



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: 30th April 2017

Darwin Project Information

Project reference	22-013
Project title	Conserving pine woodland biodiversity in Belize through community fire management
Host country/ies	Belize, UK
Contract holder institution	University of Edinburgh (UE)
Partner institution(s)	Toledo Institute for Development and Environment (TIDE) University of Belize Environmental Research Institute (ERI), Government of Belize Forest Department (FD) International Institute for Environment & Development (IIED)
Darwin grant value	£298,998
Start/end dates of project	1 st April 2015- 31 st March 2018
Reporting period (e.g., Apr 2016 – Mar 2017) and number (e.g., Annual Report 1, 2, 3)	April 2016- March 2017 Annual report 2
Project Leader names	Dr Neil Stuart (UE) and Mario Muschamp (TIDE)
Project website/blog/Twitter	http://www.tidebelize.org/project/terrestrial/darwin-initiative-community-fire-management-project http://www.tidebelize.org/darwin-project http://www.belizeconservation.site/
Report author(s) and date	Cathy Smith, Neil Stuart and Duncan Moss (UE) Mario Muschamp, Elmar Requena, Allana Barillas and Fanny Tricone (TIDE) Duncan Macqueen (IIED) Elma Kay and Bart Harmsen, (ERI) Rick Anderson (Everglades) 30 th April 2017

1. Project rationale

Belize's lowland pine savannas are characterised by WWF as a critical and endangered eco-region and a regional priority for biodiversity conservation because this small (2,500km²) ecosystem contains a singular mix of North and South American species, including endangered/critically endangered species of parrot, tapir, tree and cycad palm. Darwin project 17022 discovered almost half of all Belize's endemic plants occur only within this ecosystem.

Intense fires in these pine savannas are becoming more frequent, degrading the ecosystem from a woodland ecosystem into one of mainly grassland with few pines. Some of the fires also penetrate into the broadleaf forest, causing significant loss of a flora that is not resistant to fire. This increased frequency of fire is mainly attributed to anthropogenic pressures. Hunters traditionally set fires to promote the growth of fresh grass, which encourages game species into the savanna, and fires escape from a growing number of agricultural areas that now border the protected areas in Toledo. Escaped fires is also happen because few people in these newly established communities have the traditional knowledge about how to control fire and burn agricultural land safely. These fire risks are exacerbated by climate changes such as the earlier onset of the dry season, (hence fire season), one month earlier now than a decade ago. This combination of anthropogenic factors and climatic changes led the government to identify uncontrolled fire as the single greatest threat to Belize's terrestrial protected areas and to propose that increasing capacity for fire prevention and control would be a key to enabling communities in Belize to adapt to climate change.

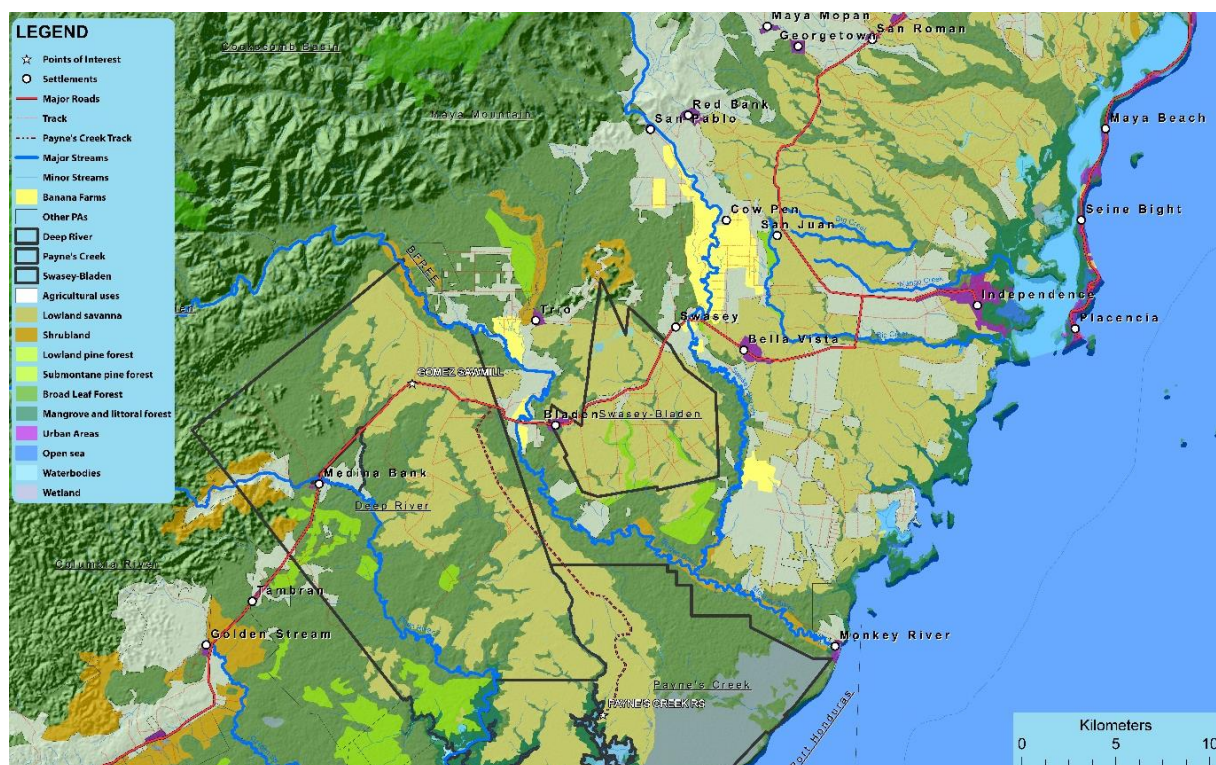
Fires are not just a threat to biodiversity in this area. Belize's Poverty Elimination Strategy recognises that the communities living near to these pine woodlands are among the poorest in Belize. Wildfire poses a serious risk to their wooden houses, farms, to the summer harvest of palmetto seeds which provides valuable additional income to the poorest people, and to human health (heavy smoke in the dry season). However, more careful use of fire on farmland could reduce the number of escaped fires, and reduce losses to crops and to the palmetto seed harvest by reducing intense fires in May-June, which burn the flowers and prevent subsequent seed formation.

This project was proposed by the Toledo Institute for Development and Environment (TIDE) and the Government of Belize Forest Department (FD), who together manage over 90% of the pine savanna woodlands of Toledo District, in three protected areas: Payne's Creek National Park (PCNP), Deep River Forest reserve (DRFR) and Swasey-Bladen Forest Reserve (SBFR). Recognising that low intensity fire every 3-5 years is a natural part of the savanna ecosystem, TIDE has been managing fire timing and intensity using a programme of prescribed burning in PCNP for over a decade, and more recently within parts of Deep River FR also. There is anecdotal evidence of fewer intense wildfires in the late dry season, less damage to crops and biodiversity and increased pine regeneration in both of these areas, but before this project there was no systematic monitoring of these effects.

Belize's FD currently lacks capacity to implement its national wildfire management strategy in many protected areas under its jurisdiction. FD recently published a new Forest Policy (2015), paving the way for devolvement of some authority to communities to become more engaged in protected areas management, in fire management and to benefit more from sustainably harvesting of resources in protected areas. It also opens to door to allowing PA management organisations to carry out limited sustainable extraction of resources within PAs to raise revenues to support PA management. Before this project however there had been no consultation by FD with its stakeholders about how these types of sustainable extraction within these PAs in Belize might be negotiated and permitted.

This project seeks to conserve biodiversity in the pine woodlands, by increasing the capacity of both the managers of these protected areas and the communities that surround them, to control and reduce the frequency of intense, late dry-season fires. The rationale is that by giving the communities incentives to support the fire management activity, such as rights to extract non-timber forest products (NTFPs) or develop small forest enterprises (SFEs) within the areas where they assist with fire control, the communities become stewards of these woodlands and will tend to promote practices that will conserve and help restore woodland resources.

The following map shows the locations of the five project communities: Bella Vista, Bladen, Medina Bank, Trio and San Isidro (located on the outskirts of Bella Vista), together with the extents of PCNP, and SBFR and DRFR.



Project communities and other settlements near to Swasey Bladen and Deep River Forest Reserves and Paynes Creek National Park

2. Project partnerships

Like many government departments in developing countries, the Belize FD manages areas rich in biodiversity but has very limited resources to implement policies such as its national wildfire management strategy. Because our monitoring of project participation last year showed that FD staff had only limited time for project participation, this year we have been very pro-actively engaging FD staff at all levels. The Chief Forest Officer Wilbur Sabido reconfirmed full support of the FD and provide us advice and policy guidance at our partner meetings on 30/08/2016 and 31/01/2017, whilst the newly appointed Head of sustainable forest management German Lopez gave us his commitment on 3rd February 2017 to work with us on consultations with buffer communities to help them to negotiate access to resources with forest reserves. At the local level, participation from FD remains strong, with 2 staff attending our fire management training programmes this year and 5 further FD staff already signed up for our 1 week training course in monitoring of fire effects that we are running in Paynes Creek in April 2017.

Over the last 18 months IIED consultant Duncan Macqueen has been working closely with Elmar Requena and Allana Barillas from TIDE to ensure there is sustained follow up on the business training courses that he delivers twice a year, and he continues to mentor staff from TIDE how to foster the development of these community businesses. On the fire management, Rick Anderson the specialist fire ecologist from Everglades NP has been working closely with Allana Barillas and Fanny Tricone on fire ecology monitoring, and with Mario Muschamp and the TIDE Ranger Team to conduct a series of prescribed burns and to train community members. Dr Elma Kay from the University of Belize ERI brought her students to attend a course on prescribed burning in February 2017; the ERI has published the full set of protocols for biodiversity monitoring and will continue to deliver further training in biodiversity monitoring using these protocols in year 3 of the project.

Email, skype and google drive have continued to enable communication of progress and sharing of outputs throughout year 2. Additionally all partners met in person in Belize in August/

September 2016, and January/February 2017. University of Edinburgh continues to work closely with all project partners. The project leader Dr Neil Stuart was in Belize for a substantial period in of August, for a mid-term review in November 2016, for most of January 2017 and again in March 2017 for a variety of project activities including meetings, field courses and for 3 project presentations at national conferences. The part-time Darwin Project Officer was in Belize for 5 months of year 2 of the project, working closely with Belizean project staff on all the activities taking place during this time.

3. Project progress

3.1 Progress in carrying out project Activities

Activity 1.2 Establish 28 0.2 ha permanent plots in PCNP (TIDE, FD)

12 pine (and palmetto) monitoring plots were set up in PCNP in April 2016, with the assistance of 6 community members (5 men and 1 woman), who were trained to record the data, and employed for the week. The plot markers and trees were permanently tagged, locations of all pine trees and seedlings, and their diameters at breast height were mapped and measured, and repeat photo points set up. These plots were revisited in August 2016, to verify that all tree locations and diameters were correctly recorded, and for monitoring the effects of May's wildfires, with 4 community members employed to assist. All were revisited for monitoring in February 2017 and the first few days of April 2017, with 2 community members assisting. The data is being managed in a GIS database.

Monitoring of the plots will continue in year 3, and at least 2 further plots will be established.



Community members are trained to establish pine monitoring plots

Activity 1.3 Assess distribution, abundance and productivity of palmetto palm in PCNP, DRFR and SBFR (TIDE, FD)

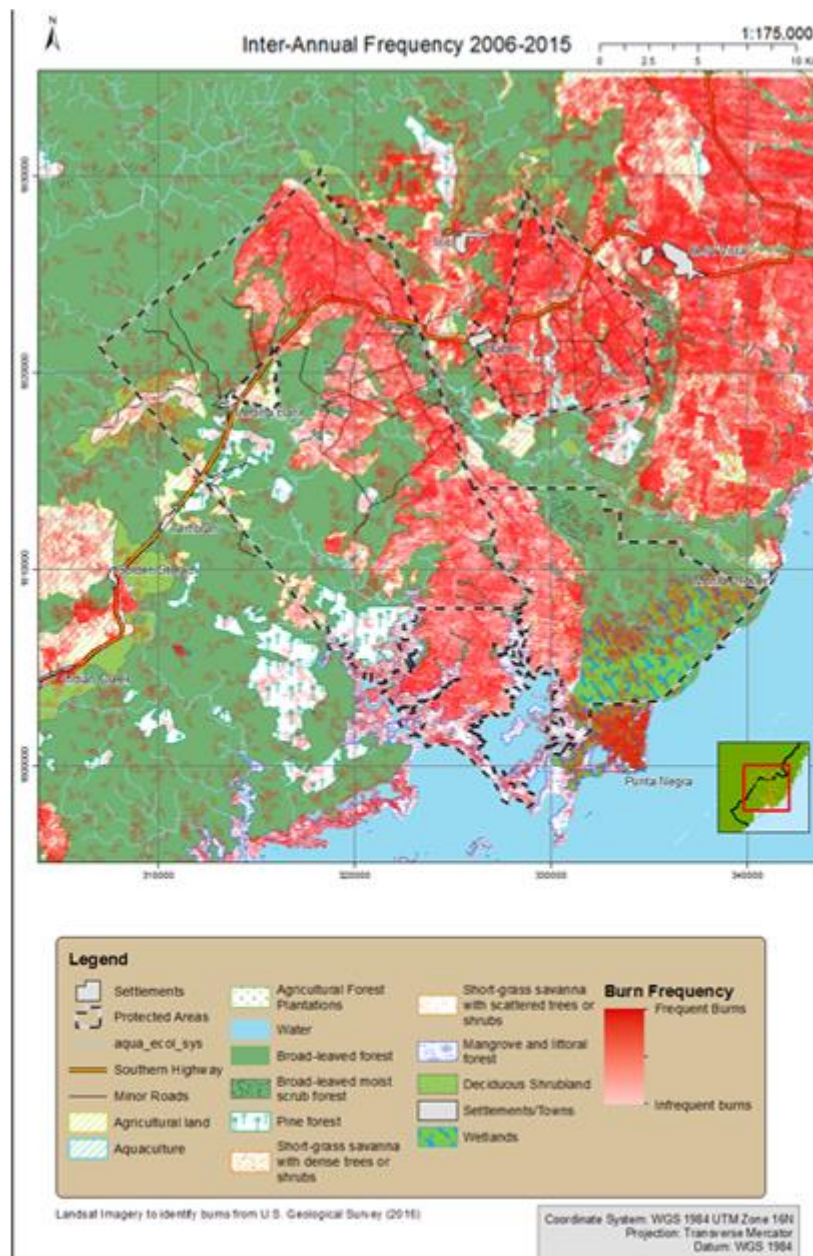
A GIS analysis of palmetto distribution was completed in year 1.

