training in processing to improve butter quality	Baseline and end of project measures of habitat diversity, pollinator and bird abundance. **0.1.4** Baseline and end of project measures of shea yield on TBB sites relative to control sites. Baseline and end of project measures of cash income generated by shea. Baseline and end of project measures of firewood sourced sustainably from on-farm. % of firewood sourced sustainably Baseline and end of project measures of community use of NTFP. Baseline and end of project participatory surveys of women's contribution to on-farm decision making. Quarterly reports and maps of pilot scheme implementation and demonstration sites.		

		Training materials and records of attendance at training and demonstration site open days.		
	0.5 By the end of the project, guidance on optimising pollination for shea yields and sustainable habitat diversity, informed by the "trees, bees and birds" strategy pilot, incorporated into GSA sustainability programme[12] and awareness and willingness to implement raised amongst at least half of GSA's 380 members – compared to baseline survey in year one. Baseline: Current GSA sustainability guidelines do not include guidance in relation to improving pollination services or negating biodiversity loss.	**0.1.5** GSA sustainability guidelines and best practice manual. Copies of minutes and presentation from GSA AGM Results from baseline and end of project questionnaires directed at relevant NGOs and Development agencies on the awareness and importance of pollination. Presentations and attendance records from end of project workshop.		
Outputs: 1 Research outputs completed and used to educate the shea-growing community	**1.1.** A working group formed and workshop held in Quarter 1 of Year 1, bringing together key stakeholders and experts to draft a "trees, bees and birds" shea parkland management strategy.	**1.1.1** List of working group members Minutes from workshop meetings Draft TBB strategy, including list of trees with justifications.		Experi advers condit

[12] Current GSA sustainability guidelines for shea do not include any specific guidance in relation to improving pollination services or negating biodiversity loss.

around KTNP via pollination demonstration sites. The entire evidence base reviewed and used to inform development of the "trees, bees and birds" agri-environment strategy.	**1.2.** By the mid-point of the project, a study of the impact of pollination on shea yields and optimum diversity of tree species for pollinators, planned and carried out at 10 degraded and 10 non-degraded sites around KTNP. **1.3.** By end of Quarter 2 Year 2, 20 "pollination ambassadors" (2 per village, including at least 10 women) from the shea farming community, along with at least 2 local government officials, will have visited an experimental pollination plot leading to increased awareness of the link between pollinators and yield. A pollinator ambassadors network established. **1.4.** By the beginning of Quarter 3 in Year 2, a "Trees, bees and birds" strategy revised and finalised incorporating updated information from pilot implementation and pollination research and feedback from the wider shea industry. **1.5.** A final assessment of the efficacy of the TBB strategy is completed in the final Quarter of the project and the strategy published. A launch event will be timed to coincide with a GSA meeting. Social media campaign to promote the strategy.	**1.1.2** Research strategy and field-work plan. Map of experimental sites Report from field-work component **1.1.3** Reports and photos from visits to the pollination sites. Notes of meetings from the pollination ambassadors network. **1.1.4** Notes from stakeholder consultations. Final TBB strategy document published. **1.1.5** Assessment of the TBB strategy. Reports from the launch event. Details from social media campaign, including 'audience reached'		Availa and po be tim period

