

# Darwin Initiative: Half Year Report

(due 31 October 2011)

<b>Project Ref. No.</b>	17-012
<b>Project Title</b>	Belize large-mammal corridor project
<b>Country(ies)</b>	Belize
<b>UK Organisation</b>	University of Southampton Centre for Biological Sciences (UoS)
<b>Collaborator(s)</b>	Panthera, University of Belize (UoB), Belize Forestry Department (BFD)
<b>Project Leader</b>	<i>C. P. Doncaster</i>
<b>Report date</b>	<i>31 October 2011</i>
<b>Report No.</b>	<i>HYR 3</i>
<b>Project website</b>	<a href="http://darwin.defra.gov.uk/project/17012/">http://darwin.defra.gov.uk/project/17012/</a> <a href="http://www.belizewildliferesearch.com/index_files/Page972.htm">http://www.belizewildliferesearch.com/index_files/Page972.htm</a>

## **1. Outline progress over the last 6 months (April – September) against the agreed baseline timetable for the project (if your project has started less than 6 months ago, please report on the period since start up).**

### *(i) Rigorously calibrated data on mammal movement through fragmented landscapes*

*Live trapping and telemetry* – Although fieldwork was severely disrupted by extensive forest fires, we have live-trapped and collared 8 new animals (three pacas, two coatis and three foxes). The field team regularly radio-track all collared animals. We were joined by professional trapper Dairen Simpson, who trained our field team in the use of snares. Using this method we were able to recapture and remove old collars from two pacas. He also trained our field team to build corrals for the capture of peccaries. We deployed snares, specially designed for capturing tapirs, around Cox Lagoon. The field team camped at the lagoon, monitoring the snares but had to pull out camp and all equipment as the fires spread into the area. We tried again in August/September, and this time we were forced out by a tropical storm and risk of flooding. We plan to try again in November/December when we anticipate drier weather.

*Camera survey* – We repeated the 2<sup>nd</sup> of three large-scale camera surveys within the corridor. This survey (29 stations) was disrupted by forest fires and we lost 15 camera traps to fire. Much of the field team's time was spent rescuing and re-deploying camera-traps according to the proximity of the fires. The cameras revealed diminished mammal activity following the fires, compared with the 2009 data; and intensive hunting and illegal logging in the area. After the fires, we photographed at least one male coyote within the Central Belize Corridor (CBC) area. This is a concern. Historically, coyotes have not been recorded this far south or east in Belize, and their presence is often an indicator of increased human disturbance and deforestation. Two months after the fires, we were delighted to detect a herd of at least 20 white-lipped peccaries within the corridor. This was particularly welcome because their numbers in Belize have been declining and they are increasingly restricted to the remaining large blocks of protected broadleaf forest. Previously, over the past two years, we only had two photographs of a single white-lipped peccary, out of ~3000 photo-trap nights within the corridor area. We have built a corral where the white-lipped peccaries were detected, and are monitoring it with camera traps.

### *(ii) Instilling a tradition of objectively-based mammal monitoring in Belize*

Since April, our field team has trained and worked with volunteers, interns and students from Belize (3 graduates, 4 undergraduates), the UK (2 UoS undergraduates) and Slovenia (1 graduate). The keen graduates and undergraduates have worked on project-related fieldwork (live trapping, camera trapping, telemetry) and database management, for periods of 1 to 5 months.

Oxford Graduate Diploma student, Yahaira Urbina, is conducting a national survey of hunting and wildlife law awareness in Belize between October and March. Her survey is being financed from Darwin funds to the Belize Forestry Department. It will provide invaluable information on public perceptions and knowledge of current wildlife laws, and quantifiable data on hunting rates to complement last year's survey of game meat consumption. After graduating in 2010 from the UB Natural Resource Management programme Yahaira worked closely with

the Darwin collaborators, conducting surveys on wildlife presence within the corridor (Panthera), and game-meat consumption nationally (UoS). She later assisted with live trapping, telemetry and data input (ERI). Her dedication to conservation in Belize and her academic excellence have won her a full scholarship on the graduate diploma course in International Conservation Practise at the University of Oxford. We are delighted that one of the UoB graduates mentored within the corridor project has been given such an opportunity.

*(iii) Delineation of the belt of contiguous wilderness that will constitute the wildlife corridor*

Said Gutierrez has been working with the Lands Information Centre to compile a database of land tenure in the corridor, including interactive GIS layers. We now have data on all land parcels for which government records are available (covering 92% of the corridor study area). We know whether they are nationally or privately owned, and we have contact details of the proprietors. This information will help us to track sales of land and proposed developments, and to identify absent/overseas landowners who own key properties within the corridor.

PhD student Angela Watkins at the UoS has published our first agent-based model for evaluating the permeability of alternative corridor scenarios. Further developments of this model will use the full database of jaguar movements in the corridor.

Watkins, A., Noble, J. & Doncaster, C.P. 2011. An agent-based model of jaguar movement through conservation corridors. In: *Advances in Artificial Life, ECAL 2011. Proceedings of the Eleventh European Conference on the Synthesis and Simulation of Living Systems Artificial Life*. Eds T. Lenaerts, M. Giacobini, H. Bersini, P. Bougine, M. Dorigo, R. Doursat. Pp 846-853. ISBN 978-0-262-29714-1.