The plots established in PCNP under Activity 1.2, are also serving as palmetto monitoring plots, and 8 additional palmetto monitoring transects were established in DRFR and SBFR in May 2016, again employing community members as research assistants. Palmetto locations and inflorescence were recorded for all plots and transects in April and May 2016, seed production was recorded for all plots and transects in August 2016. Monitoring continues and in 2017, with inflorescence of the palmetto in each of the 12 plots established under Activity 1.2, recorded in February and April 2017, and with plans to revisit all plots and transects in August (of year 3) to record seed production. The data is being managed in the same GIS database as mentioned under Activity 1.2.

Activity 1.6 Establish biodiversity and wildfire baselines against which effects of fire control and sustainable harvesting will be monitored (TIDE)

A biodiversity baseline report for PCNP was finalised in August 2016 using data collected on regular census monitoring of permanent transects by the protected area rangers between 2009 and 2012.

A GIS analysis of wildfire using Landsat was completed as a UoE masters dissertation By William Roper under the direction of Dr Stuart in the summer of 2016. The study produced maps showing inter-annual fire frequency between 2006 and 2016, and the year since the last burn. The analysis showed a greater proportion of the savanna component of SBFR burning annually (average 42%) when compared to PCNP or DRFR (average 31 and 32% respectively).



10 year Fire frequency map for the study area

Activity 2.1 Conduct national training workshops in biodiversity monitoring for ~30 PA staff (ERI)

This activity was scheduled for year 2, however, to accommodate teaching and field commitments of the ERI staff, it was rescheduled for year 3 (with no budgetary implications). All logistics are in place for 2 workshops to be held under this output, each with 15 attendees. The first, over 3 days in April 2017 will cover long-term vegetation monitoring, and will be held at PCNP, the second, over 5 days in June 2017, will cover camera trapping and camera trap data management, and will be based at the ERI in Belmopan.

Activity 2.2 Train ≥15 PA personnel and community leaders to deliver further training as provided in 2.3 beyond EoP (TIDE, Everglades)

This 2nd level 'burn boss' training was held between 13 and 18th February 2017, involving 1 ½ days in the classroom and 4 ½ days in the field. 15 men attended, 6 of which were from the communities. The protected area managing organisations represented by the attendees were the Belize Audubon Society, the Woodstop logging company, the Corozal Sustainable Future Initiative, Program for Belize, the Ya'axche Conservation Trust, FD and TIDE. Following this training in leadership, site surveillance and burn planning, and with experience of 4 prescribed burns, these candidates are now in a position to lead prescribed burns and direct attack of fires in the areas they manage. Under supervision from TIDE, the community members trained as 'burn bosses' will be leading a 2nd round of the basic level training in their villages under activities 3.3 and 3.4 in year 3 of the project, scheduled for January 2018.



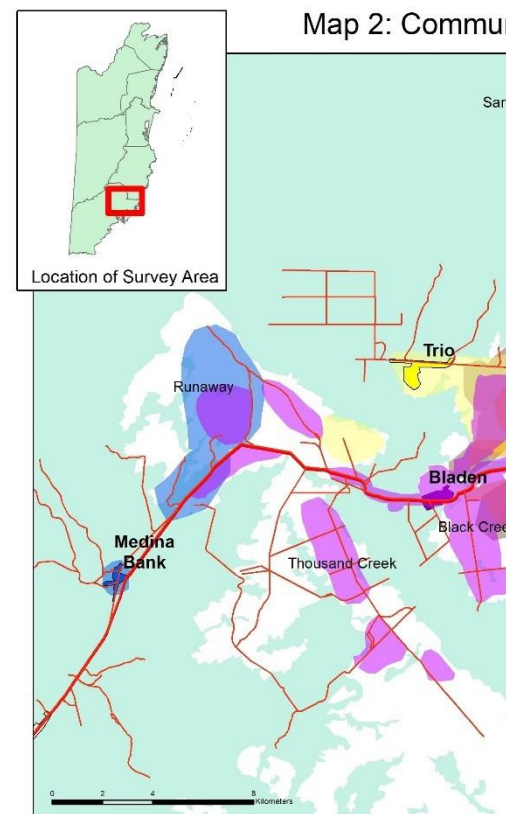
Burn boss trainees move from classroom to field in February 2017 training course

Activity 3.5 Convene meetings between TIDE, FD, Agriculture Dept., NAVCO and DAVCO to agree improvements to governance of rural fire use (TIDE, FD)

The government's Agriculture Department is in the process of revising the Agricultural Fires Act, and as a member of the National Fire Working Group, established on 23rd March 2016, the project lead from TIDE will be on the committee tasked with revising the act over the coming year, beginning with a meeting on 12th April 2017. This revision should see the move from centralised governance and permitting for agricultural fire use towards permitting at the community-level.

Activity 4.1 Consult with palmetto harvesters to establish the areas that are currently harvested by each community, the numbers of harvesters in each community and to discuss how the harvest could be best secured from the community perspective. (TIDE)

A survey of 77 palmetto harvesters was conducted in August 2016. The aims of the survey were to better understand the logistics and locations of harvesting and sale, and community perceptions of the resource, in order to determine how best to support the palmetto harvesters through the project. The survey was preceded by discussion with community leaders at meetings in Bladen on 31/07 and 14/08, San Isidro on 13/08, Trio on 20/08 and Medina Bank on 21/08, at which local names for rivers and roads and general harvesting areas were discussed. This allowed appropriately labelled and scaled maps to be produced for each community, which were then used in the surveys to identify and map areas used by each harvester. The survey results and a map, collated in GIS, showing areas used by each community were finished in September 2017. The next step will be to use these to inform discussions under Activity 4.2, with the Belize Forest Department and the communities, about what form future access rights might take.



Palmetto harvest areas as determined by the village surveys

Activity 4.2 Convene at least 5 meetings between TIDE, logging concessionaires, FD and the communities, regarding the most suitable legal agreement for securing the palmetto harvest for community members into the future, and leading to drafting of such an agreement if desired (TIDE, FD)

Although this activity is planned for year 3, initial meetings have been held with various stakeholders: the Government's Maya Land Rights Commission on the 08/09/2016, the Forest Department on the 31/01/2017 and 03/02/2017 and the Maya Leader's Alliance (MLA) on the 01/03/2017. The present dispute between the government (through its Commission) and the Maya Leaders Alliance over land rights for indigenous Maya peoples in Toledo has to be considered in any discussions with communities concerning specific rights to harvest e.g. palmetto, since these may nest under more general land rights being negotiated between the Commission and the MLA; it is therefore important to understand the consultation process they are undertaking. The Forest Department affirmed their willingness to make this project the pilot of a consultation process leading to community licenses for NTFP extraction from Forest Reserves, something suggested in their new Forest Policy of 2015. In addition, 2 face-to face meetings, in August 2016 and March 2017, and several phone calls were held with the palmetto buyer Mr Bradley, in which he explained that he had not purchased palmetto in 2016 due to hurricane damage to the crop and his facility. Whilst giving his support to the project, he could not yet give unequivocal assurances that he would be purchasing palmetto in 2017.

In year 3 all these stakeholders will be brought together for meetings as part of the continuing process of negotiations leading towards framing of rights and responsibilities for community access to harvest sustainably in forest reserves.

Activity 6.2 Meetings with community groups to assess interest in developing SFEs (IIED, TIDE)

After an exchange visit in year 1 by community leaders to observe community agroforestry projects in Guatemala (see activity 6.4), follow-up meetings took place in Bladen (24/04/2016), Medina Bank (24/04/2016), San Isidro (03/05/2016) and Trio (15/05/2016), for participants on

the exchange to share their experiences and to assess initial interest in developing small enterprises. Following this, meetings to discuss possible business ideas were held in Bladen (31/07/2016 and 14/08/2016), San Isidro (13/08/2017), Trio (20/08/2016) Medina Bank (21/08/2016). The community members were invited to share their ideas in writing or pictures, or by speaking, and the communities themselves decided which ideas they felt would work best, and which people should receive the business training under Activity 6.3.

Following the first business training, all groups were met with in their villages on 07/09/2016 to follow up on how TIDE could best support the groups (with training, exchange visits etc.) to take things forward in the upcoming months. Community meetings have been held frequently (at least monthly) with each group throughout the autumn and also following the second business training in January 2017.



Meeting with palmetto harvesters in Bladen village, August 2016

Activity 6.3 Iterative training courses on business development, start-up planning, book-keeping (IIED)

IIED led a 3-day introduction to group business with 6 community groups (14 women and 14 men) from 1st-3rd September 2016. The groups trained were the Bladen Palmetto Enterprise, the San Isidro Farmers Agro-Association, the Trio Maya Mountains Tilapia Growers, the Bella Vista Pure Coconut Business, the Protectors of the Last Corridor and the San Isidro Kekchi cuisine (Xibe) Restaurant. Some of these groups have existed for several years and some are new enterprises. The training covered the benefits of group business and structure of a business, marketing a product and an introduction to accounting and book-keeping. The groups were continually asked to apply concepts to their own business ideas, and a series of activities left them with the notes that will form the first elements of a business plan. Feedback gathered from all groups following the training was very positive. Each group was then involved in discussions about how the TIDE project team could help them through follow up over the next six months.

Extra support was requested by one of the groups following the first training, to develop their accounting and book-keeping skills, and a training course was arranged with a lecturer from the University of Belize for 1 woman and 7 men on 26/11/2016 and 4/12/2016.

A second single day training course was led on 24/01/2017 by IIED, with 10 women and 12 men, representing the 4 business groups that had worked to prepare a draft business plan (see Activity 6.7). This day was structured around a business risk-management framework. It covered the need to continually reassess business challenges and scale back unrealistic ambition to ensure there were realistic aims for business start-up planning. Specific risks were identified and plans for their management made by each group in the following areas: natural resources, financial issues, market relationships, legal/ administrative issues, staff capacity needs and motivation for continuation with business development.

Further business skills training will be given in August of year 3 to these 4 groups that are continuing to make progress.



Business training in January 2017

Activity 6.4 Peer-to-peer exchange with other successful community businesses and market linking visits for community business groups (TIDE, IIED)

Through links between IIED and the Forest and Farm Facility of the FAO, 5 community members and 2 TIDE staff took part in a regional exchange for representatives from locally-controlled forest businesses from across Central America from 11th-15th April 2016. The exchange was hosted by a federation of cooperatives, FEDECOVERA in Coban, Guatemala. The participants were able to visit a variety of successful community-run businesses, and hear the experiences of other small businesses in organisation, marketing, finance and political representation. This exchange was a great way to spark the interest of the communities in group business.

Following the first business training under activity 6.3, 3 of the groups expressed interest in an exchange with a women's craft group. 14 women from these 3 business groups were taken on an exchange visit to San Antonio village on 23/11/2016 to see a successful Mayan craft business there. Two of these groups expressed further interest in visiting a tourist oriented gift shop and tour facility and 9 women and 1 man from these groups were taken to Maya Centre to see the successful tour and craft shop of a women's group there, on 15/12/2016.

Two of the groups plan to initially farm some tilapia as part of their agro-forestry business, and therefore 1 woman and 4 men from 2 business groups were taken to the Tilapia hatchery at Central Farm, the main Agriculture Department station in Belize, on 29/11/2016, where they were able to ask questions directly about the process of obtaining and growing fingerlings.

Through contact with the Southern Environmental Association (SEA), (another Belizean NGO), it was discovered that crafts were needed for a new gift shop on Laughing Bird Caye. 2 of the groups have craft production in their business plans and 3 women and 1 man from these business groups were taken to Placencia to meet with SEA and discuss a regular sale of crafts. Following this, a meeting of 19 women and 2 men from the 2 business groups was held on 15/02/2017, at which the first sale of crafts was facilitated (earning the groups a total of \$BZ 665).

Further exchange visits will be facilitated in year 3 if the groups desire this support.



Left- visiting a coffee cooperative in Coban, Guatemala in April 2016.

Below- a sale of crafts is negotiated with SEA in Placencia in March 2016



Activity 6.5 Vocational certification for community business members in relevant areas (TIDE, IIED)

Following the first business training, several of the groups requested support for craft making, and 14 women from 3 different business groups attended a craft training course in San Antonio on 23/11/2016 (this did not come with any kind of official certification). The women learned how to make baskets, embroidery, and cuxtals.

One of the groups plans to open a restaurant and requires food handler's certification in order to do so. The project supported 9 women from this group to complete the training on the 09/03/2017, for which they have all received an official food handler's license.

Support for further vocational training and certification, such as tour guide training and licensing, is planned for year 3.



Craft training in San Antonio, November 2016

Activity 6.6 Formalise license agreement(s) with FD terms for community-run SFE to sustainably use woodland resources (TIDE, FD)

For 3 of the groups, their initial business ideas required access to Forest Reserves (for ecotourism, and for tilapia growing). Meetings were held with FD on 31/01/2017 and 03/02/2017 to obtain information as to the possible processes of gaining community access to Forest Reserves for these planned businesses. It was determined that Tilapia growing would not be possible in a Forest Reserve, and the 2 relevant groups are continuing with their plans on private land. FD require that the ecotourism group first gain support from the logging concessionaires in the area they plan to use, and the group will also require permission from the National Institute of Culture and History (NICH) to access several caves in the area. The project will support the group to obtain these permissions in year 3 of the project.

Activity 6.7 Develop business plans for at least 3 community enterprises, and investment proposals for at least 2 community enterprises (IIED)

Following the business training in September 2016 under activity 6.3, the groups were shown an example format for a business plan, and tasked to work on their draft business plans, with a deadline of January 2017. With TIDE's support, 4 of the 6 groups initially trained produced these drafts. These are the San Isidro Farmers Agro-forestry Association (SIFAA), the Xibe Kekchi Cuisine and craft group in San Isidro, the Maya Mountains Tilapia Growers Association in Trio, and Adventures in the Last Corridor in Medina Bank. Following the 2nd business training in January 2017, a day was spent by Duncan Macqueen from IIED with each group (between 25-27/01/2017 and 30/01/2017) in their communities, helping them to develop the plans further, in particular focussing on the costing out of a realistic start-up project for the next year, as well as the full business idea. The plans are working documents and will continue to be refined by the groups, with TIDE and IIED assisting, in year 3.

