Darwin Project Information

Project Ref Number	18-010
Project Title	Tools for the sustainable harvesting of Maya Nut (Mesoamerica)
Country(ies)	México, Guatemala, El Salvador, Nicaragua, Honduras, Panama & Costa Rica
UK Contract Holder Institution	Natural History Museum
Host country Partner Institution(s)	Maya Nut Institute (Formerly The Equilibrium Fund)
Other Partner Institution(s)	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) University of Guadalajara, México Fundacion AGAPE (El Salvador) CONFRAS, The Confederation of Federations of Salvadoran Agrarian Reform),El Salvador Lancetilla Botanic Garden (Honduras) Instituto Nacional de Biodiversidad, INBio Costa Rica Associación Nacional del Medio Ambiente (ANAM, Panama)
Darwin Grant Value	£202,374.00
Start/End dates of Project	Start: Sept. 1, 2010. End: Oct 31, 2013
Reporting period (1 Apr 200x to 31 Mar 200y) and annual report number (1,2,3..)	March 31, 2012 to March 31 2013.
Project Leader Name	Alex Monro
Project website	http://mayanutinstitute.org/page.cfm?pageid=28054
Author(s) and main contributors, date	Erika Vohman, Alex Monro

Project Background

Brosimum alicastrum (Maya Nut) is one of the most common trees in Mesoamerican tropical forests where 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.

1.   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. In addition we are committed to producing and distributing a newsletter to our partners every nine months, the first of these will be disseminated in the next quarter.

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

SIMAS- Mesoamerican Information Systems, Managua, Nicaragua.
     Have offered assistance developing guidelines for participatory harvest plan manual

University of Guadalajara-have offered assistance in fostering interest in researching Maya Nut ecology in Mexican Pacific Forests.

INTA- Institute of Agronomic Technology, Leon, Nicaragua
     Have offered formats for development and publication of Best Practices in   Manufacturing guidelines

University of El Salvador, School of Agricultural Sciences
     Are conducting experiments to select most promising varieties of Maya Nut for   agronomic improvement.

Puerta Vallarta Botanical Gardens, Jalisco, Mexico
     Are offering annual workshops during fruiting season about Maya Nut nutrition, recipes, ecology and ecosystem services.

2.   Project progress

Progress in carrying out project activities

	Activity	Progress	Reason for Delay
1.1	Course content and structure planned in consultation with partners-	Completed	
1.2	Course materials produced	Final Draft. See Annex 3.1	The work took much longer than expected as it took us along time to understand and adapt our techniques to communities with little formal education.
1.3	Trial course implemented, materials & contents tested/	Completed	

		improved if necessary		
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	We have trained 65 women and 8 men in Mexico (one community), Honduras (2 communities) and Nicaragua (8 communities) to collect data and use forest management tools (GPS, forestry tape, diameter tape, etc.). In April and May, 2013 we will train another 65 women and men from Guatemala (4 communities) and El Salvador (3 communities). See Annex 3.2 & 3.3	Delays resulting from time it took to develop course materials.	
1.5	30 Mesoamericans from 20 village forest committees 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	30 Mesoamericans from 8 village forest committees have been trained in technical aspects of forest management. Another 20 from 3 village forest committees in El Salvador will be trained in June 2013 See Annex 3.4	Delays resulting from time it took to develop course materials.	
1.6	30 Mesoamericans from 10 village forest committees trained in marketing and accounting	30 Mesoamericans from 6 village forest committees (2 in Honduras, 4 in Nicaragua) have been trained in marketing and accounting. We will train another 20 mesoamericans from 3 village forest communities in El Salvador in April 2013	Delays resulting from time it took to develop course materials.	
1.7	Basic forest inventories of major faunal groups associated to absence/presence of Maya Nut trees undertaken.	Completed (Annex 3.5) As part of the capacity building, rural women are recording evidences of faunal groups in the vicinity of Maya Nut fruiting trees. We recorded a video of the experimental methodology, which has proven to be an excellent teaching tool and one of our partners prepared a paper (to be published after revision) on fauna associated with Maya Nut trees from El Guayabo, Rio Platano Biosphere Reserve, Honduras.		
1.8	Inventory data related to forest conservation status measures, data fed into the guidance document on sustainable harvesting of Maya Nut	Completed. See Annex 3.7 & 3.10		
1.9	Field data compiled in each	Honduras: completed.	Dependent on activity 1.2.	