2 500 people from 10 communities around KTNP have implemented the "trees, bees and birds" parkland management strategy, while another 1000 via farmer-to-farmer education have the knowledge and capacity to do so. Access to market and potential revenue streams have increased through product diversification and training to improve butter quality.	**2.1** Development of a training and capacity building plan for the wider KTNP region for the "trees, bees and birds" strategy completed by the end of Quarter 1 in Year 1. **2.2** 100 small-holders (including 40 women) from the pilot region will have attended "trees, bees and birds" training sessions led by Naturama, will have implemented key on-farm management measures (tree retention, fallow, shrub) in the strategy by the end of year 1 and a further 400 (including 160 women) from the KTNP region will have undergone direct training by Naturama by the end of year 2. Women who participate in TBB training increase their contribution to on-farm decision making. 2.3 10 "trees, bees, birds" demonstration sites (1 per village) drawn from the initial 100 pilot farms used to illustrate the "trees, bees and birds" strategy during open-days for farmer-to-farmer education and training purposes by the beginning of year 2. 2.4 By the end of the project, the 500 who have received direct training have participated in farmer-to-farmer education, each trained individual disseminating information to 2 more[13], educating a further 1000 people in the	**2.1.1** Training and development plan. **2.1.2** Training materials attendance reports, and feedback. Maps and records from implementing farms. Reports of baseline and end of project surveys of women's contribution to decision making. **2.1.3** Photos, maps and reports from demonstration sites. Reports of education events held on sites. **2.1.4** End of project survey of community understanding, desire and capacity to implement "trees, bees and birds" strategy. Reports of baseline and end of project measures of empowerment.		Those suppo TBB s Those sessio the fi people

[13] A dissemination reach of two people is based on work by Naturama for the 'Living on the Edge' project which trained famers in natural regeneration techniques and tree-planting.

	TBB strategy. Knowledge will be reinforced through a mix of community training sessions, and visits to pilot site open days. Women in the project area show an increase in their empowerment to contribute to farm management decisions. **2.5** By the end of Year 2, 100 women from 10 producer groups, have received training in improving the quality of shea butter and obtaining access to market. By the end of the project at least 5 of the communities have women producer groups that have improved their market access.	**2.1.5** Training report and photos		
3 Capacity of the host country for pollination research, long-term impact monitoring, and pollination education has been developed via mentoring by in-country and international pollination experts. Naturama have the capacity for ongoing development and monitoring of the "Trees, bees and birds" strategy.	3.1 Pollination advisory team formed by the end of the first quarter, consisting of local expert (Issa Nombré), international expert (Jane Stout). Expert recruited for Conservation Scientist research role, plus student recruited for local Master's project. 3.2 By the end of Year 1, 4 Naturama staff, involved in pollination education, via mentoring via the Pollination advisor team, have an understanding of pollination services that allows them to develop and lead an educational program. 3.3 By the end of Year 1, a Naturama research assistant trained in methods for surveying of pollinators and birds.	**3.1.1** CV's for recruited Conservation Scientist and Master's student. Minutes /ToRs of advisory team meetings **3.1.2** Copies of education materials produced for the community by Naturama about pollination. **3.1.3** Records of Naturama assistants that have received training. Naturama capacity statement. **3.1.4** Masters theses		.

	3.4 By the end of Year 3, 1 Masters student gains training in pollination fieldwork, contributing to degree. 3.5 Monitoring protocols for surveys of pollinators, bird populations, tree diversity and shea yields by the end of Quarter 2 Year 1.. 3.6 Strategy for continued support of monitoring and development of "Trees, bees and birds" by the end of Year 3.	**3.1.5** Records of survey protocols and reporting strategy. **3.1.6** Strategy document.		
4 An advocacy programme for integration of the 'trees, bees and birds' management strategy into policy and practice leading to the integration of TBB advice into GSA sustainability guidelines.. **5** .	**4.1** By end of Quarter 3, Year 1, a policy and advocacy plan prepared by BirdLife, under guidance from the RSPB and Naturama, identifying key sector-wide organisations and decision-makers and advocacy channels. **4.2** Presentations at the AGM of the Global Shea Alliance in 2017 and 2018. Participation in the GSA working groups from 2016 onwards. **4.3** Presentations at the annual AEMLAP meetings . from 2016 onwards. And discussed within the sustainable land use working group.	**4.1.1** Policy and advocacy strategy document. **4.1.2** Global Shea Alliance policy documents, minutes from AGM and working group meetings. Presentations. **4.1.3** Minutes from working group meetings. Presentations. **4.1.4** Workshop reports and list of attendees. Presentation detailing "trees, bees and birds" (will be openly available		Indust value partici