*(iv) Advocacy, leading to implementation of the corridor within the legal framework of Belize*

Based on our proposal delivered in April to Belize's newly formed National Protected Areas Technical Committee, the Committee has passed a resolution to recommend the incorporation of the Central Belize Wildlife Corridor as a priority in the operational framework of the National Protected Areas System Plan. As we anticipated in Section 3.4 of our 2<sup>nd</sup> Annual Report, this is a vital first step to initiating formal commitment by government to the corridor (the principal objective of Output 4). We are now working with the National Protected Areas Secretariat and the Forest Department to provide the Committee with the information they need to prepare the cabinet paper that will go up for endorsement by the government ministers.

*Workshops* – At the request of the Forest Dept., we ran a one-day livestock predation workshop for forest officers. The aim was to train forest officers so that they can respond to reports of livestock predation throughout the country. We gave six interactive talks on topics including basic natural history of jaguars and pumas, research in the Central Belize Corridor, why cats attack livestock, and how to minimize conflict. We were joined by trapper Dairen Simpson, who volunteered his time to give a talk specifically about predator identification and what to do on a site visit. We ran a similar workshop for the Belize Audubon Society, which co-manages some of the key protected areas within Belize.

The workshops were a useful vehicle for disseminating information to forest officers and national park wardens. Participants learned about the need for the wildlife corridor how to respond to reports of 'problem' cats. The workshops were also productive in terms of promoting the possibility of coexistence between farmers and big cats, both within the corridor and on a national scale. Participants were informed of methods of managing cattle to reduce predation of livestock and pre-empt the need for lethal control.

At the request of the BFD and the Belize Wildlife Conservation Network, we supported a workshop to review the Wildlife Protection Order. This order has been developed to control the removal of animals from the wild for captivity. Raising awareness about captive wildlife will help protect wildlife, both within the corridor and at a national level.

*Public awareness* – The corridor received much media attention at the Belize Zoo's annual corridor event. The zoo lies in the heart of the corridor, and children from surrounding schools were treated to a parachutist leaping from a plane dressed as a jaguar. The Darwin team then spoke to the children about the corridor. We also gave a talk about the corridor at the annual Belize Zoo Summer Camp for children, and we joined the Belize Zoo on national radio and TV to raise awareness about the corridor.

*BFD Corridor Officer* – The recently hired Panthera-BFD Corridor Officer, Jazmin Ramos, has been raising awareness about the corridor within corridor communities, village councils and local schools. He has also been busy with wildlife law enforcement within the corridor, and addressing illegal logging activities. Jazmin works closely with all members of the Darwin team.

*Mechanisms to implement the corridor* – The Darwin team met with Jeff Waldon, Chief Technical Officer of Forest Carbon Offsets LLC and Verl Emrick of Virginia Tech University, to learn about the process of verifying an area for carbon credits. This may be one option to secure large swathes of forest within the corridor.

**2. Give details of any notable problems or unexpected developments that the project has encountered over the last 6 months. Explain what impact these could have on the project and whether the changes will affect the budget and timetable of project activities.**

The Central Belize Corridor suffered extensive fire damage throughout April and May. People lit fires irresponsibly to aid hunting and to clear vegetation from beneath electricity cables along the highway. Dead wood throughout the hurricane-damaged forests fueled these fires so that they spread further and burned with more heat for 6-8 weeks throughout the corridor.

The fires greatly hindered fieldwork because this period at the height of the dry season is our best opportunity for live trapping. At this time the traps are safe from flooding, and the animals are food deprived so most willing to enter baited traps. The fires made it impossible to activate live traps. We persisted with camera trapping, but lost equipment in consequence, as the fires frequently and quickly changed direction with the wind.

By the end of May, smoke had cleared sufficiently for us to assess the extent of the fire damage via a flight over the corridor. From the air green canopies in some areas disguised places where fire had destroyed the understory vegetation. Other areas lost both the canopy and understory.

In response to the crisis, the Belize Zoo spearheaded a poster campaign to warn people about the damage caused by setting fire to vegetation irresponsibly. While it was already too late for this year, we hope that it will help next year.

Although the rains have quickly stimulated secondary regrowth of surviving trees, the fires have exacerbated the damage wrought by last year's hurricane, to substantially thin much of the broadleaf forest. We are hopeful that the area can still function as a corridor, but we will not know the long-term consequences of the hurricane and fires for another couple of years.

**Have any of these issues been discussed with LTS International and if so, have changes been made to the original agreement?**

Our June Change Request was accepted, to pay for a further visit by professional trapper Dairen Simpson in July-August. No further changes are required at this stage; we are continuously monitoring the situation.

**Discussed with LTS:** Change Request, June 2011

**Formal change request submitted:** Change Request, June 2011

**Received confirmation of change acceptance** Accepted June 2011

**3. Do you expect to have any significant (eg more than £5,000) underspend in your budget for this year?**

Yes  No

**If yes, and you wish to request a carryforward of funds, this should be done as soon as possible. It would help Defra manage Darwin funds more efficiently if you could give an indication of how much you expect this request might be for.**

**Estimated carryforward request:** £0

**4. Are there any other issues you wish to raise relating to the project or to Darwin's management, monitoring, or financial procedures?**

No. No issues have been raised from our last annual report.

**If you were asked to provide a response to this year's annual report review with your next half year report, please attach your response to this document.**

**Please note: Any planned modifications to your project schedule/workplan or budget should not be discussed in this report but raised with LTS International directly.**

Please send your **completed form by email** to Eilidh Young at [Darwin-Projects@ltsi.co.uk](mailto:Darwin-Projects@ltsi.co.uk) . The report should be between 1-2 pages maximum. **Please state your project reference number in the header of your email message eg Subject: 17-075 Darwin Half Year Report**