	country and analyzed for calculation of sustainable Maya Nut seed harvest levels by partners	Nicaragua and El Salvador to be completed by May 2013 See Annex 3.11	
2.1	Draft position agreements for 20 local forest areas by year 2, revised by year 3	Draft position agreements for 1 local forest area completed (Rio Platano Biosphere Reserve, Honduras) and 5 in progress (2 in Nicaragua, 3 in El Salvador) to be completed in May, 2013. Total of 6 position agreements. See Annex 3.6	Dependent on activity 1.2. Negotiating position agreements has been much more complicated than we originally thought. Each country has different legislative and management strategies (forest concessions, NGO forest co-managers, Local government co-management, etc.). Whereas we envisaged negotiating bilateral agreemenst with each community we have had to incorporate the broader legislative and management context.
2.2	Sustainable harvest levels of Maya Nut seeds for 20 forest areas compiled and analyzed together with the faunal inventories to produce the guidance document on sustainable harvesting of Maya Nut	Sustainable harvest levels of Maya Nut seeds compiled and analyzed together with faunal inventories for 1 local forest area completed (Rio Platano Biosphere Reserve, Honduras) and 5 in progress (2 in Nicaragua, 3 in El Salvador) to be completed in May, 2013. Total of 6 guidance documents. See Annex 3.6 In addition a video of our methodology to calculate seed production per tree is here: http://www.youtube.com/watch ?v=UI_TiiKQZEg&list=UUF8 Da7WLsEtdPmTwHumS9Cw &index=1	Dependent on activity 1.2.
2.3	Guidance document on sustainable harvesting of Maya Nut seeds for 20 forest areas disseminated	Ongoing	
3.1	Select sample sites with partners and sample Maya Nut populations across forest areas in 7 countries throughout	Completed See Annex 3.7	

	Mesoamerica.		
3.2	Undertake molecular analysis of Maya Nut genetic diversity.	Completed See Annex 3.7	
3.3	Interpret the analysis of 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.	Preliminary analyses completed. Guidance and interpretation in progress. See Annex 3.7	
3.4	Produce and disseminate a document naming and recommending Maya Nut landraces for restoration and reforestation	In progress. Main groupings and scale identified. We are undertaking analyses to establish whether current landraces identified represent ecotypes, are the product of geographical isolation or a mixture of both. For preliminary findings see Annex 3.7	
3.5	Seed storage protocol produced at the Seed Conservation Department of the Millennium Seed Bank, Wakehurst Place, under the supervision of Prof. H. Pritchard.	In progress. This is largely completed. We have the parameters identified and need to produce and disseminate a document outlining these. A collaborator in Honduras is repeating the experiment to see whether the protocol works within the resources available within the region. See Annex 3.8	
4	Monitoring survey of harvest levels, income, biodiversity undertaken at project inception and end.	Completed for income (socioeconomic survey). See Annex 3.10	

Activity: Promoting Darwin Initiative and the project:

We have been motivating participation and involvement of national universities and stakeholders via meetings and presentations. New university partners have committed to participating as a result of these efforts. University of Guadalajara, Mexico, University of the Yucatan, Mexico, University of El Salvador, El Salvador, ESNACIFOR (National University of Forestry Science) and the National Agricultural University in Honduras. These partnerships are critical to the long-term impacts of this project on forest management and food security in the respective countries where we are working with Darwin Initiative funding.

