Department for Environment Food & Rural Affairs

DARWIN INITIATIVE

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Darwin Initiative: Final Report

*To be completed with reference to the "Writing a Darwin Report" guidance: (http://www.darwininitiative.org.uk/resources-for-projects/reporting-forms). It is expected that this report will be a **maximum** of 20 pages in length, excluding annexes)*

Darwin Project Information

Project reference	23-013
Project title	Living with Tigers in Nepal: poverty reduction for human-wildlife coexistence
Host country(ies)	Nepal
Contract holder institution	North of England Zoological Society (Chester Zoo)
Partner institution(s)	Green Governance Nepal Wildlife Conservation Research Unit, Oxford University Department of National Parks and Wildlife Conservation, Government of Nepal Buffer zone Management Committee, Chitwan National Park Buffer zone Management Committee, Bardia National Park Swarnim Academy of Community Development National Trust for Nature Conservation
Darwin grant value	£ 189,000
Start/end dates of project	1st of April 2016-31st of March 2019
Project leader's name	Alexandra Zimmermann
Project website/blog/Twitter	http://www.chesterzoo.org/conservation-and-science/where-wework/south-asia/living-with-tigers
Report author(s) and date	Tilak Chaudhary, Amy Fitzmaurice, Alex Zimmermann

1 Project Rationale

The project's aim was to reduce poverty and strengthen tiger conservation efforts by increasing security and developing sustainable livelihoods to reduce human-tiger conflict in the Terai lowlands of Nepal.'

In Nepal, 44% of people live in multi-dimensional poverty and in the Terai lowlands, subsistence livelihoods are closely geographically connected to the regions' protected areas. Over the past 20 years the Terai's human population has increased by around 80% (the area is now the most densely populated region of Nepal), with an associated significant increase in consumption of forest resources. Simultaneously, tiger populations in the Terai are reported to have recovered by as much as 63% through control of poaching (Dhakal et al. **2013**), with the last population estimate at 235 in 2018 (National Geography 2018). Consequently, encounters between people and tigers have increased and human-tiger conflict incidents are rising, particularly in the buffer zone forest areas around the Chitwan and Bardia National Parks.

Tiger attacks on people and livestock have direct a direct threat to animal and people but also a socio-economic threat to people's livelihoods. Negative attitudes to tigers, which can result in retaliatory killing of tigers, also seriously undermine wider efforts for conservation. In cases like these, edges of protected areas can become ecological traps, decimating local populations, and undoing efforts to protect tigers inside the parks. Over the past three years,

the problems and needs were identified during many consultations with project partners, including the Nepal Government, as well as communities and stakeholders in the field. Action to alleviate poverty by diversifying livelihoods and reducing the costs of living near tiger habitats was urgently needed to improve wellbeing and ensure long-term support for tiger conservation.

Most buffer zone households collect and use forest resources but certain ethnic groups (e.g. the poorest or landless such as Dalits and Magi) have the greatest dependence on forest resources. As shown in Figures 2 and 3 below, the community bufferzone surrounds the two national parks. Community bufferzone (CBZ) forest are either located on the border of the NP or a community is between the NP forest and CBZ forest. In the CBZ forests, communities can legally collect dead fuelwood, grasses and fodder for livestock within defined quotas. However illegal collection of natural resources, outside of this permitted off take, does occur within NP and CBZ. There are around 32 mammal species that occur inside the NP from Bengal tiger, to honey badger to pangolin. There have been few studies of the CBZ forests, hence why the LWT project focused on these forests and NP forests to study wildlife movements and its' impact on conflict.

In our baseline household surveys, we identified that over 90% of households collected natural resources. Furthermore, approximately 70% of households own livestock, increasing household dependency on forest resources for fodder. Traditionally, in the Terai, women are responsible for collecting the majority of forest resources, particularly fodder, and are therefore at greatest risk from tigers.

The project focussed on two national parks, Bardia and Chitwan, see maps below for details.

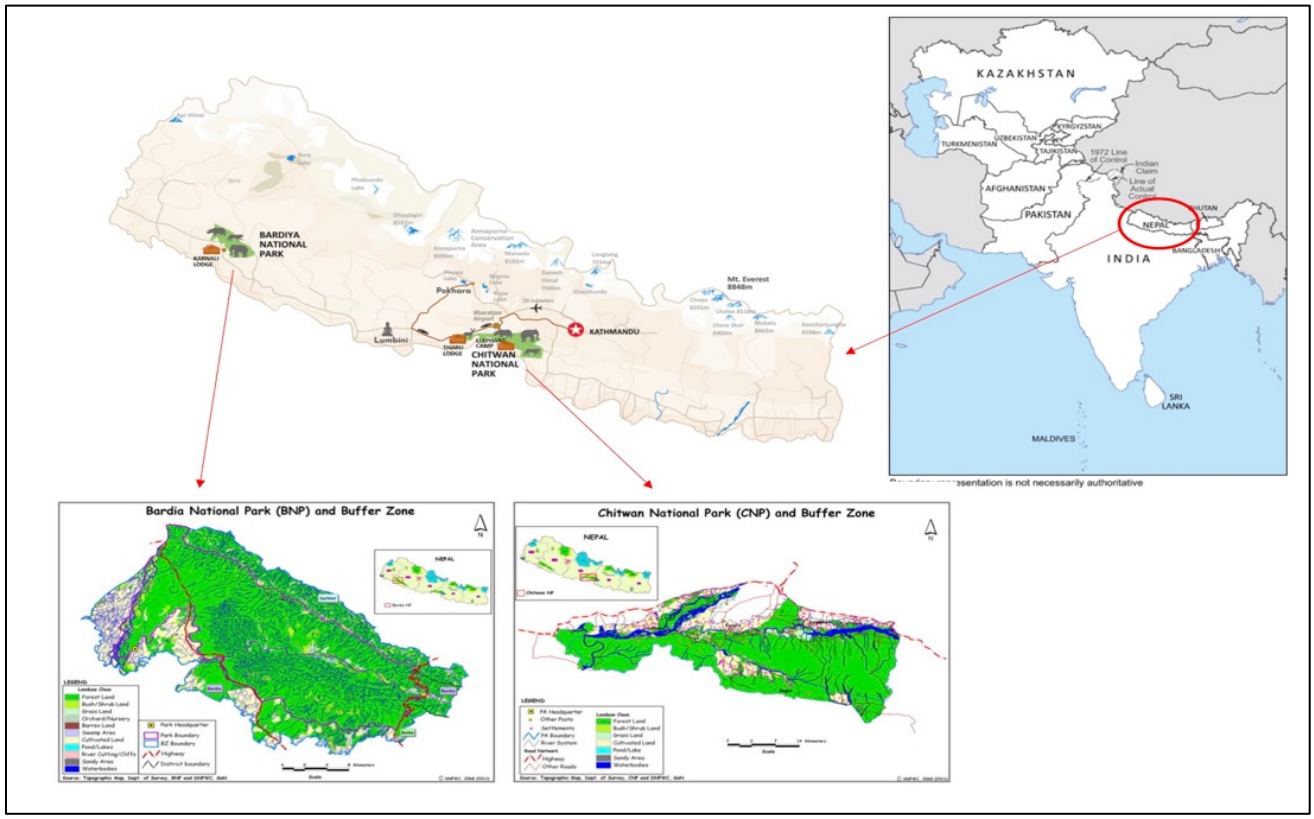

Figure 1. Terai region showing both national parks in Nepal.

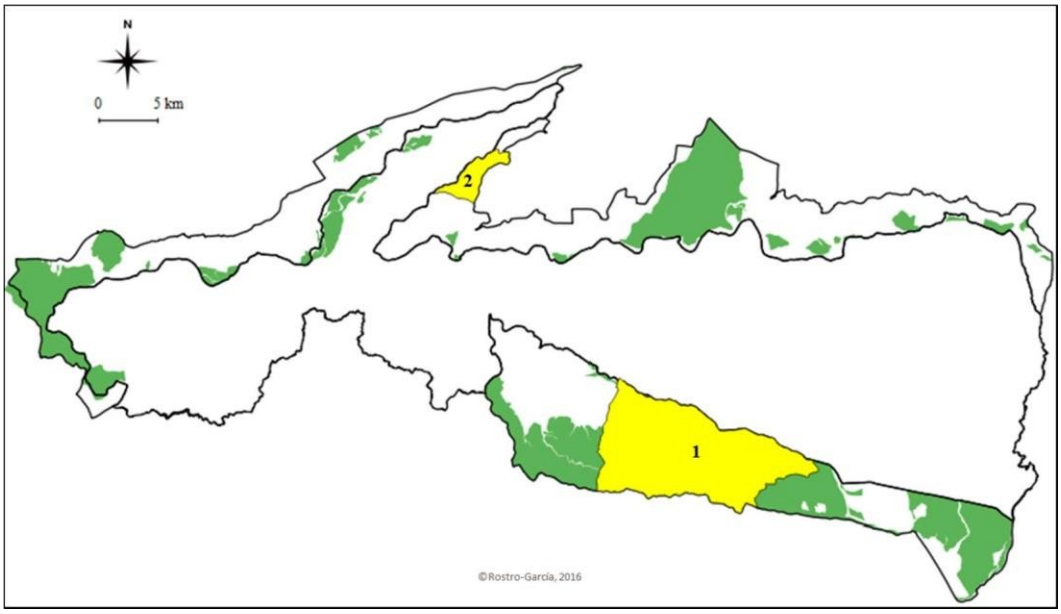

Figure 2. Map of Chitwan National Park indicating the two project focal sites in yellow: (1) Ayodhyapuri BZUC, and (2) Kalabanjar BZUC (©Rostro-Garcia 2016).

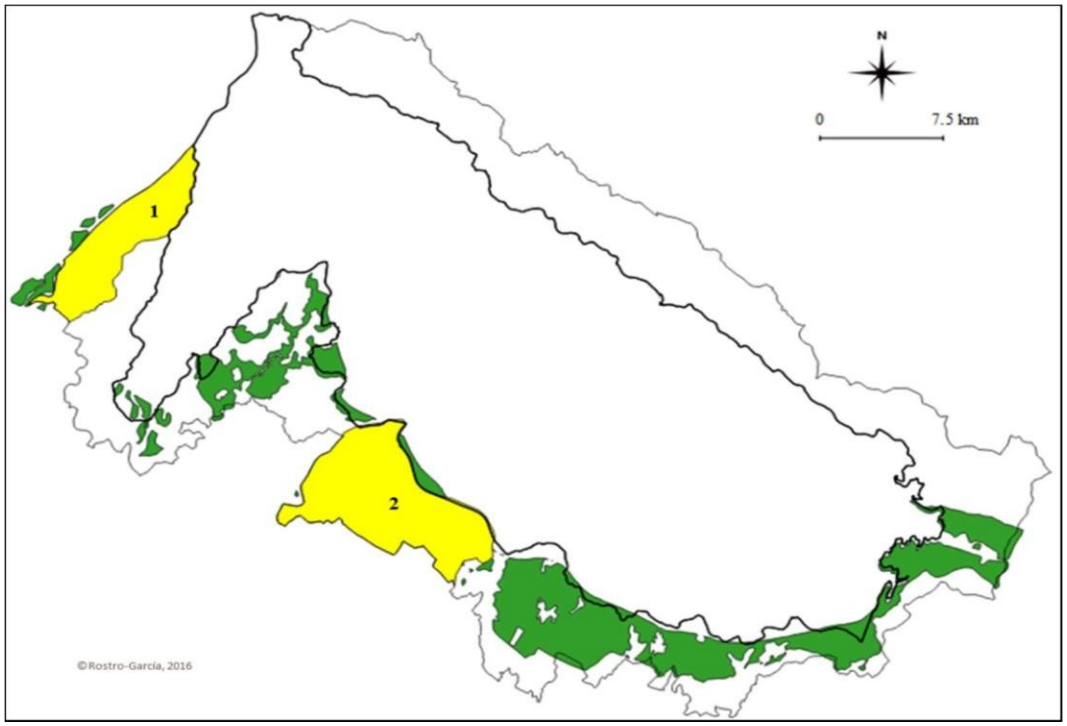

Figure 3. Map of Bardia National Park indicating two project focal sites in yellow: (1) Pathabar BZUC, and (2) Kareliya BZUC (©Rostro-Garcia 2016).

