



## Darwin Initiative Main Project Annual Report

**Important note:** *To be completed with reference to the Reporting Guidance Notes for Project Leaders:*

*it is expected that this report will be no more than 10 pages in length, excluding annexes*

**Submission Deadline: 30<sup>th</sup> April 2017**

### Darwin Project Information

Project reference	23-014 ref 3206
Project title	Improving livestock management for economic-environmental stability in Mesoamerica's Mosquitia
Host country/ies	Nicaragua, Honduras
Contract holder institution	Wildlife Conservation Society
Partner institution(s)	National University of Agriculture, Honduras
Darwin grant value	£ 299,700
Start/end dates of project	1 April 2016 – 31 March 2019
Reporting period (e.g., Apr 2016 – Mar 2017) and number (e.g., Annual Report 1, 2, 3)	April 1, 2016 (changed to May 18, 2016, see change request form) – to March 31, 2017, Annual Report 1
Project Leader name	John Polisar
Project website/blog/Twitter	
Report author(s) and date	John Polisar, April 28, 2017

### 1. Project rationale

Spanning 22,568km<sup>2</sup> the bi-national “Heart of the Mesoamerican Biological Corridor” of Nicaragua and Honduras is the second largest wild area in Central America, harbouring intact forests, high biological diversity, and wildlife at risk regionally including jaguar, harpy eagle, scarlet macaw, white-lipped peccary, and migratory birds. This remote area is occupied by indigenous groups (Miskitu, Mayangna, Tawahka, and Pech) and ladino settlers whose subsistence lifestyle has been transitioning into the cash economy and increasingly involves domestic livestock. While much of the area’s difficult mountainous terrain is still wild, this complex of protected areas and indigenous territories has experienced increasingly rapid forest loss (the highest in Central America) and forest degradation due to unsustainable cattle ranching. Deforestation for low-productivity pastures is the region’s primary threat to biological diversity. Poverty and malnutrition create incentives for raising cattle. However malnourished and weak cattle do not optimally alleviate poverty and poor cattle management is a threat to the environment. Recognizing the desire and right of local people to raise beef and dairy cattle for local consumption and even sale in sections of protected areas where it’s permitted, we aim to improve livestock management and production, including silvopastoral systems, improved pastures, and better animal health, directly linked to forest, wildlife, and biological diversity conservation through conservation agreements. We partner with territories that are sincerely interested in ecosystem conservation, providing technical expertise in environmentally responsible and productive livestock management techniques, and developing conservation agreements. This project intends to reduce deforestation in specific project areas, maintain

existing wild forest blocks, and help communities elevate their standard of living while protecting biodiversity and conserving the ecosystems they inhabit.

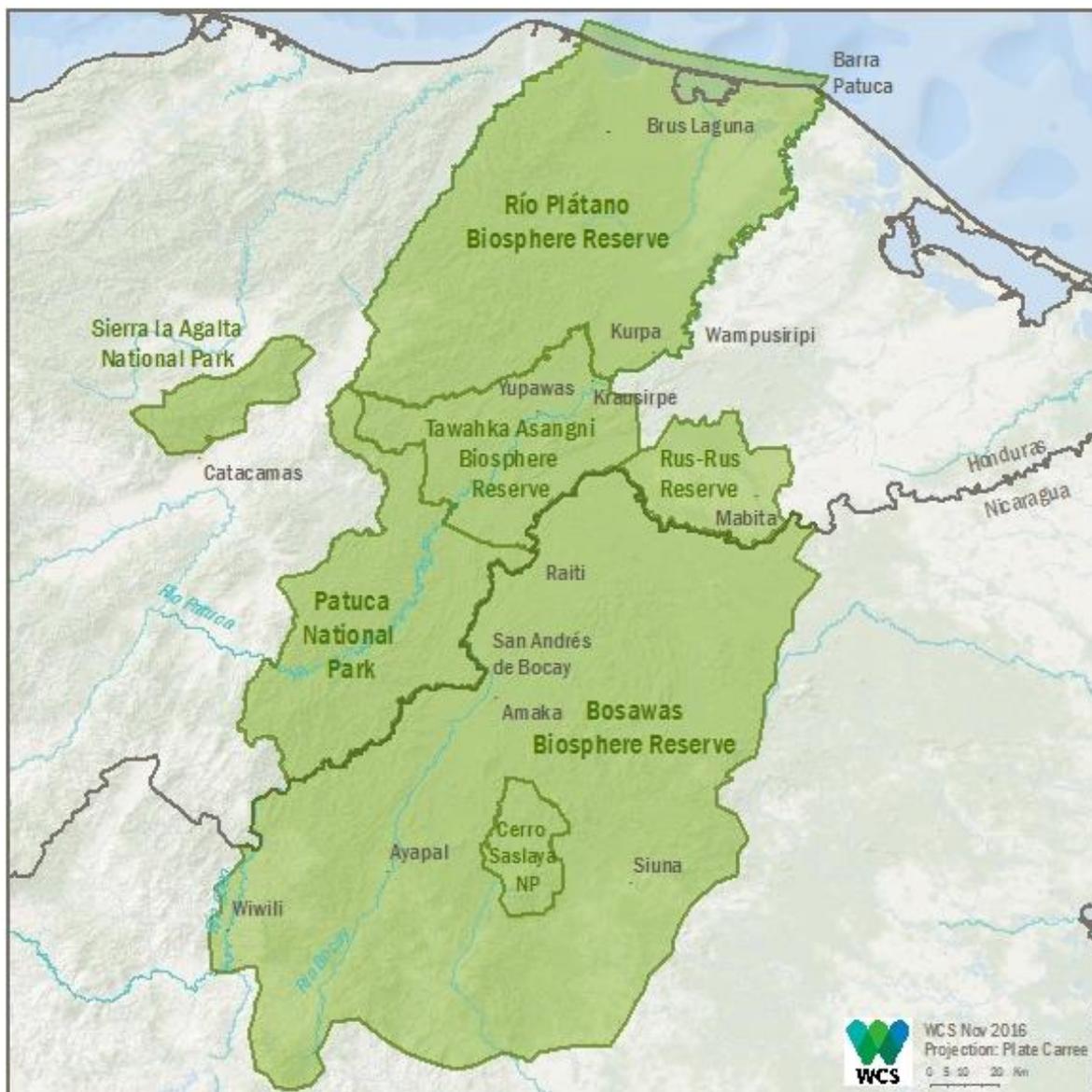


Figure 1. Map of project location.

## 2. Project partnerships

The project area in Nicaragua lies in the Bosawas Biosphere Reserve, where we work closely with the Territorial Indigenous Government (GTI) of the Region of the Upper Rio Coco and Bocay (Region Especial de Alto Wangki Bocay), which is comprised of three separate indigenous territories, Mayangna Sauni Bu (MSB), Kipla Sait Tasbaika (KST), and Miskitu Indian Tasbaika Kum (MITK). We also work with the Ministry of Environment and Natural Resources (MARENA) and have collaborated with the environmental protection arm of the Nicaraguan military, the Batallón Ecologico. Although we had planned to work through the Nicaraguan National University of Agriculture it was more efficient to work directly with the territories. All our activities and progress in Nicaragua were planned and executed in collaboration with the three indigenous territories, with the Presidents of the GTIs to the individual farmers, and includes indigenous field coordinators and parabiologists, some of whom we have worked with for 12 years. The territories are intrinsically linked with project execution.