See Annex 3.15, 3.16 & 3.17

3.   Project Standard Output Measures

Code	Description	Year 1	Year 2	Year 3	Total to	Total planned from application

No.		Tota l	Total	Total	date	(planned/achieved)
3 (ne w)	Number of people to attain other qualifications (ie. Not outputs 1 or 2 above)	2			2	2 (new)
6A	Number of people to receive other forms of education/training (which does not fall into categories 1-5 above)		40	73	113	120/120
6B	Number of training weeks to be provided		12	24	36	36/36
7	Number of (ie different types - not volume - of material produced) training materials to be produced for use by host country		2	2	4	7/7
8	Number of weeks to be spent by UK project staff on project work in the host country	2			2	4/8
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			5	5	6/6
10	Number of individual field guides/manuals to be produced to assist work related to species identification, classification and recording		2	2	4	6/6
11A	Number of papers to be published in peer reviewed journals	0	0	0	0	2/2
11B	Number of papers to be submitted to peer reviewed journals	0	0	1	1	3/3
12A	Number of computer based databases to be established and handed over to host country	0	0	2	2	3/6
13B	Number of species reference collections to be enhanced and handed over to host country(ies)			1		1/3
14 A	Number of conferences/seminars/ workshops to be organised to present/disseminate findings	4	2	2	4	5/8
14 B	Number of conferences/seminars/ workshops attended at which findings from Darwin project work will be presented/ disseminated.	1	2	1	4	5/5
15A	Number of national press releases in host country(ies)	0	2	2	4	6/6
15B	Number of local press releases in host country(ies)	0	4	4	8	12/12
15C	Number of national press releases in UK					1/1
16A	Number of newsletters to be produced	0	1	2	3	4/4
16B	Estimated circulation of each newsletter in the host country(ies)	0	100	100	na	100/100
16C	Estimated circulation of each newsletter in the UK	0	12	12	0	12/12
17A	Number of dissemination networks to be established	0	0	1	0	1/1
17B	Number of dissemination networks to be enhanced/ extended	0	1	2		5/3
18A	Number of national TV programmes/features in host country(ies)	0	0	2	2	3/3
18C	Number of local TV programmes/features in host country(ies)			2	2	7/4

Annual Report Maya Nut Institute 2013

19A	Number of national radio interviews/features in host county(ies)			3	3	3/6
19C	Number of local radio interviews/features in host country(ies)	0	0	3	3	6/6
21	Number of permanent educational/training/research facilities or organisations to be established and then continued after Darwin funding has ceased	1	0	0	1	2/3
22	Number of permanent field plots to be established during the project and continued after Darwin funding has ceased	1	1	2	4	5/5

In Table 2, provide full details of all publications and material produced over the last year that can be publicly accessed, eg title, name of publisher, contact details, cost. Mark (*) all publications and other material that you have included with this report.

Table 1   Table 2 Publications

Type (eg journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (eg contact address, website)	Cost £
Journal	Microwave drying of plant material for herbarium specimens and genetic analysis, Tonya A. Lander, Bernadeta Dadonaite, Alex K. Monro	Taxon, Bratislava	In press	
Video	Methodology to calculate seed production per tree related to diameter, canopy size, and height at first branching	Maya Nut Institute published to YouTube	http://www.youtube.com/watch?v=QHpWbtBeigY	free
Video	Methodology to estimate predation of Maya Nut by terrestrial mammals	Maya Nut Institute published to YouTube	http://www.youtube.com/watch?v=QHpWbtBeigY	Free
Video	Participatory mapping of harvest sites in Versailles, Nicaragua	Maya Nut Institute published to YouTube	http://www.youtube.com/watch?v=cgCOGR6juE0	Free
Video	How to prepare a leaf to study DNA	Maya Nut Institute published to YouTube	http://www.youtube.com/watch?v=g4oRs8Bedsc	Free