2 Project Partnerships

Chester Zoo's primary partner for the implementation of the project were Green Governance Nepal (GGN). GGN co-ordinated and implemented the project activities in Nepal, including recruitment and management of project field teams in the Chitwan and Bardia sites. The core of each field team comprised of a co-ordinator plus field researchers recruited from the local community; one for each focus community. GGN, Chester Zoo and WildCRU personnel complemented field teams at different stages of the project as required. GGN played a vital role in communicating with other in-country project stakeholders, and obtaining the continuous stakeholder feedback that fed back into the project, as part of the monitoring and evaluation strategy of the project.

The project had strong government partners including the Department of National Parks and Wildlife Conservation (DNPWC), Chitwan National Park (CNP), Bardia National Park (BNP). DNPWC provided the project with necessary permissions and permits to conduct ecological research at project sites and played an advisory role. While CNP and BNP were major stakeholders directly involved in project site selection, field monitoring and providing research permission in the respective NPs. They also provided constructive advice at every stage of the project activity implementation and played an important role during the stakeholder feedback meetings in Nepal in May 2019.

There were also several non-governmental organisations including National Trust for Nature Conservation (NTNC). NTNC supported training for staff in camera trapping during the ecological research phase of the project and provided technical advice. Pathabar Buffer Zone User Committee, Kareliya Buffer Zone User Committee, Ayodhayapuri Buffer Zone User Committee, and Kalabanjar Buffer Zone User Committee.

Buffer Zone User Committees were key community project partners, engaged in identifying and planning, implementation and monitoring of the project interventions. They also provided advice during ecological research, and recommended community members from their Community Based Anti-Poaching Units (CBAPU) and forest guards to be part of the camera trapping teams in both Bardia and Chitwan. This was vital for placing camera traps in successful locations to record the target species, tiger and leopard.

Over the three years, the project formed other collaborations to facilitate best practice and in-country capacity building as part of the ecological research implemented for project monitoring and evaluation, including Nepal Tiger Trust, Centre for Molecular Dynamics Nepal (CMDN), WildGenes (The Royal Zoological Society of Scotland), and WildTrack.

All stakeholders were involved in the feedback workshops, which fed back into this final report. Furthermore, all project partners and stakeholders have stated they wish the project, and their collaboration and support, to continue. Project Achievements

2.1 Outputs

Project activities focused on promoting alternative livelihood and income generation; promoting safe working and livestock husbandry practices; social marketing for behavioural change; and training & information sharing of project stories to replicate ideas to neighbouring communities in the future. Details of the activities conducted for Output 1-5 in the third year are presented in the preceding paragraph.

Output 1: Safe working practices in the buffer zone and community forests established, and predator-safe livestock husbandry methods adopted by project villages.

Growing more food to provide for families' needs was identified as a priority activity to reduce people going into the community forests and the length of time spent there. As such project communities received the first horticultural training workshops in year two, and subsequent workshops were run again for neighbouring communities (Act 1.4) as well as follow-up sessions for project communities in year three. **Horticulture workshops** were run in Patabhar, Kareliya, Ayodhyapuri and Kalabanjar User Committees in May 2018 by Chester Zoo horticulture experts. 120 people attended (89 men and 31 women) from along the Bardia National Park (BNP) area and 130 people (68 men and 62 women) from near Chitwan National Park (CNP). Mushroom growing, vermicomposting, organic pesticide making, and seedbed and paper pot making were taught to local communities. In year three workshops, we termed them "Horticultural Champions Workshops", where participants received a second year of training to become champions in their community, with the legacy of continuing to help others.

Attacks by large wild cats on livestock kept in open or rickety enclosures were viewed as a priority to address the communities' economic loss. Therefore, a key project activity was supporting communities in building strong predator-proof pens for goats and sheep. The monitoring and adaptation of safe working practices and Predator-Proof Pens (PPP) (Act 1.7) identified some pens were built below specification standards, thus the team supported the local farmer by providing technical assistance to strengthen the structure. Many households implemented

improvements to their existing livestock pens. Additionally, six households were supported to install improved livestock sheds in CNP and a livestock shed management workshop was conducted and attended by 54 local participants (male-34, female-20). To date 158 households (about 9% of all project site households) have been supported by LWT to build predator proof pens. Communities have witnessed the tangible reductions in livestock losses from the predator-proof pens and this intervention method is now being promoted by the other organizations and local people have taken the initiative to improve their own traditional pens using local resources. Community committees are also assitancing households with investment into predator-proof pens. For example, Rammapur (community in Bardia), has 126 households. A total of 80 households have predator proof pens now (May 2019) and the LWT project has supported 18 of these. When considering households that own livestock rather than all households, livestock predation has reduced from 13.7% of households in 2016, to 11.7% in 2017, to 7.1% in 2018.

Livestock shed management training workshop was condcuted in Ayodhypuri UC of CNP, improving local knowledge regarding management of existing livestock sheds and improvement that could be made using local materials.

Goat farming follow-up training (Act 1.7) was conducted in Kalabanjar UC of CNP on the 2nd of September 2018. The training was attended by 23 local farmers (15 women and 8 men). The goat farmers were trained in treatment methods for common diseases. **Goat farming groups** were formed in the Patabhar and Kareliya UC of BNP to help farmers access resources and services from the local institution for goat farming. Altogether 227 farmers, in two farming groups, are now affiliated. The newly formed groups were delivered goat farming training benefitting 95 farmers (male-40, female-55). The training covered managing goats, challenges of goat farming and methods to overcome them, and information about livestock insurance policies.

Last year, **Goat breeding centres** were created in Ayodhyapuri and Kalabanjar in CNP, and Pathabar UC in BNP. Each breeding centre was provided with a billy-goat to improve stock genetics, which is managed by a local farmers group. In 2019 the groups were provided with feeding and care guidelines, regular goat health check-ups and medication (Act 1.7). The centres provides low-cost services to farmers who pay a one-off fee of approximately NRP 150, which goes towards medicines, vitamins, feed, etc. This is cheaper than the market fee of NRs 200, to only have access to the breeding billy goat with none of the other benefits that the farmers group brings. In CNP 50 households benefitted and in BNP, 73 households benefited. Through the breeding centres, as a result of the service fee, the farmer groups have been able to generate a total income of NRs 8,500. These funds will be re-invested in future improved genetic goat stock, and veterinary services. The expected outcome is greater value for livestock as a result of more investment on the part of community members to care for their stocks. To date project site communities have started to move away from free-range grazing to pen-fed. Evaluation has shown that community forest and park grazing has reduced as a result of these activities, thus reducing risk of livestock predation by Tigers and leopards and potential conflict.

Safe working practices programmes were organised in Ayodhyapuri and Kalabanjar UC of CNP in June and July 2018. Altogether 156 individuals participated in three different events of which 70 women and 86 men attended. **Wildlife Conflict Management and Livelihoods** (Act 1.8) was organised by LWT in collaboration with Ayodhyapuri UC of CNP in April 2018 which was attended by 164 individuals (99 male and 65 females) and with collaboration with UCs (November 28- Patabhar & November 30- Kareliya), which was attended by 102 individuals (male- 51, female-53) from local communities and stakeholders. This event was organised to raise locals awareness on issues such as differentiated livelihoods, wildlife management and conflict prevention, to promote the adoption of alternatives livelihoods take could promote co-existence with wildlife and reduce the risk of conflict, and to understand the ecosystem services wildlife provide. **Awareness on safe behaviour and natural resource collection practices** and **Awareness rally for behaviour change and conflict prevention** were organized in CNP to reduce the risk of wildlife encounters and potential conflict. Furthermore, as part of the Exit Strategy Stakeholder meetings in May 2019, all workshop participants were provided with dissemination booklets containing information on safe working practices in forests and information on local wildlife, particularly tiger and leopard activity patterns.

In summary, 1501 participants from livestock-owning households participated in various awareness, training and workshop sessions. The final results of year three show a positive change in safe-working practices. For example, in Bardia National Park, livestock grazing in park

and community buffer zone forests decreased between 2016 and 2018 in all communities, with an average of 76% reduction. The outcomes are that less livestock predations office, less risk of wildlife encounters and less time spent into the forests grazing livestock, means more time for other income generating activities.

Output 2: Household consumption of natural resources reduced by identifying, and building capacity for the uptake of, resource alternatives or more efficient use of practices.

As a result of improved livestock husbandry practices there has been an increase in farm animal numbers leading to a greater demand for animal feed. As a solution, the project invested in fodder plant seedlings to build capacity for two reasons, (1) to increase skills and to improve fodder plantations, to provide feed for the livestock (2) reduce natural resource collection in forests and the associated risk of wildlife encounters. Seedlings were provided at the end of year two and beginning of year three. Six hundred seedlings comprising of Tanki (*Bauhinia purpurea*), Badahar (*Artocarpuslacucha*), and Tejpat *(CinnamomumTamala*), and 650 seedlings of Tanki, Badahar, Bakaino (*Melia Azedarach*), and Ipil Ipil (*Leucaenaleucocephala*) were distributed across Ayodhyapuri and Kalabajar on the 5th of June and 29th of July, 2018 respectively. Altogether 110 households received 1,250 fodder seedlings. In BNP, Patabhar received 1600 seedlings comprised of Amala (*Emblicaofficinalis*), Bakaino, Arjun (*Terminalia arjuna*), Ipil Ipil and Tanki plant species, and in Kareliya UC 1,100 seedlings comprising of Amala, Koiralo (*Bauhinia variegata L.)*, Badahar, Arjun and Bakaino. Overall, 2700 seedlings of fodder trees were distributed to 263 households for plantation on private land. The project team continued to monitor the plantation and health of the fodder plants and record the decreased use of natural resources throughout the third year. Fodder plantation training was also included in the horticultural training workshops in 2018 and 2019. The outcomes were reduced community dependency on natural resources; increase livestock protection from less time grazing inside NP and CBZ forest and adoption of safe-working practices.

On the 24th and 27th of August an **Awareness of alternative resources** event was organised jointly with both Kareliya and Pathabhar UCs, to draw community attention to alternative energy resources (such as biogas, solar, and LPG) and promote their use. Presentations were given to reduce forest fuelwood use and highlight the health risks involved with firewood use (e.g. respiratory issues caused by smoke, the risk of HWC when collecting fuelwood, risk of burns, etc.). 113 local people attended the event. The project has witnessed a very positive response to the uptake of biogas plants. However, as mentioned in the 2017/18 report, the growing trend is demand for liquid Petroleum Gas (LPG), hence in 2019 we did not support the building of biogas plants but instead highlighted the available alternative resources at a variety of awareness raising and capacity building events.

Forty-six households (16 in CNP and 30 in BNP) from project site communities (about 3%) received support to install biogas plants. The change in household consumption of forest wood has reduced as a result. For example, in Chitwan National Park the average time spent per day collecting natural resources from park, community buffer zone forest and private land reduced from 6.4 hours in 2016 to 3.7 hours in 2018, a 58% reduction in time spent collecting natural resources. The outcome is reduced risk of wildlife encounters with less time inside the forests.