In Honduras, our formal partner is the National Agricultural University (**Annex 4** for the Convenio). Through them, we link with the Federación Indígena Tawahka of Honduras (FITH) based in the community of Krausirpe in the Tawahka Asangni Biosphere Reserve, Miskitu

cacao producers/farmers in Kurpa, and a Miskitu cattlemen's association in Wampusirpe with the latter two areas in and near the Rio Platano Biosphere Reserve (**Annex 11, 13**). We have close communication with the Honduran National Coordinator of a GIZ project Conservation of Biological Diversity and Local Development in the Mesoamerican Biological Corridor, a large-scale initiative with complementary objectives and overlapping project sites. We are also in close contact with Institute of Forest, Protected Area and Wildlife Conservation (ICF) staff of the section of the Rio Platano Biosphere Reserve in which the project is located. We have not yet been working directly with the Honduran Secretariat of Energy, Natural Resources, Environment and Mines ( MiAmbiente) and the Red de Manejo de Bosques Latifoliada de Honduras (REMBLAH) but we may be doing so in the next phase.

### **3. Project progress**

#### **3.1 Progress in carrying out project Activities**

**Briefly**, please report on progress in implementing the project's Activities for this year. **Please report the progress of Activities under the Outputs** to which they relate. Have the activities been carried out in the manner and time planned? Please substantiate comments with evidence to support progress towards Activities.

**Output 1:** Improved livestock management and community conservation techniques adopted by at least 200 families in seven communities across four ethnic groups in four protected areas and two countries.

Activity 1.1: In Nicaragua's Bosawas Biosphere Reserve, we selected communities, met with leaders, and engaged indigenous coordinators in each territory to assist with project questionnaires and logistics. We then conducted a participatory diagnostic of livelihoods, standards of living, economic priorities, and livestock management with 72 families in 19 communities spanning three indigenous territories. We used the questionnaire to record knowledge, attitudes, and practices regarding farming, livestock condition, livestock management and challenges, nutritional status in households, economic priorities, general human-wildlife conflicts pertaining to agriculture, sources of livestock losses and specific human-jaguar conflicts, preferred game meat, hunting locations, and spatial trends in game distribution.

Activity 1.2: Upon reviewing and discussing the specific challenges in managing livestock, we tailored interventions to the highest priorities. We delivered training on how to conduct livestock health diagnoses and treatments, with participation from 58 people in the three territories (**Annexes 9, 10**). We engaged 47 project beneficiaries in constructing fences, initiating nurseries for nitrogen-fixing live fences, and obtained grass seed to improve pastures, with the goal of improving production of livestock in smaller areas while simultaneously increasing health and nutrition. The process of questionnaires, tailored interventions, and training is pending in Honduras, but we expect to reach 90 people in three communities. In the end, the total will be improved management adopted by approximately 140 families in 14 communities, three ethnic groups, three protected areas, and two countries.

**Output 2:** Explicit agreements through which project beneficiaries commit to conservation outcomes adopted by at least 200 families in seven communities across four ethnic groups, four protected areas, and two countries.

Activity 2.1: Prior to delivering training and materials, we obtained conservation agreements at two levels; 1) territorial agreements (3 territories totalling approximately 2,800km<sup>2</sup>) (**Annexes 14, 15, 16**); 2) agreements with individual project beneficiaries (47 total). The technical assistance in livestock production has been conditioned upon agreements to control deforestation and ensure the following rules are abided by: zoning (including agriculture, hunting, and conservation zones), no hunting of white-lipped peccaries and spider monkeys, reduced hunting of slow-reproducing specialist species (versus fast reproducing generalist species), restriction of tapir hunting for purposes of crop damage control only, and managed livestock to reduce human-jaguar conflicts. This was all accomplished in Year 1 in Nicaragua.

Activity 2.2: Obtaining the conservation agreements and planning the interventions entailed 12 meetings in the capital with indigenous leaders, and was reinforced during 12 meetings in the

territories, for a total of 24 meetings in Year 1 in Nicaragua. We had 3 meetings in Honduras, in Year 1, and will develop community conservation agreements in Honduras in year 2.

**Output 3:** Report on the impacts of improved livestock management practices, evaluating and comparing forest cover, biodiversity, and poverty reduction impacts across the spectrum of cultural contexts. Dissemination of methods and lessons learned to nearby communities, agricultural and protected area agencies, and across the entire NGO, Multilateral, and government community.

This year we primarily focused on project initiation and implementation, establishing the baselines to record impacts the project will make. The baseline questionnaire described in Output 1, above, will measure impact in livestock practices, and poverty reduction. Below we describe some of the biological baselines. The forest cover baseline is currently being established.

Activity 3.1: In Nicaragua, baseline biological evaluations were established through sampling lines traversing three distinct bands: 1) within the edge of areas with direct livestock management improvements and nearby (200-2,200m); 2) between 2,200 and 4,200 m from interventions; 3) between 4,200 and 6,200 m from system. This provides a comparison between the direct project impact area and more natural forest in both pre- and post-sampling periods, and a way to rigorously assess trends in time across the gradients in relation to the conservation agreements (larger impacts on conservation goals). Avian evaluations include seven areas where livestock management improvements are taking place, with sampling through mist netting and point count stations in deforested areas and natural forest, and 18 single camera trap stations are being used for mammal sampling, extending in bands of 200-2200m, 2200-4200m, and 4200m to 6200m from six points in project intervention areas (**Annexes 5, 6, 7, 8**). At the close of year one, all avian data has been collected, while 18 camera traps are still running and need to be collected. Data collection has been conducted according to a standardized protocol, including a specific data sheet for camera traps, and specific sampling instructions for avian sampling. Baseline deforestation trends over the last 10 years in the 40,000ha project area are currently being assessed.

In Honduras, in collaboration with the National Agricultural University, we selected three communities in which to work, spanning a range of ecological settings and two ethnic groups in the Tawahka Asangni and Rio Platano Biosphere Reserves. A sequence of completely unexpected delays, including a prolonged student strike, subsequent administrative adjustments, followed by a student accident, resulted in much of Year 1 tasks being delayed. Our request to Darwin to roll the remaining funds from Year 1 into Year 2 was approved, so socio-economic surveys, tailoring interventions, obtaining conservation agreements, delivering technical training and materials for improvements and biological evaluations (“Year 1” activities) will be conducted simultaneously with year two activities in Honduras. Despite the challenges, the current progress is positive. On March 19, 2017, in one of our principal project areas - the Tawahka Asangni Biosphere Reserve - the Federation of Indigenous Tawahka of Honduras (FITH) held a “Congress of the Land” to advance the agreement with the Honduran Institute of Forests, Protected Areas and Wildlife Conservation. This furthers progress to obtain indigenous land title with all relevant national government agencies, and resolve territorial boundaries with the adjacent Miskitu indigenous territorial government BAKINASTA in our two other Honduran project sites. Our colleagues in the GIZ-binational project focused on the same set of protected areas as the Darwin project supported. We vigorously encouraged progress towards land titling for the Tawahka with colleagues and rejoice in this step forward that will facilitate conservation goals in this key area and progress the conservation agreements. Agricultural interventions in Honduras will be tailored to local conditions, and biological evaluations will follow the same protocol as in Nicaragua.

### **3.2 Progress towards project Outputs**

#### **Output 1. Improved livestock management:**

In one year, we have delivered training in how to establish silvopastoral systems, improve pastures and diagnose and treat cattle health issues conditioned on community conservation agreements across two ethnic groups, 14 communities, 47 families, in one protected area in

Nicaragua (**Annexes 9, 10**). As part of the baseline in Nicaragua we conducted 72 questionnaires across three territories. We analyzed all the questionnaires and organized the results into a summary document, which has guided our efforts, better cattle nutrition, better cattle health, and fencing to contain cattle were the most urgent priorities expressed. We tailored the interventions to these priorities, silvopastoral systems for better forage, live fences, improve pastures, and veterinarian training.

