Darwin Initiative Main and Post Project Annual 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)

Submission Deadline: 30th April 2020

Darwin Project Information

Project reference	26-021
Project title	Biodiversity conservation, vicuña health and local livelihoods in Apolobamba, Bolivia
Country/ies	Bolivia
Lead organisation	Wildlife Conservation Society (WCS)
Partner institution(s)	Marka Cololo de Antaquilla, Apolobamba protected area
Darwin grant value	£ 292,302.00
Start/end dates of project	1 April 2019 (July 2019) – 31 March 2022
Reporting period (e.g. Apr 2019 – Mar 2020) and number (e.g. Annual Report 1, 2, 3)	April 2019 – March 2020 Annual Report 1
Project Leader name	Oscar Loayza Cossio
Project website/blog/social media	https://bolivia.wcs.org/
Report author(s) and date	Oscar Loayza Cossio, Fabián Beltrán, Lilian Painter, Nuria Bernal Hoverud

1. Project summary

This project aims to reduce the cumulative effects of overgrazing of pastures and peatlands, climate change, and mining over 100,000 hectares in the highlands of Apolobamba protected area and Marka Cololo indigenous land in Bolivia by improving pastoral and peatland management. Apolobamba is a key biodiversity area (KBA) within the Tropical Andes Biodiversity Hotspot, with bird species such as the Royal Cinclodes and Ash-breasted tit-tyrant. Its pastures and peatlands are keystone habitat for the endangered Andean cat, near threatened Chilean flamingo, pampas cat, mauri catfish, and the vulnerable marbled waterfrog. The most important population of vicuña in Bolivia is found here, and shearing of vicuña wool results in local earnings of $158,800 a year for 1,335 people in a region where extreme poverty affects 73% of the population. Both these biodiversity and livelihood values are threatened by poor pasture management. The project proposes to respond to this by developing participatory pasture management agreements and improving vicuña handling. Improving pasture and peatland management will conserve critical biodiversity habitat, and provide wider ecosystem benefits to pastoralists managing wild and domestic camelids. Specifically, healthy pastures will improve nutritional condition and immune response of vicuña, thereby reducing the impact of mange on animal health and wool production. Rounding up animals close together and poor shearing hygiene lead to mange-mite transmission. We will therefore provide veterinary assistance to Marka Cololo to better understand mange dynamics and develop their capacity to independently manage and monitor vicuña health in the future, in coordination with the park guards. We will

also increase the capacity of the Regional Vicuña Managers Association by developing a business and organizational strengthening plan, including an analysis of obstacles and opportunities for women´s participation. The experiences will also leverage local knowledge and promote regional collaboration to share lessons learnt under different threat and management contexts. Finally, we propose to share results with camelid managers in Bolivia and Peru, and with the International Union for Conservation of Nature (IUCN).

2. Project partnerships

The Apolobamba protected area management plan and the Marka Cololo life plan highlight the need to develop a sustainable pasture management plan accounting for emerging threats, such as climate change and increased gold mining, indicating local buy-in for the project. WCS will work with the Apolobamba protected area, the Marka Cololo de Antaquilla indigenous organization and the Regional Vicuña Managers Association of Apolobamba to implement this project. The first two partners have rights and responsibilities over the proposed area of intervention, and the last has rights and responsibilities over the target vicuña population and all have been involved in discussions about activities to be executed in the project. WCS formalized these conversations and the agreed-upon priorities in cooperation agreements with each organization, signed in August 2019. WCS is leading the project implementation and ensuring that it is timely and effective, with participation of local people and authorities, and sharing results of the different phases of the project, as well as through its regional networks across Andean countries, and more closely, with the neighbouring country, Peru.

3. Project progress

3.1 Progress in carrying out project Activities

During the first year of the project, WCS team coordinated activities with the Apolobamba protected area and the national protected area service (SERNAP), the indigenous territory of Marka Cololo Copacabana Antaquilla, the Regional Association of Vicuña Managers of Apolobamba (ARMV Apolobamba) and representatives of 12 vicuña manager communities (VMC): Agua Blanca, Cololo, Cañuhuma, Medallani, Amarka, Puyo Puyo, Apacheta, Antaquilla, Hilo Hilo, Ulla Ulla, Ucha Ucha y Plan Aeropuerto.

