Darwin Initiative Annual Report

Important note:

be completed with reference to the Reporting Guidance Notes for Project Leade
it is expected that this report will be about 10 pages in length, excluding annexes

Submission Deadline: 30 April 2012

1. Darwin Project Information

Project Reference	18-010
Project Title	Tools for the sustainable harvesting of Maya Nut (Mesoamerica)
Host Country/ies	Mexico, Guatemala, El Salvador, Honduras
UK contract holder institution	The Natural History Museum, London
Host country partner institutions	The Maya Nut Institute
Other partner institutions	Comision Nacional de Areas Naturales Protegidas CONANP (Mexico), Instituto Internacional de Tecnologia Educativa INITE (Mexico) Ministerio de Medio Ambiente y Recursos Naturales MARN (El Salvador) Ministry of Agriculture and Livestock MAGA (Guatemala) Alimentos Nutri-Naturales (Guatemala) Heifer Project International (Honduras) Centro Universitario de la Costa Sur CUCSUR (Mexico) Direccion General Tecnologica Agropecuaria, DGTA Yucatan, (Mexico) AGAPE (El Salvador) Lancetilla Botanic Garden (Nicaragua)

	Masangni (Nicaragua) Instituto Nacional de Biodiversidad, INBio Costa Rica *El Color de la Tierra* group of Maya Nut women producers, (México)
Darwin Grant Value	£202,374
Start/end dates of project	1-9-2010/31-10-2013
Reporting period (eg Apr 2010 – Mar 2011) and number (eg Annual Report 1, 2, 3)	April 1 2011 to March 31 2012 Annual Report 2
Project Leader name	Alex Monro
Project website	
Report authors, main contributors and date	Alex Monro, Erika Vohman, Evelyn Jones

2. Project Background

Brosimum alicastrum (Maya Nut) is one of the most common trees in Mesoamerican tropical forests *w*here it is a major determinant of forest structure. Fruit and leaves of Maya Nut are consumed by over 90 species of mammal and birds including several red-list species. Maya Nut is also a highly nutritious food for humans, providing protein, calcium, potassium, iron, folate, vitamins C, A, B and tryptophan. Maya Nut thrives in primary and secondary forests and tolerates marginal, rocky soils and is extremely drought tolerant once established. Mature trees can produce up to 200kg of edible fruit a year. It is becoming increasingly important for restoration projects in Guatemala, Honduras, Colombia, Haiti, El Salvador, Nicaragua, and Mexico (Vohman 2009) demand for seed-stock increasing 35% since 2003. It is also a strategic species for communities hoping to maintain food security in the face of climate change. Maya Nut not only protects biodiversity, soils and watersheds, but also provides a marketable non-timber forest product (NTFP) which ensures long-term stakeholder benefits and community-based protection against fire, clearing & logging.

Maya Nut Institute (MNI) focuses on educating women about the nutritional value, harvesting, processing and consumption of Maya Nut. In 2001 MNI began work to conserve traditional knowledge of Maya Nut through its *Brosimum programme.* The aim of which was to develop a sustainable source of food and income for rural women that also conserved biodiversity. Maya Nut is easy for rural women to harvest, process and sell using resources, skills and knowledge they already possess. To-date MNI has educated over 13,400 rural and indigenous women from 775 communities and as a result of this training, 15 independent women's producer groups have formed in Nicaragua, Guatemala, El Salvador, Mexico and Honduras and impacting >90,000 people living in and around rainforests throughout the region. These micro enterprises generated over $100,000 in revenue in 2008. Through the *Brosimum programme* MNI identified the alarming reduction of native Maya Nut forests, a situation which threatens the long term survival of numerous Neotropical bird and mammal species, and which greatly reduces the environmental services provided by these forests.

Because Maya Nut produces copious amounts of food without the need for forest clearing, burning, tilling, irrigation or the application of pesticides and fertilizers, it has the potential to reduce rural poverty, food insecurity, malnutrition and biodiversity loss. Because its harvest, processing and sale are done by women a high proportion of the benefits accrue to the family. Key to achieving this impact is managing/balancing consumer demand and extraction levels using applied population biology and developing participatory species management plans which can be implemented by the communities themselves. Improve the capacity of rural communities to sustainably use, reforest and equitably manage Maya Nut forests in Guatemala, El Salvador, Mexico.

3. Project Partnerships

Prior to the beginning of the Project the Natural History Museum (NHM) and Maya Nut Institute (MNI, ex Equilibrium Fund) agreed the terms for the Management and functioning of this project. Together with the CEO of MNI, Erika Vohman, we maintain weekly if not daily email contact.

Other Collaboration: In addition to the collaborations listed in the stage 2 application we have initiated the following new collaborations:

Heifer Project International in Honduras are collaborating on activity 1.6.