Progress towards the project purpose and outcomes

Purpose
Sustainable guidelines for Maya Nut seed harvesting and plantations are designed and implemented by stakeholders. The guidelines have been validated and continue to be revised. By June 2013 we will have our final version of the guidelines ready for publication, artist contracted and document will be published and disseminated in May, 2013. We will publish the guidelines in two forms, one aimed at forest technicians and other persons providing training and assistance to Maya Nut producers); the other a manual aimed at the producers themselves. Both will be published on the Maya Nut Institute website (www.Maya NutInstitute.org) and if Darwin Initiative would like to provide copies on their website, they are welcome to. Hard copies of both

will be delivered to the departments of natural resources and protected areas ministries for each participating country (Consejo Nacional de Areas Protegidas (CONAP) in Guatemala, Ministry of Agriculture and Natural Resources (MARN) in El Salvador, Consejo Hondureno de Manejo Forestal (COHDEFOR) in Honduras, Ministerio de Agricultura y Bosques/Insituto Nacional de Bosques (MAGFOR/INAFOR) in Nicaragua and Consejo Nacional de Areas Protegidas (CONANP) in Mexico.

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

We have made considerable progress toward raising consciousness in the government organizations responsible for forest management (Ministry of Agriculture and Natural Resources (MARN-El Salvador), National Council on Protected Areas (CONAP-Guatemala), National Council on Protected Areas (CONANP-Mexico), Honduran Forestry Comission (COHDEFOR), National Forestry Institute/Ministry of Natural Resources (INAFOR/MARENA-Nicaragua) regarding the need for sustainable management of Maya Nut forest resources. While CONAP, Guatemala has a long history of requiring Sustainable Management Plans from any group, community or business commercializing forest products, they had not considered empowering forest communities using participatory methodologies before we presented our project to them. Based on conversations with the relevant government ministries in El Salvador, Nicaragua and Honduras, we can confirm that they will accept our Maya Nut Management Plans for review and possible integration into their long term management strategies for the implementing group/forest, these management plans will be the first for Maya Nut in these countries. In Nicaragua and Honduras they will be the first for any non timber forest product. El Salvador has a new system called PLES (Plan for Sustainable Extraction) which passed into law in late 2011 and has been implemented for the first time in Bahia de Juquillisco for firewood, building materials, shrimp and fish.

Furthermore, it is highly likely that the governing ministries of El Salvador, Honduras and Nicaragua will adopt Maya Nut Institute participatory management plan methodology for Maya Nut and possibly other NTFPs in the future. We are the first entity to offer assistance to these ministries in managing Maya Nut, and our participatory methodology has been very well received in all three countries. Honduras will likely be the first of the three countries to ratify the Maya Nut Sustainable Management Plan we are presenting in late March. This will be the first Maya Nut management plan, and the first participatory management plan ever approved for Honduras. Darwin Initiative and Maya Nut Institute are considered innovators because of these milestones.

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

5. Other comments on progress not covered elsewhere

Whilst we are not hitting all of our initial targets we will deliver additional outputs that were not originally planned, but which contribute greatly to the project objective of sustainably managing Maya Nut forests. Additional outputs that we are delivering are:

We have raised awareness of the need to manage Maya Nut sustainably in Nicaragua, Honduras and El Salvador through our relationships with the relevant government ministries. We have done so by inviting them to participate (Nicaragua and Guatemala); training their staff to implement participatory forest management strategies including participatory, simplified data collection methods (El Salvador, Honduras) and providing opportunities to participate in the development of the Participatory Management Plan methodology in Nicaragua, Guatemala, El Salvador and Honduras.

We plan to use the data collected for each forest to calculate the economic value of the Maya Nut contained therein and will present this information to the communities and relevant local and national governments as an addendum to the Maya Nut Management Plan for each forest. These economic analyses will be ready for publication on the Maya Nut website and will be disseminated in 2014. The valuation of these forests was not one of the original goals of this project but will represent an additional output that will be reported to Darwin Initiative and relevant government ministries. We hypothesize that by seeing the protential income generated by Maya Nut forests in just in Maya Nut production and sales, we can motivate governments to dedicate more resources and time to protecting these areas from invasion of cattle ranching and palm oil development, among other threats.