	4.4 Advocacy workshops held in Years 2 and 3 of the project in collaboration with the GSA with the aim of disseminating the results of the "Trees, bees and birds" more widely throughout the shea industry, and receiving stakeholder feedback. **4.5** By end of Year 2 policy briefs prepared that include executive summaries following completion of the "trees, bees and birds" strategy development. **4.6** An end of project advocacy workshop with the aim of integrating the "Trees, bees and birds" into policy held for government, NGOs and certification standards.	on FigShare).Feedback reports from participants. **4.1.5** Policy briefs and list of recipients. **4.1.6** Workshop reports and list of attendees. Meeting feedback reports from participants.		

	Output 1 Research outputs completed and used to educate the shea-growing community around KTNP via pollination e entire evidence base reviewed and used to inform development of the "trees, bees and birds" agri-environment strategy. 1.1 Form TBB working group and hold a workshop to draft a preliminary strategy 1.2 Plan fieldwork, including site selection and GIS analysis of habitat degradation and tree density 1.3 Fieldwork to determine pollinators, tree species and fruit set. Taxonomic identification, data analysis. 1.4 Write scientific papers on shea pollination and habitat management. 1.5 Recruit pollination ambassadors and facilitate visits to pollination research sites. Establish ambassador network. 1.6 Hold workshop to refine "trees, bees and birds" strategy and publish document 1.7 Pollinator education activities– one public meeting a year in each of the ten villages 1.8 Surveys to establish knowledge of pollinators 1.9 Final assessment of TBB efficacy 1.10 Publication of TBB, launch event and social media campaign **Output 2 500 people from 10 communities around KTNP have implemented the "trees, bees and birds" parkland man another 1000 via farmer-to-farmer education have the knowledge and capacity to do so. Access to market and potenti increased via better knowledge of certification**

	2.1 Develop the training and capacity building plan for education of KTNP stakeholders on “trees, bees and birds” 2.2 Hold “trees, bees and birds” farmer training sessions for 100 stakeholders in the KTNP region initially, followed by 400 afte 2.3 Surveys to monitor shea yields, socio-economics, biodiversity, habitat, including a review of the 100 pilot sites to inform TB 2.4 Identify 10 suitable “trees, bees and birds” demonstration sites 2.5 Provide support to stakeholders who have attended training session in order to facilitate farmer-to-farmer communication. 2.6 Surveys to monitor capacity of community empowerment and ability to implement TBB, including mid-point review of pilot. 2.7 Provide training in processing to improve butter quality and access to market (as per change request: 3.10.16). **Output 3 Capacity of the host country for pollination research, long-term impact monitoring, and pollination education mentoring by in-country and international pollination experts. Naturama have the capacity for ongoing development and bees and birds” strategy.** 3.1 Form pollination advisory committee 3.2 Recruit Pollination Scientist and Masters Student. 3.3 Education of Naturama staff about the role of insect pollinators. 3.4 Training of Naturama research assistant in survey methods for pollinators and birds. 3.5 Training of Masters student in pollination research. 3.6 Monitoring protocols for pollinators, birds, tree diversity and shea yields developed in collaboration with bird and pollinator 3.7 Legacy strategy developed for on-going monitoring of the efficacy of the TBB strategy. **Output 4 An advocacy programme for integration of the ‘trees, bees and birds’ management strategy into policy and integration of TBB advice into GSA sustainability guidelines**. 4.1 Develop a policy and advocacy plan 4.2 Hold advocacy workshops for Shea Industry 4.3 Prepare and distribute policy briefs 4.4 Participation at the Global Shea Alliance AGMs 4.5 Participation at annual AEMLAP meetings. 4.6 Advocacy workshop for government, NGOs and certification schemes 4.7 Participation in GSA working groups

Annex 3: Standard Measures

Table 2 **Publications** (not applicable for Project Year 2).