At the end of year 2, the project was able to give each of the 4 groups a small contribution of \$BZ 500 towards the implementation of their pilot projects. For SIFAA, this covered the cost of 6 trips to transport construction materials for a tilapia pond and chicken coop, for Xibe the purchase of cooking utensils, for the Maya Mountains Tilapia Growers it covered the labour for the extension of an existing pond for Tilapia growing, and for Adventures in the Last Corridor, the purchase of 8 tubes, to allow river tubing to form part of an eco-tour.

To begin progress towards investment proposals for the groups, meetings were held (08/09/2017 and 31/01/2017) with the leader of the current World Bank funded 'Key Biodiversity Areas' project, to discuss the potential for business proposals to be put to that project by the 4

groups. Whilst in its remit, that project is not yet at the stage to receive business proposals. A meeting was also held with the UNDP Small Grants Programme representative in Belmopan on 02/02/2017, to discuss the format of proposals to that granting body. A draft proposal for funding for the 4 groups was prepared by IIED in March 2017, and following comments from TIDE and the business groups, will be submitted during year 3 of the project.



Working with Medina Bank on their business plan, January 2017

3.2 Progress towards project Outputs

Output 1 Biodiversity and woodland resource baselines are established for pine savanna woodlands within Toledo District, by developing a set of monitoring protocols that are adopted nationally

Prior to the project, TIDE was managing PCNP, and advising local concessionaires on the prescribed fire management of DRFR and SBFR, but without integration of baseline information about fire frequency, and without the ongoing monitoring of the effects of fire management on biodiversity and without an evaluation of sustainably exploitable resources, which limited its ability to conduct adaptive management. In year 1 of the project, 5 new protocols for long-term monitoring of indicator bird, mammal and plant species, as well as pine and palmetto resources were created (indicator 1.1), as can be verified from the documents as annexed to the 2016 annual report.

In year 2 of the project, these protocols began to be piloted by TIDE, as can be evidenced by the raw data collected this year and held by TIDE, and a report summarising previous biodiversity monitoring was prepared as a baseline. This report, to verify indicator 1.2, is annexed to this annual report (Annex 4). Indicator 1.3 for output 1 is the creation of a baseline fire frequency map for the three protected areas, which was produced as a master's dissertation by UoE, available at the following link for a free download: <https://www.era.lib.ed.ac.uk/handle/1842/19493>

TIDE does not, at present have the capacity to continue GIS fire analysis in future. However, the protected areas staff at TIDE now keep records of prescribed fire management and of wildfire occurrence, which mean that are sufficiently aware of the fire activity seen by the areas now under monitoring for fire effects. Hence, the project has successfully completed most of output 1, and all that remains is for monitoring to continue in year 3 and post project, and a commitment to write this into the next PCNP Management Plan was given by the TIDE Executive Director in a partner meeting in January 2017.

Output 2 Training to enhance national capacity to a) monitor savanna biodiversity / resources; b) provide training in best practices for agricultural fire use; c) develop small forest enterprises.

Output 2 seeks to ensure the sustainability of the approaches newly introduced by the project to Belize, by training people from across the country, to carry out similar work elsewhere. This is to be indicated by the provision of three training courses/ workshops. The first of these (indicator 2.1) is training for ~30 people in biodiversity monitoring, and all logistics are in place for this to take place under 2 separate events in April and June of 2017.

The second of these (indicator 2.2) is a high- level 'burn-boss' training in fire management, for 15 people, that equips attendees to give a basic level of fire training to others. This took place in year 2, as can be verified by the spreadsheet of attendees receiving certificates of attainment, attached to this report as annex 5. The competency of 6 community members amongst this cohort, will be further tested in year 3, when they will deliver, with supervision from TIDE, a further basic level fire training to their community peers.

The attainment of the output will be completed in year 3, with the delivery of a workshop to NGO staff, in business development approaches (indicator 2.3)

Output 3 ≥100 community members are trained in fire management (≥50 NTFP concession-holders trained in fire management for pine savannas and ≥50 farmers trained in best practices in use of agricultural fire)

Output 3, seeks to deliver training, customised to the situations of and resources available to local communities, in safe fire use for agricultural purposes, and in savanna prescribed fire use. Originally this was envisaged to occur in two separate training events (each with 50 attendees), however in year 1 it was agreed it would be much more effective to combine these two applications for fire into one training with 100 participants (indicator 3.1). In year 1, 62 attendees completed this training (as verified by a spreadsheet of attendees attaining certificates of competency, held by TIDE). To complete this output and reach the target of 100 participants by EoP, there will be a second round of training in year 3, led by 6 community members trained as 'burn bosses' (see output 2).

Output 4 Options to secure the palmetto seed harvest for community members into the future, through a formal agreement with the forest department and more sustainable harvesting practices, are negotiated

Palmetto seeds are a savanna resource that is destroyed by poor fire management and unsustainable harvest practices. This output responds to a baseline situation in which community members are harvesting and selling palmetto seed from forest reserves, to a buyer who is not licensed to purchase from such areas. Options to legalise NTFP extraction from forest reserves have not been considered previously, however FD's new Forest Policy of 2015, opens the possibility for such agreements.

Indicator 4.1 is the gathering of baseline information about present harvesting practices, locations and community organisation. A survey was carried out in year 2, to obtain this information, and this can be evidenced by the summary report attached as annex 6.

Indicator 4.2 is the use of this information by TIDE to convene meetings between the stakeholders involved, which are the communities that harvest, and any organisations representing them, FD, and logging concessionaires for these areas, to consider possible legal vehicles for sustainable palmetto extraction by communities from forest reserves. Whilst all of these stakeholders will not be engaged together until year 3 minutes of meetings with the stakeholders individually in year 2, provide evidence that they are willing to engage in this process.

Output 5 Mapping and analysis of site data to inform a future plan for a sustainable extraction zone in PCNP that includes an evaluation of the ecological and socio-economic impacts.

Output 5 responds to a baseline situation in which TIDE, as manager of PCNP, is not presently permitted to extract pine and palmetto resources, which could be possible at a sustainable level, and with proper management. Revenue from such extraction could be used to fund

ongoing maintenance of the park, which presently relies solely upon donor funding. Indicator 5.1, is the development under the project of detailed maps of the distribution of these resources for the park. These were produced by UoE in year 1, and were annexed to the year 1 annual report.

The completion of this output is planned in year 3 of the project. As indicator 5.2, the datasets (both socio-economic and ecological) required to allocate suitable harvesting locations and rates are presently being created or collated. Some of these datasets are being collected under output 1 of the project, under the supervision of the same consultant. These will be used to create a report to inform recommendations for sustainable harvesting from PCNP and a package of maps and data, as indicator 5.3, which TIDE can include in the next revision of the management plan.

Output 6 Business plans created for ≥3 additional SFEs suitable for PCNP buffer communities.

The baseline to which this output responds, is a situation in which local communities have few or no locally controlled businesses or business development skills, and hence little incentive to manage local resources sustainably or to protect them from wildfire. At the same time although TIDE desires to engage local communities in resource management, it has a low capacity to deliver business training.

The project engages IIED to mentor TIDE as they work through the business ‘incubation’ process with their communities. Indicator 6.1 is the delivery of business management training to ≥4 community groups by IIED, with TIDE in attendance. Two training courses have been successfully delivered in year 2, as verified by a spreadsheet of attendees successfully attaining certificates of competency (annex 5), and a further course will be delivered in year 3, will see this indicator attained.

The facilitation of at least 6 exchange visits to other relevant successful local businesses and the identification of possible market partners for the groups, is indicator 6.2. Attendance lists at 5 such exchanges in year 2, and of planned future exchanges in year 3, will evidence attainment of the indicator.

As indicator 6.3, the project is supporting the development of business plans, with at least 3 business groups. In year 2 of the project, 4 such plans were developed, and an example is attached as annex 7). These plans will undergo further refinement by the groups, as their business ideas respond to pilot projects in year 3.

The project aims to enable some of these business plans to be realised in future, by exposing at least 2 of the business ideas to possible investors, through written investment proposals. Meetings were held in year 2 with possible investors, and IIED completed a draft investment proposal for 4 businesses. This will be refined and put forward to investors in year 3, with the investment proposal documents, and minutes of meetings with potential investors, as evidence.

3.3 Progress towards the project Outcome

The means of monitoring and conserving biodiversity of pine woodlands in southern Belize is enhanced by developing capacity for community-based wildfire management, with local communities incentivised to participate through a more just and sustainable use of woodland resources.

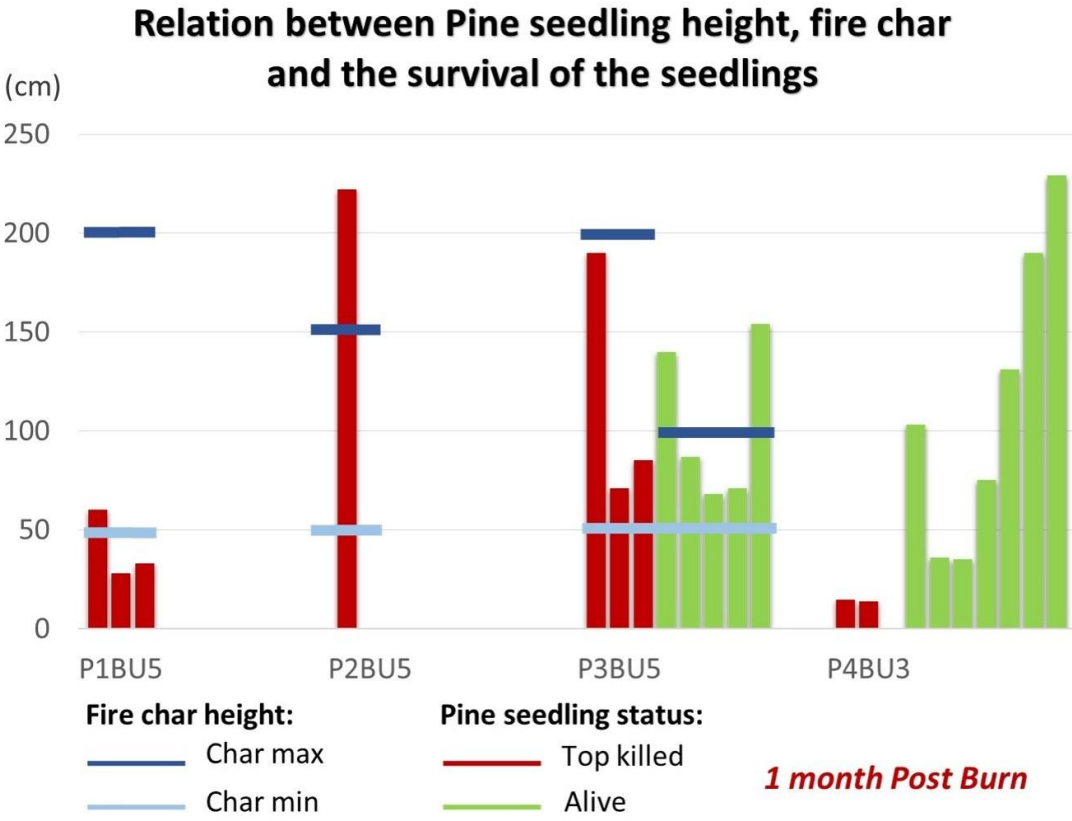
The outcome has 4 high level indicators, broken into sub-indicators:

1. Capacity to monitor the effects of fire management on biodiversity

As discussed under output 1, TIDE’s management of PCNP and advisory role in the management of DRFR and SBFR was not previously responsive to data collection. The project seeks as an outcome, to build the capacity locally, through training of TIDE staff and local community members, and nationally, through training of PA managers, to carry out monitoring and to actively use the results to inform PA management.

In year 2, the project has instigated monitoring at PCNP, DRFR and SBFR, for which 5 of TIDE’s PA rangers, and 6 community members were trained (progress towards indicator 1.1), and the infrastructure (tree tags, corner posts etc.) for 20 long term vegetation monitoring plots and transects were put in place (towards indicators 1.2 and 1.3). The locations and data collected on these plots in year 2 are held by TIDE in a GIS database. Indicator 1.3 sees as a further outcome that this data begins to inform TIDE’s management of the area. Initial insights from the monitoring will be summarised in a report for next year’s annual report, however at the close of year 2, analysis of the data collected to date is already providing TIDE with a better understanding of char heights that pines can survive in a prescribed burn, and this is informing recommendations for the conduct of the prescribed burning in the coming year (refer to summary results below).

We envisage the complete attainment of indicator 1 by EoP, through further upcoming training to PA managers from across Belize in biodiversity monitoring in April and June 2017, and a small number (<8) of additional monitoring plots being established.



Pine seedling survival data from the plots is already informing management of PCNP

2. Increased capacity of community members and protected areas managers to manage wildfire

Under outputs 2 and 3, community members are being trained in safe fire use for agriculture, and savanna prescribed fire management. Outcome indicator 2 is the capacity built in the attendees at these training events, and resulting changes in fire use. Indicator 2.1 is a basic level capacity built in ≥100 community members. With 62 of these trained in year 1, the lesson content of the training course provides evidence of the type of capacity built. Following the planned training of a further ≥38 community members in January 2018, interviews with participants and non-participants will be used to assess the knowledge built and any resulting behavioural changes.

Indicator 2.2 is a higher-level capacity, built both with community leaders and protected areas managers (≥ 15), which equips them to lead prescribed burns in the field and to train others how to do so. This training of 15 people, 6 of them community members, to 'burn boss' level, took place in year 2. The capacity built in this training can be evidenced by the lesson plan content of the course; further evidence of a capacity to train others will be available in year 3, as a spreadsheet giving the names of those community members receiving certificates of attainment at a further basic level, who will have been trained successfully by the 6 community 'burn bosses'.

Indicator 2.3 is the engagement by the project in discussions at a government level over amendment of the legislation governing agricultural fire use, in order to understand the terms and requirements to provide for community-level regulation of permitting. Following provision by TIDE in year 1 of consultancy to the Government Agriculture Department to demonstrate the potential of such legislative change, the project lead at TIDE is now a member of the National Fire Working Group, newly established on 23/03/2017 which is tasked with revising the Agricultural Fires Act. The minutes of the first meeting of this group provides verification. In year 3, the further involvement of TIDE in this national group will demonstrate attainment of the indicator and demonstrate they are being recognised for having developed a national level of expertise.