6.   Sustainability

This project does not create new NGOs, communities or NTFP. Rather it adds capacity and information critical to sustainability to a network of past and existing partnerships between local communities, NGOs and GOs and an established NTFP system. At the end-point the communities have the information, capacity and tools to ensure the sustainable use and conservation of their forests and the ecosystem services provided by them. The participants will also have tools to monitor the present health and value of their Maya Nut forests. The present value of Maya Nut forests is an important tool to motivate community based conservation and also to validate government investment in forest protection measures. For example, the data collected in Nicaragua shows that cattle grazing in the "protected" Maya Nut forest is having negative impacts on regeneration. With the valuation of the Maya Nut harvest from this forest, we can place a dollar amount on the losses over time to the community and to the government (from loss of taxable income) caused by the government's failure to prevent cattle grazing in the protected area.

7.   Dissemination

A radio spot promoting Darwin Project and Maya Nut in Nicaragua is attached as Annex 3.15
Christine Woda, our DI partner with the GTZ in Honduras, presented the DI and Maya Nut Institute project in Germany. The poster she presented is attached as Annex 3.16.
A television broadcast was made in Honduras in July 2012. The script is attached as Annex 3.17.

8.   Project Expenditure

Table 2   Project expenditure during the reporting period (Defra Financial Year 3 to 31 March 2013)

Item	Budget	Expenditure	Value	Variance %	Comments (please explain any variance
Staff costs specified by individual				0%	
		Erika Vohman - Maya Nut Founder and Executive Director			
		Nidia Matamoros - Program assistant			
		Nidia Matamoros - Program assistant			
		Zorayda Leiva - Coordinator, Nicaragua Program			
		Oscar Zapata - Program assistant			
		Ismael Martinez - Program assistant			
		Tonya Lander - NHM DNA Technician			
Overhead costs		Office rental, heating etc…		-11%	This is due to partner fluctuating telephone bills.
		phone and communications			
		misc costs			
Travel and subsistence				0%	
		Anaite Lopez, travel & subsistence - Guatemala City to London return (023/09/13 to 19/10/12) Analysing seed collection hosted by Alex Monro, NHM			
		Airfare Nicaragua-Guatemala			
		Lodging Guatemala			
		Taxi to airport			
		Meal			
		Lodging Nicaragua			
		Gasoline travel to field			
		Airfare within Guatemala			
		Bus to Managua			
		Taxi to border			
		Parking			
Operating costs				0%	
		Equipment for forestry measurement			
		Materials			
		Maya Nut transport for workshops			
		Postage			
		Forestry tape and compass			
Capital items/equipment (specify)		Laboratory consumables costs		-4%	Additional sequencing was required for research.
Others				0%	
		Manuals and other printed materials.			
		Workshops miscellaneous items			
TOTAL				-1%	

Highlight any agreed changes to the budget and explain any variation in expenditure where this is +/- 10% of the budget. Have these changes been discussed with and approved by LTS?

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

Please see Annex 3

Annex 1 Report of progress and achievements against Logical Framework for Financial Year: 2012/13

Project summary	Measurable Indicators	Progress and Achievements April 2012 - March 2013	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*		*(report on any contribution towards positive impact on biodiversity or positive changes in the conditions of human communities associated with biodiversity eg steps towards sustainable use or equitable sharing of costs or benefits)*	*(do not fill not applicable)*
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 MNI, INAFOR (Nicaragua) and AFE (Honduras) 1b. Maya Nut producer surveys conducted by MNI in-country staff in 2013 and 2014	1a. Sustainable guideline drafts for Rio Platano Biosphere Reserve (Annex 3.6) and San Cristobal National Park (Annex 3.6) available online at MNI website 1b. Socioeconomic Evaluation of Maya Nut producers (Annex 3.10)	(Highlight key actions planned for next period)
Output 1.Communities obtain capacity to sustainably manage Maya Nut forests with minimal external assistance and/or supervision	1a. 120 Mesoamericans from 20 village forest committees trained in 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	1a.Workshop reports Appropriate indicator. 30 women in three forests in training for field data gathering and associated biodiversity to Maya Nut 1b Report and evaluation summary by community Training Co-ordinator Appropriate Indicator. (Annex 3.3)	
1.1 Course content and structure planned in consultation with partners		Capacity training (1.4) Advanced draft of materials and methods finished and tested in 3 forests in Honduras and Nicaragua. Annex 3.1 Capacity training (1.5) contents and structure consulted and discussed with partners and is in final draft stage Capacity training (1.6) Partners participating in specialized trainings to develop contents and structure for this course. Following periods: contents will be continually evaluated to verify its scope and usefulness and adapted if necessary.	