Next year, we expect additional progress with two ethnic groups and three communities, across two protected areas in Honduras. In total, we will have impacted three ethnic groups (Miskitu, Mayangna, Tawahka) in three biosphere reserves, Rio Platano, Tawahka Asangni, and Bosawas, with up to 140 families. The original goals of four ethnic groups, four protected areas, and over 200 families were apparently too ambitious for the scale of the undertaking, given the scale of our staff and the logistics of the area. However, we will have made an impact in 17 communities, rather than 7, in some of the most logistically challenging, remote, and underserved areas in Mesoamerica. Additional project baselines are the data from avian surveys (completed), data from camera traps (still running), and forest cover trends up until this year.

### **Output 2. Community Conservation Agreements:**

Thus far, in Nicaragua, we developed and signed explicit conservation agreements with three indigenous territorial governments, and with 47 families in 14 communities in one protected area (**Annexes 14, 15, 16**). These agreements include conditions on forest clearing, strict conditions on human-wildlife conflict, specifically with jaguars and tapirs, and include complete bans on hunting white-lipped peccaries and spider monkeys, making it clear that livestock production is being improved not only for economic benefits, but also to facilitate and ensure conservation. Next year, we expect to add three additional communities, one ethnic group, and two protected areas in Honduras, for a total of up to 140 families, 17 communities, three protected areas, and two countries.

### **Output 3. Learning and outreach**

In Nicaragua, we have completed the pre-intervention measurements of livestock management, knowledge, attitudes, and practices, productivity, biodiversity, wildlife conflict, and livelihoods at the household and community level. We conducted a total of 24 meetings with leaders and communities, 12 of them in the territories planning the project activities, and we delivered veterinarian training workshops to 58 people. A particularly gratifying aspect was the enthusiastic involvement of local indigenous field coordinators in the three territories, and keen involvement of indigenous parabiologists while collaborating with our biologists. Three field coordinators and three members of a logistics crew received intensive on-the-job training in project logistics, conducting interviews, and coordinating river logistics under supervision until they achieved competence. Five indigenous parabiologists who had previous experience mist-netting birds and setting camera traps were engaged in systematic cross-gradient sampling. Three territories pulled together to execute a logistically challenging project in Nicaragua. Forest cover analyses for both countries are underway.

## **3.3 Progress towards the project Outcome**

Outcome: Improved livestock management techniques are successfully implemented in ladino and indigenous farms in Mosquitia, leading to rigorously documented improved welfare of vulnerable communities, conservation of biological diversity, and forest cover

**0.1 Forest cover:** Rate of forest clearing in 40,000 hectares of target communities and household farms is reduced by 30% as compared to the 10-year historical average.

We are currently establishing the baseline of the rate of forest clearing in 40,000 ha for both countries, we will establish a baseline for 40,000ha, and also a set of larger baselines as: 1) our biological evaluations exceed 40,000 ha; and 2) the conservation commitments exceed 40,000 ha.

**0.2 Biodiversity:** After three years, avian alpha diversity/ species richness in livestock systems and frequency of medium-sized and large mammals adjacent to livestock systems has increased, and species composition between specific livestock production systems and nearby

intact forests have become significantly more similar according to the Sorenson quantitative /Bray-Curtis index.

We have established the baseline for avian diversity/species richness and mammal frequencies in Nicaragua. In Nicaragua, baseline biological evaluations were established through sampling lines traversing three distinct bands: 1) within the edge of areas with direct livestock management improvements and nearby (200-2,200m); 2) between 2,200 and 4,200 m from interventions; 3) between 4,200 and 6,200 m from system. This provides a comparison between the direct project impact area and more natural forest in both pre- and post-sampling periods, and a way to rigorously assess trends in time across the gradients in relation to the conservation agreements (larger impacts on conservation goals). Avian evaluations include seven areas where livestock management improvements are taking place, with sampling through mist netting and point count stations in deforested areas and natural forest, and 18 single camera trap stations are being used for mammal sampling, extending in bands of 200-2200m, 2200-4200m, and 4200m to 6200m from six points in project intervention areas (**Annexes 5, 6, 7, 8**). At the close of year one, all avian data has been collected, while 18 camera traps are still running and need to be collected. Data collection has been conducted according to a standardized protocol, including a specific data sheet for camera traps, and specific sampling instructions for avian sampling. We will establish the baseline in Honduras in Year 2.

**0.3 Human-wildlife conflict:** Retaliatory killing of carnivores, particularly jaguars, reduced by 50% across project farms, households and communities.

We have established the baseline for general human-wildlife conflict and specifically human-jaguar conflict through the 72 detailed questionnaires in Nicaragua. We will establish the baseline in Honduras in Year 2.

**0.4 Local Livelihoods:** At least 200 families will experience a 50% increase in livestock productivity due to integrated livestock management (including market value and availability for local consumption and subsistence).

The Nicaragua project began with rigorous questionnaires delivered and collected by local resident indigenous field coordinators with prior project experience. The questionnaires included the following: family profiles, economic activities and priorities, monthly income and costs, health issues, basic necessity surveys, use of forest products, general human-wildlife conflicts, farming/ranching practices and challenges, knowledge and practices in cattle ranching and type and level of production and economic gains from cattle, frequency of losses to large cats, perspectives on jaguars, hunting practices, and distribution of fauna. The results guided the technical assistance to improve livestock management, but conditional conservation agreements were signed before that delivery (**Annexes 9, 10, 14, 15, 16**). Biological evaluations were initiated at the same time as the improvements were launched. Substantial advances were made, initiating silvopastoral systems and agreements with 47 families, in 14 communities and 3 territories with six avian and mammalian sampling crossing intervention areas to forest core. In Nicaragua, based on the progress of this year, we believe the indicators are feasible and we will achieve the outcome by the project end.

In Honduras, we are building principles and protocols by leveraging the successful model from Nicaragua. However, this means rather than the two-year timeframe allowed in Nicaragua, our project period is condensed. Additionally, unlike in Nicaragua where we have close working relationships for more than a decade with local indigenous experienced teams, we are assembling a new team from previously established relationships between faculty of the local university and local communities. It will be challenging but we will aim to achieve outcome by end of year three.

### 3.4 Monitoring of assumptions

Assumption 1:

**0.1 Forest cover:** *Cloud-free and current scenes of project areas are available for remote sensing analysis.* We believe this assumption remains true, we have obtained scenes, though there are issues with clouds. Analyses are underway and we will confirm by the next report.

**0.2 Biodiversity:** *Relative frequency data reflect true population trends. Fluctuations due to weather, seasons, disease, and wildlife population dynamics remain within normal parameters, allowing detection of the effects of improved agriculture and reduced deforestation (To mitigate this risk we will standardize sampling and use robust experimental design).* There is always a risk that confounding factors influence observed trends in wildlife population studies, however we have constructed a rigorously controlled design to minimize this risk. In Nicaragua, this has been executed by an MS-level ornithologist with 20 years of experience who is also a MoSI coordinator. This has been assisted by a university level biologist with abundant experience and a local indigenous crew with previous experience in avian inventories, linear foot transects, and MoSI migratory bird monitoring. The camera trapping was supervised by a field coordinator with 10 years of experience and an indigenous parabiologist who worked on the first jaguar camera trap survey in Nicaragua. There is a standardized design and data sheet.

In Honduras, the same standardized protocol for the design and camera traps will be executed.