Feed the Hungry in Nicaragua, are collaborating with activity 1.8 & 2.1.

Cooperativa de Federaciones de la Reforma Agraria (CONFRAS), El Salvador are collaborating on the application of grafting technology as a tool for genetic improvement of Maya Nut. They have funding from Swiss Government.

4. Project Progress

Progress in carrying out project activities

ACTIVITY 1.3 Trial course implemented, materials and contents tested/improved if necessary

PROGRESS MADE: We have implemented four trial courses for 39 rural men and women and are in the process of incorporating comments of participants and facilitators to improve the final training manual and course syllabus. On time as planned.

ACTIVITY 1.4. 120 Mesoamericans from 20 village forest committees trained in field data gathering for calculation of sustainable Maya Nut seed harvest levels and the biodiversity associated with Maya Nut Forests

PROGRESS MADE: We have trained 39 Mesoamerican men and women from 5 villages in field data gathering for sustainable Maya Nut seed harvest. We are behind schedule on this target and are seeking additional funding to be able to meet this target. The cost and time required to establish the data gathering protocols were underestimated at the time of the project proposal. We will therefore need to revise this target down to a manageable level with the approval of the Darwin Initiative. In addition the first project manager did not prepare the inventory methodology in time for the first harvest season requiring us to wait until this year to apply the methodology. Problems with the project manager were resolved (see HYR 2) and MNI are seeking additional funds to achieve this target.

The methodology for participatory data collection, however, has now been defined and validated by rural women harvesters. The methodology is ready to be published and is annexed to this report (Annex 1)

- 12 women and 2 men were trained in Sonsonate, El Salvador (Plan de Amayo National Park)
- 8 women were trained in Suchitepequez, Guatemala (La Bendicion Protected area)
- 11 women and 2 men were trained in Chinandega, Nicaragua (San Cristobal-Casitas National Park)
- 8 women and 10 men were trained in Olancho, Honduras (Rio Platano Biosphere Reserve)

Ada Martinez, from the Maya Nut producer group of El Guayabo, Rio Platano Biosphere Reserve, Honduras weighs Maya Nut seed to determine production per tree for correlation with DBH (diameter at breast height). This information is currently nonexistent in the literature, and is critical to determine production potential of Maya Nut forests for use in developing sustainable harvest guidelines. Each producer group must collect this information for their harvest site because fruit production/tree is likely to be different in each forest due to edaphic and genetic factors, among others.

ACTIVITY 1.5 30 Mesoamericans from 20 village forest communities trained in technical aspects of forest management; logical basis and basic interpretation of the gathered data as tools for sustainable Maya Nut seed harvest levels.

PROGRESS MADE: We are still working to determine the most effective forest management techniques to improve Maya Nut harvest quotas and sustainability, therefore these concepts are not being taught yet. We are behind on this activity. We will therefore need to revise this target down to a manageable level with the approval of the Darwin Initiative.

ACTIVITY 1.6 30 Mesoamericans from 10 village forest committees trained in marketing and accounting

PROGRESS MADE: 45 Mesoamericans from 12 village forest communities have been trained in marketing and accounting. We are ahead on this target.

ACTIVITY 1.7 Basic forest inventories of major faunal groups associated to absence/presence of Maya Nut trees undertaken

PROGRESS MADE: We have a preliminary assessment of major faunal groups in 5 forests but have yet to formally define a methodology for this study.

ACTIVITY 1.8 Inventory data related to forest conservation status measured, data fed into the guidance document on sustainable harvesting of Maya Nut

PROGRESS MADE: Ongoing.

ACTIVITY 1.9 Field data compiled in each country and analyzed for calculation of sustainable Maya Nut seed harvest levels by partners.

PROGRESS MADE: We are behind on this target because we have been constrained by poor production in 2011 and are still waiting for the 2012 harvest to begin so we can measure production per tree, a critical parameter for sustainable harvest calculation.

ACTIVITY 2.1 Draft position agreements for 20 local forest areas by year 2, revised by year 3.

PROGRESS MADE: The departments of forestry in Nicaragua and Honduras are eagerly awaiting our draft Sustainable Management Plans for Maya Nut because no such plans exist in these countries. Both countries have offered their support to the development of national

guidelines for Participatory Sustainable Management Plans for Maya Nut. In Guatemala there exists a long (100+ year) history of non timber forest product (NTFP) harvest. All NTFPs in Guatemala must be harvested under a management plan. Nevertheless the National Forest Service of Guatemala (CONAP) has expressed interest in the participatory guidelines that we are developing through this Darwin Initiative as their experience has shown that communities don't understand their management plans and therefore do not follow them. We have been approached by ACOFOP (Association of Forest Communities of the Peten, Guatemala) to share our participatory methodology for Maya Nut management plans so that they can adapt it to the other products they harvest from the Maya Biosphere Reserve.