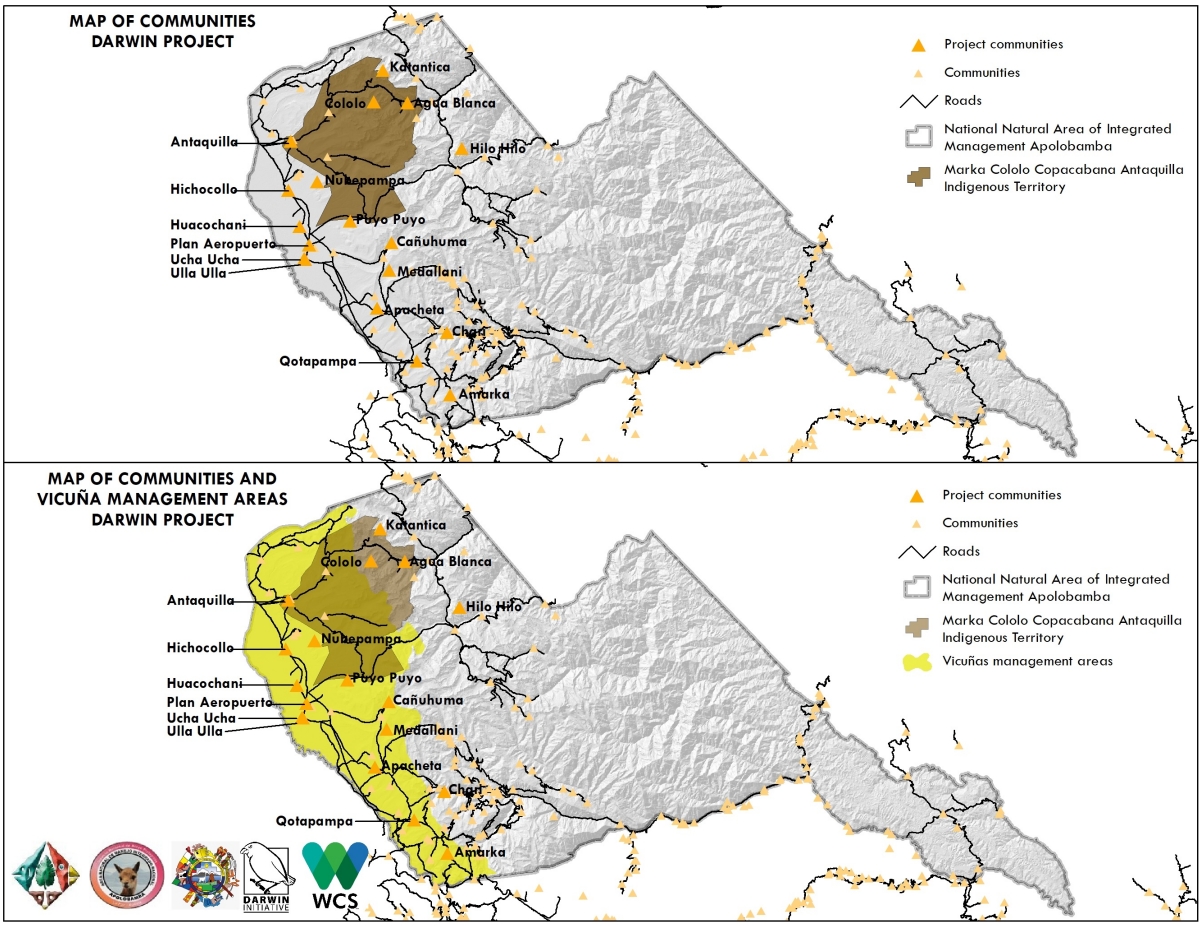

Figure 1: Map of project area

Output 1: Completed diagnostic of peatland and their water sources; native pastures and associated biodiversity indicator species (*Activities 1.1 and 1.3*).

Activity 1.1 Baseline survey of stocking rates in native pastures and peatlands.