3. Access for sustainable extraction of woodland resources:

Under outputs 4 and 5, the project is working to facilitate legally, the sustainable extraction of palmetto and pine resources from the protected areas, by both communities and TIDE. An outcome envisaged of this work is that the communities will respond by harvesting more sustainably, and with an incentive to participate in fire management. Indicator 3.1 is an increased awareness in community members of the factors influencing the availability of the palmetto resource. To date, community members have been engaged about this topic through community meetings and surveys and via the fire and business training courses. In year 3, interviews will be held with two groups of community members that were and were not involved in these activities, with reported results used to assess the attainment of this outcome indicator. Attainment of indicator 3.2, which is the acceptance by TIDE and FD of recommendations for sustainable pine and palmetto extraction from PCNP, should be achieved in year 3 of the project, and will be evidenced by the provision of all the required data and mapping to enable plans for a SEZP to be included in the next update to the PCNP management plan, or minutes of meetings agreeing to incorporate these data if the plan is not expected to be published before EoP.

4. Local community livelihood benefits

Under outputs 2 and 6, the project is supporting activities for NGO staff across Belize, and to communities bordering the project area, that will enable the development of locally-controlled businesses. The outcome envisaged is an increased capacity for TIDE to support community level businesses, leading within project lifetime to livelihood benefits for the project communities.

As indicator 4.1, the members of the supported community groups will develop human capital in the form of business skills and vocational certification. The lesson plan content of 2 training courses delivered to community members in year 2 of the project (an example is attached as annex 8), and a further course to be delivered in year 3, together with the dates of exchange visits and certification under activities 6.4 and 6.5, and further interview evidence that will be gathered in year 3, will demonstrate the expected attainment of this indicator by EoP.

As indicator 4.2, members of the supported groups will gain livelihood benefits in the form of social capital deriving from working together for business. In year 2, the project has seen the formation of 6 groups, and their organisation for business. In year 3, we will identify if there is any evidence of differences in these social benefits arising from the project, by conducting interviews with two groups of community members that have and have not been involved in this aspect of the project.

As indicator 4.3 at least 2 of the community groups are expected to obtain direct financial incomes from their businesses, and/or physical or financial capital investment from donors external to the project. In year 2 an initial revenue of BZ\$665 was made by 2 of the groups in a pilot sale of crafts to another local NGO for placement in their gift shop. The project expects to see over attainment of this indicator, with further gains in the form of further revenues and investment by donors in some of the businesses by the end of year 3.

The building of capacity in at least 20 local and national NGO staff to understand how to support community business groups, is indicator 4.4. In year 2 of the project, IIEDs mentorship of 2 of TIDE's staff, is evidenced by the frequent provision of primer documents (an example is attached as annex 9) to advise TIDE in supporting the specific business groups with which the project is working. In year 3, evidence of the completion of the indicator will be the content of a workshop to be delivered to NGO staff from other organisations across Belize, in which the experiences of the TIDE staff working with IIED and staff working on related projects to develop community concessions are shared with the wider NGO community across the country.

3.4 Monitoring of assumptions

Outcome level:

Assumption 1: Continued engagement by GoB in CBD and by FD with the project.

This assumption remains valid, and the engagement by FD in project activities has been stronger in year 2 than year one, as a result of efforts by the project to engage them. This has been both at the top level, with 3 meetings convened with senior FD staff, such as the Chief Forest Officer and head of the Sustainable Forest Programme, as well as with local FD staff working in the district offices. Furthermore, FD actively participated with 2 staff attending the fire training under activity 2.2, and 5 staff signed up to attend the biodiversity monitoring training under activity 2.1 in April 2017.

Assumption 2: Continued effective cooperation between project partners and stakeholders

As expanded upon in section 2, during year 2 there has been good evidence of all the project partners cooperating effectively. Given the limited staff and pressures on FD they were never intended to lead any project activities, but to remain engaged and supportive. This has been the case in year 2. Logging concessionaires from the two main forest reserves continue to be consulted, with one (Gomez and Sons) now actively participating in prescribed burning as a member of the Southern Belize Fire Working Group. Community members continue to attend project meetings and participate in project activities, although 2 of the business groups initially trained have encountered difficulties in developing their businesses further. This was anticipated and was the reason for initially engaging 6 business groups, with the aim of developing plans for at least 3 groups.

Assumption 3: Natural disasters, such as hurricanes or wildfires do not seriously damage the protected areas

There have been no serious natural disasters directly affecting southern Belize in year 2, but the strong winds and heavy rains that hurricane Earl brought to Toledo in January 2016 were associated with a reduced seed stock of palmetto in August 2016

Assumption 4: Demand for palmetto palm seeds continues

Although the buyer of palmetto has been engaged on several occasions during year 2, the project could not control his decision not to purchase palmetto from the communities in 2016, when the harvest nationally was low, for reasons described under assumption 3.

Output level:

Assumption 1: Personnel with required skill to deliver training and monitoring remain committed

The personnel at TIDE, ERI and IIED delivering outputs remain enthusiastic in participation in the project. The external consultant, working on the fire training and sustainable extraction zone

plan, has been engaged long-term with TIDE and throughout this project, and remains committed to continue his engagement post –project.

Assumption 2: NTPPAM and National Ranger Training Academy continue as long lasting initiatives

The National Ranger Training Academy has now been assimilated as part of the NTPPAM, and all the materials created by this project have been fully integrated and adopted by the ERI who now manage the NTPPAM.

Assumption 3: Community members remain interested in training in fire management

We have been delighted by the response of the communities to training so far and in particular the engagement by women.

We anticipate no problems in engaging further trainees in year 3.

Assumption 4: Agriculture department remain open to discussing legislative change in rural fire governance

The Agriculture department recently announced its decision to revise the Agricultural Fires Act in 2017, and project staff have been invited onto the committee for its revision.

Assumption 5: Palmetto palm resources are not destroyed by hurricane or major wildfire

See outcome assumption 3

Assumption 6: The market for palmetto palm seed remains viable

See outcome assumption 4

Assumption 7: Community members remain interested in harvesting NTFPs and SFEs

We have had enthusiastic participation by 4 community business groups in ongoing activities to develop SFEs. The lack of market for palmetto in 2016, threatens to undermine community interest in enterprises based on palmetto extraction, and it remains to be seen whether a market is re-established in year 3.

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

The project has established national protocols for monitoring the extent and condition of Caribbean pine and Palmetto palm, and for the abundance and distribution of mammals and birds, including the Critically Endangered Yellow Headed Parrot. These monitoring protocols will enable the project to quantify its impact on biodiversity attributable to observed changes in fire management. Under the National Biodiversity Monitoring Program co-ordinated by University of Belize Environmental Research Institute, these protocols have now been published, supporting national standardisation, and building capacity within organisations for monitoring to continue in to the future. This was identified by our mid-term reviewers as a significant achievement by this project and one that will support Belize to meet its reporting requirements to the CBD.

The independent mid-term reviewers also found evidence that the community fire management (outputs 2 and 3) are leading to an increase in the capacity of the buffer communities to control the escapes of fires from agricultural; during year 2 of the project, the communities and the TIDE staff have reported no ecologically destructive annual wildfires in the savanna, which is a significant improvement since before project inception. Community members are also reporting an increased understanding of how to minimise fire escaping by adopting safer burning practices and the extent of this improved understanding will be quantified by end of project M&E.

TIDE have begun a series of consultations with FD, the logging concessionaires and the buffer communities aimed at negotiating the basis of rights and responsibilities for sustainable extraction of palmetto and other NTFPs from the reserves (output 4). This will have impact as it serve as a model for negotiating such agreements nationally, whilst assisting in securing a resource for community members and incentivising good fire management. In year 1 the FD

also gave permission to TIDE to pursue plans to develop a trial of a sustainable extraction zone (SEZ) within PCNP and the data sets are presently being produced and collated to inform this under the direction of a suitably experienced consultant. The adoption of this plan within the next revision of the PCNP Management Plan by EoP will have national impact as it will serve as a model for how NGOs may implement SEZs within National Parks and other PAs within the framework of the new Forest Policy.

Finally, the community business development is progressing well and is ahead of schedule (output 6); several business plans developed with the communities recognise the value of fire management for securing the underlying resource base, and many groups are reporting that the process of business training combined with fire training is enabling their community members to strengthen their livelihoods, business skills and social connections. As well as these social wellbeing benefits, at least one of the groups has made initial sales and therefore is receiving direct economic benefits too. This demonstrates the benefits the project making to human development and wellbeing in the project area. The sharing of experiences with other NGOs in year 3 will enable the project findings about how community business development can be linked to more sustainable and appropriate use of woodland resources to have wider impact. IIED plans to publish the Belize case studies as part of a wider review of agro-forestry business development and this will extend the impact of the work in Belize to a more global audience.

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

The project is working across a number of the SDGs. With the communities targeted by the project being amongst the poorest in Belize (according to Belize's Country Poverty Assessment of 2010), the development of community enterprises, and reduced risk to property and livelihoods from fire contribute to SDG 1 *'to end poverty in all its forms everywhere'*. The business training, vocational certification, fire training and biodiversity monitoring training provided by the project are providing learning opportunities to a range of people across the communities, some of whom have not completed primary school, and many of whom have not attended high school, and hence supports SDG 4 *'ensure inclusive and equitable quality education and promote life-long learning opportunities for all'*. The equal involvement of men and women in the business development elements of the project, the leadership of women in these enterprises, and the involvement of women in fire training, are strong steps in Belize towards SDG 5, *'achieve gender equality and empower all women and girls'*.

The support of entrepreneurship by community members also aligns with goal 8, *'promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all'*, in a region where opportunities for wage labour are limited. The project's work to reduce the impacts of wildfires on the biodiversity of the lowland savannas of Belize, which are likely to be exacerbated by climate change, strongly supports goal 13, *'take urgent action to combat climate change and its impacts'*, and goal 15, *'protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forest, combat desertification, and halt and reverse land degradation and halt biodiversity loss'*. Finally, the national and international partnerships strengthened and developed through the project, work towards goal 17 *'strengthen the means of implementation and revitalize the global partnership for sustainable development'*.

5. Project support to the Conventions, Treaties or Agreements

This project addresses several Aichi targets. The fire management element, advanced this year with the training of community members and protected areas staff from across Belize, responds to the need for actions whereby *'degraded ecosystems may be enhanced through in situ conservation and restoration, contributing to climate change mitigation (targets 14-16), and enables local communities to participate in conservation (target 18)*. The community enterprise and palmetto rights components seek to provide *'economically sound, positive incentives for promoting conservation and sustainable use of biodiversity'* (target 3). Enabling communities to negotiate access to woodland resources and the promotion of sustainable harvesting are

examples of 'short term measures' suggested in Annex 1 to UNEP/CBD/COP/12/6 through which 'NGOs and communities may negotiate mutually agreed terms for benefit sharing'.

The project supports Belize's signatory commitments to various UN-CBD articles, including (6) national strategies for biodiversity monitoring and conservation; (7) identification & monitoring of components requiring urgent conservation; (8) restoring degraded ecosystems by balancing sustainable use/conservation; (10) informing national biodiversity strategy; (11) providing economically and socially sound incentives to conserve biodiversity and promote sustainable use; (12) establishing research/training programmes; (13) promoting public education and awareness and (15) enabling access to resources and benefit sharing.

FD is the National Focal Point for the CBD in Belize, and as a project partner is regularly engaged with project progress, by email and by staff attendance at meetings (e.g. on the 30/08/2016, 31/01/2017 and 03/02/2017). Two staff participated in the fire training held in February 2017 and five more staff have signed up for fire effects training in April 2017. The project outputs will also enable FD to implement, for the first time, elements of the National Wildland Fire Management Policy and Strategy and its new Forest Policy, which explicitly calls for community access to Forest Reserves for Non-timber forest product extraction.

6. Project support to poverty alleviation

The five communities targeted are amongst the poorest in Belize (as recognised by Belize's Poverty Elimination Strategy), and have few opportunities for paid employment besides labour on surrounding banana plantations. Many adults have not been educated beyond primary school level. This project will strengthen links between TIDE and its local communities and will improve the capacity of TIDE to contribute to sustainable development in the area.

The fire training will have several indirect, long-term benefits to community members as it appears to be reducing numbers of intense uncontrolled wildfires. Participatory exercises at community meetings (under activity 2.1) suggest that community members recognise fire as posing a serious risk to their livelihoods, homes and health. There are also direct benefits for those taking the fire training, who will develop new marketable skills (for example useful for obtaining employment with local logging concessionaires) and leadership experience, as well as receiving a stipend for attending. The training also helps local people understand the work of TIDE and the functioning of an NGO. Six community members have also been employed by the project to carry out monitoring of the pine and palmetto plots established under activity 1.2. Of these, one has now been employed for a full-time position as a ranger by TIDE.

Work to secure the harvesting of palmetto and other NTFPs by community members, both legally and practically by introducing less destructive harvesting methods, will allow them to obtain more direct economic benefits from these savanna areas in the future. Furthermore, support for the development of community enterprises this year has developed business skills with community members through training and exchange visits. It has seen 9 community members gain official certification (food handlers license) and is already creating economic benefits for one group (BZD\$665 from a first sale of crafts to a gift shop). The development of business plans, and funding proposals will create the potential for greater economic benefits in coming years, and the social benefits that often derive from engaging in group businesses.

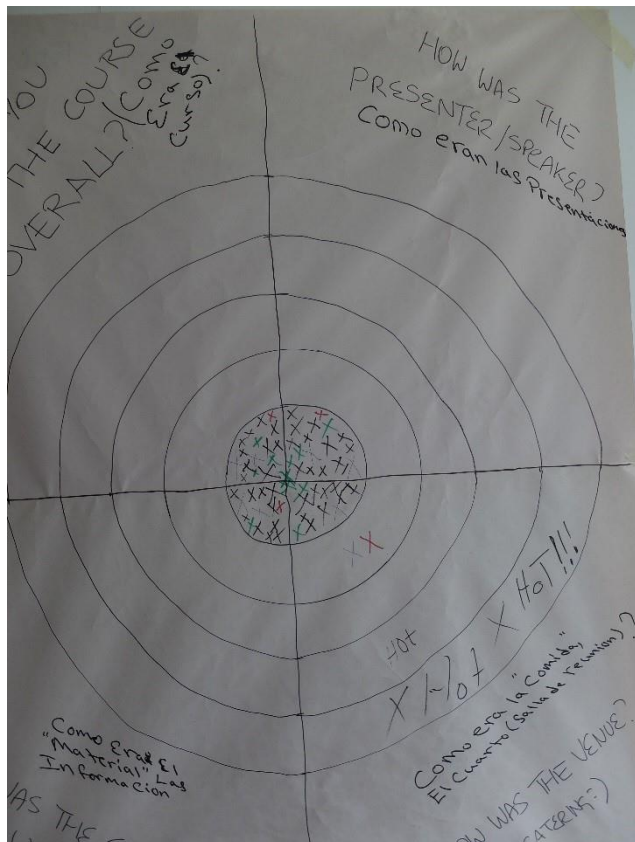
7. Project support to gender equality issues

The project is committed to promoting gender equity. In Belize, men are often the household income earners, and following success in involving women in the basic level fire training in year 1, the project is now encouraging the involvement of women in the business training and development activities- a strong step forward that is prominently demonstrating within the communities that women can lead and develop enterprises. Women have attended regular meetings at all of the 4 business groups the project is supporting; two of these groups are predominantly women's groups. The business training workshops and the exchange visit to Guatemala were attended in approximately equal numbers by both genders. All attendees at the 2nd level fire training were men, and this reflects the reality that the overwhelming majority

of managers of protected areas, logging concessionaires and community leaders in Belize are men.