Output 3: Capacity for, and new sources of, alternative livelihoods and income generation established in project villages.

Fishery training (Act 3.7) was held in Ayodhyapuri UC of CNP on the 8th of September 2018, and attended by 44 local farmers (of which 14 were women). The farmers were taught commercial fishery operations. A previous project had provided fishery training but the local community did not feel confident in farming fish, therefore LWT provided further training to boost their confidence, knowledge and skills. Items covered were local species use for high income and high productivity, training on the selection of a fishery site, preparation of the water body, diet, and disease management. The Madi municipality representative shared their institution's fishery policy with the participants.

Farming kits were provided to farmers groups participating in the fishery training and horticultural training to promote the adoption of the alternative livelihood practice. The agriculture groups

received two large spray tanks, and the fishery groups water pH testers. This has enable more than 200 farmers to improve their agricultural production practice and 35 farmers to successfully manage fishponds.

Carrying on from 2017 sewing and tailoring workshops, an **advanced tailoring** (Act 3.8) course was provided over a three-month period from June-September 2018, to 30 women from Kalabanjar UC of CNP. The training was for women who already had basic tailoring knowledge but who wanted to earn a livelihood from it but were lacking the confidence and advanced skills. The training was jointly organised by the LWT project and the Kalabanjar UC.

Additionally, **Handicraft making training** (Act 3.8) was conducted in Patabhar UC, BNP from 29th of September to the 1st of October 2018. During the four-day training 16 female participants attended. In the workshop they learnt to make toys, woven baskets and other artisanal ornaments to sell in local markets and to the tourism industry through Homestays. **Nature Guide training** was jointly organized by Ujjalo Nepal, BNP, LWT, NTNC, ZSL and UCs from January 5-15th 2019, which was attended by 39 individuals (male-27, female-12). The, participants gained nature guiding knowledge and skills to enable work as nature guides.

An **Observation tour for homestay management** (Act 3.8) was supported by the LWT project in collaboration with Kalabanjar UC. Altogether, 16 individuals took part in the four days observation tour to visit and learn from successful homestays in western Nepal. There is a significant demand for homestay management training to cover topics such as hospitality, business management, cooking, and tourism. Additionally, **homestay management training** was conducted in Patabhar UC of Bardia, where homestays are already operating. The operators gained knowledge of homestay management, welcoming guest, maintaining standard quality, sanitation and servicing. An interaction program with handicraft groups was also organized to promote collaboration.

Free veterinary camps were conducted on Kalabanjar and Ayodhyapuri UC of CNP benefitting 197 households. During the camp, farmers received free livestock medicines, vaccinations, vitamins & supplements, and health check-ups, supported by the LWT project, CNP, and respective UCs. In the final year household surveys, the main cause of livestock death was stated as animal health/lack of veterinary care followed by livestock predation. By providing these camps, husbandry training and predator-proof pens, livestock livelihood is more secure and income is increased.

A knowledge sharing programme was organised to disseminate project interventions and practices adapted to communities beyond project area. This has helped the project reach communities outside of the project intervention sites. **Awareness of alternative livelihoods** was organized in Patabhar and Kareliya UC of BNP and attended by 84 individuals (male-45, female-39) to raise awareness in different farming livelihoods for income generation.

Altogether 1,116 individuals (65% of total project households) from project communities participated in different alternative livelihoods and income generation workshops. In Chitwan, 382 individuals participated in different training/workshops, whilst in Bardia, 734 individuals participated in different workshops, such as goat farming, pig farming, horticulture training and hospitality for homestay operators, etc.

The average household income significantly increased in three communities and slightly decreased in the other five communities. However, it is important to note that fewer households were surveyed in 2018 compared to the 2016 surveys, this affects the data. The slight decreases seen are likely to be because there has been a shift back towards sustainable livelihoods, such as agriculture and livestock farming, rather than foreign employment (which brings in large amounts of money for households, but it is not sustainable). The return from community investment into LWT promoted alternative livelihoods in many cases was not captured within the time span of this project. However, the significant increase in average income in three communities shows the potential for the LWT project to reduce poverty.

Output 4: Social and ecological conditions favourable to continued or increasing tiger presence in project area are achieved in project focal areas.

As part of Activity 4.6 some initial data analysis on Activities 1.3, 2.3, 3.3 and 4.3 of the baseline surveys completed in years one, two and three were completed as part of the PhD research. By comparing data from 2016, 2017 and 2018 for the number of households that owned livestock

and the number of these livestock households that reported predation, we can see a significant decrease in livestock predations for all LWT communities except for Dangpur (control site) and Rammapur (treat site), with less of decrease occurring. In the 2016 baseline questionnaires, 19.1% of households stated predation occurred, yet only 14.9% reported predation in the 2017 questionnaires (see Annex 1: Figures 1 and 2). When considering households that own livestock rather than all households, livestock predation has reduced from 13.7% of households in 2016, to 11.7% in 2017, to 7.1% in 2018.

First year camera trapping took place between Jan-Apr 2017 (BNP) and Oct – Dec 2017 (CNP). Second-year camera trapping in BNP (Act 4.7) and its buffer zone area were completed in April, 2018 and Sept – Nov 2018 (CNP) (Activities 4.6 & 4.7). and a preliminary report produced and shared with BNP/CNP and the DNPWC. The camera trapping covered 97km^2 and 131km^2 for BNP and CNP, respectively using around 100 camera traps. Both years of camera trapping data confirm that tiger and leopard presence in the parks and community buffer zone forests continues. The camera trap data processing and analysis is still on-going. However, we identified that the CBZ forests are an important habitat for both these endangered species and implementing successful co-existence strategies is vital for the conservation of these species.

Output 5: Social marketing campaign

The social marketing campaign involved community meetings, a radio programme and street dramas. The radio programme was broadcast through local FM radio stations in both CNP and BNP (see Annex 2: LWT Radio Programme Details), which mainly focused on the behavioural change of natural resource use and collection practices in order to minimise human-felid conflict. During the Wildlife Week celebration held from the 13-19 of April 2018, street dramas focussed on promoting behaviour change regarding traditional livestock farming practices and forest harvesting from the core area; 1200 people attended the street dramas. Messaging also promoted the message that wildlife attracts tourism and thus supports multiple livelihood options. The social marketing campaign rolled out in year two continued into year three. The radio programme “Banchari” was aired in year three on local radio stations in Chitwan and Bardia. Communities have provided feedback, saying that they have learnt a great deal in terms of how they can help themselves and their livestock stay safe. They also have a better understanding of how their behaviours put them at risk of conflict and how making changes in their behaviours will help them reduce their risk of human-wildlife conflict and the mitigation measure support they can request. In the final household survey (n=799), 25% of participants had heard the radio programme. The project data showed positive human behaviour changes, with people spending less time per day collecting natural resources, which in turn reduced the risk of wildlife encounters inside NP or CBZ forests. It is not possible to directly attribute these changes to any one mitigation, but it very likely that the social marketing campaigns were a contributing factor.

Outcome

The project’s outcome was defined as “In project sites around Chitwan and Bardia, the safety of people and tigers is secured and poverty reduced by changing behaviours, building capacity, improving livelihoods and reducing human-tiger conflict.”

Annex 2 describes in detail how the project has achieved its intended outcome. In summary:

- Indicator 0.1: Human-felid incidences have been reduced to zero in project communities.
    - Means of verification: From DNPWC and NTNC national records, local reports from the LWT field staff and household surveys, no human-tiger or human-leopards incidences were reported from the project communities in 2017 and 2018, compared to 7 reported in 2016 (between 2005-2013).
    - Comparatively in neighbouring Chitwan communities, 6 reported incidences resulted in 6 human fatalities and 1 injury and from information available, 3 tigers were removed from the population, 2 are in captivity and 1 died.
- Indicator 0.2: Livestock predation has reduced in project communities.
    - From household surveys, project site households impacted by livestock predation has reduced from 112 in 2016, to 93 in 2017, to 50 in 2018, resulting in a 55% decrease in households impacted by livestock predation. This is data for all project

communities, where livestock predation also reduced in control as well as treatment communities, which might suggest a shift in wildlife behaviour away from using livestock as prey.

- Indicator 0.3: No tigers or leopards have been killed or removed from forests surrounding project communities due to conflict.
    - There were no reported human-felid incidences in the LWT project villages during 2016, 2017 and 2018.
    - In other communities in Chitwan, 6 reported incidences resulted in 6 human fatalities and 1 injury and from information available, 3 tigers were removed from the population, 2 are in captivity and 1 died.
- Indicator 0.4: Average household income has increased, along with improved livelihoods and more alternative livelihoods, poverty has decreased in project communities.
    - From household surveys, average household income from combined occupations has decreased for some project communities and increased in others. This does not reflect poorly on the project, because there has been a shift from foreign employment (large incomes) back to traditional livelihoods such as agricultural and livestock farming (lower incomes), due to improved livelihoods training as part of the LWT project. Rather than foreign employment, traditional livelihoods are a more sustainable, transferable and scalable, livelihood option. Where average income did increase in project communities, there was a large increase, showing the potential for the LWT project to increase income and reduce poverty. For example, in Rammapur, a treatment community in Bardia, had a 71% increase in average household income per year between 2016 and 2018.

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

The project's impact statement was "In the Terai of Nepal, poverty is reduced and tiger conservation efforts are strengthened by increasing security and developing sustainable livelihoods to reduce human-tiger conflict." The project has demonstrated its progress towards achieving this impact.

People in the project communities have the opportunity for more sustainable livelihoods and stable income due to the training and initiatives implemented in the project. The average income increased in some project communities, showing the potential for the implementations to increase household income and reduce poverty. Reduced poverty can also be achieved if 'income is enough to support household necessities' and well-being. The LWT project was able to provide households with enough income, that 93% said it was sufficient to buy food, 89% (clothes), 64% (schooling) and 55% health care.

One of the biggest threats to Tigers is conflict with humans. Attitudes and tolerance towards tigers and leopards have increased. There has been a 50% increase in the number of people that are aware of tiger conservation projects in their community. There has been a 50% increase in the number of people that think there has been a decrease in human-tiger and human-leopard incidents. Throughout the project period, the percentage of people that state they have enough income for health care, food, schooling and clothes has been consistent, meaning that income levels have been sufficient, despite the changes in costs for these items. The tolerance is vital for future tiger conservation efforts, and for future biodiversity conservation, due to positive community attitudes.

By investing in capacity building of local community already engaged with biodiversity conservation in the community buffer zone forests, community forest management and species management for key stone species such as tigers, has been improved through ecological training workshops and short-term employment as part of the research team of the LWT project. This strengthens conservation capacity for tiger conservation not only in the protected areas, but the community forests which over 20 other mammal species have been recorded from endangered to least concern.

Furthermore, we had seven human-tiger incidences reported by 861 households at the start of the project from baseline surveys, which resulted in some conflict problem tigers being removed

the population into captivity. During the period the LWT project in 2017 and 2018, we had no human-felid conflict incidences in our eight communities, resulting in no tigers removed from the population.

3 Contribution to Darwin Initiative Programme Objectives

3.1 Contribution to Global Goals for Sustainable Development (SDGs)

LWT has contributed towards ending poverty (SDG 1) by empowering communities to earn additional and more secure income through various different streams. The project has also assisted in promoting health and well-being for all ages (SDG 3), by installing biogas plants. Biogas stoves significantly reduce or remove the need for fuel wood collection from the forest resulting in reduced smoke inhalation health impacts inside the home, decreased carbon emissions, and reduced risks of encountering dangerous wildlife in forests. The project also focused on promoting gender equality and empowering women and girls (SDG 5) to play a role in community decision making, especially concerning natural resource management.