**0.3 Human-wildlife conflict:** *Honest pre- and post- reporting by project participants.* In Nicaragua, local trusted coordinators distributed the questionnaires about human-wildlife conflict, which is likely to generate honest results. We have identified rich data in the questionnaire results through the review and analyses. In Honduras, we will integrate with local institutions and families, and similar dynamics will prevail.

**0.4. Local livelihoods:** *Changes due to improved livestock management are measureable and observable within the 3-year time period.* Considering an on-schedule start up in Nicaragua, we can meet this assumption. However, measureable livelihoods improvements may be more challenging to observe in Honduras, since three years of work will need to be compressed into two years, but we believe that it feasible.

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

This project has already made an impact on biodiversity and poverty alleviation. The project areas are the most underserved, neglected, and remote areas in Mesoamerica. In Nicaragua, this project has generated enthusiasm, developed agreements, and enabled us to secure additional, complementary funding for critical on-the-ground needs, including patrols along territorial boundaries (through the Department of State CAFTA-DR grant), and surveys (through the Liz Claiborne and Art Ortenberg Foundation). We have leveraged this work to explore opportunities to strengthen and expand our impact, including work in other areas of Bosawas on migratory birds, cacao, cattle, and connectivity, ecotourism possibilities, and additional protected area law enforcement efforts (a joint proposal with ABC to the U.S. Fish and Wildlife Service). We have also developed a collaboration with the Yale Environmental Protection Clinic to collect data on forest trends, threats, opportunities, actors, and mechanisms to strengthen bi-national forest connectivity in this project area. In Honduras, a "Congreso de la Tierras" (land congress) on March 18-19, 2017 brought together indigenous leadership, the Honduran government protected area agency (ICF), Honduran national agricultural institute (INA), and representatives of several NGOs to advance territorial defence.

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

### Goal 1: End poverty in all its forms everywhere

Our program seeks to sustain natural ecosystems and the stocks of flows of goods and services that provide the basic necessities for people's lives. The project works to ensure that poor and vulnerable forest-dwelling and riverine indigenous populations have formal access to and management authority over the land, waters, and natural resources on which they depend, including those that provide food, shelter, and medicine. Conserving natural systems and the ecosystem services they generate is necessary to protect the livelihood security and resilience to environmental shocks of these isolated, politically marginalized populations.

### **Goal 2: End hunger, achieve food security and improved nutrition, and promote sustainable agriculture**

Our program works to promote sustainable agriculture as a way to provide nutrition and relieve pressure on forests, while conserving terrestrial wildlife and freshwater fisheries. These resources, if well managed, are essential for food security and can act as insurance to smooth consumption during economic, health and climatic shocks, helping to ensure year-round food security, as well as profit.

### **Goal 3: Ensure healthy lives and promote well-being for all at all ages**

Recognizing that public health can be a benefit provided by relatively unmodified ecosystems, we help avoid potential public health costs associated with ecosystem alteration and degradation by working with both local communities and national agencies, to protect such natural ecosystems.

### **Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all**

The unsustainable use of natural resources undercuts the livelihoods and job security of people who depend on those natural resources, and the illegal trade in wildlife, timber, forest products and fish resources corrupts the staff of public and private organizations and ultimately undermines the jobs that depend on the long term management and conservation of natural resources. This project promotes sustainability and legitimate use of natural resources, and seek to create and shift jobs into legal occupations that conserve nature over the long-term.

### **Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss**

This project works diligently to conserve wildlife, wild places, biodiversity and ecosystem services in conjunction with governments, indigenous peoples and local communities. Our core focus is to conserve the full complement of native wildlife species and the vital ecological roles they play in maintaining healthy, productive and resilient ecosystems.

## **5. Project support to the Conventions, Treaties or Agreements**

This project addresses Aichi targets 1,2,3,4,5,7,12,14,15, and 19 and all five goals of the CBD.

In particular we will reduce direct pressures on biodiversity and promote sustainable use; strengthen local capacity for territorial planning and management; and enhance the benefits of water provision services for vulnerable rural livelihoods.

Through technical assistance conditioned on conservation agreements we are reducing pressures in biodiversity and promoting sustainable use. The project has had a positive impact on territorial management, and forest conservation and improved livestock management will help preserve clean and consistent water for communities.

## **6. Project support to poverty alleviation**

We are already benefitting 47 families from 14 indigenous communities in Nicaragua with improved livestock management, such as conducting health diagnoses and treatments and constructing fences, and secured community conservation agreements. The technical assistance has the objective of sustainable economic gains in harmony with the conservation of ecosystem services. To ensure deforestation is reduced and rules are followed, livestock production assistance is provided only upon agreement of these conditions. In Honduras, we

selected three communities in which to work and expect to see benefits in the next year. This is only the first year of the project, we expect to evaluate and document our impact at the end of the project.

## **7. Project support to gender equality issues**

Despite our goals of 40% women involvement in the project, including participation by women in the veterinarian training and the livestock improvements of 10% in the villages and the two women who led the avian sampling we currently stand at about 15% women involvement in the field. The reality is that the division of labour of men working in field and women closer to home, results in a higher percent on men in a livestock management project. Moving forward, we will work on greater inclusion of women in diagnosis and treatment of animal health, in meetings that evaluate the project's impact, and in training in human-wildlife conflict reduction.

## **8. Monitoring and evaluation**

As mentioned above, since this was the first year, in Nicaragua, we established the following monitoring and evaluation baselines: 1) standardized comprehensive questionnaires covering family composition land and farming practices; sources of income; health and economic status and priorities; livestock management and challenges; general human-wildlife conflicts; hunting preferences, specific human-jaguar conflicts, wildlife trade; and spatial distribution of game/prey species; 2) standardized avian mist net capture and point count methods; 3) standardized instalment of camera traps; and 4) analyses of forest cover trends in project areas. Local project participants have been involved with questionnaires, fauna sampling, and are installing livestock management improvements. The systems to evaluate progress thus far seem strong. There have been no changes to the M&E plan except for delays in baseline measurements in Honduras.

## **9. Lessons learnt**

Based on upon our experience in Nicaragua, we recommend careful planning well in advance. In our case, we carefully planned a logical sequence of tasks to conduct, including set up with communities, socio-economic surveys, refining what technical assistance will be most helpful based on survey findings, developing conservation agreements (prior to delivering assistance) and obtaining commitments, and establishing biological baselines while delivering the assistance/improvements. In Honduras, a chain of unexpected events caused delays, many outside of our control. They have been rectified and we appreciate DEFRA's understanding and permission to carry over the funds needed to execute delayed tasks.

Our partner, the UNA is an agricultural university (has the needed extension expertise for this project), is located near the project area, and has faculty with lengthy experience and deep contacts in the project area, making it a logical partner. The unexpected delays due to the student strike and associated administrative issues were unfortunately unexpected and unavoidable. Therefore, we recommend when working with student groups who will be assisting with project execution and a capacity building exercise, the groups should be kept small, intensely briefed and supervised. We also suggest that if project area is dangerous, you select staff familiar with the surroundings. Our work in Nicaragua has benefited from staff and colleagues born and raised in the river and jungle. Going forward, we will ensure UNA trips are more tightly managed.

## **10. Actions taken in response to previous reviews (if applicable)**

N/A

## **11. Other comments on progress not covered elsewhere**

N/A

## 12. Sustainability and legacy

We collaborated with local partners to ensure they were an integral member of the team to build long term capacity and ensure sustainability. We have collaborated with the conservation community and the communities along the Coco, Bocay and Patuca Rivers, building and enhancing capacity in livestock management, biological sampling, and project logistics. Additionally, we have collaborated with MiAmbiente, the Institute of Forest Conservation, Protected Areas, and Wildlife (ICF) in Honduras. Colleagues in the conservation community in both countries are aware and supportive of the project.