8. Monitoring and evaluation

All the project partners are in regular communication; we jointly plan and evaluate project activities, and we have responded to changing circumstances as they have arisen. The project has evaluated individual activities as they have occurred in year 2, for example by assessing the expectations of attendees at the start of each training course, and ending with discussion of how far those expectations had been met.



Example of an evaluation exercise at a business training workshop, September 2016

This inclusive technique allowed all members (both English and Spanish speakers) to anonymously record their satisfaction with the different components of the training, including style and content of the workshop.

The project is establishing baseline monitoring of fire-effects on the target ecosystem for the first time. Results of this monitoring of fire effects upon biodiversity is now beginning to inform adaptive management by TIDE, by providing e.g. evidence of the char height at which pine seedlings will survive prescribed fire. The business development work with the communities involves frequent update meetings with the groups, at which we are able to monitor their progress, provide appropriate support and guidance and ask them to evaluate our courses.

It was realised in year 2, following mid-term review, that the project did not have clear methods for evaluating some of its higher, outcome level indicators - in particular relating to changes in capacity or awareness by community members. As a result, several new evaluation tools have been designed. At the end of years 2 and 3, general meetings will be convened in at least two of the project communities, and a "bullseye" evaluation exercise will assess the perceptions of the community of changes resulting from the project in 5 key areas:

- Capacity for community members to manage wildfire
- Capacity for community members to manage businesses
- Increased security of crops, buildings and resources from the damages of wildfire
- Financial capital or physical assets gained by community members
- Social benefits from attending activities and of being members of business groups

Secondly, at end of project, semi-structured interviews will be carried out with at least 5 community members that attended a range of project activities, and at least 5 community members that did not attend project activities. The questions will aim to assess, by comparing the responses of community members that have and have not been involved, whether there has been increased awareness of savanna ecosystems, increased awareness of the factors influencing palmetto resource availability, increased understanding of safe practices and behavioural change in fire-use and increased business skills and benefits from business resulting from the project.

9. Lessons learnt

The project has been responsive throughout the year to difficulties encountered and to advice from external reviewers.

In November 2016, the project underwent a mid-term review, which was largely positive about the work being carried out, but which provided us with recommendations to refine the logical framework of the project to better capture its achievements. The reviewers noted that the project's outcome statement and its outputs 4 and 5, as written, implied further work beyond EoP to be fully realisable. We have responded by rewording these statements and submitting a change request to Darwin, which was approved on 13th April 2017. The reviewers also noted that some of the project's indicators were not articulated sufficiently clearly, for progress against them to be measured. In response, we have reworded the outcome and output certain indicators, to link them directly to measurable evidence that the project is capable of providing. These changes were also approved on 13th April 2017. Further detail on improvements to the outcome level monitoring and evaluation strategy is given in section 8.

The Mid-term reviewers also noted that some of the business ideas being supported by the project did not have a direct link to fire management, and argued that this undermined the rationale for the business development component. We dispute that this is the case. All project partners considered carefully at the community engagement stage of the business development work, the extent to which business ideas should be suggested by the project to the communities. Partners agreed that the communities would have stronger ownership of the businesses, if they themselves proposed the ideas towards which they were motivated to work, and hence we agreed collectively to be open to working with any business idea. In reality, some of the initial ideas suggested by the communities were not necessarily compatible with FDs vision for Forest Reserves, and did not necessarily rely directly upon savanna resources (and hence savanna fire management). Nonetheless, any infrastructure in these communities is directly at risk from wildfire, and therefore many of the business plans developed by the communities include fire management as a means to protect their businesses. Furthermore, by being open and supportive of the desires of the community, trust has been developed, which is allowing TIDE to gradually suggest more compatible elements to the business visions, and more generally to engage the communities with ideas about sustainable resource use and conditions pertaining to protected areas, with which they were previously unfamiliar.

Although we had a simplistic vision at the beginning of the project of how we might provide communities with rights to access to forest reserves for sustainable harvest of palmetto resources, we have deepened our understanding of the issues involved and the positions of the various stakeholders over the last two years. We have also encountered a number of factors, outside our control, which have led us to scale back our expectations of what we can achieve within this project. Such factors include the volatility of the market for palmetto, which this year was not viable, wider questions about community land rights being disputed between the government and the Maya Leaders Alliance and the feasibility of working with the varied spectrum of harvesters to collectively organise the harvest and sale of palmetto. As a consequence of this learning, we believe that we are capable of facilitating a first round of negotiations in year 3 between these stakeholders, but it would be unrealistic to guarantee that this will result in a legal agreement by EoP, partly since such an outcome may not be desired by the stakeholders.

As might be anticipated, when working with small communities with their own political divisions and social structures, the business development work has not always progressed as envisioned. In Medina Bank in particular, the wider community did not feel that they were being well informed of project activities by the business group members and the election of a new chairman and Alcalde during year 2 divided the executive of the group. The result was that the members of the community, with the Alcalde's support, demanded a change in executive for the group. The project has responded to such challenges by attempting to remain impartial, and continuing to provide support to the leaders chosen by the community for the group. Nonetheless, some of these new leaders did not participate in earlier training courses, and this has set back the progress of this business group going into year 3.

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

There were a number of issues raised by the reviewer of our year 1 annual report, which we address below:

1. TIDE has not been named as partner institution in this project report (in the table on page 1). Why?

This was an oversight on our behalf, and has been amended for this annual report

2. Can the project confirm if an agreement for securing community rights to harvest Palmetto from the protected areas is expected within the timeframe of the project and, if not, how gaining agreement will be supported following project closure?

As addressed in section 9, the project expects to inform an agreement for community rights to palmetto, but due to various changes in the socio-political situation over land rights in southern Belize since the proposal was written, this may not be achieved during project lifetime. TIDE is leading the palmetto element of the project, and is also considering the potential for palmetto extraction from PCNP as part of the sustainable extraction plan to be written under output 5. Understanding the palmetto market, the value chain, and the ability of community members to benefit will continue to be core elements of TIDE's co-management strategy, with FD for PCNP, and they should continue supporting this work following project closure.

3. None of the output level indicators are time bound which makes it difficult to monitor progress.

The indicators have been revised, as discussed in section 9, however they have not been time-bound with specific months in year 3 in the revised log frame. Given that the timeframe for all remaining work is now a maximum of 12 months, and since plans and timing of year 3 activities have been agreed amongst project partners at recent partner meetings in January and March 2017, the partners felt that adding in the months for completion into the reporting log frame would not be of additional assistance. Rather, it was agreed that activities would continue to be monitored each month by the project officer and by TIDE. Activities scheduled for April-August would be reported in the 30 month progress meeting to all partners; any requests for changes to the timetable will be considered by a small group normally involving the two project leaders, the project officer and in consultation with the Directors of TIDE and the ERI as appropriate.

4. The project should consider revising its outcome level indicators to make them more measurable and time bound, allowing for objective measurement of progress.

See sections 8 and 9, in which we discuss amendments to the project log frame to address this. Indicators have not been time bound- for the same reasons as given above.

5. Since livelihood benefits accrued from securing Palmetto harvest rights, and the ensuing development of SFE's are most likely to materialise after the project has closed, what evidence can the project provide that TIDE will continue to deliver its long term strategy after this project has closed?

It is indeed likely that most livelihood benefits from securing palmetto rights will accrue after EoP, however we believe that the business development work (which for reasons described

above was not made dependant on securing the palmetto harvesting rights) will provide direct financial and other livelihood benefits to community members within project lifetime, beyond what had originally been anticipated.

As a result, output 6 was expanded in the approved change request of March 2017, to include further indicators to capture this new activity. Some of these new activities- e.g. the submission of business investment proposals in year 3, directly respond to the need for a longer term strategy for attracting external support for these businesses beyond EoP. TIDE has a long term co-management agreement with FD for PCNP, and these communities will remain key stakeholders for the area, with whom it will be necessary for TIDE to continue to engage.

11. Other comments on progress not covered elsewhere

No further comments.

12. Sustainability and legacy

Many of the outcomes of the project are expected to continue and grow after its completion. The biodiversity and resource monitoring that has been established during the project is designed for the long term, and its sustainability has been built into the project via the publishing of the protocols, the training of local community members and rangers to carry out the monitoring and via activity 2.1, which trains protected area managers in the methods. With plots established, the protocol is simple to carry out in successive years. The fire training given this year under activity 2.2 has given leaders in the communities the skills to train other community members in fire management in the future, which should ensure that capacity to manage fires remains high following the project. TIDE's next Management Plan will commit it to continue its programme of prescribed burning and monitoring and reporting of fire effects and of biodiversity, which will allow it to carry out responsive, adaptive management of PCNP.

The business development work aims to leave community members with the skills, pilot projects and investment for the businesses to survive post- project. The successful completion of business plans, initial revenues, and draft investment proposals produced this year suggest that at least some of the businesses will be sustained post-project.

For TIDE, ERI and FD, this project provides pilots or establishes methodologies in support their longer-term aims as organisations. For TIDE, the engagement of these same communities will be a core aim in future, as will be the management and monitoring of, and possible sustainable extraction from PCNP, for which this project lays the groundwork. For ERI, the national standardisation of monitoring and data collation are key aims. For FD, the project lays the foundations for negotiating community level licenses to extract NTFPs from forest reserves, and for creating SEZs within National Parks and other PAs, as are envisaged in its new Forest Policy.

The profile of the project in Belize and the UK has been widely disseminated through presentation at conferences in year 2. The project was showcased at the UK Belize Association meeting in October 2016, at the Central America Regional Meeting of Mesoamerican Society for Conservation Biology's (MSBC) conference in August 2016, at a workshop on fire hazard mapping in Central America in La Antigua Guatemala in March 2017 and in 3 further presentations given at the Natural Resource Management and Research Symposium in March 2017 (attached as annex 10). Through these conferences the work of the project was disseminated to academics, NGOs, government ministers, students and conservation professionals from Belize and other Central American countries. The project also supported 7 students studying for a degree in Protected Areas Management at the University of Belize's Punta Gorda campus, to attend the national symposium in March 2017. This was an exciting opportunity for these young people, (pictured below), who live locally in the project's focus area, and who will be among the next generation of conservation professionals for Belize, to see the width of national biodiversity conservation activity.



Students supported by the Darwin project to attend the MSBC symposium at University of Belize, Belmopan, March 2017

The legacy of the project lies partly in the outputs from the project which have been embedded in national organisations – for example the fire management training courses and the biodiversity monitoring protocols which have been adopted by the national university, and which will continue to be delivered beyond the project as part of the National Training Programme For Protected Area Managers (NTPPAM). The permanent monitoring plots for monitoring of fire effects will continue to be monitored beyond EoP by students from University of Belize and by TIDE staff, and the baselines established by the project will provide knowledge of how pine woodlands respond to prescribed burning that will inform management of pine savannas by FD and by NGOs throughout Belize. The creation of the sustainable extraction zone for PCNP in the next management plan will be a legacy from this project that will influence TIDE’s strategic adaptive management of PCNP for the next 5-10 years. Legacy also lies in the networks built both between TIDE and other NGOs developing operational fire management operations in other parts of Belize, since this will enable them to co-operate and to build over time the complete nationwide capacity for fire management envisioned in the project impact. The business groups have also formed supportive internal and external networks and these will continue to help them to develop skills and social capital and to seek further external funding beyond this project.

13. Darwin identity

This project builds on DI project 17022, and an awareness of organisations in Belize about the Darwin Initiative. The Darwin Initiative is presently funding two other projects in Belize at present, and so this project took the initiative to convene a joint meeting of all these projects for presentation to the British High Commission in Belmopan in November 2016. Darwin Reviewers from LTS were also invited to this meeting and gave specific guidance on writing stage-2 proposals to three applicants with proposals being submitted to the 2017/18 round. This further raised the profile of the Darwin Initiative to conservation professionals and diplomats in Belize.

The project, and Darwin as the funder, were show cased at the UK Belize Association meeting in October 2016, and in a presentation at the Mesoamerican Society for Conservation Biology’s (MSBC) Regional conference in August 2016, and in three further presentations given at the MSBC Belize chapter’s, Natural Resource Management and Conservation symposium in Belize in March 2017 (attached as annex 10).

The Darwin logo has been used on all reports produced in year 2 and features prominently on all the certificates awarded to the community members completing the business and fire training courses. Blogs about the project published by IIED (<https://www.iied.org/community-forest-farm-business-training-under-way-belize> and <https://www.iied.org/business-incubation-motivates-fire-management> contain links to the Darwin website, and Darwin Project is

promoted on the TIDE, ERI and University of Edinburgh websites. There is a generally high level of recognition of the Darwin Identity among NGO and governmental staff throughout Belize and Darwin received many 'name-checks' during the speaker presentations.



Allana Barillas who works on the community livelihoods project for TIDE delivers one of three presentations of the project at the MSBC NRM conference, March 2017.

Darwin Logo is prominent in all presentations and is verbally acknowledged by all speakers

14. Project expenditure

This information will be supplied for 31 May deadline. The project is in budget and there is no surplus to return this year.