ACTIVITY 2.2 sustainable harvest levels of Maya Nut seed for 20 forest areas compiled and analyzed together with the faunal inventories to produce the guidance document on the sustainable harvesting of Maya Nut.

PROGRESS MADE: We are in the process of calculating this for 3 forest areas. It is likely that harvest levels will be measured with respect to the density of the seedling and sapling cohort and not the amount of seed harvested. This is for three reason, a) most of the seed consumed by the native fauna is consumed pre-harvest, b) maintaining a viable seedling and sapling cohort is more closely aligned to the regeneration of this species in the canopy and the maintenance of this cohort is more likely to depend on land management practices e.g. access to grazing, than on the amount of seed left on the ground, and c) pragmatically the seedling and sapling cohort are easier and less controversial to monitor than the amount of seed harvested.

ACTIVITY 2.3 Guidance document on sustainable harvesting of Maya Nut seeds for 20 forest areas disseminated

PROGRESS MADE: The guidance document will be published by June 2012.

Molecular stuff (include Syntax proposal)

ACTIVITY 3.1 Select sample sites with partners and sample Mayanut populations across forest areas in 7 countries throughout Mesoamerica.

Sample sites were selected during the first year of the project and samples collated during this time. In several instances samples were collected by the communities themselves and posted to the Museum. We have exceeded our target number of populations and expanded the geographical range of our samples (see table below). This aim of doing so was to see whether we would be available to establish the ancestral range for the species and specifically whether this included the Greater Antilles. This would have significant repercussions for reforestation projects in Haiti.

In July 2011 we hired Tonya Lander to undertake the population analyses of the molecular data. Tonya started work in January 2012 and in Marc undertook fieldwork to collect additional samples.

In addition to within species population samples we have also sampled all of the species within the genus *Brosimum* with a view to confirming the taxonomic status of Maya Nut as part of an additional project. To this end Tonya and Alex submitted a NERC/BBSRC Syntax application in March of this year.

With respect to the methodology, we have decided to use highly variable chloroplast and ribosomal markers rather than microsatellites. This was based on both cost

and informative nature of this approach which will enable us to analyse more samples and greater flexibility in the analyses. We have identified at least five polymorphic markers.

ACTIVITY 3.2 Undertake molecular analysis of Mayanut genetic diversity

We have extracted DNA from all of the samples that we plan to analyse and have begun screening for polymorphic markers of which we have identified five to date. We should have all of the sequence data collated within the next quarter. Below is a summary of the samples that we have collated and plan to use. They include a mixture of herbarium and field collected samples.

Summary of samples extracted to date			
Country	**Pops (3 or more individuals) to be sequenced**	**Singles or populations of less than 3 individuals to be sequenced**	**#individuals extracted but not currently in the group to be sequenced**
Belize	1	0	3
Brazil	0	7	0
Columbia	1	0	0
Costa Rica	3	0	2
Cuba	1	1	3
Ecuador	0	0	1
El Salvador	2	0	0
French Guiana	0	0	1
Grenadines	0	2	0
Guatemala	3	2	0
Guyana	0	2	0
Honduras	4	0	2
Mexico	5	0	5
Nicaragua	1	0	5
Panama	7	11	15
Peru	3	1	0
St Vincent	0	1	0
Trinidad	0	3	0
Venezuela	0	2	0
Total B. alicastrum individuals DNA extracted			**273**
Total B. alicastrum individuals to be sequenced			**236**
Total B. alicastrum populations (3+ indiv) to be sequenced			**31**
Total other species to be sequenced			4

4.1 Progress towards project outputs

Report on how overall progress has been made towards the project outputs and how likely the project is to achieve them by its close. Please comment on the measuring of output indicators and whether the output level assumptions still hold true. If there have been changes in assumptions in what ways is the project meeting or managing these? Please ensure that you provide relevant evidence to support progress towards outputs.

PROGRESS TOWARD PROJECT OUTPUTS:

OUTPUTS:

1. Communities obtain capacity to sustainably manage Maya Nut forests with minimal external assistance and/or supervision
2. Stewardship agreements at provincial and village levels in place and functioning
3. Knowledge of inter and intrapopulational variability for Maya Nut in Mesoamerica. Protocol for the long term storage of Maya Nut seed developed. Promising seed transfer zones for Maya Nut landraces are delineated and genetic diversity (germplasm) conserved both in and ex situ as sources of seed for reforestation throughout its former range.