Additionally, the project is helping to manage forests and natural resource use sustainably (SDG 15), by working with the Community buffer zone User Groups. Furthermore, LWT worked with community based anti-poaching units to enhance global support for efforts to combat poaching and trafficking of protected species, including increasing the capacity of local communities to pursue sustainable livelihood opportunities and provide ecological training to develop skills.

3.2 Project support to the Conventions or Treaties (CBD, CITES, Nagoya Protocol, ITPGRFA)

The project's outcome (of improving the safety and poverty of people affected by increasing numbers of tigers) and its approach to achieving this are very relevant to the CBD, in particular the following Articles: 8) In-situ Conservation (8e sustainable development adjacent to protected areas; 8j equitable sharing of benefits; 10) Sustainable Use of Components (10c customary use of biological resources compatible with conservation); 11) Incentive Measures (economically and socially sound measures that act as incentives for conservation); 12) Research and Training (12b encourage research which contributes to conservation); 17) Exchange of Information (facilitate the exchange of information relevant to conservation).

The LWT project supported Nepal's National Biodiversity Strategy and Action Plan 2014-2020, which specifically mentions human-wildlife conflict as a key challenge, but also its commitment to doubling Nepal's tiger population by 2022, and its obligations to the Global Tiger Forum and Global Tiger Initiatives. In November 2017 the Project leader, Project coordinator and Project country coordinator met with the CBD Joint Secretary Dr. Maheshwar Dhakal in Kathmandu to provide an update on the progress of LWT and discuss HWC in general. The plan is to organise further collaborative meetings in the future.

We provide vital camera trapping data in 2017, a non-tiger census year. Furthermore, we have surveyed in CBZ forests which have not been surveyed previously, giving presence/absence data which can be used to inform the next tiger conservation action plan and wildlife conflict strategies. 2018 tiger census data revealed that tiger numbers in Nepal have increased to 235 from 198 in 2013. The target was to reach 250 tigers by 2022, at which point, a new global tiger recovery programme strategy will be developed and the LWT project will have provided data to contribute towards these new management plans. Additionally, in LWT project communities there have been zero reported human-tiger conflict events. Whereas in other neighbouring communities, such as in Chitwan, there has been conflict events resulting in both human and tiger fatalities or removal of wild tigers from the population. By reducing human-tiger encounters and conflict, the project has helped reduce tigers being removed from their population contributing towards Nepal's 2022 tiger population target.

3.3 Project support to poverty alleviation

Our focal communities are Community Forest User Groups, (CFUGs), of which there are two in each NP. The project targets sub-groups who suffer the greatest levels of poverty, are natural resource dependent, and/or marginalisation. Based on our scoping work, working with all, including minority groups (women and some ethnic groups) was necessary, as they are typically engaged in grass cutting and other tasks that put them at greater risk through wildlife encounters, and have fewer income generating options available.

The project provided direct benefits to 2,984 households across the Chitwan and Bardia sites, with women from a minimum of 25% of these households being empowered by project activities. The project has focused on building project communities capacity for alternative livelihood opportunities, such as pickle making, advance tailoring, horticultural training, livestock farming, nature guide and ecological training, homestay management training, handicraft making training and supporting improved breed billy-goat for reproduction. We have also seen evidence of the knowledge and practices provided during the training being passed on and adopted by neighbouring communities. For example, 21 PPP were built in the control communities with the support of the CFUGs and other NGOs, due to the successes of the LWT project being shared through communities.

The average household income significantly increased in three communities, up to 75% for one community in Bardia. These significant increases show the potential the LWT project has to alleviate poverty. The other five communities had slight decreases in average household income and this is likely due to a change away from foreign employment to sustainable community based livelihoods, such as livestock farming, horticulture, homestays and other livelihoods. These new investments by households will take time to provide an average increased income, due the foreign employment being a highly paid job. During the project's Exit Strategy Stakeholder workshops, we visited communities in both Bardia and Chitwan. Below details one household experience and what the LWT project has done for his household.

Household visit 4

This household has invested in local chicken farming and has built a new predator proof chicken shed with advice from the LWT project. Attended the poultry farming workshop in 2018. The shed cost 550,000 Nepali rupees with 100 local chickens. He breeds them himself and uses hanging baskets as the hatchery. It will take 6 months until the business is making money, as local chickens take longer to grow. He understands that his investment will not provide him with income until 6 months' time, when the chickens are ready to sell. The chickens look healthy and had space to move and fly. He will get more money for selling local chickens, as local people believe they are good for your health. He wants to make the next shed more free range. He understands the value of having chickens in your crop lands, as they eat the insects that eat the crops. He has had no predator problems. He used fine mesh wire fencing which prevents predators. He was very happy with the LWT project and thanked us for supporting him and giving him poultry training. Potential here, as with some of the other alternative livelihood schemes, to develop into a larger co-operative; thus scaling up production and making export to external markets more accessible.

3.4 Gender equality

The project has directly promoted the participation of female participants in various project activities resulting in 634 women in BNP and 459 women in CNP. The project is also promoting gender equality indirectly by installing biogas plants as an alternative source of cooking/heating energy that reduces women's fuelwood collection time, and has supported poor and disadvantaged households with predator proof pens. This is evident by the number of female participants in our training workshops, and having women involved in decision-making and management of resources.

3.5 Programme indicators

- **Did the project lead to greater representation of local poor people in management structures of biodiversity?**

Through the LWT project, there has been a strong collaboration between local communities and government, DNPWC and NTNC, and national parks, CNP and BNP. This sustainable

collaboration provides a structure for improved communications for common goals, such as biodiversity management, sustainable eco-tourism and sustainable community development in buffer zones surrounding the national parks. Due to the structure of the LWT project and it's in-country project partners working towards a common goal of human-wildlife co-existence and reducing poverty, it creates a sustainable collaboration. Project partners now have the systems in place alongside community training to continue to improve the interventions. For example, there are 80 predator proof pens in Rammapur and 18 of those were built by the LWT project. Furthermore, 21 predator proof pens have been built in the LWT project's control communities with support from the community committees, and other local NGOs. The structure of the LWT project, where all project partners developed the project from the start and fed back in to the project throughout its time frame, provided local marginalised communities with a voice and a defined role in decision making. The project has also empowered communities with knowledge and skills that help facilitate their informed involvement in the management of community forests for biodiversity. They understand the connection between the health of the forest ecosystem and its wildlife and how that benefits local people.

- **Were any management plans for biodiversity developed?**

The community bufferzone forests are managed by the community forest user groups with support from the national parks and NTNC. Through providing community forest groups with information on wildlife species in their forests (from participatory camera trapping research) communities have been empowered to develop forest management plans to benefit key species recorded such as Bengal tiger, leopard, sloth bear, striped hyena, and dhole.
Outside the scope of this project Green Governance Nepal were invited to participate in the development of a human-leopard conflict strategy plan with DNPWC, due the increasing human-leopard conflicts in the Kathmandu Valley and lower Himalayan areas. This shows the national capacity growth within GGN to be invited by DNPWC to participate. Developing strategies that protect endangered species is part of the global diversity targets and this is a great steps towards achieving that within Nepal.

- **Were these formally accepted?**

No formal management plans were developed as part of the project. However, due to the collaborative approach of the LWT project, these working relationships between all stakeholders, will be maintained with common goals in mind. Improving forest management and monitoring biodiversity and developing human-wildlife conflict mitigation strategy plans are all common goals from the LWT project partners. The current plans discussed as part of the project have been positively accepted by local communities and government, promoting co-existence through human behaviour change, improved and alternative livelihoods, and knowledge sharing.

- **Were they participatory in nature or were they 'top-down'? How well represented are the local poor including women, in any proposed management structures?**

No formal management plans were developed, however as part of the collaborative LWT project, all project partners had equal opportunities to voice opinions, provide feedback and develop the project to achieve the intended impact and outcome. Regular community meetings were held to discuss the project and how best to achieve the impact and outcome, both women and men had the opportunity to be involved and the management of the project. During all LWT interventions, both women and men participated and benefitted from improving knowledge and learning new skills.

- **Were there any positive gains in household (HH) income as a result of this project?**

From the households surveyed during the LWT project, there was no clear trend in average household income change. Three communities had significant increased in average household income and five communities had a slight decrease. However, less households were surveyed in 2018 compared to 2016. Where average income did increase in project communities, this shows the potential for the LWT project to increase income and reduce poverty. For example, in Rammapur, a treatment community in Bardia, had a 71% increase in average household income per year between 2016 and 2018. Furthermore, improved livelihoods and more sustainable

alternative livelihoods opportunities have been provided through the LWT project, particularly due to the positive attitudes and willingness of the communities. These all lead to sustainable livelihoods, and increased income over time. Investments into improving or learning new livelihoods takes time to see the changes in income levels.

- **How many HHs saw an increase in their HH income?**

  How much did their HH income increase (e.g. x% above baseline, x% above national average)? How was this measured?

Due to the survey design of the questionnaire, individual household income was not measured over time. From a randomly assigned households, every 3rd household was surveyed. However, for the three communities that have significant increases in average household income, there was a 41%, 46% and 71% increase. It is important to state that less people were surveyed in 2018 than in 2016, which will affect the results. The average decrease in household income across the remaining five communities was 17%. Due to the small decrease in average household income per year and the significant increase in household income in other communities, it shows the potential for the LWT project to achieve its impact of reducing poverty.Increasing income in marginalised communities takes time due to improving livelihoods and learning new skills, development or improvement of markets. Furthermore, there has been a shift away from foreign employment as the main income towards community level livelihoods, such as livestock farming groups and horticultural businesses. These investments take time to delivery higher incomes compared to foreign employment, where families are separated for short-time high income gains, compared to a more sustainable community based livelihood approach. These livelihoods link with increasing wildlife tourism, such as homestays and horticultural business and local farmers supplying products to homestays.

During the Exit Strategy community visits and meetings, one local poultry farmer said “there is a demand for local chicken because local people believe it has health benefits, but it will take 6 months for the first chickens are ready to sell. I will not make any money in the first year on my new business, but it is an investment for the future and with the support of the LWT project through poultry husbandry training and predator-proof pen advice, my business will grow.”

3.6 Transfer of knowledge

2,894 local people received training over the three years of the project gaining improved knowledge and new skills (25% were women). As part of these livelihood training workshops, key members in the community that were willing to further share skills knowledge were trained to benefit the whole community. For example, at the start of the project, first aid training was given, providing basic first aid skills within the community. The PPP champions and billy-goat farmers are key members of the goat farmers groups to develop a co-operative so knowledge and skills can be shared. The horticultural champions have demo plots on their land, where training is given to other community members to improve their horticultural livelihoods. The community members that have the billy-goat and demo plot gain through training opportunities. They are key members of the community who have the vision and willingness to learn, share knowledge for the benefit of their whole community. A large majority of the training workshops received certificates, so these community members can be advocates within their communities to help others with the transfer of knowledge.

Knowledge sharing has occurred and will continue to occur through the three booklets that were developed. The horticultural champions booklets ‘Improved vegetable growing’ were given to all champions. The ‘Living with Tigers Project – a guide for human-tiger and human-leopard co-existence’ booklet provides details of the success interventions of the LWT project to reduce conflicts and sharing knowledge of wildlife species that occur in the communities’ forests. The ‘community leaflet’ is only 2 pages and briefly describes ways to co-exist with tigers and leopard through human behaviour change, with details of tiger and leopard ecology. All three booklets

were given to all participants of the Exit Strategy Stakeholders feedback workshops in May 2019. To continue to share knowledge, these booklets will be disseminated to further with BNP and CNP communities.