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)				
Consultancy costs				
Overhead Costs				
Travel and subsistence				
Operating Costs				
Capital items (see below)				
Others (see below)				
TOTAL				

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

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>Impact</p> <p>Biodiversity of pine woodlands is conserved throughout Belize, enabled by an increased national capacity for community-based wildfire control that is founded upon a just and sustainable use of these woodlands.</p>		<p>Although many of the positive impacts of the fire management upon biodiversity will be evident through monitoring beyond EoP, the infrastructure and the training to undertake this long term monitoring are already mostly complete and the monitoring protocols have been created, verified, institutionalised and disseminated nationwide.</p> <p>The majority of the community members identified for the basic fire training have now received this. 6 members have progressed to the second level where they are now able to train others.</p> <p>TIDE has gained permission from FD to develop plans for a sustainable extraction zone within its nature reserve and steps are being made towards negotiating access for communities to the resources within PAs.</p> <p>6 community business groups have been mentored over the last 18 months, with 4 developing business plans and 2 obtaining initial revenue from sales during year 2.</p>	
<p>Outcome</p> <p>The means of monitoring and conserving biodiversity of pine woodlands in southern Belize is enhanced by developing capacity for community-based wildfire management, with local communities incentivised to participate through a more just and sustainable use of woodland resources.</p>	<p>2. Capacity to monitor the effects of fire management on biodiversity</p> <p>1.1 ≥30 Local and national protected areas managers and local community members have an increased capacity to conduct and awareness of the management benefits of long-term biodiversity monitoring of savannas</p> <p>1.2 20 long term vegetation monitoring plots are established in PCNP, DRFR and SBFR, from a baseline of 0</p> <p>1.3 Baseline biodiversity data is collected during project lifetime and begins to inform adaptive fire management in PCNP and</p>	<p>The project is on schedule to complete building the capacity to monitor fire effects locally, through training of TIDE staff and community members, and nationally through training of PA managers, to carry out monitoring and to actively use the results to inform PA management.</p> <p>In year 2, the project instigated monitoring at PCNP, DRFR and SBFR, for which 5 of TIDE's rangers and 6 community members were trained (progress towards 1.1), and infrastructure for 20 long term vegetation monitoring plots and transects were put in</p>	<p>We expect complete attainment of outcome indicators 1.1-1.3 by EoP, through further upcoming training to PA managers from across Belize in biodiversity monitoring in April and June 2017 (1.1), and a number (<8) of additional monitoring plots being established this year (1.2). Under 1.3, baseline biodiversity data is already being collected from the plots established by this project and this will be supplemented by further data in year 3 that will assist TIDE to adapt their prescribed burn plans to minimise negative effects on biodiversity and maximise pine seedling survival.</p>

	<p>DRFR</p> <p>2. Increased capacity of community members and protected areas managers to manage wildfire</p> <p>2.1The number of community members with the capacity to conduct safe agricultural burns and an awareness of savanna fire management increases from a baseline of 50 by ≥ 100</p> <p>2.2The number of protected areas managers and community leaders with the 'burn boss' level capacity to lead training for community members in wildfire management increases by ≥ 15</p> <p>2.3 The project informs discussions at the national level to consider change to the legislation governing agricultural fire use to allow for community-level permitting</p> <p>3. Access for sustainable extraction of woodland resources:</p> <p>3.1 Community members have an increased awareness of the role of fire and of unsustainable harvesting techniques on the palmetto resource</p> <p>3.2 Recommendations for locations of sustainable extraction of pine and palmetto from PCNP are incorporated by TIDE into its management plan</p> <p>4. Local community livelihood benefits:</p> <p>4.1 Human capital development through</p>	<p>place (1.2 and 1.3).</p> <p>62 of the intended 100 community members have been trained in safe fire use and prescribed burning.</p> <p>A higher-level capacity will be built both with community leaders and protected areas managers (≥ 15), which equips them to lead prescribed burns in the field and to train others how to do so. This training of 15 people, 6 of them community members, to 'burn boss' level, took place in year 2.</p> <p>Following provision by TIDE in year 1 of consultancy to the Government Agriculture Department to demonstrate the potential of such legislative change, the project lead at TIDE is now a member of the National Fire Working Group, newly established on 23/03/2017 which is tasked with revising the Agricultural Fires Act</p> <p>To increase awareness in communities about the factors influencing the availability of the palmetto resource, during year 2 community members have been engaged through community meetings, surveys and via the fire and business training courses.</p> <p>Baseline resource data was assembled in year 1. In year 2 this has been reviewed by a consultant and is now being combined with data from newly established plots to determine yield and regrowth rates in different areas of PCNP</p> <p>During year 2, the members of the supported community groups have developed human capital in the form of</p>	<p>2.1 will be attained when a further ≥ 38 community members receive training in January 2018;</p> <p>2.2 was attained this year. The 6 community burn bosses will demonstrate their new skills by leading the training of the 38 community members in January 2018 under supervision from experienced trainers from TIDE and Everglades.</p> <p>In year 3, a series of further planned meetings between TIDE, FD and logging concessionaires will demonstrate progress by the project to inform these discussions and contribute to documented recommendations for policy revision by EoP.</p> <p>In year 3, interviews will be held with two groups of community members that were and were not involved in these activities, with results used to assess the attainment of outcome indicator 3.1.</p> <p>Indicator 3.2 should be fully achieved in year 3, and will be evidenced by the provision of the required data and mapping to enable plans for a SEZP to be included in the next PCNP management plan</p> <p>A further course to be delivered by IIED in year 3, together with the dates of exchange</p>
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	<p>iterative business training and exchange visits to successful businesses with ≥4 community groups</p> <p>4.2 Social capital development through the organisation ≥4 community business groups.</p> <p>4.3 Initial gains in financial and physical capital to at least 2 community business groups, from trial sales of products and services in line with community business plans.</p>	<p>business skills and vocational certifications.</p> <p>Under 4.2, members of the supported groups have gained livelihood benefits in the form of social capital deriving from working together for business. In year 2, the project has seen the formation of 6 groups, and their organisation for business.</p> <p>Under 4.3 at least 2 of the community groups are expected to obtain direct financial incomes from their businesses, and/or physical or financial capital investment from donors external to the project. In year 2 initial revenues of BZ\$665 were made by 2 of the groups from sale of crafts to a local gift shop.</p>	<p>visits and certification under activities 6.4 and 6.5 will demonstrate complete attainment of this indicator by EoP.</p> <p>Gains in social capital will be evaluated in year 3 using interviews of both participants and non-participants in the business enterprise groups.</p> <p>The project expects over-attainment of indicator 4.2, with additional gains in the form of further revenues and investment by donors in some of the businesses expected by the end of year 3. DEFRA recently approved our request to add a further output indicator 6.4 and to extend activity 6.7 to capture more of this activity.</p>
<p>Output 1.</p> <p>Biodiversity and woodland resource baselines are established for pine savanna woodlands within Toledo District, by developing a set of monitoring protocols that are adopted nationally</p>	<p>1.1 5 new protocols for monitoring bird indicator species and plants (<i>P. caribaea</i>, <i>Z. prasina</i>, <i>V. gaumeri</i>, <i>A. wrightii</i>) in PCNP, DRFR and SBFR.</p> <p>1.2 Availability of baseline data for PCNP will have increased from one of these monitoring targets (birds) at present to six by end of project (EoP). Baseline data for DRFR and SBFR will have increased from one of these monitoring targets (Caribbean pine) to two (pine and palmetto).</p> <p>1.3 A baseline map of fire frequency for PCNP, DRFR and SBFR will be produced</p>	<p>All methods for monitoring the effects of fire upon biodiversity are complete. The protocols were published last year and are being field tested this year by various NGOs and students from University of Belize. The protocols for biodiversity monitoring can be downloaded from http://belizeconservation.site/wp-content/uploads/2017/01/Annex-6-Protocols-Package_-birds-and-wildlife.compressed.pdf</p> <p>A baseline report on biodiversity in PCNP was finalised in August 2016 and is appended as Annex 4 and at http://belizeconservation.site/wp-content/uploads/2017/01/Annex-2-Biodiversity-Report.pdf</p> <p>Permanent plots for monitoring of palmetto in all three PAs and pine in PCNP have been established to fulfil (1.2 and 1.3) and are reported in Annexe 1 and also at http://belizeconservation.site/wp-content/uploads/2017/01/Annex-1-Monitoring-plot-locations.pdf</p> <p>Baseline mapping of fire detections from LANDSAT data was completed this year and is reported at https://www.era.lib.ed.ac.uk/handle/1842/19493 A summary analysis of MODIS fire detections for PCNP from 2000-2015 is at http://belizeconservation.site/wp-content/uploads/2017/01/Annex-10-Belize-Savanna-Fire-Detects.pdf</p> <p>Output 1 has been fully achieved this year, with initial baseline data being collected. Further data will be collected next year and used to inform burn planning in PCNP. A small number of additional plots may be added in year 3 to collect additional monitoring data.</p>	
<p>Activity 1.1 Surveys of pine stocks in PCNP (TIDE, FD)</p>		Completed in year 1	
<p>Activity 1.2 Establish 28 0.2 ha permanent plots in PCNP (TIDE, FD)</p>		12 pine (and palmetto) monitoring plots were set up in PCNP in April 2016, with the assistance of 6 community members. These plots were revisited in August 2016, to check that tree locations were correctly recorded, and for monitoring, with 4 community members to assist. All were revisited for monitoring in Feb and April 2017, with 2 community members assisting.	

		Monitoring of the plots will continue in year 3.
Activity 1.3 Assess distribution, abundance and productivity of palmetto palm in PCNP, DRFR and SBFR (TIDE, FD)		A GIS analysis of palmetto location was completed in year 1. The plots established in PCNP under Activity 1.2, are also palmetto monitoring plots, and 8 additional palmetto monitoring transects were set up in DRFR and SBFR in May 2016. Palmetto locations were recorded for all plots and transects as they were established, and they will be revisited yearly in August (for the first time in 2016) to monitor seed production. Monitoring of the plots and transects will continue in year 3.
Activity 1.4 Develop protocols for monitoring Caribbean pine and palmetto palm (TIDE)		Completed in year 1
Activity 1.5 Establish/refine protocols for monitoring key conservation targets (yellow headed parrot, the cycad palm <i>Zamia prasina</i> , and the fiddlewood tree) and biodiversity indicator species (birds) in line with the National Biodiversity Monitoring Program (TIDE, ERI)		Completed in year 1
Activity 1.6 Establish biodiversity and wildfire baselines against which effects of fire control and sustainable harvesting will be monitored (TIDE)		A biodiversity baseline report for PCNP was finalised in August 2016. A GIS analysis of wildfire frequency for the area was completed for a masters student at degree at UoE in the summer of 2016.
Activity 1.7 Publish materials for monitoring pine woodland biodiversity and resources as part of the NTPPAM (ERI, TIDE)		Completed in year 1
Output 2. Training to enhance national capacity to a) monitor savanna biodiversity / resources; b) provide training in best practices for agricultural fire use; c) develop small forest enterprises.	<p>2.1 The number of people in Belize capable of monitoring components of savanna biodiversity will have increased by ~30 from <10 at present.</p> <p>2.2 The number of people in Belize capable of providing training in safe use of agricultural fire will have increased by approximately 15 from <5 currently.</p> <p>2.3 The number of NGO personnel with an awareness of the process of developing community SFEs will have increased by ~20 from an estimated <10 at present.</p>	<p>This output is one third complete by end of year 2 and will be 70% complete by the 30 month mark. The burn boss training (2.2) has been successfully completed this year and evidence of this is in Annexe 5. Biodiversity training (2.1) has been subdivided into two training courses that will take place in April 2017 and June 2017 respectively and will allow us to meet or exceed our target for the number of people capable of monitoring savanna biodiversity and the effects of fire upon these. Materials for these training courses are already under development, such as http://belizeconservation.site/wp-content/uploads/2017/01/Annex-5-Darwin-Protocols_Pine_Palm_Cycad.pdf</p> <p>Activity 2.3 was always planned as a final year activity for sharing experiences with the wider conservation community and has now been scheduled for February 2018.</p>
Activity 2.1 Conduct national training workshops in biodiversity monitoring for ~30 PA staff (ERI)		All logistics are in place for 2 workshops to be held under this output in year 3, each with 15 attendees. The first, in April 2017 will cover long-term vegetation monitoring, the other, in June 2017, will cover camera trapping and camera trap data management.
Activity 2.2 Train ≥15 PA personnel and community leaders to deliver further training as provided in 3.3 beyond EoP (TIDE, Everglades)		The 'burn boss' training was held between 13 and 18 th February, with 1 ½ days in the classroom and 4 ½ days in the field. 15 men attended, both local village leaders, and land managers from across Belize.
Activity 2.3 Train ~20 staff from TIDE and other NGO co-managers in SFE development (IIED)		Activity planned for year 3. Scheduled to take place in Belmopan in February 2018 and hosted by University of Belize ERI.