Overall progress toward project outputs has been good, but slower than anticipated. We realize that the original target of establishing draft position agreements for 20 forests is too ambitious, considering that we are breaking new ground and there are few, if any, precedents established for non timber forest products in three of the four countries that we are working in. In Nicaragua, Honduras, and El Salvador we are finding we need to inform and educate the Ministries of Forestry and Natural Resources about our overall strategy and our methodology and it has been slow, though very encouraging. We feel we need to revise this output down to 5-7 forests by project end. The good news is that once the precedent is established, it will be much easier in the future to draft position agreements for the other target forests because the government ministries will be educated and informed and on board with our goals for sustainable forest management for Maya Nut harvest. We feel we can definitely achieve the stewardship agreements for 20+ forests at village levels within the next 5 years, though approval by the relevant ministries of forestry may take longer due to bureaucratic issues and delays.

We have achieved a number outputs that although not identified in the project proposal, contribute to the overall goals of the project. These include the following:

OUTPUT: We have established two ex-situ conservation plots where we are currently establishing varieties of Maya Nut from Honduras, Mexico, Guatemala and Nicaragua. These are Montgomery Botanical Center, Florida and Lancetilla Botanic Garden, La Ceiba Honduras. We are sending seeds to both these centers as they become available. A third ex-situ site in Peru has been identified (in Madre de Dios, Peru) but we are still in the early stages of developing this site and the relationship with the partner. These sites will serve as important repositories of germplasm as the results of the molecular studies are revealed.

Dr. Chad Husby of the Montgomery Botanical Center in Florida with Maya Nut collections from Nicaragua and Mexico

Allied to the project specific steps to ensure sustainability

OUTPUT: Establishing self-certification standards: TEF will support the establishment of a regional consortium responsible for implementation of a sustainable certification standard. Certification will ensure economic benefits but avoid the high costs of certification by commercial certifiers.

INDICATOR**:** Certification guidelines are in a draft stage, Annex 2. These include the development of an International Standard for Maya Nut, modelled after the International Coffee Standard. This will be registered with the FAO (Codex Alimentarius).

OUTPUT: Reforestation of Communal smallholder parcels: TEF and CarbonFootprint.com will finance the planting of at least 500 trees/month in communities using sales of CO2 offset. Reforested parcels will ensure long-term supplies of Maya Nut and will generate income for communities and counter clearing for biofuels.

INDICATOR: 30ha of Maya Nut has been established in the RAAN, Nicaragua, and another 76,000 trees in the Peten, Guatemala. In the sites where we are working with producers for certification, the producers added a criterion to the certification that for each 100lb sold, the producer group must plant 3 Maya Nut trees. In Nicaragua and Honduras, in addition to reforestation, silvicultural guidelines are included in the sustainable management plans to improve natural regeneration of Maya Nut in natural forests. In Nicaragua, the National Forest Service and the stakeholder communities are fencing the forest to keep cattle out. This is a direct result of our vegetation assessment that showed that cattle grazing is negatively affecting rainforest regeneration in the harvest areas.

OUTPUT: Women's incomes improve as a result of Maya Nut production and certification. Guayaki Sustainable Rainforest Products, Teeccino, Inc., Alimentos Nutri-Naturales, S.A., ALCSA, S. A., and other companies will work with members of the Maya Nut consortium to increase market opportunities for Maya Nut.

INDICATOR: Marketing progress: We have received 7 requests for product samples from some very large companies in the US and Canada. We have established a synergetic relationship with a local company in Nicaragua to process and export Maya Nut and also to develop a local market. We have a meeting with the largest bakery in Nicaragua (Don Pan) to present the product as a potential ingredient in their breads, pastries and beverage lines.

We have designed the baseline survey for the socioeconomic status of women Maya Nut producers. This table demonstrates a portion of the data we have collected. Data collection and analysis is ongoing.

Socioeconomic data of Maya Nut producing communities in Central America				
Country	Nicaragua	Nicaragua	Honduras	Guatemala
Community	Versailles	Montana de la Hoya	El Guayabo	La Bendicion
Where is harvest area?	National Forest and coffee farms	Private forest and coffee farms	National forest and farms	Private forest and coffee farms
# Families in community	70	40	29	55
Preschool?	Yes	Yes	Yes	Yes
Primary school?	Yes	Yes	Yes	Yes
Secondary School?	No	No	No	No
Health Clinic	No	No	No	No
Road	Yes	No	Yes	Yes
Highway	No	No	No	No
Trail	Yes	Yes	Yes	Yes
Public transportation	No	No	Yes	No
Electricity	No	Solar	No	Yes
Potable water	No	No	No	Yes
Average age	35	31	35	n/a
Average # children	3.75	1.5	5	n/a
% literacy of women producers	75%	100%	100%	n/a
Average # years of school	3	3.1	5	n/a
Average family income	$446/year	$172/year	$900/year	n/a
Average % of	17.7%	12%	15%	n/a