Annual Report Maya Nut Institute 2013

1.2 Course materials produced		Materials were produced for capacity training (1.4). Indicator: Annex 3.1
1.3 Trial course implemented, materials & contents tested/ improved if necessary		Completed with partner representatives from six countries. Course contents were discussed, and improved by collaborator partners and are tested in by rural women at present
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		73 Mesoamericans from 11 forest communities trained. Indicator: Field reports (Annex 3.4)
1.5 30 Mesoamericans from 20 village forest committees 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		23 Mesoamericans from 2 forest communities trained in technical aspects of forest management. Indicator: Field report (Annex 3.4)
1.6 30 Mesoamericans from 10 village forest committees trained in marketing and accounting		Still waiting for final report
1.7 Basic forest inventories of major faunal groups associated to absence/presence of Maya Nut trees undertaken.		Indicator: Annex 3.5
1.8 Inventory data related to forest conservation status measures, data fed into the guidance document on sustainable harvesting of Maya Nut		Indicator: Annexes 3.5, 3.6, and 3.10
1.9 Field data compiled in each country and analyzed for calculation of sustainable Maya Nut seed harvest levels by partners		Indicator: Annexes 3.10
2. Stewardship agreements at provincial and village levels in place and functioning	2 a. Draft position agreements for 20 local forest areas by year 2, revised by year 3 2 b.Guidance document on sustainable harvesting of Maya Nut seeds for 20 forest areas produced and disseminated by year 3	In process. Draft position agreement submitted to Honduran Forest Council awaiting approval. Annex 3.6. Two drafts awaiting revision for submission to Nicaraguan Ministry of Forestry, Annexes 3.6, 3.9. Three draft position agreements to be written and submitted to the El Salvadoran Ministry of Environment in June, 2013.
Activity 2.1 Draft position agreements for 20 local forest areas by year 2, revised by year 3.		In process. Indicator: Draft position agreement submitted to Honduran Forest Council awaiting approval. Annex 1. 2 drafts awaiting revision for submission to Nicaraguan Ministry of Forestry, Annexes 3.6, 3.9. Three draft position agreements to be written and submitted to the El Salvadoran Ministry of Environment in June, 2013. Annex 3.6.
Activity 2.2-2.3 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.		Indicator: Draft position agreement submitted to Honduran Forest Council awaiting approval. Annex 1. 2 drafts awaiting revision for submission to Nicaraguan Ministry of Forestry, Annexes 3.6, 3.9. Three draft position agreements to be written and submitted to the El Salvadoran Ministry of Environment in June, 2013. Annex 3.6.
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	3a. Produce and disseminate at least one scientific document (journal paper, thesis) on Maya Nut genetic diversity and agronomic species improvement potential based on phenotype.	3 a and b. Annual reports, plus occasional academic and public media articles and presentations 3c.Acknowledged by partner institutions. 3d. Seed storage protocol published.

genetic diversity (germplasm) conserved both in and ex situ as sources of seed for reforestation throughout its former range.	3b. Produce and disseminate a document naming and recommending Maya Nut landraces for restoration and reforestation 3c.Ex-situ genetic conservation plots established in La Ceiba, Honduras, and Yucatan, Mexico.	
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.		Discussions as to sample site selection undertaken as part of trial training course. We have identified collectors and sites in El Salvador, Guatemala and Panama and produced a training video for sample collection on YouTube (see Table 1). We have also collected samples from Mexico, Belize, Honduras, Costa Rica and an outlier population in Peru.