<p>Output 3</p> <p>≥100 community members are trained in fire management (≥50 NTFP concession-holders trained in fire management for pine savannas and ≥50 farmers trained in best practices in use of agricultural fire)</p>	<p>3.1 The number of community members trained in fire management for pine savannas as well as best practices in use of agricultural fire, will have increased by ≥100 from a baseline of ~50.</p>	<p>This output is about 80% complete, 62 community members have been trained using materials created by the project. The remaining >38 will receive training in January 2018. Community consultations were completed in year 1 and meetings for activity 3.5 are ongoing. The fire training materials were produced in year 1 and have now been adopted by the University of Belize for its National Training Program for PA Managers. They can be inspected at http://belizeconservation.site/wpcontent/uploads/2017/01/Annex-7-Fundamentals-of-Wildland-Fire-For-Community-Members.pdf</p>
<p>Activity 3.1 Community consultation on wildfire management (TIDE, FD)</p>		<p>Completed in year 1</p>
<p>Activity 3.2 Produce materials to train community members in fire management and disseminate via NTPPAM (TIDE, Everglades)</p>		<p>Completed in year 1</p>
<p>Activity 3.3 Train ≥50 farmers and community leaders in fire management (TIDE, Everglades)</p>		<p>Partially completed in year 1 (62 people trained under activities 3.3 and 3.4. Remaining training will occur in year 3.</p>
<p>Activity 3.4 Train and equip ≥50 community members to harvest palmetto seed sustainably, and manage wildfire (TIDE)</p>		<p>Partially completed in year 1 (62 people trained under activities 3.3 and 3.4. Remaining training will occur in year 3.</p>
<p>Activity 3.5 Convene meetings between TIDE, FD, Agriculture Dept., NAVCO and DAVCO to agree improvements to governance of rural fire use (TIDE, FD)</p>		<p>The Agriculture Department is in the process of revising the Agricultural Fires Act, and as a member of the National Fire Working Group, established on 23rd March 2016, the project lead from TIDE will be on the committee tasked with revising the act, in the coming year.</p>
<p>Output 4</p> <p>Options to secure the palmetto seed harvest for community members into the future, through a formal agreement with the forest department and more sustainable harvesting practices, are negotiated</p>	<p>4.1 A report outlining the current palmetto harvesting situation will be produced</p> <p>4.2 At least 5 meetings will be convened informs between TIDE, FD, logging concessionaires and community members, regarding the areas to secure in a possible legal agreement for palmetto extraction.</p>	<p>This output is 60% complete. Consultation meetings and surveys under (4.1) were completed this year and the resulting report is at Annexe 6 and at http://belizeconservation.site/wp-content/uploads/2017/01/Annex-3-Palmetto-survey-report.pdf</p> <p>Although (4.2) will mainly occur in year 3, there have been >6 meetings to date with various stakeholders which have helped to prepare for these discussions in year 3.</p>
<p>Activity 4.1 Consult with palmetto harvesters to establish the areas that are currently harvested by each community, the numbers of harvesters in each community and to discuss how the harvest could be best secured from the community perspective. (TIDE)</p>		<p>Consultation meetings were held in Bladen on the 31/07/2016 and 14/08/2016, San Isidro on the 13/08/2016 and Trio on the 20/08/2016.</p> <p>A survey of 77 palmetto harvesters across the 5 communities was undertaken in August and September 2016, and used to produce a report detailing the present harvesting situation.</p>
<p>Activity 4.2 Convene at least 5 meetings between TIDE, logging concessionaires, FD and the communities, regarding the most suitable legal agreement for securing the palmetto harvest for community members into the future, and leading to drafting of such an agreement if desired (TIDE, FD)</p>		<p>This activity is for year 3, however initial discussions were held between TIDE and the Government's Maya Land Rights Commission on 08/09/2016, with the Forest Department on 31/01/2017 and 03/02/2017 and with the Maya Leader's Alliance on 01/03/ 2017. In addition, 2 face-to face meetings and several phone calls were held with the palmetto buyer Mr Bradley. In year 3 these stakeholders will be brought together for meetings.</p>
<p>Output 5</p> <p>Mapping and analysis of site data to inform a future plan for a sustainable extraction zone in PCNP that includes an evaluation of</p>	<p>5.1 2 maps will be produced showing the extent and distribution of pine and palmetto resources within PCNP, DRFR and SBFR.</p> <p>5.2 Datasets will be collated or created to assess present and future growth and yield</p>	<p>This output is about 30% complete. The baseline mapping (5.1) was produced in year 1; and is described on page 5 of the first annual report at http://belizeconservation.site/wp-content/uploads/2016/07/DarwinProject.pdf One example of a detailed report on the</p>

<p>the ecological and socio-economic impacts.</p>	<p>of pine and palmetto under a range of scenarios, and to enable the assessment of the socio-economic and ecological implications of those scenarios.</p> <p>5.3 A report will be produced to identify a number of possible sites and recommend site-specific management to mitigate any ecological, socio-economic or biodiversity impacts.</p>	<p>palmetto mapping is at URL: https://www.era.lib.ed.ac.uk/handle/1842/11797</p> <p>In year 3, under (5.2), data that is being collected now from the monitoring plots and from the logging concessionaires about pine growth and mortality will be combined and assessed with further geographic information about e.g. access tracks, known nesting sites for yellow head parrots to produce an assessment of the areas suitable for sustainable extraction, and any mitigating actions required. These will be reported under (5.3) and this package of data and recommendations will be presented to TIDE.</p>
<p>Activity 5.1 Assess potential income from sustainable extraction of pine and palmetto resources in PCNP</p>		<p>Activity planned for year 3- under consultancy to Rick Anderson (Everglades)</p>
<p>Activity 5.2 Assemble information required to enable TIDE to propose a sustainable extraction zone in PCNP, including evaluation of any ecological, socio-economic or biodiversity impacts.</p>		<p>Activity planned for year 3- under consultancy to Rick Anderson (Everglades)</p>
<p>Output 6</p> <p>Business plans created for ≥3 additional SFEs suitable for PCNP buffer communities.</p>	<p>6.1 The number of community groups trained in business management will increase from 0 to ≥4</p> <p>6.2 The number of exchange visits attended by the group members with other successful businesses or market partners will be ≥6</p> <p>6.3 Community business organisations with completed business plans will have increased from none to ≥3.</p> <p>6.4 Investment proposals based on those business plans will have increased from none to ≥2.</p>	<p>Because the original goals for the community livelihoods output were already mostly successfully completed by the end of year 2, a change request was made and approved to capture further planned activity under a new output 6.4.</p> <p>The exchange visit by Belize groups to observe co-operatives in Guatemala was completed in April of year 2 and was reported in the 18 month report http://belizeconservation.site/wp-content/uploads/2017/01/Half-Year-Report-Sept-2016-1.pdf</p> <p>An integrated programme of business training workshops and follow-up visits to individual businesses have taken place over the last 12 months with IIED and TIDE working closely together. Examples include business training materials designed for the communities http://belizeconservation.site/wp-content/uploads/2017/01/Annex-4-outline-of-business-training.pdf and also guidance notes written by IIED to mentor TIDE staff how to conduct follow-up visits with individual groups e.g. http://belizeconservation.site/wp-content/uploads/2017/01/Annex-5-Business-training-follow-up-note.pdf These are also supplied as annexes 8 and 9 to this report.</p> <p>Four groups have developed draft business plans and one (for the Xibe Kechi crafts & cuisine business) is appended as Annexe 7. The project has provided some seed-corn funding to these 4 businesses for initial capital purchases and during year 3 we intend to develop a proposal to a UNDP small grants programme to seek a more significant capital investment for these businesses. This further activity was not original planned in this project but given the positive progress being made under output 6 generally, DEFRA have approved our request to add a further output indicator 6.4 and to extend activity 6.7 to capture more of this activity.</p>
<p>Activity 6.1 Undertake baseline and EoP surveys of livelihoods in five communities (IIED, TIDE)</p>		<p>Activity took place in year 1 and will be completed in year 3</p>
<p>Activity 6.2 Meetings with community groups to assess interest in developing SFEs (IIED, TIDE)</p>		<p>Meetings were held following an exchange visit by community leaders to Guatemala (see activity 6.4) in Bladen (24/04/2016), Medina Bank (24/04/2016), San Isidro (03/05/2016) and Trio (15/05/2016), to assess interest by communities. Following this, meetings to</p>

	<p>determine business ideas were held in Bladen (31/07/2016 and 14/08/2016), San Isidro (13/08/2017), Trio (20/08/2016) Medina Bank (21/08/2016).</p> <p>Following the first business training, all groups were met with on 07/09/2016 to discuss how to take things forward in the next months. Community meetings have been held frequently (at least monthly) with each group throughout the Autumn and following the second business training in January 2017.</p>
Activity 6.3 Iterative training courses on business development, start-up planning, book-keeping (IIED)	<p>The first, 3 day training course, an introduction to business, was led by IIED between 1st - 3rd September 2016, with 14 women and 14 men from 5 villages, and 6 business groups.</p> <p>An additional accounting and book-keeping training course was delivered by a local trainer to 1 woman and 7 men from one of the groups on 26/11/2016 and 4/12/2016.</p> <p>A second single day training course was led by IIED with 10 women and 12 men, from 4 villages, and representing 4 of the business groups on 24/01/2017, to cover business risk management.</p> <p>Further business skills training will be given in year 3</p>
Activity 6.4 Peer-to-peer exchange with other successful community businesses and market linking visits for community business groups (TIDE, IIED)	<p>2 women and 3 men, one from each village, accompanied TIDE on an exchange to the FEDECOVERA federation of cooperatives in Coban, Guatemala, from 11-15th April 2016.</p> <p>14 women from 3 business groups were taken on an exchange visit and craft training with a women's group in San Antonio village on 23/11/2016</p> <p>1 woman and 4 men from 2 business groups were taken to the Tilapia hatchery at Central Farm on 29/11/2016</p> <p>9 women and 1 man from 2 business groups were taken to Maya Centre to see the tour and craft shop of a women's group there, on 15/12/2016</p> <p>3 women and 1 man from 2 business groups were taken to Placencia to meet with the organisation SEA to discuss a regular sale of crafts at their gift shop on Laughing Bird Caye, on 09/02/2017. Following this, a meeting of 19 women and 2 men from the 2 business groups was held on 15/02/2017, at which the first sale of crafts was arranged.</p> <p>Further exchange visits are planned in year 3</p>
Activity 6.5 Vocational certification for community business members in relevant areas (TIDE, IIED)	<p>14 women from 3 different business groups attended a training course in craft production in San Antonio on 23/11/2016 (this did not come with any kind of certification)</p> <p>9 women from 1 business group completed and received an official food handlers training and certification on 09/03/2017.</p> <p>Support for further vocational training and certification is planned for year 3</p>
Activity 6.6 Formalise license agreement(s) with FD terms for community-run SFE to sustainably use woodland resources (TIDE, FD)	<p>Meetings were held with FD on 31/01/2017 and 03/02/2017 to obtain information as to the process of gaining community access to Forest Reserves for the planned businesses.</p> <p>The project will continue to support the groups to apply for these permissions in year 3 of the project.</p>
Activity 6.7 Develop business plans for at least 3 community enterprises, and investment proposals for at least 2 community enterprises (IIED)	<p>Following the business training in September 2016 under activity 6.3, the groups were asked to work on draft business plans, with a deadline of January 2017. With TIDE's</p>

support, 4 of the 6 groups initially trained produced these drafts.

Following the 2nd business training in January 2017, a day was spent by IIED with each group (between 25-27/01/2017 and 30/01/2017) in their communities, to work on the plans further. These plans are working documents and will continue to be refined by the groups, with TIDE and IIED assisting, in year 3.

At the end of year 2 the project was able to give each of these 4 groups an initial investment of \$BZ 500 to cover a part of the cost of a pilot of their business ideas.

Meetings were held on (08/09/2017 and 31/01/2017) with the leader of the current World Bank funded 'Key Biodiversity Areas' project, to discuss the potential for business proposals to be put to that project by the 4 groups. Whilst in its remit, that project is not yet at a stage to receive business proposal. A meeting was held with the UNDP Small Grants Programme representative in Belmopan on 02/02/2017, to discuss the format of proposals to that granting body. A draft proposal for funding for the 4 groups was prepared by IIED in March 2017, and following further work, and demonstration of pilots of the business ideas, will be submitted in year 3 of the project.

Annex 2: Project's full current log frame with changes agreed with LTS/DEFRA on 13/4/2017

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p>Impact: Biodiversity of pine woodlands is conserved throughout Belize, enabled by an increased national capacity for community-based wildfire control that is founded upon a just and sustainable use of these woodlands.</p>			
<p>Outcome:</p> <p>The means of monitoring and conserving biodiversity of pine woodlands in southern Belize is enhanced by developing capacity for community-based wildfire management, with local communities incentivised to participate through a more just and sustainable use of woodland resources.</p>	<p>3. Capacity to monitor the effects of fire management on biodiversity</p> <p>1.1 ≥30 Local and national protected areas managers and local community members have an increased capacity to conduct and awareness of the management benefits of long-term biodiversity monitoring of savannas</p> <p>1.2 20 long term vegetation monitoring plots are established in PCNP, DRFR and SBFR, from a baseline of 0</p> <p>1.3 Baseline biodiversity data is collected during project lifetime and begins to inform adaptive fire management in PCNP and DRFR</p> <p>2. Increased capacity of community members and protected areas managers to manage wildfire</p> <p>2.1 The number of community members with the capacity to conduct safe agricultural burns and an awareness of savanna fire management increases from a baseline of 50 by ≥100</p> <p>2.2 The number of protected areas managers and community leaders with the 'burn boss' level capacity to lead training for community members in wildfire management increases by ≥15</p> <p>2.3 The project informs discussions at the national level to consider change to the legislation governing agricultural fire use to allow for community-level permitting</p>	<p>1. Capacity to monitor the effects of fire management on biodiversity</p> <p>The following will provide verification:</p> <p>1.1 The lesson plan content of training courses in biodiversity monitoring, and numbers of community members trained and employed for monitoring work.</p> <p>1.2 The locations and data from the plots in a GIS database will provide verification</p> <p>1.3 A report summarising initial findings from the monitoring plots, and their implications for management of the area by TIDE and logging concessionaires</p> <p>2. Increased capacity of community members and protected areas managers to manage wildfire</p> <p>The following will provide verification:</p> <p>2.1 Lesson plan course content for basic level fire training and interview evidence of changed understanding and changed fire-use practices of trainees</p> <p>2.2 Lesson plan course content for 'burn boss' level training and spreadsheet attendance records for basic level fire training courses delivered by the community 'burn bosses'</p> <p>2.3 Meeting minutes</p>	<p>1. The Government of Belize remains a committed signatory of the CBD and the Forest Department continues to engage with this project as means of obtaining evidence to support moves towards promoting access and benefit sharing within its forest reserves and national parks, moving the government towards ratifying the Nagoya protocol. This will be monitored through the level of input by FD to project activities, engagement with stakeholder meetings and attendance and contribution to partner meetings. Many FD staff are already aware and supportive of the project ideas, having been involved in shaping them. We will encourage their continued support by actively engaging with a wide range of FD personnel from the Chief Forest Officer down to forest officers, by co-working with them on the resource inventory fieldwork, by involving them in meetings and training events, and by covering their travel costs.</p> <p>2. Project partners and stakeholders continue to co-operate effectively. TIDE already has good working relationships with the five communities to be involved and their community leaders were consulted and agreed to the idea of participating in fire management and small forest business development as part of scoping this project.</p> <p>We will monitor the level of engagement by the 5 communities in the project; if we find reduced engagement by particular villages, groups or gender, we will pro-actively seek further engagement, e.g. by modifying the nature / timing of outreach or training. Stakeholders, including logging concessionaires, local communities and NGOs will be engaged through regular</p>