family income from Maya Nut sales				

4.2 Standard Measures

Table 1 Project Standard Output Measures

Code No.	Description	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	# planned for reporting period	Total planned during the project
6A	Number of people to receive other forms of education/training (which does not fall into other categories)	40	39		39	80	120
6B	Number of training weeks to be provided	10	10	16	20	10	36
7	Number of types of training materials to be produced for use by host country	0	1	6	01	0	7
8	Number of weeks to be spent by UK project staff on project work in the host country						6
9	Number of species/habitat management plans to be produced	0	0	6	0	0	6
10	Number of individual field guides/manuals to be produced	0	0	6	0		6
11A	Number of papers to be published in peer-reviewed journals	0	0	2	0		2
11B	Number of papers to be submitted to peer-reviewed journals	0	0	3	0		3
12A	Number of databased to be established and handed over to host countries	0	0	3	0		3
13B	Number of species reference collections to be enhanced and handed over to host countries	0	0	3	0		3
14A	Number of conferences/seminars/workshops to be organized to present findings	0	0	5	0		5

14B	Number of conferences/seminars/workshops to be attended at which findings from Darwin project work will be presented	0	0	5	0		5
15A	Number of national press releases in host countries	0	0	6	0		6
15B	Number of local press releases in host countries	1	1	10	1	1	12
15C	Number of national press releases in UK	0	0	1	0		1
16A	Number of newsletters to be produced	0	2	2	2	2	4
16B	Estimated circulation of newsletters in host countries	0	35	65	35	35	100
16C	Estimated circulation of each newsletter in the UK	0	6	6	6	6	12
17A	Number of new dissemination networks to be established	0	0	1			1
17B	Number of new dissemination networks to be enhanced/extended	1	1	3	0	2	5
18A	Number of national TV programmes in host countries	1	0	3	1	0	3
19A	Number of national radio interviews in host countries	0	1	2	0	1	3
19C	Number of local radio interviews in host countries	1	1	1	1	1	3
21	Number of permanent educational/training/research facilities or organizations to be established and then continued after Darwin funding has ceased	2	0	1	2	0	3
22	Number of permanent field plots to be established during the project and continued after Darwin funding has ceased	2	0	1	2	0	3

Table 2 Publications

Type (eg journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (eg contact address, website)	Cost £
Manual*	Erika Vohman and Karen Lara, Del	Lulu, Raleigh North	http://www.lulu.com/shop/editado-	£8.5

	Bosque a tu Boca, Recetario de la Nuez Maya. 2012	Carolina, USA	por-erika-vohman-y-karen-lara/recetario-de-la-nuez-maya-del-bosque-a-tu-boca/paperback/product-18621048.html	
Journal*	Maya Nut Could Boost Resilience to Climate Change, Pauline Buffle and Erika Vohman, Oct. 14, 2011	Maya Nut Case Study by the Ecosystem & Livelihoods Adaptation Network.	http://ourworld.unu.edu/en/maya-nut-could-boost-resilience-to-climate-change/	free

4.3 Progress towards the project purpose and outcomes

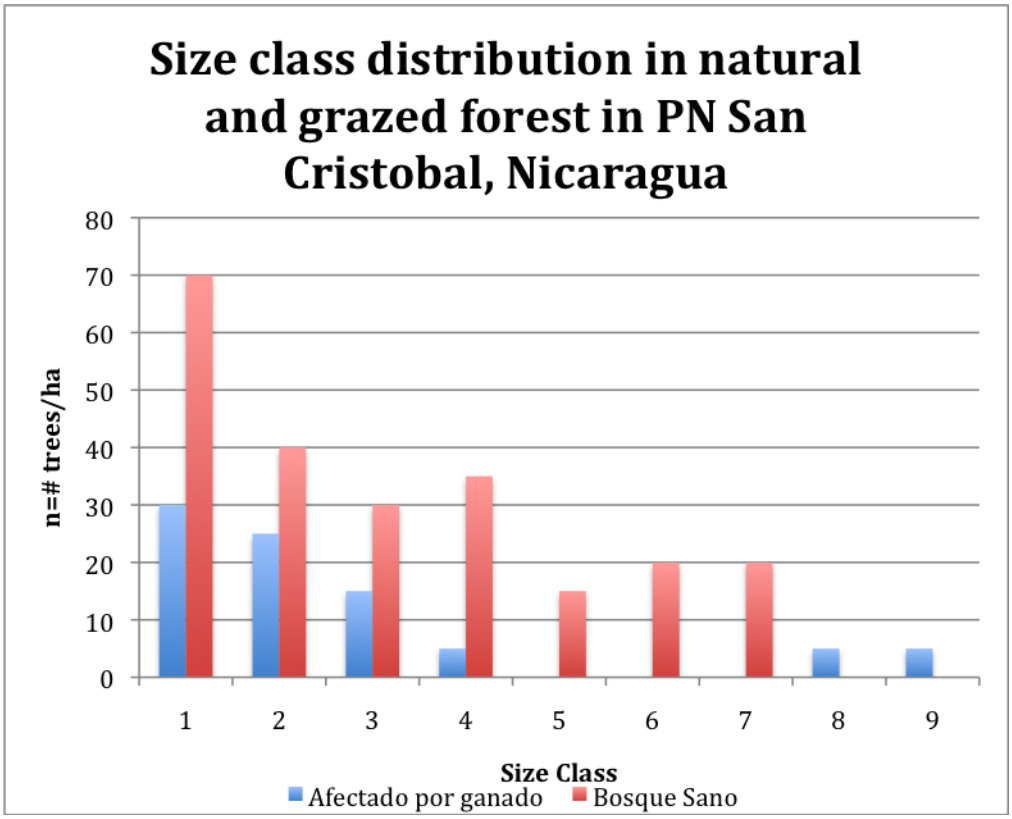
Project purpose: Improve the capacity of rural communities to sustainably use, reforest and equitably manage Maya Nut forests in Guatemala, El Salvador, Mexico, Nicaragua, Honduras, Panama and Costa Rica.