On April 22, 2017, Fabricio Diaz Santos included the project in a presentation summarizing 10 years of research and conservation at a national Earth Day Congress, requested by Nicaragua's Director of Natural Heritage, Ministry of Environment and Natural Resources (MARENA) effectively elevating awareness to the national arena. We meet the Vice Minister of MARENA and several other MARENA officials May 2 to discuss the project. There is full intent of publishing this holistic project that combines interventions in livestock management with commitments to biological conservation in an international journal.

This project has provided the platform for us to secure additional, complementary funding for critical on-the-ground needs, including patrols along territorial boundaries (through the Department of State CAFTA-DR grant), and surveys (through the Liz Claiborne and Art Ortenberg Foundation). We have leveraged this work to expand our impact in the Bosawas Biosphere Reserve, Tawahka Asangni Biosphere Reserve, and the Rio Platano Biosphere Reserve on migratory birds, cacao, cattle, and connectivity, ecotourism possibilities, and additional protected area law enforcement efforts (a joint proposal with ABC to the U.S. Fish and Wildlife Service). This project provided the platform to develop a collaboration with the Yale Environmental Protection Clinic to collect data on forest trends, threats, opportunities, actors, and mechanisms to strengthen bi-national forest connectivity in this project area. In Honduras, a "Congreso de la Tierras " (land congress) on March 18-19, 2017 brought together indigenous leadership, the Honduran government protected area agency (ICF), Honduran national agricultural institute (INA), and representatives of several NGOs to advance territorial defence.

**Is your planned exit strategy still valid given the project is now running, or have you, or are you, planning to make changes to what was originally proposed? Likewise, how do you plan to ensure a sustained legacy (e.g., social, economic, ecological, technical etc.) of your project Outcome?**

We are committed to measurable results, local capacity developed, local, national and international impacts. The primary focus of this project is developing local capacity. The design will measure results. As far as project momentum, two-three years is accelerated to see the full effects of silvopastoral systems, but the project is building institutional and funding mechanisms likely to maintain and increase momentum (**Annex 3**) which is particularly important given delays in Honduras. We are committed to communicating the design and results of the project at the national and international levels.

## 13. Darwin identity

In this first year we have been focusing in project initiation and implementation and we will produce more Darwin identity products as we measure impact and disseminate results

## 14. Project expenditure

**Table 1: Project expenditure during the reporting period (1 April 2016 – 31 March 2017)**

Project spend (indicative) since last annual report	2016/17 Grant (£)	2016/17 Total Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)			0	

Consultancy costs			5	
Overhead Costs			-17	We were able to cover office rental and utilities expenses in Nicaragua with funding from other sources. This freed up the required funds to cover needs in the remaining budget categories, mainly Travel and Subsistence.
Travel and subsistence			8	A dugout canoe was purchased with the Travel and Subsistence funds. Due to the frequency of river travel required to execute the project activities, it became more cost-effective to purchase the canoe. This purchase avoided the need for multiple additional boat rentals, which would have resulted in higher travel expenses for this grant. The WCS Nicaragua program already had a motor in its possession, so this did not have to be purchased additionally.
Operating Costs			4	
Capital items (see below)	0	0	0	
Monitoring and Evaluation (M&E)			0	
Others (see below)			9	
<b>TOTAL</b>				

The 2016/2017 Grant budget column above (totalling GBP 90,013) reflects the final budget figures after formal budget change requests were submitted by WCS and approved by Darwin. These approved budget change requests resulted in the following changes with respect to the original budget:

- For Fiscal Year 2016/2017, we moved **GBP 3,070** from the Partner Organization's **Travel and Subsistence** budget category, to the Lead Organisation's **Other Costs** category, due to delays experienced by our local partner organization, the Honduran National Agricultural University, in the implementation of field activities. The increase in Other Costs was used to bolster our progress with activities in Nicaragua.
- For all project years, including 2016/2017, we moved a total of **GBP 5,931** (GBP 1,919 in Year 1; GBP 1,976 in Year 2; and GBP 2,036 in Year 3) from the **Consultancy Costs** budget line to **Staff Costs**, due to a change in the employment status of a project staff member (Victor Hugo Ramos, Remote Sensing Specialist) from consultant to full-time personnel.
- We moved a total of **GBP 19,920** of the Partner Organization costs from project **Year 1** (2016/2017) to project **Year 2** (2017/2018), due to a series of delays experienced by our

partner, the Honduran National Agricultural University, in the implementation of field activities. The Partner Organization's pending activities originally planned for Year 1, will be implemented in Year 2 instead. This change affected the Consultancy Costs line (GBP 4,190 moved to Year 2), Overhead Costs (GBP 1,811 to Year 2), Travel and Subsistence (GBP 2,775 to Year 2), Operating Costs (GBP 1,500 to Year 2), Monitoring and Evaluation Costs (GBP 3,838 to Year 2), and Other Costs (GBP 5,806 to Year 2).

## Annex 1: Report of progress and achievements against Logical Framework for Financial Year 2016-2017

Project summary	Measurable Indicators	Progress and Achievements April 2016 - March 2017	Actions required/planned for next period
<p><b>Impact</b></p> <p>Environmentally sustainable livestock management practices are successfully adopted across the bi-national Heart of the Mesoamerican Biological Corridor, leading to biodiversity protection and improved welfare of vulnerable communities.</p>		<p>In Nicaragua, the project has united local leaders, the community leaders, individual farmers and project coordinators towards common conservation objectives with three territorial conservation agreements signed. Forty-seven families have initiated improvements to livestock management, and 58 individuals have received training in livestock health diagnosis and treatment.</p>	
<p><b>Outcome</b></p> <p>Improved livestock management techniques are successfully implemented in ladino and indigenous farms in Mosquitia, leading to rigorously documented improved welfare of vulnerable communities, conservation of biological diversity, and forest cover.</p>	<p><b>0.1 Forest cover:</b> Rate of forest clearing in 40,000 hectares of target communities and household farms is reduced by 30% as compared to the 10-year historical average.</p> <p><b>0.2 Biodiversity:</b> After three years, avian alpha diversity/ species richness in livestock systems and frequency of medium-sized and large mammals adjacent to livestock systems has increased, and species composition between specific livestock production systems and nearby intact forests have become significantly more similar according to the Sorenson quantitative /Bray-Curtis index.</p> <p><b>0.3 Human-wildlife conflict:</b> Retaliatory killing of carnivores, particularly jaguars, reduced by 50% across project farms, households and communities.</p> <p><b>0.4 Local Livelihoods:</b> At least 200</p>	<p>0.1 We have obtained remote sensing scenes extending back in time and to the present and are in the process of establishing a base line rate of forest clearing in target areas.</p> <p>0.2 In Nicaragua, we have established a baseline for avian alpha diversity/species richness extending from livestock systems and into nearby intact forest through sampling (standardized mist net and point count protocols) in six 2 km bands from specific project intervention sites into forested core in Nicaragua. Camera traps have been installed in the same bands, but extending deeper into the forest (@200-2200m, 2200-4200m, 4200-6200m). Due to delays experienced in Honduras (explained in text sections 3.1 &amp;3.2), establishing these baselines is still pending. and expected in the</p>	<p>0.2 We will collect the camera traps from the Nicaraguan field sampling sites, download and archive the photos, and summarize the baseline. We will archive and summarize the bird sampling data. In Honduras, we will initiate avian and mammal sampling using the same protocol in concentric 2 km bands crossing the gradient from management to forest core.</p> <p>0.3 In Honduras we expect to complete approximately 90 socio-economic questionnaires to obtain a baseline on human-wildlife conflict, cattle management practices, perspectives towards jaguars, and mortality rates.</p> <p>0.4 The socio-economic questionnaires to establish baseline information about families, economic status, livestock management practices and production challenges are still pending in Honduras and expected in the next three months.</p>