Title	**Type** (e.g. journals, manual, CDs)	**Detail** (authors, year)	**Gender of Lead Author**	**Nationality of Lead Author**	**Publishers** (name, city)	**Available from** (e.g. weblink or publisher if not available online)
	Peer reviewed Journal	2018	Female	British	Journal of Pollination Ecology	(see Annex 4, for pdf)

Code No.	**Description**	**Gender of people (if relevant)**	**Nationality of people (if relevant)**	**Year 1 Total**	**Year 2 Total**	**Year 3 Total**	**Total to date**	**Total planned during the project**
2	Number of people to attain Masters qualification (MSc MPhil etc.) *		Burkinabe	1 MSC student	1 (replacement master student)		1	1
6A 6B	Number of people to receive other forms of education/training (which does not fall into categories 1-5 above) * Number of training weeks to be provided	75 women[14] 166 men 107 women 225 men 40 women	Burkinabe	241 shea producers training on TBB 332 producers - ANR training 40 shea producers (22 enterprise	815 shea producers, training in TBB components (318 women; 497 men) – see breakdown of training below: 250 producers 2-day training in ANR training: (61 women; 189 men);		1056 582 40	TBB training only[15] - 500 people from 10 communities while another 1000 via farmer-to-farmer education

[14] Year 1 totals only. Gender breakdown in subsequent years shown in year total column.
[15] Training relating to ANR, reforestation, apiculture etc. forms part of the TBB strategy to improve yields, and achieve habitat/biodiversity objectives.

Code No.	Description	Gender of people (if relevant)	Nationality of people (if relevant)	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
				groups) – training in improving shea butter/soap quality X Naturama staff trained in on pollination, surveying and producing education materials	271 producers – 2-day training in Re-forestation techniques (59 women; 212 men) 100 producers – 3-day training in set up & management of manure pits (33 women; 77 men) 20 people – 5-day training in modern apiculture (3 women;17 men) 174 people 6-days training in soap production (172 women; 2 men)		271 100 20 174 X (staff total)	100 smallholders trained in techniques that deliver increase in income of 10% (target is 100 farms demonstrating this increase)
7	Number of (i.e., different types - not volume - of material produced) training materials to be produced for use by host country			4 different types: TBB training materials; Shea quality improvement training materials; Pollination training and awareness (for staff & MSC student);	3: TBB poster to promote wider implementation GSA biodiversity guidelines and TBB recommendations for integration into GSA's best practice manual		7	

Code No.	Description	Gender of people (if relevant)	Nationality of people (if relevant)	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
				Community education materials produced by Naturama	Advocacy plan – for use by Naturama in advocating for wider adoption of TBB to improve pollination services across shea producing area of Burkina Faso.			
9	Number of species/habitat management plans (or action plans) to be produced for Governments, public authorities, or other implementing agencies in the host country				2 TBB Strategy GSA Biodiversity Guidelines		2	2
10	Number of individual field guides/manuals to be produced to assist work related to species identification, classification and recording				1 Pollinator survey manuals		1	1
11A 11B	Number of papers to be published in peer reviewed journals Number of papers to be submitted to peer reviewed journals				2 in draft 2			2
14A 14B	Number of conferences/seminars/ workshops to be **organised** to present/disseminate findings Number of conferences/seminars/ workshops **attended** at which findings from Darwin project			7 5 GSA meetings; 1 AEMLAP; 1 Pan-African Ornithological Congress	4 workshops **attended** 1 GSA meeting Project coordinator (Adama NANA): 02-07 April 2018 (World Bank workshop) Project assistant (Assiata demnélé) workshop on best		11	