Furthermore, other project partners have also gained knowledge, including training and conference opportunities from LWT field staff and GGN, CMDN, Nepal Tiger Trust, and NP staff, both women and men gained knowledge.

The LWT research was conducted as part of a PhD project with WildCRU Oxford University and Chester Zoo's scholar programme. She is from a developed country (UK) and will complete this qualification in September 2020. All thesis papers will be shared with project partners. Publications are currently being co-written by project partners. To date, these results have been shared at international conferences through workshops, oral presentations and posters.

3.7 Capacity building

Green Governance Nepal

- All six members of the Living with Tigers Project field team participated in the first aid training in 2017 (all male).
- All six members of the Living with Tigers Project field team, project leader in Nepal and GGN director attended social science training and both social marketing workshops (all male).
- Three members of the LWT field team attended the Animals for Asia Welfare conference in Nepal in December 2018 (all male).
- Two members of the LWT field team will attend the International Congress for Conservation Biology conference in Malaysia in July 2019 (all male).
- GGN have been invited by DNPWC to participate in the development of a Human-leopard conflict strategy document for Nepal (male).
- Furthermore, two community members that we part of the camera trapping research team, now have jobs training to be wildlife guides, due to recommendations from the lead researcher for those roles (male).

Centre for Molecular Dynamics Nepal

As part of the Living with Tigers Project's ecological research, Chester Zoo and WildCRU Oxford University have a collaboration with CMDN and WildGenes (Royal Zoological Society of Scotland). CMDN received continuous support from WildGenes throughout the genetics research. In February 2019, WildGenes travelled to Nepal to give CMDN genetics diet analysis training using PCR metabarcoding techniques. Six staff members benefitted from this training.

Nepal Tiger Trust, NTNC and NP staff

As part of the LWT Project's ecological research, communities and local NGO's requested ecological training. In 2018, two ecological training sessions occurred in Bardia for the community members and one in Chitwan. Furthermore, an ecological training workshop on WildTrack's "FIT" approach and software was given to Nepal Tiger Trust, which was attended by staff from National Trust for Nature Conservation and Chitwan National Park staff, as well as local researchers and wildlife trackers. 19 people attended the workshop.

4 Sustainability and Legacy

The Living with Tigers project has delivered a wide range of training and awareness activities that have directly influenced practices and attitudes within the project villages. These practices are conducive to living alongside wildlife and for sustainable community development. Infrastructure such as PPP, homestays etc will have a life span and impact beyond this project. There is also clear evidence that effective, tangible, practices such as PPP/goat farming methods/horticulture techniques have been adopted further on the communities own initiative, and are also being adopted in neighbouring communities, and this is likely to continue.

Buffer Zone User Committees have taken the ownership of project interventions and provided matched funds to implement project activities and have stated they will provide additional matched funding for other activities. The project has also implemented improved livelihood activities in partnership with User Committees and they have allocated budgets for livelihood improvements annually. Hence, it is expected that buffer zone User Committees will carry on the PPP and livelihood improvement activities in their annual programme, which will ensure the sustainability of project activities. For example, through the Horticultural Champions, they can provide training to others in their community.

5 Lessons learned

Due to the nature of the community structures and communication within Nepal, our project control communities did not stay as true controls. As the LWT project's successes were discussed between communities, other NGO's and community development committees implemented some interventions to reduce human-felid conflicts. This is shown in our research, as positive results in the treatment communities also occurred in control communities. In the future, we would liaise more closely with local NGO's so these interventions could be implemented after the project was completed.

During the LWT project, we had some staff turnover in the in-country partner which slowed activity implementation. In future we would recommend assuming a degree of staff turnover in a project with so many field staff and to be in more control in the recruitment.

Ensuring good field staff was vital for project successful, communication with stakeholders and communities and important vital during project evaluation, this helped to contribute to the success of the project.

Excellent project partner involvement from start to finish, with continued feedback opportunities and field staff from project communities has been vital for project success. The project achieved much in the period of three years and the budget available. Good project management and investment from all project partners was vital for success.

5.1 Monitoring and evaluation

Systems and processes employed internally to monitor the project have been the use of the log frame, surveys of workshop participants, and monthly reporting and review system of the project assumptions. We have also collected household survey data in 2016, 2017 and 2018 and an independent evaluator conducted a mid-term project evaluation. These data alongside the ecological data are being using to further evaluate the effectiveness of the project's interventions to reduce conflict and poverty, as part of the PhD thesis, and final submission will be September 2020. The mid-term evaluation report can be provided upon request. The aim of the report was to investigate whether the project was on target towards reach its' intended impact, by using the log frame and the measurable indicators. An independent evaluator will assess the entire project now this Darwin Initiative project was successfully completed, to further investigate how the project achieved its' intended impact. Additionally, the Social Marketing and M&E advisor is analysing the results of the social marketing campaign activities, which will be presented as a poster at the World Social Marketing conference in June 2019 by the PhD student.

5.2 Actions taken in response to annual report reviews

NA

6 Darwin identity

The project has credited Darwin Initiative (DI) funding and used the logo in various programme banners, presentations, intervention branding tags, dissemination booklets and social media posts. For example, the Darwin Initiative logo was used on every project update presentation to DNPWC, International Social Marketing Association and general assembly of GGN. The DI logo was also used on the poster tags placed on the biogas plants and predator proof pens and other programme event banners. Chester Zoo has used the DI logo on its website on the LWT

webpage, and also mentions the DI funding support in all of its stories, blogs and media. The majority of the LWT tweets were tagged Defra. The project has been recognised as a distinct project with a clear identity. Darwin Initiative is widely known among the conservation oriented non-governmental and governmental organisations as well as among the local community of project sites in Nepal.

7 Finance and administration

This section seeks information about the finances of your project **since your last annual report**.Please amend the financial years in the tables to suit the reporting period and add/remove rows in the sub-tables if necessary.

7.1 Project expenditure

Complete the expenditure table below, providing a breakdown of salaries, capital items and explanations of 'Other' costs. If the budget was changed since the project started, please clarify the main differences. **Explain in full**any significant variation in expenditure where this is +/- 10% of the approved budget lines.

Project spend (indicative) since last annual report	2018/19 Grant (£)	2018/19 Total actual Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)			.02	
Consultancy costs				
Overhead Costs			.2	
Travel and subsistence			2.6	
Operating Costs			0.1	
Capital items (see below)				
Monitoring & Evaluation			.03	
Others (see below)			.03	
TOTAL			**0.37**	

Staff employed (Name and position)	Cost (£)
Roshan Sherchan (2016-2017)/Tilak Chaudbury (2017-2019)/Kiran Timaslina (Project Manager)	
Pradeep Chaudhury (Accountant)	
Prakash Chapagain (Project Officer CNP)	
Monsoon Khatiwada (2016-2017) /Biraj Chaudhury (2017-2018) /Prabin Poudel (2018-2019) (Project Officer BNP)	
Eak Raj Bhandari/Manoj Ghimire (Field Coordinators CNP)	
Gautam Chaudbury/Ram Krishna Chaudbury (Field Coordinators BNP)	
TOTAL	

Capital items – description	Capital items – cost (£)

TOTAL	

Other items – description	Other items – cost (£)
Mobile Phone credit Motorbike Maintenance, Fuel and Road taxes Accounts auditing	
TOTAL	

7.2 Additional funds or in-kind contributions secured

Source of funding for project lifetime	Total (£)
WildCru – SRs DPhil Fees	
Chester Zoo salaries	
Chester Zoo – staff travel costs	
Nepalese advisors – salaries/expenses	
WildCru – SRs DPhil Stipend	
DPhil laboratory costs	
Wildcru camera traps	
TOTAL	

Source of funding for additional work after project lifetime	Total (£)
Feedback/Horticulture Workshops – Chester Zoo travel, salaries and expenses	
Feedback workshops – GGN salaries	
Feedback/Horticulture Workshops - costs	
TOTAL	

7.3 Value for Money

Green Governance Nepal (GGN) facilitated the majority of expenditure in Nepal. As a well-established, and well networked, entity in the project regions they were able to acquire excellent committed project staff who provided excellent value for money through their genuine dedication. GGN were also able to negotiate competitive prices for all capital, overhead, travel and other costs. Through its strong network the LWT project also received many in-kind project contributions and discounts, for example reduced rates are regular used lodgings.

The LWT investments in community interventions were also able to leverage counterpart investment through the buffer zone user groups. The groups also facilitated value through bulk purchases of core materials, for example mesh for PPP, which was then utilised by individual households. The user groups, and other interested parties within the communities, also directly invested into duplicate interventions or the expansion of interventions which expended the

projects impacts and value for money. There is also evidence of continued independent investment in activities that the LWT has promoted, and several community entrepreneurs have expanded activities beyond the project scope, and adoption of activities continues in neighbouring communities that have seen the tangible benefits that they can provide. A central premise of all interventions is that they should be replicable, it was therefore imperative that they were cost effective and utilised locally sourced, easily obtainable and affordable materials as much as possible.

A consistent message through the stakeholder meetings was that the LWT project had had a significant and lasting impact for the funds available; implementing a large range of activities to the benefit of a large number of people. All Exit Strategy stakeholder feedback workshops gave this same feedback. Additionally, because of the positive support for the project within the communities and other stakeholders, the LWT interventions has been expanded beyond the original target communities.

Due to the collaborative approach of the LWT project, communities' willingness to drive interventions forward has led to many of the interventions being take up by the control communities. For example, 21 PPP have been built in the LWT project control communities, as households have support from the community committees. This translates to value for money, as the project has and will continue to reach other households past its' original targets.

Annex 1 Project's original (or most recently approved) logframe, including indicators, means of verification and assumptions.

Note: Insert your full logframe. If your logframe was changed since your Stage 2 application and was approved by a Change Request the newest approved version should be inserted here, otherwise insert the Stage 2 logframe.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Impact: (Max 30 words) In the Terai of Nepal, poverty is reduced and tiger conservation efforts are strengthened by increasing security and developing sustainable livelihoods to reduce human-tiger conflict.			
Outcome: (Max 30 words) In project sites around Chitwan and Bardia, the safety of people and tigers is secured and poverty reduced by changing behaviours, building capacity, improving livelihoods, and reducing human-tiger conflict.	**0.1** The number of people attacked by tigers is reduced by 80% in focal communities around Chitwan and Bardia by project end compared to pre-project levels. **0.2** 50% fewer livestock attacked by tigers or leopards in focal communities by the end of yr 3 compared to pre-project levels. **0.3** No tigers are killed by people from focal communities throughout project period, and number of 'problem tigers' removed by officials is reduced compared with pre-project levels and compared to comparison sites. **0.4** Levels of poverty reduced and wellbeing improved in ca. 375 (20-60%*) focal CFUG households *per park* by yr 3. (Indicators to be developed as part of the initial learning to understand what wellbeing means to the beneficiaries.	**0.1- 0.2:** **a)** Regional human-tiger conflict monitoring system & official records by partners (DNPWC, NTNC) **b)** Local reports to project staff and verification **c)** Baseline and evaluation panel questionnaire surveys (i.e. surveying same people before & after interventions) carried out in project sites and matched comparison sites. **d)** Baseline and monitoring participant observation & focus groups **0.3.** Regional human-tiger conflict monitoring system and official records by partners (DNPWC, NTNC) **0.4** Baseline, monitoring and evaluation observations & focus groups to assess the material and subjective poverty and wellbeing (e.g. security, assets, decision-making, agency to cope etc)	Nepal's implementation of strict protection measures for tigers continues - no sudden, drastic changes in tiger numbers. No further major disasters (e.g. earthquakes) in project areas to hinder activities for longer than two months No significant civil unrest in project areas to hinder activities for longer than two months. Communities willing and able to engage in project activities such as training events, discussions and trials of solutions or new ideas. Productive working relationships with partner organisations, advisors and stakeholders Partner tiger conflict monitoring system remains in place for project duration