Our progress toward outcome 1a: Sustainable guidelines for Maya Nut seed harvesting are designed and implemented by stakeholders- is very good, though slower than anticipated. This is primarily due to the slow response time of the national forest service personnel in El Salvador, Nicaragua and Honduras. In Guatemala we had already anticipated response time to be slow, as our last management plan we submitted in 2009 took two years to be accepted by the National Forest Service.

Progress toward outcome 1b: “60% of participating communities report increases in benefits from Maya Nut forests” is very good, though these increases are also a result of improved market access by producers. Some of the improved market access is directly due to the Darwin financed work we are doing for sustainable management, which has greatly improved the reputation of Maya Nut as a sustainable product. The baseline producer surveys indicate that women are already enjoying improved income from Maya Nut production and sales and having sustainable management plans holds great promise to improve this indicator. Based on several meetings with buyers in the past month in Nicaragua, we perceive a rapid increase in demand in the next 12 months.

4.4 Progress towards impact on biodiversity, sustainable use or equitable sharing of biodiversity benefits

Because Maya Nut is a keystone species for biodiversity, we can confidently state that any improvements in Maya Nut forest conservation or restoration will have benefits for biodiversity. In Nicaragua, the Darwin Initiative project has gained the attention of the National Forest Service which is now seeking a means to remove cattle from the forest where we are implementing the sustainable management plan, based on the preliminary evidence we provided them after our second community training workshop (see graph below)



This action by the Forest Service will ensure long term forest health, because, as you can see in the graph, the cattle (Ganado, blue bars) are negatively affecting forest regeneration, thereby jeopardizing future habitat and food for biodiversity in this forest (San Cristobal-Casitas Volcanic Complex, Chichigalpa, Nicaragua).

5. Monitoring, evaluation and lessons learned

Indicators are discussed in section 4.1-4.4

Lessons learned from this year's work:

Project management

We have continued to struggle to fill the role of Project Manager with somebody appropriate to ensure the delivery of outputs in a timely manner. We have decided to terminate the contract that we have with Anaite Lopez, who will continue to participate in the project in her original capacity. She is to be replaced by Claudia Perla Medrano, who will focus on delivering the capacity building with local communities. The local administration of the project will be overseen by Erika Vohman directly at no cost to the project.

Working with national government ministries charged with protection of national protected areas

Government Ministries with jurisdiction over the environment do not have funds to develop management plans and in some of the forests where we have proposed to work (Nicaragua and El Salvador) Maya Nut harvest is not permitted under existing management plans. This creates a major bottleneck in the process of Management Plan approval. In forests where harvest of plant resources is prohibited, we are negotiating with the government to revise the laws regulating non-timber forest products, which takes time and resources and constant attention and follow up. On a positive note, the result of this will be a significant step

toward community-based forest management. We are supported in these efforts by the Ministry of Forestry policies in Guatemala which have long encouraged NTFP harvest as a major component of forest management. Honduras has no history of management plans for NTFPs but harvest is not prohibited.

Cattle grazing in protected areas.

We are seeing a considerable lack of political will to enforce forest protection from encroachment due to cattle grazing, which is probably the most detrimental agricultural activity for Maya Nut forests and their regeneration. Cattle preferentially browse Maya Nut seedlings in natural forest and so jeopardize our efforts to develop sustainable management plans because cattle grazing in the same forests where women harvest Maya Nut will have a major negative impact on forest regeneration which may be blamed on Maya Nut harvest activity. It is of critical importance to provide evidence (we are gathering from our vegetation assessments and forest inventories) proving the detrimental impact of cattle on natural Maya Nut forest regeneration so that we can exonerate the Maya Nut producers from any future blame for forest degradation. Alarmingly, in some cases, localized species extinction from cattle grazing is a very real threat. On the other hand, as the communities learn about the grim future of Maya Nut forests where cattle are grazed, we have an opportunity to use that to motivate reforestation on private lands; something that was notoriously difficult to achieve before we started trainings in sustainable management plans for Maya Nut. This has turned a major threat into an opportunity. In order to achieve our goals of "protection of Maya Nut forests" we must apply pressure to the national ministries of forestry to enforce laws prohibiting cattle in protected areas.