During the first year of the project we conducted the diagnostic of native pastures, peatlands and water sources in Apolobamba. As a first step towards the evaluation and establishment of the baselines of stocking rates in native pastures and peatlands, two methodological proposals were developed by pasture specialist for evaluation, with an on-site validation, and adjustments to the conditions in Apolobamba (Annex 01. Adjusted methodological proposal). These methodologies are being applied by two students of the Engineering Military School (EMI) in La Paz and will evaluate botanical characteristics of grasslands and peatland areas: vegetation cover, species composition, diversity and richness. (Annex 02. Outlines of the research works).

These studies evaluated the peatlands and native pastures in order to establish a baseline of plant species and determine the stocking rates under different management regimes; identify and characterize problems under the current management systems; and propose interventions leading to their recovery, conservation and long-term sustainable management.

Field work started with a workshop with the park guards of Apolobamba, mapping the area used for grazing domestic camelids, llamas, alpacas and sheep by the local herders, and the grazing intensity in all the area where vicuñas are found (Annex 03. Workshop memoirs). Based on the maps drawn at the workshop, the sampling sites were identified and field work began during the wet season (January to March 2020) (Figure 1. above). A total of 99 study sites were sampled: 70 in grassland ecosystem and 29 in peatland ecosystem.

In order to determine grazing biomass, productivity and forage availability for each ecosystem, 207 samples were taken from grasslands and 153 samples from peatlands, and are being analysed in the laboratory. Additionally, information was collected in the first quarter of 2020 to determine current animal load and the degree of overgrazing; identify and characterize grassland management problems; and analyse potential technical and practical measures for recovery, conservation, use and sustainable management of peatlands. A map of communities, pastures and peatlands and areas of vicuña presence was developed by the team with park rangers; and participatory mapping with communities established grazing areas and their stocking rates, as well as documenting ancestral and current management systems (Annex 04. Progress reports on research work and report from field technician). In order to provide additional information on vicuña distribution and water sources, with the experience of a partner institution, *Agua Sustentable*, we applied new technology to get an aerial view using drones to fly over the project area. By using "Sentinel" satellite imagery, we have been able to identify and quantify areas covered by glaciers, peatlands, grazing areas, potential areas of hydric recharge, among other ground characteristics. With this high quality spatial information, we will develop three-dimensional digital models of elevation and surface of peatlands, grasslands and waterbodies. We will then apply a modified Green Leaf Vegetation Index in the high-quality images to determine natural vegetation and estimate area covered, fragmentation, and peatland and pasture health conditions. The imagery analysis will be complemented with on the ground calibration and final classification and ecosystem planimetry to produce a detailed baseline study.

In Y2, we will monitor water quality in selected sampling points of peatlands and other wetlands, to test for basic parameters including pH, dissolved oxygen levels and presence of a set of 12 heavy metals (Annex 05. Progress reports from Agua Sustentable). Additionally, we plan to fly the drones again during the dry season (August and September) to have a full image of the area, depending on access limitations to the area due to the COVID 19 pandemic.

Activity 1.3 Baseline survey of biodiversity indicator species in peatlands and native grasslands.

A baseline list of indicator species of both plants and animals has been defined for integrated monitoring in the area of vicuña distribution in Apolobamba Protected Area. The monitoring sites were selected at the workshop mentioned above (Annex 03 above).

In order to complement and confirm the initial list of selected indicator species (Andean cat, Chilean flamingo, pampas cat, mauri catfish and the vulnerable marbled water-frog) we developed a list of native and wild plant and animal species and their degree of threat, based on the IUCN categories, degree of endemism, as well as economic and cultural relevance. Distribution maps were generated and a baseline on the final list of indicator species was established. The list of species is the following:

	Native grasslands	**Peatlands**
Plants	*Deyeuxia hirsuta (reed grass)*	*Distichia muscoides (rush)*
	Senecio canescens (ragwort)	*Distichia filamentosa (rush)*
	*Pycnophyllopsis keraiopetala (*pearlworts)	*Oxychloe andina (rush)*
	Nototriche lanata (mallow)	*Isoetes andicola (quillwort)*
	Gentianella boliviana (gentian)	
Fish	*Trychomicterus rivolatus* (pencil catfish)	
	Orestias Agassi (Andean killifish)	
Amphibians	*Telmatobius marmoratus (water frogs)*	
Birds	*Vultur gryphus (condor)*	
	Phoenicopterus chilensis (Chilean flamingo)	