	(* N.B. % ranges are broad due to number of households per CFUG (project site) varying from ca. 450 – 1,500)		
Outputs: **1**. Safe working practices in the buffer zone and community forests established, and predator-safe livestock husbandry methods adopted by project villages	**1.1** Ca. 600 (40-80%) relevant target natural resource user households per park have had at least one member attend training sessions on safe working practices by end of yr 2 **1.2** Ca. 450 (30-60%) relevant natural resource user households per park have members involved in safe working practice schemes by end of yr 3 **1.3** Participating households' perceived ability to protect themselves from tigers increased compared to baseline levels by end of yr 3 **1.4**Ca. 450 (30-60%) of livestock-owning households per park have built & maintain tiger proof pens by end of yr 3 **1.5** Participating livestock-owning households' perceived ability to protect livestock from tigers improved compared to baseline by end of yr 3	**1.1** Attendance records, feedback surveys/discussions **1.2 -1.5** **a)** Baseline & evaluation panel questionnaire surveys in project sites and matched comparison sites to explore working practices & livestock keeping, knowledge, attitudes and behaviour (quantitative) **b)** Participant observation & focus groups in project sites (by project staff and at project end by independent evaluator) on perceptions, social norms and behaviours (qualitative).	Villagers willing and able to attend training events Villagers willing to try new methods, modify their habits in working practices and livestock keeping Productive working relationships with partner organisations, advisors and stakeholders
2. Household consumption of natural resources reduced by identifying, and building capacity for the uptake of, resource alternatives or more efficient use practices	**2.1**Ca. 600 (40-80%) target natural resource user households per park have at least one member attend training on alternative/efficient resource use by end of yr 2	**2.1** Attendance records, feedback surveys/discussions **2.2 -2.4** Baseline & monitoring data (as above) using:	Villagers able to attend demonstration and training events, and willing to engage with suggestions and try new livelihoods.

	2.2 Ca. 450 (30-60%) relevant natural resource user households per park adopt at least one alternative natural resource use behaviour by end of yr 3 **2.3** Participating households' natural resource use (for fodder, household consumption) decreased by 50% relative to baseline end of yr 3 **2.4** Time spent collecting natural resources has decreased by 50% in participating households compared to baseline by end of yr 3	**a)** Interview surveys on natural resource use, knowledge, attitude and behaviour (quantitative) **b)** Participant observation & focus groups in project sites (by project staff and at project end by independent evaluator) on perceptions, social norms and behaviours (qualitative)	Productive working relationships with partner organisations, advisors and stakeholders
3. Capacity for, and new sources of, alternative livelihoods and income generation established in project villages	**3.1** Ca. 600 (40-80%) target households per park have at least one member who has attended livelihoods training events by end yr 2 **3.2** Number of cooperatives / self-help groups (SHGs) increasing in villages compared to baseline by end of yr 3 **3.3** Ca. 450 (30-60%) target households per park have at least one member who has taken up an alternative livelihood by end of yr 2 **3.4** Participating households' natural resource use (for income) decreases by 50% relative to baseline by end of yr 3 **3.5** Time spent by participating households collecting resources for income has decreased by 50% compared to baseline by end of yr 3 **3.6** Participating households' perceived ability to generate income	**3.1** Attendance records, feedback surveys/discussions **3.2 - 3.6** Baseline & monitoring data collected (as above) using following methods of data collection and observation: **a)** Interview surveys on household economics, knowledge, attitude and behaviour (quantitative) b) Participant observation & focus groups in project sites (by project staff and at project end by independent evaluator) on perceptions, social norms and behaviours (qualitative)	Villagers able to attend demonstration and training events, and willing to try new livelihoods. No local disasters (e.g. flooding) damages crop land or pasture for prolonged periods of time, making non-forest based alternatives unviable Markets for alternatives remain accessible and stable

	from alternative livelihoods increased compared to baseline by end yr 3		
4. Social and ecological conditions favourable to continued or increasing tiger presence in project area are achieved in project focal areas	**4.1** More people in project communities willing to tolerate a tiger populations in their neighbouring forest compared to baseline and comparison sites by end of yr 3 **4.2** In project sites, attitudes towards tigers have improved compared to baseline and comparison sites by end of yr 3 **4.3** In project sites, support for tiger conservation has increased compared to baseline and comparison sites by end of yr 3 **4.4** Empirical data gathered, leading to a better understanding of ecological factors affecting human-tiger encounters in the buffer zones of CNP & BNP by end of yr 3	**4.1** Baseline, monitoring and evaluation assessments of tolerance via focus groups, observations and surveys (as above) **4.2** Baseline, monitoring and evaluation assessments of attitudes, and opinions about life in the vicinity of tiger populationsvia focus groups, observations and surveys (as above) **4.3** Baseline, monitoring and evaluation assessments of perceptions, social norms and behavioural intent via focus groups, observations and surveys (as above). **4.4** Transects, camera trapping and scat surveys to assess the distribution of tigers and leopards in the buffer zones and park edges.	Villagers communicate openly about their concerns, opinions, and ideas with project staff Conditions favourable to camera trapping (not stolen/damaged by villagers/wildlife); sufficient tiger/leopard scat can be found for analysis.

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. Baseline qualitative data collection completed (focus groups, semi-structured interviews) in project communities;

1.2. Baseline quantitative survey developed, piloted and administered in project and comparison communities;

1.3. Trial situation-specific and culturally-appropriate safe working and livestock husbandry practices developed and interest in these assessed;

1.4. Training schemes developed and workshops held in project communities;

1.5. Trial safe working and livestock husbandry practices implemented in project communities, supported where necessary by SM campaign activities (see 5.1.-5.5.);

1.6. Trial measures monitored, reviewed (with communities) and adapted as necessary;

1.7. Training and information-sharing events, to which neighbouring communities are invited, held to encourage replication of ideas;

1.8. Mixed methods evaluation (with communities) of trial measures completed and results discussed with communities.

2.1 Baseline qualitative data collection completed (focus groups, semi-structured interviews) in project communities;

2.2. Baseline quantitative survey developed, piloted and administered in project and comparison communities;

2.3. Viable alternatives to, or practices for the more efficient use of, natural resources identified and interest in these assessed;

2.4. Training schemes for alternatives/more efficient use practices developed and workshops held in project communities;

2.5. Alternatives schemes/more efficient use practices implemented in project communities, supported where necessary by SM campaign (see 5.1-5.5);

2.6. Schemes and practices monitored, reviewed (with communities) and adapted as necessary;

2.7. Training and information-sharing events, to which neighbouring communities are invited, held to encourage replication of ideas;

2.8. Mixed methods evaluation (with communities) of schemes and practices completed and results discussed with communities.

3.1 Baseline qualitative data collection completed (focus groups, semi-structured interviews) in project communities;

3.2. Baseline quantitative survey developed, piloted and administered in project and comparison communities;

3.3. Assessment of markets, value chains and micro-finance opportunities completed and viable alternative livelihoods identified;

3.4. Training schemes for alternative livelihoods developed and workshops held in project communities (e.g. acquisition of start-up equipment or materials, skills training such as book keeping and accessing markets);

3.5. Alternative livelihoods initiatives (including necessary SHGs or cooperatives) established in project communities with supported where necessary by SM campaign (see 5.1-5.5) and continuing guidance for start-up households/groups provided;

3.6. Livelihood practices monitored, reviewed (with communities) and adapted as necessary;

3.7. Training and information-sharing events, to which neighbouring communities are invited, held to encourage replication of ideas;

3.8. Mixed methods evaluation (with communities) of livelihood practices completed and results discussed with communities.

4.1. Baseline qualitative data collection completed (focus groups, semi-structured interviews) in project communities;

4.2. Baseline quantitative survey developed, piloted and administered in project and comparison communities;

4.3. Camera trapping and line transect study completed in forest areas adjacent to project and comparison communities;

4.4. Buffer-zone wide HTC rapid assessment survey developed, piloted and administered with a representative sample of buffer zone inhabitants.

4.5. Monitoring and evaluation of social conditions favourable to tiger presence completed (mixed methods M&E);

4.6. Data analysis, paper writing and dissemination of findings.

Social Marketing Activities: Following feedback on our Stage 1 application to provide more information on social marketing and, as the SM campaign is potentially applicable to activities associated with several outputs (1-3), we summarise the SM campaign activities here rather than repeating for each of the outputs. The SM campaign will be used as necessary to enhance adoption rates of certain alternative behaviours (i.e. those for which the associated current behaviour is entrenched or particularly challenging to address as identified during the initial learning phase in project communities). As with all project activities it will be tailored to each of the project communities.

5.1. Baseline qualitative and quantitative data collection completed to explore the economic and social drivers of natural resource use behaviours and to assess prevalence of these behaviours and likelihood of change in these behaviours);

5.2. Situation-specific and culturally relevant social marketing campaign developed in close collaboration with community members (target behaviours and influential community members identified; relevant campaign messages finalised and best means of communicating messages within target communities established (e.g. Butler et al 2013: http://www.rare.org/sites/default/files/Principles%2520of%2520Pride%25202013%2520lo%2520res.pdf);

5.3. Campaign activities rolled-out in time to support the roll-out of relevant project activities;

5.4. Campaign monitored (with communities) and adapted as necessary;

5.5. Campaign evaluated (with communities) through mixed-methods M&E.

Annex 2 Report of progress and achievements against final project logframe for the life of the project

Project summary	Measurable Indicators	Progress and Achievements
Impact: In the Terai of Nepal, poverty is reduced and tiger conservation efforts are strengthened by increasing security and developing sustainable livelihoods to reduce human-tiger conflict.		Report on any contribution towards positive impact on biodiversity or positive changes in the conditions of human communities associated with biodiversity e.g. steps towards sustainable use or equitable sharing of costs or benefits
Outcome In project sites around Chitwan and Bardia, the safety of people and Tigers is secured and poverty reduced by changing behaviours, building capacity, improving livelihoods, and reducing human-tiger conflict.	**0.1** The number of people attacked by tigers is reduced by 80% in focal communities around Chitwan and Bardia by project end compared to pre-project levels. **0.2** 50% fewer livestock attacked by tigers or leopards in focal communities by the end of year 3 compared to pre-project levels. **0.3** No tigers are killed by people from focal communities throughout project period, and number of 'problem tigers' removed by officials is reduced compared with pre-project levels and compared to comparison sites. **0.4** Levels of poverty reduced and wellbeing improved in ca. 375 (20-60%*) focal CFUG households *per park* by year 3. (Indicators to be developed as part of the initial learning to understand what wellbeing means to the beneficiaries**.)** (* N.B. % ranges are broad due to number of households per CFUG	0.1 In all eight communities of the LWT project, from reported data, 7 households had human-tiger conflict events (between 2005 – 2013), and in 2016-2018 there were no human-felid conflict events. In neighbouring communities in Chitwan, there have been 6 reported human-tiger incidences between Jan 2017 and August 2018, resulting in 5 fatalities and 1 injury. Information on conflict events can be provided on request. 0.2 In 2016 baseline household surveys, 112 households had livestock predation, in 2017 this reduced 93 and in 2018 reducing again to 50. Thus, a 44.6% reduction in household's impacted by livestock predation. 0.3 No human casualties or loss occurred in project communities from felids, whilst, as stated in point 0.1, other conflict events occurred in other communities. No retaliation killings or removal of problem felids occurred in the project communities. However, in other communities in Nepal, there were some retaliation killings of leopards due to human conflicts and removal of tigers from Chitwan NP, which has led to tiger fatalities. 0.4 The project has been able to significantly increase average household income by 71%, 46% and 41% in three communities. We also asked whether their income is enough for living aspects, such as health care, food, schooling and clothes (representing a form of well-being). The LWT project was able to provide households with enough income, that 93% said it was sufficient to buy food, 89% (clothes), 64% (schooling) and 55% health care. Well-being means something different to every person, but from the well-being indicators developed with the communities, in the baseline survey,