	<p>3. Access for sustainable extraction of woodland resources:</p> <p>3.1 Community members have an increased awareness of the role of fire and of unsustainable harvesting techniques on the palmetto resource</p> <p>3.2 Recommendations for locations of sustainable extraction of pine and palmetto from PCNP are incorporated by TIDE into its next management plan</p> <p>4. Local community livelihood benefits:</p> <p>4.1 Human capital development through iterative business training and exchange visits to successful businesses with ≥4 community groups</p> <p>4.2 Social capital development through the organisation ≥4 community business groups.</p> <p>4.3 Initial gains in financial and physical capital to at least 2 community business groups, from trial sales of products and services in line with community business plans.</p>	<p>3 Access for sustainable extraction of woodland resources:</p> <p>The following will provide verification:</p> <p>3.1 Interview evidence of awareness of community members of the need to harvest sustainably;</p> <p>3.2 Materials produced and accepted for incorporation into TIDE's next management plan for PCNP</p> <p>4. Local community livelihood benefits:</p> <p>The following will provide verification:</p> <p>4.1 The lesson plan content, dates of exchange visits, and interview evidence of increased understanding of business concepts by group members will provide verification</p> <p>4.2 Interview evidence of social benefits arising from group organisation</p> <p>4.3 Spreadsheet summarising physical or financial capital investment received and any revenue earned by the business groups</p>	<p>meetings. All partners will review and comment on project progress and propose adjustment to activities.</p> <p>3. Natural disasters, such as hurricanes or wildfires do not seriously damage the woodland areas in Payne's Creek National Park, Swasey-Bladen Forest Reserve and Deep River Forest Reserve, which are the focus areas for this project. Southern Belize is in a relatively low risk hurricane risk belt compared with most of the Caribbean. The risk over the 3 years of the project is low. The project itself responds to the risk of intense wildfires by establishing community fire management. As the project progresses, it will reduce the risk of wildfire and build community resilience.</p> <p>4. There continues to be sufficient demand for palmetto palm seed. There has been a reliable market for 16 years. Mr. Paul Bradley from Burrell Boom, Belize District has been exporting to Canada since 1998. In 2014, he exported 350,000 lb dry seed (583,000 lb wet) and says his buyer would have taken another 50% had it been available. He has expressed that his main problem is harvesters cutting down the trees to obtain the seed. He is very supportive of the plans proposed in this project to train and equip community members to harvest sustainably.</p>
<p>Output 1</p> <p>Biodiversity and woodland resource baselines are established for pine savanna woodlands within Toledo District, by developing a set of monitoring protocols that are adopted nationally</p>	<p>1.1 5 new protocols for monitoring bird indicator species and plants (<i>P. caribaea</i>, <i>Z. prasina</i>, <i>V. gaumeri</i>, <i>A. wrightii</i>) in PCNP, DRFR and SBFR.</p> <p>1.2 Availability of baseline data for PCNP will have increased from one of these monitoring targets (birds) at present to six by end of project (EoP). Baseline data for DRFR and SBFR will have increased from one of these monitoring targets (Caribbean pine) to two</p>	<p>The following will provide verification:</p> <p>1.1 The monitoring protocol documents, as published by ERI for the national ranger training program</p> <p>1.2 A biodiversity baseline report and the raw datasets</p> <p>1.3 The map and accompanying report</p>	<p>1. Personnel with required expertise for biodiversity / resource monitoring, and design / provision of training courses remain committed to the project. The assumption is likely to be valid since individuals with the required expertise have already been identified and consulted</p> <p>2. NTPPAM and the National Ranger Training Academy continue as long-lasting initiatives. This is realistic as the intention is</p>

	(pine and palmetto). 1.3 A baseline map of fire frequency for PCNP, DRFR and SBFR will be produced		for them to become self- sustaining in the long term, financed by trainee fees. A business plan has found this to be viable. Belize' Protected Areas Conservation Trust has indicated an intention to fund additional capital costs for these programs on an on-going basis.
Output 2 Training to enhance national capacity to a) monitor savanna biodiversity / resources; b) provide training in best practices for agricultural fire use; c) develop small forest enterprises.	2.1 The number of people in Belize capable of monitoring components of savanna biodiversity will have increased by ~30 from <10 at present. 2.2 The number of people in Belize capable of providing training in safe use of agricultural fire will have increased by approximately 15 from <5 currently. 2.3 The number of NGO personnel with an awareness of the process of developing community SFEs will have increased by ~20 from an estimated <10 at present.	The following will provide verification: 2.1 A spreadsheet of attendees and certificates of attainment/competency awarded to successful students. 2.2 A spreadsheet of attendees and certificates of attainment/competency awarded to successful students in year 2 and a spreadsheet of attendees and further certificates of attainment awarded to new students, trained by the year 2 cohort in year 3. 2.3 A spreadsheet of workshop attendees.	3. Community members remain interested in training in fire management. A pilot training session on agricultural fire best practices in 2014 was very well received – farmers were glad to learn they can achieve their burn objectives (to mineralize the maximum proportion of biomass in the plot) safely without significant extra effort. 4. Agriculture Dept. and other partners remain open to discussing possible changes to governance of rural fire use. Engagement with the Agriculture Department is planned throughout the project, and their level of engagement will be monitored and reported
Output 3 ≥100 community members are trained in fire management (≥50 NTFP concession-holders trained in fire management for pine savannas and ≥50 farmers trained in best practices in use of agricultural fire)	3.1 The number of community members trained in fire management for pine savannas as well as best practices in use of agricultural fire, will have increased by ≥100 from a baseline of ~50.	3.1 A spreadsheet of attendees and certificates of attainment/competency awarded to successful students will provide verification.	5. Palmetto palm resources are not destroyed by hurricane or major wildfire. Wildfire monitoring is built into the project.
Output 4 Options to secure the palmetto seed harvest for community members into the future, through a formal agreement with the forest department and more sustainable harvesting practices, are negotiated	4.1 A report outlining the current palmetto harvesting situation will be produced and used as the basis of discussing areas where communities seek access. 4.2 At least 5 meetings will be convened between TIDE, FD, logging concessionaires and community members, regarding the areas to secure in a possible legal agreement for palmetto extraction.	The following will provide verification: 4.1 The report 4.2 The meeting minutes	6. The market for palmetto palm seed remains viable. This will be monitored through the project. 7. Community members remain interested in harvesting NTFPs and SFEs. This assumption will be monitored through the project using feedback from stakeholder meetings and the results of the reflective learning M&E by the communities.
Output 5 Mapping and analysis of site data to inform a future plan for a sustainable extraction zone in PCNP that includes an evaluation of the ecological and socio-economic impacts.	5.1 2 maps will be produced showing the extent and distribution of pine and palmetto resources within PCNP, DRFR and SBFR. 5.2 Datasets will be collated or created to assess present and future growth and yield of pine and palmetto under a range of scenarios, and to enable the assessment of the socio-economic and ecological implications of those scenarios. 5.3 A report will be produced to identify a number of possible extraction sites and	The following will provide verification: 5.1 The maps and accompanying reports 5.2 The raw datasets 5.3 The report and accompanying mapping	

	recommend site-specific management to mitigate any ecological, socio-economic or biodiversity impacts.		
Output 6 Business plans created for ≥3 additional SFEs suitable for PCNP buffer communities.	6.1 The number of community groups trained in business management will increase from 0 to ≥4 6.2 The number of exchange visits attended by the group members with other successful businesses or market partners will be ≥6 6.3 Community business organisations with completed business plans will have increased from none to ≥3. 6.4 Investment proposals based on those business plans will have increased from none to ≥2.	The following will provide verification: 6.1 Spreadsheets of attendees and their group affiliations at 3 business training courses and certificates of attainment 6.2 Lists of attendees of exchange visits 6.3 The business plan documents 6.4 The investment proposal documents and minutes of meetings with potential investors	

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)

- 1.1 Surveys of pine stocks in PCNP (TIDE, FD)
- 1.2 Establish ~28 0.2 ha permanent plots in PCNP (TIDE, FD)
- 1.3 Assess distribution, abundance and productivity of palmetto palm in PCNP, DRFR and SBFR (TIDE, FD)
- 1.4 Develop protocols for monitoring Caribbean pine and palmetto palm (TIDE)
- 1.5 Establish/refine protocols for monitoring key conservation targets (yellow headed parrot, *Zamia prasina*, and fiddlewood) and biodiversity indicator species (birds) in line with the National Biodiversity Monitoring Program (TIDE, ERI)
- 1.6 Establish biodiversity and wildfire baselines against which effects of fire control and sustainable harvesting will be monitored (TIDE)
- 1.7 Publish materials for monitoring pine woodland biodiversity and resources as part of the NTPPAM (ERI, TIDE)
- 2.1 Conduct national training workshops in biodiversity monitoring for ~30 PA staff (ERI)
- 2.2 Train ≥15 PA personnel and community leaders so they are able to deliver further training as provided in 2.3 beyond EoP (TIDE, Everglades)
- 2.3 Convene a workshop for ~20 staff from TIDE and other NGO co-managers to share best practices in SFE development (IIED)
- 3.1 Community consultation on wildfire management (TIDE, FD)
- 3.2 Produce materials for training community members in fire management and disseminate via NTPPAM (TIDE, Everglades)
- 3.3 Train ≥50 farmers and community leaders in fire management (TIDE, Everglades)
- 3.4 Train and equip ≥50 community members to harvest palmetto seed sustainably, and manage wildfire (TIDE, Everglades)
- 3.5 Convene meetings between TIDE, FD, Agriculture Dept., NAVCO and DAVCO to agree improvements to governance of rural fire use (TIDE, FD)
- 4.1 Consult with palmetto harvesters to establish the areas that are currently harvested by each community, the numbers of harvesters and to how the harvest could be best secured from the community perspective. (TIDE)
- 4.2 Convene at least 5 meetings between TIDE, logging concessionaires, FD and the communities, regarding the most suitable legal agreement for securing the palmetto harvest for community members into the future, and leading to drafting of such an agreement if desired (TIDE, FD)
- 5.1 Assess potential income from sustainable extraction of pine and palmetto resources in PCNP
- 5.2 Assemble information required to enable TIDE to propose a sustainable extraction zone in PCNP, including evaluation of any ecological, socio-economic or biodiversity impacts.
- 6.1 Undertake baseline surveys of livelihoods in five communities (IIED, TIDE)
- 6.2 Meetings with community groups to assess interest in developing SFEs (IIED, TIDE)
- 6.3 Iterative training courses on business development, start-up planning, book-keeping (IIED)
- 6.4 Peer-to-peer exchange with other successful community businesses and market linking visits for community business groups (TIDE, IIED)
- 6.5 Vocational certification for community business members in relevant areas (TIDE, IIED)
- 6.6 Agree with FD terms for community-run SFE to sustainably use woodland resources (TIDE, FD)
- 6.7 Develop business plans for at least 3 community enterprises, and investment proposals for at least 2 community enterprises (IIED)

Annex 3: Standard Measures

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
2	Masters submitting master's thesis under the project	2 male, 2 female	UK	3	1		4	5
4A	Postgrad students to receive experience/training	2 Female	UK	1	1		2	3
4D	Weeks of experience/ training for postgrad students			2	20		22	25
6A	Community fire training-basic level	(year 1: 39 male, 23 female)	Belizean	62			62	>100
6B	Days for community fire training-basic level (2 days with each group of 15 people)			2			2	4
6A	PA managers/ community leaders fire training- advanced level	Male	Belizean	0	15		15	>15
6B	Days for PA managers/ community leaders fire training-advanced level			0	6		0	1
6A	Training to community members to carry out monitoring	1 Female, 5 male	Belizean	0	6		6	6
6B	Days of training to community members to carry out monitoring			0	1		1	1
6A	Training to community members in business skills	14 female, 14 male at 2 day business training Sept 1 female, 7 male at 2 days of accounting training 10 female, 12 male at 1 day business training Jan		0	28		28	28
6B	Days of training to community members in business skills			0	6		6	7
6A	Food handlers training and certification	9 women		0	9		9	9
6B	Days of training in food handling			0	1		1	1
6A	Training to national PA managers in biodiversity monitoring		Belizean	0	0		0	30
6B	Days of training to national PA managers in biodiversity monitoring			0	0		0	8
6A	Training to NGO staff in SFE development		Belizean	0	0		0	20
6B	Days of training to NGO staff in SFE development						1	1

7	Fire training manual			1	0		1	1
7	Fire use leaflet for communities			1	0		1	1
9	Harvesting plan for PCNP			0	0		0	1
10	Field protocols for monitoring biodiversity (pine, palm, fiddlewood, mammals, parrots & birds.			6	0		6	6
14B	Conferences attended at which Darwin project work presented			1	3		4	5
20	Cooking utensils for Xibe business (£)			0	200		200	200
20	8 river tubes for Adventures in the last corridor group (£)			0	288		288	288
22	Permanent plots/ transects established			0	20		20	20
23	Additional resources from other sources (£)	UE contribution for Project Officer travel/subs		£5k	£5k		£5k	£15k
23	Additional resources from other sources	Forest Farm Facility exchange visit for 8 person weeks to Guatemala	£ equivalent	0	£5k		£5k	£5k

Table 2 Publications

Title	Type (e.g. journals, manual, CDs)	Detail (authors, year)	Gender of Lead Author	Nationality of Lead Author	Publishers (name, city)	Available from (e.g. weblink or publisher if not available online)
Mapping Fires in the Lowland Pine Savannas of Southern Belize using Non-Sequential Landsat dNBRs						
	MSc dissertation	William Roper, 2016	Male	British	University of Edinburgh	Free download
URL: https://www.era.lib.ed.ac.uk/handle/1842/19493						

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

The following annexes can be browsed and downloaded from

https://drive.google.com/drive/folders/0B_6EQ1kyTh6xMmxXenNXQ3dGbmM?usp=sharing

Annex 4: Biodiversity baseline report

Annex 5: Attendees successfully completing training in year 2

Annex 6: Palmetto survey report

Annex 7: Xibe business plan

Annex 8: Business training lesson plan (from 1 of 2 training course in year 2)

Annex 9 Business support document (example)

Annexes 10-12: Presentations made at National Natural Resource Management Symposium, Belize. March 2017

Checklist for submission

	Check
Is the report less than 10MB? If so, please email to Darwin-Projects@ltsi.co.uk putting the project number in the Subject line.	yes
Is your report more than 10MB? If so, please discuss with Darwin-Projects@ltsi.co.uk about the best way to deliver the report, putting the project number in the Subject line.	no
Have you included means of verification? You need not submit every project document, but the main outputs and a selection of the others would strengthen the report.	yes
Do you have hard copies of material you want to submit with the report? If so, please make this clear in the covering email and ensure all material is marked with the project number.	no
Have you involved your partners in preparation of the report and named the main contributors	yes
Have you completed the Project Expenditure table fully?	NO - By 30 May
Do not include claim forms or other communications with this report.	