Code No.	Description	Gender of people (if relevant)	Nationality of people (if relevant)	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
	work will be presented/ disseminated.				practice (19 April 2018 in Koudougou) Naturama communication officer (Saidou Nacro): 23-29 2018 Abu Dabi Flyway Summit			
20	Estimated value (£'s) of physical assets to be handed over to host country(ies)			Bee hives? Tree seedlings or saplings?	Bee-making equipment – leveraged by the project, but funded by IUCN(not Darwin funded) Soap making equipment - leveraged by the project (not Darwin funded)			
21	Number of permanent educational/training/research facilities, structures, or organisations to be established and then continued after Darwin funding has ceased			1 x 20 Pollination Ambassadors network			1	1
22	Number of permanent field plots and sites to be established during the project and continued after Darwin funding has ceased			20 pollination research sites to be continuously monitored for bird species, habitat quality and insect diversity			20	20
23	Value of resources raised from other sources (i.e., in addition to Darwin funding) for project work				27,228 Euro has been raised through Birdlife Europe to support the Darwin Project in KTNP area.		£24,000	£ 14,412 Heidelberg support - materials provided for soap production etc.

Annex 4 - supplementary material included as evidence of project achievement.

Referenced in	Title	EN/ FR Word unless stated
Outputs	**Yr. 2 Quarterly progress reports (QR) 1, 2, 3, 4 relevant to Outputs 1, 2, 3, and 4.** With annexed reports (as detailed below):	FR
Output 1	Annex 1 Rapport ateliers d'information des elus locaux sur le contenu de la strategie TBB	FR
	Rapport Atelier auto-evaluation TBB et visite de site fosse fumiere, March/April 2018 ').Mid pilot follow up 'TBB strategy review'	FR
	Annex 4 Inventaire Oiseaux PKNT	FR
	Annex 1 Darwin poster (Pollination)	FR PPT
	Stout *et al*., (2018). Journal of Pollination Ecology. Insect pollination improves yield of Shea (*Vitellaria paradoxa* subsp. *paradoxa*) in the agroforestry parklands of West Africa.	EN pdf
	Report Year 2 (March 2018). Aoife Delaney. Pollination in the Shea Parklands, Burkina Faso	EN
	DAB Project presentation: Putting the Buzz back into the Shea Parklands (TBB strategy and pollination findings) presentation to Cambridge Conservation Initiative (Cambs).	EN PPT
	Stout Cambridge May 2018	EN PPT
	Draft Paper – Shea Pollination AD.	EN
Output 2		
	Rapport du suivi de la campagne de reboisement 2017, dans le champ des ambassadeurs	FR
	Rapport reboisement (species) & reboisement (spreadsheet)	FR & EXCEL
	Rapport Suivi champs (RNA) Reforestation Natural Assiste Nobere & Rapport Suivi champs RNA 2017 Po	FR
	Rapport de formation en réalisation et gestion des fosse fumière Nobéré, & Rapport de formation en réalisation et gestion des fosse fumière Po	FR EXCEL
	Rapport de Formation et Appui des ambassadeurs en apiculteurs moderne	
	Rapport de Mise en Place les unites de savon	FR
	Revenu de l'apiculture	FR EXCEL
	Revenu du savon	FR EXCEL
Output 3	Darwin Poster (see Output 1)	FR PPT
	Annex 1 Rapport de la premiere annee	FR
Output 4	Tamale GSA workshop presentation	EN pdf
	GSA Utrecht EM Birdlife Biodiversity	EN PPT
	Parkland Management Guidelines, March 2018, GSA Sustainability Working Group (including the TBB biodiversity guidelines)	EN pdf
	BirdLife Letter of support to GSA, for the UNDP / Global Climate Fund REDD+ initiative in Ghana	EN
	Advocacy and Policy plan – Annex 13 Draft Politique Plaidoyer TBB	FR

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.	Report and annexed information emailed separately.
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.	
Have you included means of verification? You need not submit every project document, but the main outputs and a selection of the others would strengthen the report.	Yes
Do you have hard copies of material you want 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.	No
Have you involved your partners in preparation of the report and named the main contributors	Yes
Have you completed the Project Expenditure table fully?	Yes
Do not include claim forms or other communications with this report.	