	(project site) varying from ca. 450 – 1,500)	'landholding' was top measure of well-being for communities in both BNP and CNP. The lowest measure of well-being was stated as 'no risk of wildlife conflict' in BNP (less is logical, due to low conflicts levels at the time) and 'children having good education' in CNP. In the 2018 household surveys, landholding was still measured top for well-being, but the lowest measured had changed to 'owning a motorbike'. Making sure people have homes and land for agriculture and livestock is seen as important for well-being. The LWT provided improved livelihood training and alternative livelihoods to benefit households locally, such as horticulture and livestock training.
Output 1. Safe working practices in the buffer zone and community forests established, and predator-safe livestock husbandry methods adopted by project villages	1.1 Ca. 600 (40-80%) relevant target natural resource user households per park have had at least one member attend training sessions on safe working practices by end of year 2. 1.2 Ca. 450 (30-60%) relevant natural resource user households per park have members involved in safe working practice schemes by end of year 3. 1.3 Participating households' perceived ability to protect themselves from tigers increased compared to baseline levels by end of year 3. 1.4 Ca. 450 (30-60%) of livestock owning households per park have built & maintain tiger proof pens by end of year 3. 1.5 Participating livestock-owning households' perceived ability to protect livestock from tigers improved compared to baseline by end of year 3	1.1 1501 individuals (621 Chitwan, 880 Bardia) participated in training and workshops in year three, including safe working practices workshop, horticultural training (including fodder plantation), social marketing (behaviour change) and biogas plants (reduces the need for fuelwood collection). 1.2 & 1.4 Overall 166 (Bardia 75, Chitwan 91) households have built PPPs as part of the project, but additional PPPs have been implemented with the advice of the LWT and the support of the Buffer zone UC and NTNC. Overall 128 households have biogas stoves as part of the project. Both these interventions promote safe working practices by reducing time spent in the forests and at risk of wildlife encounters. 1.3 & 1.5 We asked households 'How do you rate the perceived ability to protect your and your family from tigers and leopards.' In 2016, 2.3% and 2.5% households stated a 'high' ability to protect themselves from tiger and leopard, respectively. In 2018, this increased to 6.7% and 15.9% for tigers and leopards respectively. There has been a 4.4% and 13.4% increase in the number of households that have a 'high' perceived ability to protect themselves and family from tiger and leopard respectively. This suggests that people think it is easier to protect themselves from leopards than tigers. We asked "how do you rate the perceived ability to protect your livestock from tigers and leopards'. In 2016 2.6% and 2.4% stated a 'high' perceived ability to protect livestock from tigers and leopards respectively. In 2018, this increased to 4% and 8% for tigers and leopards respectively. There has been a 1.4% and 5.6% increase in the number of households that think they have 'high' perceived ability to protect their livestock from tigers and leopards respectively. Although

		this appears low, the LWT project had a limited number of resources to give PPPs to all households, and those most at risk were prioritised. Those who have a PPPs have had no livestock predations. Furthermore, through the collaborative approach and success of the PPPs, community bufferzone committees are assisting households to build PPPs. In Rammapur for example, has a total of 80 households with predator proof pens now (May 2019) and the LWT project has supported 18 of these. Over time, as more households have PPPs, we would assume that perceived ability to protect livestock would increase.
Activity 1.1 Baseline qualitative data collection completed (focus groups, semi-structured interviews) in project communities;		Completed
Activity 1.2. Baseline quantitative survey developed, piloted and administered in project and comparison communities;		Completed
Activity **1.3** Trial situation-specific and culturally-appropriate safe working and livestock husbandry practices developed and interest in these assessed;		Completed
Activity **1.4** Training schemes developed and workshops held in project communities;		Completed
Activity **1.5** Trial safe working and livestock husbandry practices implemented in project communities, supported where necessary by SM campaign activities (see 5.1.-5.5.);		Completed
1.6. Trial measures monitored, reviewed (with communities) and adapted as necessary;		Completed
1.7. Training and information-sharing events, to which neighbouring communities are invited, held to encourage replication of ideas;		Completed
1.8. Mixed methods evaluation (with communities) of trial measures completed and results discussed with communities.		Completed
Output 2. **Output 2.** Household consumption of natural resources reduced by	**2.1** Ca. 600 (40-80%) target natural resource user households per park have at least one member attend	2.1 In year three, 901 individuals participated in different training sessions. In 2019, we started a horticultural champions programme and provided participants with knowledge booklets, so they can teach others in their

identifying, and building capacity for the uptake of, resource alternatives or more efficient use practices	training on alternative/efficient resource use by end of year 2 **2.2** Ca. 450 (30-60%) relevant natural resource user households per park adopt at least one alternative natural resource use behaviour by end of year 3. **2.3** Participating households' natural resource use (for fodder, household consumption) decreased by 50% relative to baseline end of year 3 **2.4** Time spent collecting natural resources has decreased by 50% in participating households compared to baseline by end of year 3	community. As part of this training, livestock fodder plantations and seedling propagation methods are taught. 2.2 128 (Bardia 87, Chitwan 42) households in project communities have biogas plants. Due to project being a collaborative approach working closely with the communities. Interventions were developed and willingness based on the willingness of the communities to take up tried and tested interventions. Bio-gas stoves are more expensive than PPPs for example, thus a large investment is required from the household. As more bio-gas stoves were requested through the project as households started to see the benefits and the connection with linking livelihoods and inventions together to increase impact and reduce risk of conflict. 2.3 & 2.4 Social Survey Result. Number of households that collect natural resources has reduced from 763 to 737 from 2016 to 2018, resulting in 7.3% less households collecting natural resources. However, the number of households collecting natural resources is not the key piece of information to assess for understanding conflict, because people normally collect resources in groups. Therefore reducing the amount of time spent in the forests collecting resources is the key information to assess to show the potential for reducing risk of conflict. The main reason for conflict in Chitwan communities from people going inside the forests, resulting in human-tiger incidences. In Chitwan, the number of trips per month collecting natural resources increased by 0.4%, which is not significant. The important result from the data shows that the number of trips per month reduced from 8 to 3 in community forests, where the majority of conflict incidences occur. The positive result shows a change in human behaviour to reduce natural resource collection, thus reducing the risk of conflict. For example, the average amount of time spent per day collecting natural resources by CNP communities reduced from 6.4 to 3.7, resulting in a 58% decrease in time spent collecting natural resources.
Activity 2.1. Baseline qualitative data collection completed (focus groups, semi-structured interviews) in project communities;		Completed
Activity 2.2. Baseline quantitative survey developed, piloted and administered in project and comparison communities;		Completed

2.3. Viable alternatives to, or practices for the more efficient use of, natural resources identified and interest in these assessed;		Completed through FGDs and Livelihoods assessment report
2.4. Training schemes for alternatives/more efficient use practices developed and workshops held in project communities;		Completed
2.5. Alternatives schemes/more efficient use practices implemented in project communities, supported where necessary by SM campaign (see 5.1-5.5);		Have supported the installation of biogas plants, and provided fodder seeds and tree seedlings.
2.6. Schemes and practices monitored, reviewed (with communities) and adapted as necessary;		Completed
2.7. Training and information-sharing events, to which neighbouring communities are invited, held to encourage replication of ideas;		Completed through 1) Interaction programs covering the importance of PPPs in Kalabanjar UC, Chitwan, 2) Awareness program on tiger conservation via drawing competition for students in Ayodhyapuri UC, Chitwan, 3) Community Based Anti-Poaching Day celebration in Bardia, 4) and during national celebration days, such as World Environment Day, and Wildlife Week.
2.8. Mixed methods evaluation (with communities) of schemes and practices completed and results discussed with communities.		Completed
Output 3. Capacity for, and new sources of, alternative livelihoods and income generation established in project villages	**3.1** Ca. 600 (40-80%) target households per park have at least one member who has attended livelihoods training events by end year 2 **3.2** Number of cooperatives / self-help groups (SHGs) increasing in villages compared to baseline by end of year 3 . **3.3** Ca. 450 (30-60%) target households per park have at least one member who has taken up an alternative livelihood by end of year 2. **3.4** Participating households' natural resource use (for income)	3.1 Altogether 1116 individual participated in the different training and workshop session. (Chitwan 382, Bardia 734). 3.2 & 3.3 & 3.6 Number of livelihood opportunities have increased. For example, goat farming groups and fish farming groups have been formed as a cooperative approach to benefit the community. 2894 individuals have benefitted from either improved livelihoods or alternative livelihoods opportunities. Average household income has significantly increased for 3 communities, up to 75% in one community, showing the potential of the LWT project to alleviate poverty through increased income. In the other five communities, there was a slight decrease in average household income. However, there has been a shift away from high income foreign employment towards sustainable community livelihoods, such as investing in livestock farming co-operatives and agriculture. These investments will take time to provide increased household income. These livelihoods can link with alternative livelihoods, such as wildlife tourism, as local community livestock and vegetables can be sold to homestay co-operative groups as wildlife tourism increases, as wildlife populations increase in Nepal. Furthermore, due to the collaborative approach of the project, this income

	decreases by 50% relative to baseline by end of year 3. **3.5** Time spent by participating households collecting resources for income has decreased by 50% compared to baseline by end of year 3. **3.6** Participating households' perceived ability to generate income from alternative livelihoods increased compared to baseline by end year 3.	information will continue to be monitored to understand the effectiveness of the interventions for the communities. 3.4 & 3.5 See Output 2 – 2.3 and 2.4 results.
3.1 Baseline qualitative data collection completed (focus groups, semi-structured interviews) in project communities;		Completed
3.2. Baseline quantitative survey developed, piloted and administered in project and comparison communities;		Completed
3.3. Assessment of markets, value chains and micro-finance opportunities completed and viable alternative livelihoods identified;		Completed
3.4. Training schemes for alternative livelihoods developed and workshops held in project communities (e.g. acquisition of start-up equipment or materials, skills training such as book keeping and accessing markets);		Completed
3.5. Alternative livelihoods initiatives (including necessary SHGs or cooperatives) established in project communities with supported where necessary by SM campaign (see 5.1-5.5) and continuing guidance for start-up households/groups provided;		Completed
3.6. Livelihood practices monitored, reviewed (with communities) and adapted as necessary;		Completed
3.7. Training and information-sharing events, to which neighbouring communities are invited, held to encourage replication of ideas;		Completed
3.8. Mixed methods evaluation (with communities) of livelihood practices completed and results discussed with communities.		Completed
Output 4. Social and ecological conditions favourable to continued or increasing tiger presence in	**4.1** More people in project communities willing to tolerate tiger populations in their neighbouring	4.1 & 4.2 & 4.3 Tolerance and attitudes towards tigers and leopards have increased. In 2016, 83% of households agreed tigers should be protected, 82% for leopards. Towards the end of the project this changed to 95% for

project area are achieved in project focal areas	forest compared to baseline and comparison sites by end of year 3. **4.2** In project sites, attitudes towards tigers have improved compared to baseline and comparison sites by end of year 3. **4.3** In project sites, support for tiger conservation has increased compared to baseline and comparison sites by end of year 3. **4.4** Empirical data gathered, leading to a better understanding of ecological factors affecting human-tiger encounters in the buffer zones of CNP & BNP by end of year 3	tigers and 90% for leopards. This means around a 10% increase in the number households that agreed tigers and leopards should be protected. Due to the high tolerance before the project started, an increase of 10% is still a very positive result. When surveyed households were asked 'In the past 12 months have incidents with tigers and leopards changed?', in 2016 11% and 8.5% said incidents had decreased with tigers and leopards, respectively. In 2018, this changes to 61% and 60% for tigers and leopards respectively. This means around 50% more households think that human-tiger and human-leopards incidents have decreased. 4.4 The awareness of tiger conservation projects within their communities has increased by 63.5%. All social and ecological data is vital understanding the factors affecting human-felid encounters. These data will be using in complex conflict hotspot mapping models to understand high risk areas for communities and felids. This information will be conducted part of the PhD research and results will be shared with project partners to reduce the risk of conflict.
4.1. Baseline qualitative data collection completed (focus groups, semi-structured interviews) in project communities;		Completed
4.2. Baseline quantitative survey developed, piloted and administered in project and comparison communities;		Completed
4.3. Camera trapping and line transect study completed in forest areas adjacent to project and comparison communities;		Completed
4.4. Buffer-zone wide HTC rapid assessment survey developed, piloted and administered with a representative sample of buffer zone inhabitants.		Completed
4.5. Monitoring and evaluation of social conditions favourable to tiger presence completed (mixed methods M&E);		Completed
4.6. Data analysis, paper writing and dissemination of findings.		This has been on-going through the LWT project and PhD thesis. The final thesis submission will be September 2020, where open source scientific papers will be published as data analysis is completed and information will be disseminated to project stakeholders.