Annex 2   Project's full current logframe

LOGICAL FRAMEWORK

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Goal: Effective contribution in support of the implementation of the objectives of the Convention on Biological Diversity (CBD), the Convention on Trade in Endangered Species (CITES), and the Convention on the Conservation of Migratory Species (CMS), as well as related targets set by countries rich in biodiversity but constrained in resources.			
Sub-Goal: Maya Nut forests in Mesoamerica are restored and sustainably managed for food production, income, ecosystem services and biodiversity conservation by rural communities with minimal dependence on external assistance and aid.	Measurable changes in farmers, community leaders and community members' attitudes toward Maya Nut forests Maya Nut genotypes identified, conserved and made available for rainforest restoration, reforestation in new areas, and to Neotropical agronomic research institutions in participating countries. Capacity for Ex-situ conservation of Maya Nut by long-term storage of Maya Nut germplasm (seed) exists. Ground surveys show recovery in size class and increased forest cover in target biological corridors within 5 years of end of project. 60% of Maya Nut producing communities are harvesting Maya Nut using sustainable guidelines three years after project ends	Interviews and/or focus groups conducted and made available in MNI reports. At least 3 distinct Maya Nut genotypes are identified, named, and planted at Lancetilla Botanic Garden in Honduras, Yucatan (DGTA) in Mexico and other sites if necessary. Germplasm storage protocol published. Participatory vegetation assessments using permanent transects in target areas available in MNI project reports Sustainable management plans for Maya Nut forests are submitted, evaluated and, if approved, filed with MNI and local relevant ministries.	
Purpose 1a.Sustainable guidelines for Maya Nut seed harvesting and plantations are designed and implemented by stakeholders 1b. 60% of participating	1a.Sustainable guidelines filed with MNI and relevant in-country natural resources and protected areas ministries (CONAP in Guatemala, MARN in El Salvador,	1a. Sustainable guidelines for specific sites available online at MNI website	Ministries in every country prioritise adoption of guidelines for site -specific management plans and establish policies for

communities report increases in benefits from Maya Nut forests including food, income, and ecosystem services from Maya Nut trees.	CONANP in Mexico. 1b. Maya Nut producer surveys conducted by MNI in-country staff in 2013 and 2014	1b. MNI project reports	current and future producer groups and mechanisms for enforcement. 1b. Maya Nut producer groups remain cohesive and organised
Outputs (add or delete rows as necessary) 1. Communities obtain capacity to sustainably manage Maya Nut forests with minimal external assistance and/or supervision	1a. 120 Mesoamericans from 20 village forest committees trained in 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	1a.Workshop reports 1b Report and evaluation summary by community Training Co-ordinator	Trainees remain active in the project and village committees Forest neighbours maintain the goodwill required for local co-operation and with project leaders. Poorest and indigenous communities are well-represented
2. Stewardship agreements at provincial and village levels in place and functioning	2 a. Draft position agreements for 20 local forest areas by year 2, revised by year 3 2 b.Guidance document on sustainable harvesting of Maya Nut seeds for 20 forest areas produced and disseminated by year 3	2a and b. Agreements and guidelines document on sustainable harvest checked, approved, and analysed by project collaborators and village authorities.	Land tenure policies remain stable. Provincial and village authorities are supportive to producer groups Local and national governments remain stable
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.	3a. Produce and disseminate at least one scientific document (journal paper, thesis) on Maya Nut genetic diversity and agronomic species improvement potential based on phenotype. 3b. Produce and disseminate a document naming and recommending Maya Nut landraces for restoration and reforestation 3c.Ex-situ genetic conservation plots established in La Ceiba, Honduras, and Yucatan, Mexico.	3 a and b. Annual reports, plus occasional academic and public media articles and presentations 3c.Acknowledged by partner institutions. 3d. Seed storage protocol published.	3a.Inter and intrapopulation genetic variability of Maya Nut can be identified with molecular markers 3b. Genetic variability found and current tools for restoration genetics will define the scope for advice of useful seed transfer zones 3c. Collaborators discuss and agree on suitable genotypes to conserve 3d. The Seed Conservation Department of the Millennium Seed Bank remain World leaders in the storage of recalcitrant seed.