	<p>families will experience a 50% increase in livestock productivity due to integrated livestock management (including market value and availability for local consumption and subsistence).</p>	<p>next six months.</p> <p>0.3 Through 72 questionnaires delivered and recorded by local indigenous coordinators in Nicaragua we have established a base line of cattle management practices, challenges and priorities; livestock loss patterns; patterns of human-wildlife conflict; perspectives towards jaguars; and recorded mortality rates.</p> <p>0.4 In Nicaragua, we have delivered veterinarian training to 58 people and are in the process of delivering technical assistance in environmentally sound improvements in cattle management to 47 families. Delivery to 100/200 families was simply too ambitious given the scale of these remote waterside communities and the associated logistics. The broad baseline questionnaires family size, family size, economic status and challenges, crops, lifestyle priorities and livestock management challenges, which shaped the interventions, was delivered.</p>	
<p><b>Output 1. Improved Livestock Management:</b> Improved livestock management and community conservation techniques adopted by at least 200 families in seven communities across four ethnic groups in four protected areas and two countries.</p>	<p><b>1.1</b> At least 200 Miskitu, Mayangna, Sumo, and campesino families identified and trained in management techniques (with &gt;40% of participants women) by year 1.</p> <p><b>1.2</b> Improved management techniques adopted and established in seven target communities by year 3.</p> <p><b>1.3</b> At least 50 farmers from nearby communities are invited to tour farms with improved techniques, exposing</p>	<p>1.1 In Nicaragua, training and technical assistance with has been provided to 47 families in 11 Miskitu and 3 Mayangna communities in three indigenous territories in Bosawas Biosphere Reserve; with ~10% participation by women. Delivery in three communities representing three ethnic groups, Tawahka, Miskitu, and Ladino will take place in Tawahka Asangni and Rio Platano Biosphere Reserves.</p> <p>1.2 Improved management techniques (fencing, live fences/silvopastoral systems, improved pastures) are now underway in 14 target communities in Nicaragua.</p> <p>1.3 Planned for year 3</p>	

	<p>them to the concepts and practices in a participatory fashion with challenges and successes openly discussed by year 3</p>	
<p>Activity 1.1 <i>Conduct participatory diagnostics of livestock management and forest conservation challenges</i> in each community and determine interventions tailored to each target community/household, ensuring at least 40% participants women. Participatory diagnostic of livestock and farm management challenges, will include questionnaires and meetings to assess knowledge, attitudes and practices regarding livestock condition, livestock management, forest clearing, human-jaguar conflicts, sources of livestock losses, nutritional status in households, hunting practices and locations</p>		<p>In Nicaragua, participatory diagnostics conducted with 72 families in 19 communities included 11% women to assess knowledge, attitudes and practices regarding livestock condition, livestock management, forest clearing, human-jaguar conflicts, sources of livestock losses, nutritional status in households, hunting practices and locations. The assessment guided the training and interventions delivered to families/communities. In the next period, we will conduct the participatory diagnostic in Honduras.</p>
<p>Activity 1.2 <i>Deliver capacity-building training in participatory livestock management improvements.</i> Initiate expert delivery of hands-on participation training in field schools, generating a cohort of future leaders in each target community, working in site specific increasing productivity in target farms, diversification of food sources for livestock sites, elevating nutritional status, effecting protection of water sources, and training in diagnosis of diseases and basic veterinary medicine, as well as education on methods to reduce human-carnivore conflicts</p>		<p>Technical training in veterinarian practices was delivered to 58 participants in Nicaragua (<b>Annexes 9, 10</b>). Silvopastoral systems have been initiated, improved pastures will be sowed in the next period, during which we will also deliver education on methods to reduce human-carnivore conflicts. We will be conducting the entirety of Activity 1.2 in Honduras in year 2.</p>
<p>Activity 1.3 <i>Conduct exchange visits to participating farms,</i> inviting and supporting at least 50 farmers from nearby communities to tour farms with improved techniques, exposing them to the concepts and practices in a participatory fashion, and openly discussing challenges and successes.</p>		<p>This activity is planned for Year 3.</p>
<p><b>Output 2: Community Conservation Agreements:</b> Explicit agreements through which project beneficiaries commit to conservation outcomes adopted by at least 200 families in seven communities across four ethnic groups, four protected areas, and two countries.</p>	<p><b>2.1</b> Explicit agreements with 200 families with clear commitments to conservation outcomes in exchange for support with livestock management developed, signed, and implemented by year 2. <b>2.2</b> A total of 21 meetings (one in each of seven communities annually for 3 years) held to present and discuss results achieved, and challenges of conservation agreements by 2019</p>	<p>In Nicaragua, agreements were signed between January and February 2017 with three territorial indigenous governments and 47 direct project beneficiaries with commitments regarding forest conservation, hunting practices, human-carnivore conflicts in exchange for support for improved livestock management. Three meetings in three communities in Honduras and 12 meetings in 14 communities in Nicaragua were conducted (15/year1) (<b>Annexes 14, 15, 16</b>).</p>
<p>Activity 2.1. <i>Generate conservation agreements with target communities</i> through a participatory process, linking technical assistance in livestock management to explicit community commitments to forest and biodiversity conservation outputs that are congruent with protected area conservation objectives.</p>		<p>In Nicaragua Conservation Agreements are in place as of January-February 2017, which guided technical assistance in livestock management that is also congruent with protected area objectives. We will develop similar agreements in Honduras during the next period.</p>

<p>Activity 2.2. <i>Hold annual assembly meetings</i> in each community implementing a conservation agreement to present and discuss results achieved, challenges, and lessons learned (a total of 21 meetings, or one in each of seven communities annually for 3 years).</p>	<p>We have not held an annual assembly in any community to assess the project, we plan to in years 2 and 3 due to other important project priorities this year, including the signing of agreements, surveys, biological evaluations, and livestock management training. We expect a total of 17 communities between the two countries.</p>	
<p><b>Output 3. Learning and Outreach:</b> Report on the impacts of improved livestock management practices, evaluating and comparing forest cover, biodiversity, and poverty reduction impacts across the spectrum of cultural contexts. Dissemination of methods and lessons learned to nearby communities, agricultural and protected area agencies, and across the entire NGO, Multilateral, and government community</p>	<p><b>3.1</b> Pre- and post- intervention measurements of livestock management knowledge, attitudes, and practices, productivity, forest cover, biodiversity, wildlife conflict, and livelihoods at the household and community level by years 1 and 3, respectively. <b>3.2</b> Working paper rigorously evaluating the effectiveness of sustainable ranching interventions on conservation and development impacts drafted, presented to participating communities for feedback, and article submitted for publication in a peer-reviewed scientific journal by year 3. <b>3.3</b> Written reports delivered to relevant actors and four presentations are given to local and national leaders by year 3.</p>	<p>It is too early to report on this output, but we conducted very detailed surveys of livestock management knowledge, attitudes, and practices, productivity, forest cover, biodiversity, wildlife conflict, and livelihoods at the household and community level in Nicaragua, including ambitious biological sampling, and expect to execute the same level of rigor in Honduras in Year 2.</p>
<p>Activity 3.1. <i>Pre / post monitoring of livestock management practices and livelihoods indicators and biodiversity and forest conservation indicators</i> including knowledge, attitudes, practices, and productivity of livestock management, forest cover, avian diversity and abundance, medium and large sized mammals, and human-jaguar conflicts.</p>	<p>Pre monitoring of livestock management practices and livelihoods indicators and biodiversity and forest conservation indicators including knowledge, attitudes, practices, and productivity of livestock management, forest cover, avian diversity and abundance, and human-jaguar conflicts is completed (<b>Annex 5, 6, 7, 8</b>). Diversity and abundance of medium and large sized mammals initiated, camera traps are still working in field. They will be collected early in next period (Year 2). All the above will be executed in Honduras in Year 2.</p>	
<p>Activity 3.2. <i>Working paper</i> rigorously evaluating the effectiveness of sustainable ranching interventions on conservation and development impacts drafted, shared with all participating communities for feedback, and <i>one article completed and submitted for publication</i> in a peer-reviewed scientific journal by year 3.</p>	<p>Activity planned for year 3.</p>	
<p>Activity 3.3. <i>Disseminate informational material</i> highlighting results and lessons learned to share with institutions working in and impacting the Mosquitia. Share information about conservation agreements more widely in electronic form on social networks, websites, and through partner institution networks and deliver written reports to relevant actors, including four separate presentations delivered to relevant local and national leaders.</p>	<p>Activity planned for year 3.</p>	



