



Darwin Initiative Main/Post/D+ Project Half Year Report (due 31st October 2018)

Project reference	22-3270
Project title	Alleviating rural poverty through conflict mitigation and improved crop yields
Country(ies)/territory(ies)	Zimbabwe, Botswana
Lead organisation	WildCRU, University of Oxford
Partner(s)	Victoria Falls Wildlife Trust
Project leader	Andrew Loveridge
Report date and number (e.g., HYR3)	HYR3
Project website/blog/social media etc.	www.wildcru.org

1. Outline progress over the last 6 months (April – Sept) 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 to end September).

At a national and international scale the project trials and showcases the effectiveness of novel livestock protection techniques to mitigate impacts of biodiversity and reduce the need of lethal control of globally threatened predators, while highlighting the economic and ecological value of viable predator populations and improving food security for local communities. The project comprises four anticipated outputs, the progress of which will be detailed in the below.

Output 1: Showcasing benefits of the project to international development agencies

Since April 2018, the programme was showcased to several development agencies (Blue Sky Society, African Bush Camps Foundation Zambia), community leaders and full community meetings, Rural District Council, a group from Stanford and New South Wales Universities, tourists and one journalist. It was featured in a National Geographic documentary, a WWF Germany African lion report, a SADC feature report and film, an online blog and several presentations at safari lodges. A team from Tanzania will visit the project in December to facilitate uptake of the project's techniques in the Ruaha region of southern Tanzania. It was further presented at several training, development and human-wildlife conflict meetings and workshops. In September 2018, the team was invited to attend a consultation meeting with the President of Botswana, specifically focussed on human-wildlife conflict mitigation. Several funding applications were successful and additional funding has been approved by several different funding agencies to continue this work. In June 2018, the Botswana Co-existence Co-ordinator, two Community Officers and four Community Guardian (CG) candidates attended a transboundary training course with the experienced Zimbabwe team.

Output 2: Decreasing levels of human-predator conflict

The programme currently employs 18 CGs (Hwange: 10, Victoria Falls: 4; Boteti: 3, Chobe Enclave: 1) and maintains 18 mobile bomas housing >1300 cattle and 2 permanent kraals housing > 100 cattle of a total of 131 families in both countries.

In Zimbabwe, 363 cattle were vaccinated against botulism, anthrax and black-quarter disease, 363 cattle were treated against tick-borne diseases and 21 cattle were dewormed. A total of 37 fields have been treated with mobile bomas in preparation of the cropping season 2018/2019 and maize seeds will be distributed at the onset of the rainy season late October/early November. 202 warning alerts were sent and the team tracked a total of 362 km of transect. 1266 herd

sightings were completed, 18 lion deterrence actions conducted and 7 kraals enforced. Since April 2018, 74 cattle, 11 donkeys, 53 goats and 1 pig were killed by lions in Zimbabwe project sites. 23 % of livestock depredation incidences occurred at night, while no livestock was killed inside mobile bomas, showcasing the effectiveness of the enclosures.

In Botswana, mobile bomas have not been found suitable for all farmers and locations and have therefore been complemented with the construction of permanent predator proof bomas, of which the team has constructed two since June 2018. One mobile boma is further being maintained with the first farmer, who agreed to use the structure for field fertilization. No livestock was killed in permanent or mobile bomas in Botswana. Since April 2018, the team enforced three traditional bomas in the Boteti area and two traditional bomas in the Chobe Enclave. After training of Botswana CGs was completed in June 2018 four CGs were offered full-time employment and have started data collection in both areas as specified in the standardized protocols. However, comprehensiveness of data collection procedures is still being developed and communities are being encouraged to liaise with CGs on conflict incidences. So far, Botswana CGs have recorded 55 livestock predation incidents by lions in both areas, 75-100% of which happened at night. In order to support communities with reducing their conflict risk through improved knowledge, the team has further conducted several community workshops focussed on understanding the behaviour of different dangerous animal species (such as lions, elephants, snakes, crocodiles etc.).