We are fortunate in this project to have very concrete outputs which are easy to measure.

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

NA

7. Other comments on progress not covered elsewhere

The design of the project is still the same, but we are seeking to reduce the number of management plans delivered by the project, from 20 to 5 in negotiation with DI. This is because of the delays and negotiation involved with working with national governments and primarily the time it takes the national forest service of each country to respond to our requests and questions. This has an impact on how long and the human resources required to reach agreement on management plans. For example, in El Salvador it was necessary to rename the plan from 'Management Plan' to 'Harvest Plan' because of legislative associations that including the term 'Management' in the title. It took almost a year to identify this as the issue holding up negotiations.

PROJECT RISKS

Extensive cattle grazing in certain forests where Maya Nut harvesters work jeopardizes the potential of the sustainable management plans to deliver sustainable forest management over the short or medium term. We are planning to mitigate this risk by highlighting the impact of grazing on regeneration and the fact that most forest grazing is prohibited in protected areas.

8. Sustainability

The work we are doing with the sustainable management plans is creating a lot of interest among the national forest service offices in Nicaragua, Honduras, El Salvador and even Guatemala. They are very interested in our methodology and have been requesting trainings

and following up with what we have presented to them thus far in the project. We foresee a graceful project exit because we will submit at least one management plan for Brosimum alicastrum in each country, which will serve as a template for other management plans to be approved in those countries. We are proud to be establishing this precedent in these countries, because as we have been developing the project we have become keenly aware of the lack of resources for these countries to develop and implement them independently of Darwin Initiative funding. These participatory management plans will greatly reduce host country costs of design and dissemination of management plans for Maya Nut, thereby improving the social and economic sustainability of Maya Nut forest management.

9. Dissemination

Dissemination will take place when we deliver the Sustainable Management Plans in each respective country Forest Service Offices. We will promote this event in bulletins posted in each office, delivered to regional offices as well as central/national offices. Target audiences are primarily the forest resource managers at the national and departmental levels. We will also be conducting trainings of field staff of the Depts of Forestry in the regional offices of the departments where we produce the first management plans for each country. These trainings will take only one day and will serve to convey the basic principles of the sustainable management plans to the relevant forest service staff. These institutions have expressed a lot of interest in learning and applying our methodology in protected Maya Nut forests. Additionally, in Guatemala, although there is a long history of management for nontimber forest products and management plans are currently a legal requirement for harvesters, there is a pronounced lack of application of these plans to actual harvest levels. For this reason, we have received several formal and informal requests from stakeholders in the Maya Biosphere Reserve to train communities in our participatory methodology, not only for Maya Nut, but for adaptation to other NTFP's as well.

10. Project Expenditure

Table 3 project expenditure during the reporting period (1 April 2010 – 31 March 2011)

Item	Budget	Expenditure	Value	Variance %	Comments (please explain any variance

Leveraged funds
In addition to DI and matched funds indicated in the original proposal, MNI and project partners have also leveraged additional funds that will contribute directly or indirectly to project outputs:

Heifer Project is financing trainings in 3 communities in choluteca Honduras
Feed the Hungry is going to be promoting Maya Nut in chinandega and somotillo Nicaragua, worth $ over 3 years.

Montgomery Botanical Center (Florida, USA), $ (Staff time), access to their living collections for the molecular study and seed as a back-up for the seed storage protocol.

Cooperativa de Federaciones de la Reforma Agraria (CONFRAS), El Salvador contributing in-kind worth at least $ for the grafting research they have been doing and the experimental plots they have established.

USDA Research Center in Miami contributed approx. $ in research in air layering.
Govenment of Holland contributed $ for reforestation in Nicaragua (la Mosquitia).

Ford Foundation also contributed another $ as part of Healthy Kids, Healthy Forests initiative La Mosquitia (through project partner MASANGNI).

Fondo de la Iniciativa por las Americas (FIAES) El Salvador contributed approximately $ for School lunch programs/education about Maya Nut

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

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

Outstanding achievements of our project over the past year has been the opportunity to lay the groundwork for the first sustainable management plans for a non timber forest products in Central America. For example, in Honduras, the Rio Platano Biosphere Reserve is one of the largest and therefore, most important tracts of contiguous forest left in the Americas.