## 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	Important Assumptions
<p><b>Impact:</b> Environmentally sustainable livestock management practices are successfully adopted across the bi-national Heart of the Mesoamerican Biological Corridor, leading to biodiversity protection and improved welfare of vulnerable communities.</p>			
<p><b>Outcome:</b> Improved livestock management techniques are successfully implemented in ladino and indigenous farms in Mosquitia, leading to rigorously documented improved welfare of vulnerable communities, conservation of biological diversity, and forest cover.</p>	<p><b>0.1 Forest cover:</b> Rate of forest clearing in 40,000 hectares of target communities and household farms is reduced by 30% as compared to the 10-year historical average.</p> <p><b>0.2 Biodiversity:</b> After three years, avian alpha diversity/ species richness in livestock systems and frequency of medium-sized and large mammals adjacent to livestock systems has increased, and species composition between specific livestock production systems and nearby intact forests have become significantly more similar according to the Sorenson quantitative /Bray-Curtis index.</p> <p><b>0.3 Human-wildlife conflict:</b> Retaliatory killing of carnivores, particularly jaguars, reduced by 50% across project farms, households and communities.</p> <p><b>0.4 Local Livelihoods:</b> At least 200 families will experience a 50% increase in livestock productivity due to integrated livestock management (including market value and availability for local consumption and subsistence).</p>	<p><b>0.1 Forest cover:</b> Comparisons between long-term trends and project impacts using remote sensing, validated by on-ground reconnaissance and interviews.</p> <p><b>0.2 Biodiversity:</b> Results of pre- and post- intensive avian sampling in and adjacent to implemented systems and in nearby forest. Results of medium and large mammal sampling adjacent to pilot projects and in nearby forests, using block design.</p> <p><b>0.3 Human-wildlife conflict:</b> Baseline information on attacks from questionnaires compared to frequencies during the project.</p> <p><b>0.4 Local Livelihoods:</b> Project participant surveys; livestock mortality; calving rate; time to market; records of livestock sales from rancher logs (improvements will be disaggregated by gender).</p>	<p><b>0.1 Forest cover:</b> Cloud-free and current scenes of project areas are available for remote sensing analysis. (This is one of the reasons we will also employ on-ground verification).</p> <p><b>0.2 Biodiversity:</b> Relative frequency data reflect true population trends. Fluctuations due to weather, seasons, disease, and wildlife population dynamics remain within normal parameters, allowing detection of the effects of improved agriculture and reduced deforestation. (To mitigate this risk, we will standardize sampling and use robust experimental design.)</p> <p><b>0.3 Human-wildlife conflict:</b> Honest pre- and post- reporting by project participants.</p> <p><b>0.4 Local Livelihoods:</b> Changes due to improved livestock management are measurable and observable within the 3-year project lifetime.</p>
<p><b>Output 1</b> Improved livestock management and community conservation techniques adopted by at least 200 families in seven communities across four ethnic groups in four</p>	<p><b>1.1</b> At least 200 Miskitu, Mayangna, Sumo, and campesino families identified and trained in management techniques (with &gt;40% of participants women) by year 1.</p>	<p>Number of households/ farms implementing integrated systems; number of people trained in ranch management plans and methods; notes of meetings with ranchers; field visit</p>	<p>Ranchers and vulnerable communities will be interested and incentivized to participate in project activities.</p>

protected areas and two countries.	<p><b>1.2</b> Improved management techniques adopted and established in seven target communities by year 3.</p> <p><b>1.3</b> At least 50 farmers from nearby communities are invited to tour farms with improved techniques, exposing them to the concepts and practices in a participatory fashion with challenges and successes openly discussed by year 3</p>	reports and photos; rancher logs documenting use of improved practices. Participant lists of inter-community exchanges, tours, and presentations; Changes in knowledge, attitudes, and practices, ascertained through pre- and post questionnaires.	
<p><b>Output 2</b> Explicit agreements through which project beneficiaries commit to conservation outcomes adopted by at least 200 families in seven communities across four ethnic groups, four protected areas, and two countries</p>	<p><b>2.1</b> Explicit agreements with 200 families with clear commitments to conservation outcomes in exchange for support with livestock management developed, signed, and implemented by year 2.</p> <p><b>2.2</b> A total of 21 meetings (one in each of seven communities annually for 3 years) held to present and discuss results achieved, and challenges of conservation agreements by 2019.</p>	<p>Signed conservation agreements, photos, annual reports, final external report, meeting minutes.</p> <p>Meeting minutes, photos, annual reports.</p> <p>Informational materials produced, list of institutions reached.</p>	Institutional support and legal framework remain favourable to the implementation of community conservation agreements. Communities are able to reach consensus and maintain an adequate amount of cohesion regarding their participation in community agreements.
<p><b>Output 3</b> Report on the impacts of improved livestock management practices, evaluating and comparing forest cover, biodiversity, and poverty reduction impacts across the spectrum of cultural contexts. Dissemination of methods and lessons learned to nearby communities, agricultural and protected area agencies, and across the entire NGO, Multilateral, and government community.</p>	<p><b>3.1</b> Pre- and post- intervention measurements of livestock management knowledge, attitudes, and practices, productivity, forest cover, biodiversity, wildlife conflict, and livelihoods at the household and community level by years 1 and 3, respectively.</p> <p><b>3.2</b> Working paper rigorously evaluating the effectiveness of sustainable ranching interventions on conservation and development impacts drafted, presented to participating communities for feedback, and article submitted for publication in a peer-reviewed scientific journal by year 3.</p> <p><b>3.3</b> Written reports delivered to relevant actors and four presentations are given to local and national leaders by year 3.</p>	Monitoring databases; working paper draft; minutes of meetings with communities and other stakeholders; submission or acceptance letter of peer-reviewed article; 1,000 copies of report printed and delivered and copy of four separate presentations, one local and one national, for each of the two countries.	External factors do not significantly change the socioeconomic or ecological context in a manner that confounds the attribution of impacts of livestock management implementation or conservation agreements (e.g. El Niño impacts on forest fires).