Since April 2018, one satellite GPS collar each has been changed in the Victoria Falls and Hwange areas respectively and the programme currently monitors the movement of seven collared potential conflict lions in Zimbabwe. In Botswana, one collar has been removed as the lion has moved out of the Chobe Enclave communal land and settled in a wildlife concession. A collared lioness in the Boteti area has lost her collar due to a significant decrease in body condition. Additional collars will be deployed and changed around Hwange National Park and in Botswana in the next reporting period.

One scientific publication was published on the influence of water and cattle on habitat selection of wild herbivores at the edge of protected areas.

Output 3: Decreasing number of predators killed in retaliation for livestock predation

Since April 2018, no lions were killed in retaliation for livestock predation in Zimbabwe project sites. Especially since the number of livestock losses was relatively high during the past reporting period, this might be an indication for increased acceptance of the predators in the area.

Comprehensive data collection protocols are currently being introduced into Botswana project sites and communities are encouraged to liaise with CGs on conflict and retaliation killing incidences. So far, Botswana CGs recorded retaliation killings of two lions in the Boteti area, however true number for both areas might be higher as not all incidences are being reported yet. Additional CGs are planned to be hired in Botswana until the end of 2018. Baseline surveys on predator populations in Botswana's Makgadikgadi Pans National Park have been analysed and suggest a density of 2.3 adult individuals/100 km² in the eastern section of the park and 5.4 individuals/100 km² in the western section. WildCRU is co-supervising a University of Botswana MSc student, who is expected to study several aspects of human-lion conflict in both project sites, including analyses of PAC data and the collection of indigenous knowledge about historical levels of conflict and mitigation

Output 4: Increased crop yields and food security

Due to unseasonal rains and an early drought, the cropping season was exceptionally bad in the Victoria Falls area. Most crops died and crop assessment was therefore not possible. However, crop growth and yields on boma treated and control fields have been monitored during the crop growing season 2017/2018 around Hwange project sites in Zimbabwe. The team recorded an 82% increase in plant height, 64% increase in the number of leaves, 44% increase in stem diameter, 50% increase in the number of cobs and a 100% increase in cob length through the use of mobile bomas to fertilize fallow crop fields. The increase in crop yields is generally measured by the number of cobs and would therefore be around 50%. However, the team is currently looking at the size difference of grains and the overall increase in cob length, which might actually indicate a more than 150% increase in crop yields.

After showcasing the concept in Botswana for more than one year, the first farmers have now formed syndicates and requested mobile bomas to be used for field fertilization. Requested bomas will be provided to farmer syndicates during the next reporting period and crop monitoring will be conducted as soon as crop fields have been fertilized.

2a. Give details of any notable problems or unexpected developments/lessons learnt 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 amendments to the permit application process in Botswana are ongoing, however we are very pleased that the Botswana Government has extended our research permit to carry out this project for the time period 2018-2021, showcasing the high standing of the programme in the country.

2b. Have any of these issues been discussed with LTS International and if so, have changes been made to the original agreement?

Discussed with LTS: N/A

Formal change request submitted: N/A

Received confirmation of change acceptance N/A

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

Yes No Estimated underspend: £

3b. If yes, then you need to consider your project budget needs carefully. Please remember that any funds agreed for this financial year are only available to the project in this financial year.

If you anticipate a significant underspend because of justifiable changes within the project, please submit a rebudget Change Request as soon as possible. There is no guarantee that Defra will agree a rebudget so please ensure you have enough time to make appropriate changes if necessary.

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

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. Additionally, if you were funded under R24 and asked to provide further information by your first half year report, please attach your response as a separate document.

Please note: Any planned modifications to your project schedule/workplan can be discussed in this report but **should also** be raised with LTS International through a Change Request.

Please send your **completed report by email** to Eilidh Young at Darwin-Projects@ltsi.co.uk . The report should be between 2-3 pages maximum. **Please state your project reference number in the header of your email message e.g. Subject: 22-035 Darwin Half Year Report**