This Darwin Initiative supported work provides the Honduran forest service with a valuable tool to engage communities living in and around this reserve in conservation, specifically, “market-based conservation” because Sustainable management plans for Maya Nut harvested here will not only serve to ensure sustainability of the resource, but will also help create consumer confidence in Maya Nut as a well managed forest product.

Annex 1: Report of progress and achievements against Logical Framework for Financial Year 2010-2011

Project summary	Measurable Indicators	Progress and Achievements April 2010 - March 2011	Actions required/planned for next period
Goal: *To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but constrained in resources to achieve* ⇒ The conservation of biological diversity, ⇒ The sustainable use of its components, and ⇒ The fair and equitable sharing of the benefits arising out of the utilisation of genetic resources		Human communities associated with Maya Nut forests are aware of forest assessment tools and basic analysis and can understand how to determine whether their forest is healthy (good natural regeneration) or not. They are also being taught ways to manage natural forests to improve Maya Nut production. Maya Nut producers are benefitting economically from training we are providing in quality control and organic management as part of our certification program (of which sustainable management is a major component).	[redacted]
Purpose 1a.Sustainable guidelines for Maya Nut seed harvesting and plantations are designed and implemented by stakeholders 1b. 60% of participating communities report increases in benefits from Maya Nut forests including food, income, and ecosystem services from Maya Nut trees.	1a.Sustainable guidelines filed with TEF and relevant in-country natural resources and protected areas ministries (CONAP in Guatemala, MARN in El Salvador, CONANP in Mexico.	Guidelines are still being developed, in country natural resources ministries have been consulted and have expressed considerable interest in reviewing guidelines once finished.	In the next period we will refine and publish the guidelines for Management plans and distribute these to forest service personnel in training courses we will deliver during the harvest seasons in each country.
Outputs	1a. 120 Mesoamericans from 20 village forest committees trained in	This indicator is too ambitious considering the amount of time it is taking us to develop the guidelines. We will not have enough time or financial	

1. Communities obtain capacity to sustainably manage Maya Nut forests with minimal external assistance and/or supervision	technical aspects of forest management: calculation of sustainable Maya Nut seed harvest levels, the biodiversity associated with Maya Nut forests, marketing, and accounting by year 3. 1b. Basic forest inventories of major faunal groups associated to absence/presence of Maya Nut trees and in relation to some measure of forest conservation status i.e. Biodiversity value of Maya Nut	resources to train 20 village forest committees about the management plans. We estimate we will be able to train 10 village forest committees. 1b. objective will be met for at least 10 forests.
Activities (details in workplan) **1.1-1.6** Course planned in consultation with partners. Trial course implemented. 120 Mesoamericans in 3 countries trained in field data gathering for calculation of sustainable Maya Nut seed harvest levels and the biodiversity associated with Maya Nut forests; 30 Mesoamericans trained in technical aspects of forest management including basis and interpretation of gathered data as tools for sustainable Maya Nut seed harvest levels; 30 Mesoamericans trained in marketing and accounting. **1.7-1.9** Basic forest inventories of major faunal groups associated with Maya Nut undertaken. Inventory data related to forest conservation status, data fed into the guidance document on sustainable harvesting of Maya Nut. Field data compiled in each country and analysed for calculation of sustainable Maya Nut seed harvest levels by partners.		
Output 2. 2. Stewardship agreements at provincial and village levels in place and functioning(	(	
Activity .**2.1** Draft position agreements for 20 local forest areas by year 2,		We will have draft position agreements for 10 local forest areas by year 3

revised by year 3.		
Activity 2.2. Sustainable harvest levels of Maya Nut seeds for 20 forest areas compiled and analysed together with the faunal inventories to produce the guidance document on sustainable harvesting of Maya Nut. Guidance document on sustainable harvesting of Maya Nut seeds for 20 forest areas disseminated.		2 b.Guidance document on sustainable harvesting of Maya Nut seeds for 20 forest areas produced and disseminated by year 3*(*report general progress and appropriateness of indicator*)*
Output 3. Knowledge of inter and intrapopulation variability for Maya Nut in Mesoamerica. Protocol for the long-term storage of Maya Nut seed developed. Promising seed transfer zones for Maya Nut landraces are delineated and genetic diversity (germplasm) conserved both in and ex situ as sources of seed for reforestation throughout its former range.		
3.1-3.5 Select sample sites with partners and sample Maya Nut populations across 7 countries throughout Mesoamerica. Undertake molecular analysis of Maya Nut samples. Interpret the molecular data, produce an overview of how diversity within the species is partitioned across Mesoamerica, identify and name the principle land-races. Recommend land-races of agronomic potential based on phenotype. Produce and disseminate a document naming and recommending Maya Nut landraces for restoration and reforestation. Protocol for the long-term storage of Maya Nut developed by project staff at the Millennium Seed Bank. (report completed or progress on activities that contribute toward		

Annex 2 Project's full current logframe