**Activities** (each activity is numbered according to the output that it will contribute towards, for example 1.1, 1.2 and 1.3 are contributing to Output 1)

### **Output 1: Improved Livestock Management**

1.1 *Conduct participatory diagnostics of livestock management and forest conservation challenges* in each community and determine interventions tailored to each target community/household, ensuring at least 40% participants women. Participatory diagnostic of livestock and farm management challenges, will include questionnaires and meetings to assess knowledge, attitudes and practices regarding livestock condition, livestock management, forest clearing, human-jaguar conflicts, sources of livestock losses, nutritional status in households, hunting practices and locations.

1.2 *Deliver capacity-building training in participatory livestock management improvements.* Initiate expert delivery of hands-on participation training in field schools, generating a cohort of future leaders in each target community, working in site specific increasing productivity in target farms, diversification of food sources for livestock sites, elevating nutritional status, effecting protection of water sources, and training in diagnosis of diseases and basic veterinary medicine, as well as education on methods to reduce human-carnivore conflicts.

1.3 *Conduct exchange visits to participating farms,* inviting and supporting at least 50 farmers from nearby communities to tour farms with improved techniques, exposing them to the concepts and practices in a participatory fashion, and openly discussing challenges and successes.

### **Output 2: Community Conservation Agreements**

2.1 *Generate conservation agreements with target communities* through a participatory process, linking technical assistance in livestock management to explicit community commitments to forest and biodiversity conservation outputs that are congruent with protected area conservation objectives.

2.2 *Hold annual assembly meetings* in each community implementing a conservation agreement to present and discuss results achieved, challenges, and lessons learned (a total of 21 meetings, or one in each of seven communities annually for 3 years).

### **Output 3: Learning and Outreach**

3.1. *Pre / post monitoring of livestock management practices and livelihoods indicators and biodiversity and forest conservation indicators* including knowledge, attitudes, practices, and productivity of livestock management, forest cover, avian diversity and abundance, medium and large sized mammals, and human-jaguar conflicts.

3.2. *Working paper* rigorously evaluating the effectiveness of sustainable ranching interventions on conservation and development impacts drafted, shared with all participating communities for feedback, and *one article completed and submitted for publication* in a peer-reviewed scientific journal by year 3.

3.3 *Disseminate informational material* highlighting results and lessons learned to share with institutions working in and impacting the Mosquitia. Share information about conservation agreements more widely in electronic form on social networks, websites, and through partner institution networks and deliver written reports to relevant actors, including four separate presentations delivered to relevant local and national leaders.

### Annex 3: Standard Measures

Please expand and complete Table 1: new projects should complete the Y1 column and also indicate the number planned during the project lifetime. Continuing project should cut and paste the information from previous years and add in data for the most recent reporting period. Quantify project standard measures over the last year using the coding and format from the Darwin Initiative Standard Measures (see website for details: <http://darwin.defra.gov.uk/resources/>) and give a brief description. Please list and report on relevant Code No's. only. The level of detail required is specified in the Standard Measures Guidance notes under 'definitions and reporting requirements' column. Please devise and add any measures that are not captured in the current list. Please note that these measures may not be a substitute for output level objectively verifiable indicators in the project lifeframe.

**Table 1 Project Standard Output Measures**

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
Established codes								
4a 4b	Number of undergraduate students receiving training		Honduras					15
5	Number of people to receive at least one year of training (field work and analysis >one year)		Nicaragua and Honduras	47 people farm systems Nicaragua, six people project operations (53).				119
6a 6b	Number of people receiving training in diagnosis and treatment of health issues in livestock		Nicaragua	58 people, in the Nicaragua workshops				80
6a 6b	Number of people getting additional training and capacity building in systematic sampling of fauna		Nicaragua	12 people, 7 beneficiaries, 5 parabiologists in Nicaragua				24
6a 6b	Number of people receiving training in the management of silvopastoral systems and improved pastures		Nicaragua	47 in Nicaragua				47
6a 6b	Number of people receiving training in diagnosis and treatment of health issues in livestock		Honduras					66
6a 6b	Number of people receiving additional training and capacity building in systematic sampling of fauna		Honduras					12

6a 6b	Number of people receiving training in the management of silvopastoral systems and improved pastures		Honduras					66
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		Nicaragua					3
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		Honduras					3
12a	Number of computer based data bases to be established and handed over to the host country		Honduras and Nicaragua	0				2
14a	Number of conferences/seminars/workshops to be organized to present/disseminate findings							4 Territorial and National conferences to present results
14b	Number of conferences/seminars/workshops to be attended at which findings from Darwin project work will be presented/disseminated							3  Include Darwin in poster about “cross the spectrum tools to accomplish human—jaguar coexistence”, annual Congress of Society for Conservation Biology
22	Number of permanent field plots and sites to be established during project and continued after Darwin funding has ceased			24 Nicaragua,				48
23	Value of resources raised from other sources (e.g. in addition to Darwin funding) for project work			Secured: \$43,000 biological sampling from LCAOF; in-kind				TD

				contribution: Yale Environmental Protection Clinic; pending: \$10,000 grant from Individual donor, Tom Plant grant, \$200,000 grant for cacao-cattle-biological sampling ABC-USFWS				
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In Table 2, provide full details of all publications and material produced over the last year that can be publicly accessed, e.g. title, name of publisher, contact details, cost. Mark (\*) all publications and other material that you have included with this report.

**Table 2                      Publications**

<b>Title</b>	<b>Type</b> (e.g. journals, manual, CDs)	<b>Detail</b> (authors, year)	<b>Gender of Lead Author</b>	<b>Nationality of Lead Author</b>	<b>Publishers</b> (name, city)	<b>Available from</b> (e.g. weblink or publisher if not available online)

## **Annex 4 Onwards – supplementary material (optional but encouraged as evidence of project achievement)**

This may include outputs of the project, but need not necessarily include all project documentation. For example, the abstract of a conference would be adequate, as would be a summary of a thesis rather than the full document. If we feel that reviewing the full document would be useful, we will contact you again to ask for it to be submitted.

It is important, however, that you include enough evidence of project achievement to allow reassurance that the project is continuing to work towards its objectives. Evidence can be provided in many formats (photos, copies of presentations/press releases/press cuttings, publications, minutes of meetings, questionnaires, reports etc.) and you should ensure you include some of these materials to support the annual report text.

Please find the supplementary material in the links provided with the email submission, and below:

Google Drive: <https://drive.google.com/file/d/0B6Z1y4HLNkksb0lYNIBxZEpsb1E/view?usp=sharing>

DropBox: <https://www.dropbox.com/s/yy0f0fzpb02gazc/Darwin%2023-014%20Annual%20Report%20Annexes.zip?dl=0>

## Checklist for submission

	Check
<b>Is the report less than 10MB?</b> If so, please email to <a href="mailto:Darwin-Projects@ltsi.co.uk">Darwin-Projects@ltsi.co.uk</a> putting the project number in the Subject line.	x
<b>Is your report more than 10MB?</b> If so, please discuss with <a href="mailto:Darwin-Projects@ltsi.co.uk">Darwin-Projects@ltsi.co.uk</a> about the best way to deliver the report, putting the project number in the Subject line.	
<b>Have you included means of verification?</b> You need not submit every project document, but the main outputs and a selection of the others would strengthen the report.	x
<b>Do you have hard copies of material you want to submit with the report?</b> If so, please make this clear in the covering email and ensure all material is marked with the project number.	
Have you involved your partners in preparation of the report and named the main contributors	x
Have you completed the Project Expenditure table fully?	x
Do not include claim forms or other communications with this report.	