	Dissemination of findings has already begun through several channels. Firstly, community buffer zone Forest User groups and Community Based Anti-Poaching Units (CBAPUs) received posters detailing which wildlife species were recorded in their community forests and they received four wildlife identification books to assist them in managing their forests for wildlife and people. Second, through a variety of different conferences, a range of information has been sharing with the international conservation community on the projects successes and research findings. Thirdly, through the Exit Strategy stakeholder workshops in May 2019, we presented on the projects successes and research results and gained valuable feedback from stakeholders. Lastly, we have provided all stakeholders with dissemination booklets to continue to the legacy of the project. These can be made available on request.
Output 5. Social Marketing Activities: Following feedback on our Stage 1 application to provide more information on social marketing and, as the SM campaign is potentially applicable to activities associated with several outputs (1-3), we summarise the SM campaign activities here rather than repeating for each of the outputs. The SM campaign will be used as necessary to enhance adoption rates of certain alternative behaviours (i.e. those for which the associated current behaviour is entrenched or particularly challenging to address as identified during the initial learning phase in project communities). As with all project activities, it will be tailored to each of the project communities.	
5.1. Baseline qualitative and quantitative data collection completed to explore the economic and social drivers of natural resource use behaviours and to assess prevalence of these behaviours and likelihood of change in these behaviours);	Completed
5.2. Situation-specific and culturally relevant social marketing campaign developed in close collaboration with community members (target behaviours and influential community members identified; relevant campaign messages finalised and best means of communicating messages within target communities established (e.g. Butler et al	Completed
5.3. Campaign activities rolled-out in time to support the roll-out of relevant project activities;	Completed
5.4. Campaign monitored (with communities) and adapted as necessary;	Completed
5.5. Campaign evaluated (with communities) through mixed-methods M&E.	As part of the PhD, this data is being analysed to investigate impacts. Results already indicate the following: that tolerance towards tigers and

	leopard has increased, that human behaviour changes have occurred where households spent less time per day in forests collecting natural resources and less households graze livestock in forests, resulting in reduced risk of wildlife encounters and finally adopting safe-working practices, such as Predation Proof Pens, biogas plants instead of fuelwood collection and growing fodder plantations to reduce livestock fodder collection. Again, all reducing the risk of wildlife encounters. Furthermore, predator proof pens and change in human behaviours resulted in livestock predation decline. Finally, the awareness of tiger conservation projects within their communities has increased by 63.5%. This awareness enables transfer of knowledge and skills and increases the impact of the project past it's intended target households. The results from the social marketing campaign were presented at the World Social Marketing Conference in June 2019, in which we won 'Best Poster'.

Annex 3 Standard Measures

Code	Description	Total	Nationality	Gender	Title or Focus	Language	Comments
Training Measures							
1a	Number of people to submit PhD thesis	1	British	Female	Assessing the practical interventions for reducing human-felid conflicts in Nepal.	English	Complete in 2020
1b	Number of PhD qualifications obtained	0					To be completed in 2020
2	Number of Masters qualifications obtained	0					Due to the extent of the data on other wildlife, there is scope for future masters projects.
3	Number of other qualifications obtained	0					
4a	Number of undergraduate students receiving training	0					
4b	Number of training weeks provided to undergraduate students	0					
4c	Number of postgraduate students receiving training (not 1-3 above)	0					
4d	Number of training weeks for postgraduate students	0					

5	Number of people receiving other forms of long-term (>1yr) training not leading to formal qualification(e.g., not categories 1-4 above)	0					
6a	Number of people receiving other forms of short-term education/training (e.g., not categories 1-5 above)	0					
6b	Number of training weeks not leading to formal qualification	16 week	Nepali	Males and Females	Capacity building and alternative livelihoods	Nepali and English	
7	Number of types of training materials produced for use by host country(s)(describe training materials)	3	Nepali and British	Male and Female	1.Improved vegetable growing. 2.Living with tigers and leopards 3.Living with Tigers Project – a guide to human-tiger and human-leopard co-existence	Nepali and English	All three booklets were developed by LWT project staff from Nepal and Chester Zoo and were disseminated during the Exit Strategy stakeholder workshops.
Research Measures		**Total**	**Nationality**	**Gender**	**Title**	**Language**	**Comments/ Weblink if available**
9	Number of species/habitat management plans (or action plans) produced for Governments, public authorities or other implementing agencies in the host country (ies)	1	Nepali	Male	Human-leopard conflict action plan	Nepali	LWT Project partners GGN, NTNC and DNPWC are working

							towards this action plan.
10	Number of formal documents produced to assist work related to species identification, classification and recording.	1	Nepali	All	Living with Tigers a guide for human-tiger and human-leopard coexistence	Nepali and English	
11a	Number of papers published or accepted for publication in peer reviewed journals	0					The PhD thesis is planned to publish 7 papers.
11b	Number of papers published or accepted for publication elsewhere	1	British	Female	Living with Tigers	English	Mammal News Autumn 2017, Issue 179.
12a	Number of computer-based databases established (containing species/generic information) and handed over to host country	2	British/Nepali/USA	Female and Male	1.Tiger and Leopard Genome Projects 2.Tiger and leopard footprint database	English	The Genome project database of tiger and leopard individual DNA is based in Nepal with CMDN. The footprint database is developed in collaboration with

							WildTrack from the USA. This also in collaboration with LWT project partners DNPWC and NTNC and we aim to expand the collaboration with Nepal Tiger Trust who monitor tigers in buffer zone forests in Chitwan.
12b	Number of computer-based databases enhanced (containing species/genetic information) and handed over to host country	1	British	Female	Camera trapping database	NA	All LWT wildlife camera trapping data was shared with the Nepali government DNPWC to enhance biodiversity knowledge. This is over half a million images.

13a	Number of species reference collections established and handed over to host country(s)	0					
13b	Number of species reference collections enhanced and handed over to host country(s)	0					

Dissemination Measures		**Total**	**Nationality**	**Gender**	**Theme**	**Language**	**Comments**
14a	Number of conferences/seminars/workshops organised to present/disseminate findings from Darwin project work	7	British	Female	1.Conservation Optimism Summit 2017 2.Future Direction's Symposium 2017 3.Mammal Society Student conference 2017 4.Conservation Asia Conference 2018 5.European Social marketing conference 2018 6.World Social marketing conference	English	1.Workshop 2.Poster 3.Poster 4.Poster and speed talk 5.Poster 6.Poster 7.Oral presentation

Dissemination Measures		Total	Nationality	Gender	Theme	Language	Comments
					7.International Congress on Conservation Biology 2019		
14b	Number of conferences/seminars/ workshops attended at which findings from Darwin project work will be presented/disseminated.	1 (2 people)	Nepali	Male	International Congress on Conservation Biology 2019	English	

Physical Measures		Total	Comments
20	Estimated value (£s) of physical assets handed over to host country(s)	30600	Project vehicle and camera traps and first aid kits, field equipment such as notebooks, wildlife identification books, waterproof bags. The poo fridge was donated to NTNC Chitwan genetics lab in November 2018.
21	Number of permanent educational, training, research facilities or organisation established	0	
22	Number of permanent field plots established		Please describe

Financial Measures		Total	Nationality	Gender	Theme	Language	Comments
23	Value of additional resources raised from other sources (e.g., in addition to Darwin funding) for project work						

Annex 4 Aichi Targets

	Aichi Target	Tick if applicable to your project
1	People are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.	X
2	Biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.	
3	Incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.	
4	Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.	
5	The rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.	
6	All fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.	
7	Areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.	X
8	Pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.	
9	Invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.	
10	The multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.	
11	At least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.	

12	The extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.	
13	The genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.	
14	Ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.	X
15	Ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.	
16	The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.	
17	Each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.	
18	The traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.	X
19	Knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.	X
20	The mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties.	

Annex 5 Publications

Provide full details of all publications and material that can be publicly accessed, e.g. title, name of publisher, contact details. Mark (*) all publications and other material that you have included with this report

Type * (e.g. journals, manual, CDs)	Detail (title, author, year)	Nationality of lead author	Nationality of institution of lead author	Gender of lead author	Publishers (name, city)	Available from (e.g. web link,contact addressetc)
Booklet	Improved vegetable growing (Horticultural champion booklet), LWT project, 2019	British/Nepali	Chester Zoo and Green Governance Nepal	Female	Chester Zoo, Chester	Scott Wilson Chester Zoo Cedar House Caughall Road CH2 1LH
Booklet	Living with Tigers and Leopards (community leaflet)	British/Nepali	Chester Zoo and Green Governance Nepal	Female	Chester Zoo, Chester	As above
Booklet	Living with Tigers – A guide for human-tiger and human-leopard co-existence	British/Nepali	Chester Zoo and Green Governance Nepal	Female	Chester Zoo, Chester	As above
Mammal Society News article	Living with Tigers	British	Chester Zoo/WildCRU	Female	Mammal Society News	Amy Fitzmaurice WildCRU

Annex 6 Darwin Contacts

To assist us with future evaluation work and feedback on your report, please provide details for the main project contacts below. Please add new sections to the table if you are able to provide contact information for more people than there are sections below.

Ref No	23-013
Project Title	Living with Tigers in Nepal: poverty reduction for human-wildlife coexistence
Project Leader Details	
Name	Alexandra Zimmermann
Role within Darwin Project	Project Leader
Address	
Phone	
Fax/Skype	
Email	
Partner 1	
Name	Kiran Timalsina
Organisation	Green Governance Nepal
Role within Darwin Project	Main Partner
Address	
Fax/Skype	
Email	
Partner 2	
Name	Amy Fitzmaurice
Organisation	WildCRU/Chester Zoo Scholar
Role within Darwin Project	Partner (Lead Researcher)
Address	
Fax/Skype	
Email	
Partner 3	
Name	Scott Wilson
Organisation	Chester Zoo
Role within Darwin Project	Primary contact at lead organisation
Address	
Fax/Skype	
Email	