	Fulica gigantean (giant coot)	
	Oresoschen melanoptera (andean goose)	
Mammals	*Hippocamelus antisensis (north andean deer)*	
	Leopardus jacobita (andean cat)	
	Lagidium viscascia (viscacha)	
	Vicuga vicugna (vicuna)	

Some species that were originally proposed for monitoring were excluded after the analysis, since they were either outside the distribution area of vicuñas, such as the endemic frog, *Telmatobius bolivianus*, or because they were not in the main threat categories (VU, EN, CR, EW) such as the pampas cat, *Leopardus colocola.*

Baseline evaluation of these species will be presented to SERNAP and Apolobamba PA in order to get feedback and propose integration into the protected area integrated monitoring system. Currently, six species are included as part of the integrated monitoring program applied in Apolobamba PA by the park guards, two birds, Andean condor and torrent duck, and four mammals, Andean deer, Andean bear, Andean fox, and puma, some of them under high threat such as the Andean condor, Andean dear and Andean bear, and others considered culturally important and potential threat to domestic cattle such as pumas and foxes.

Output 2: Completed diagnostic of vicuña health condition and mange prevalence as an indicator of carrying capacity and climatic trends (*Activities 2.1 and 2.3*).

Activity 2.1 Baseline evaluation of mange prevalence and health condition of vicuña.

In order to establish the baseline of mange prevalence and health condition of wild vicuñas in Apolobamba, the WCS veterinary team coordinated with the Regional Association of Vicuña Managing Communities (ARCMV Apolobamba) to develop the vicuña shearing campaigns between the months of September and December 2019. Captures took place in 13 communities in Apolobamba, and during the captures, biological samples were obtained from 357 animals (blood: 331, faeces: 354, ectoparasites: 53, and 40 mange skin scrapings) and body measurements from 331 animals. Through a quick external evaluation of health conditions of 5,392 vicuñas, presence or absence of mange was screened for, and prevalence was estimated. All samples were analysed in WCS' laboratory, and results are included as Annex 06. Technical report evaluation of mange and other parasites Apolobamba).

Additionally, starting in May 2019, we conducted classroom training on health management of main infectious and parasitic diseases affecting domestic camelids in Apolobamba, and most importantly of ectoparasites that affect skin and fibre. Participants included 219 people (33 % women and 67% men) from 10 communities (Annex 07. Participant lists Classroom training May 2019). Another field school was held on the application of veterinary drugs in domestic camelids in July 2019, with 10 communities. The purpose was to strengthen the preventive veterinary practices and treatments of livestock diseases that can affect wild vicuñas through transmission from direct contact and by sharing pastures and water sources. Participants included 180 people from 10 out of 14 vicuña manager communities in Apolobamba (35% women and 65% men) (Annex 08. Participant lists Classroom training July 2019*)*.

The next step will be to integrate baseline information on current vicuña heath in Apolobamba with information on the state of their habitat, grasslands and peatlands, and finally climate characteristics, in order to have all the necessary elements to develop an integrated vicuña health management plan.

Activity 2.3 Participatory workshop to identify climate change scenarios and their influence on: pastures, peatlands and their water sources, mange prevalence and vicuña fibre production.

The first stage of the analysis of climate change scenarios and their influence on pastures, peatlands and water sources in Apolobamba has been a historical analysis of changes in temperatures and rainfall from 1950 to 2000 (Annex 09A. Maps on projections in temperature and rainfall for Apolobamba Protected Area). This analysis shows a trend towards an increase in temperature and a reduction in rainfall both in amount and greater seasonality. A workshop was held with 41 community participants (Annex 09B. Report on workshop results and participant list) in Apolobamba to determine local perception to climate conditions compared to actual climatic tendencies obtained in our previous analysis. In the workshop, participants recognized an increase of hot months, as well as a change in rainfall frequency and intensity. These irregularities have affected the communities directly, with a negative effect on peatlands and grasslands, causing stronger pressure on the vicuña grazing grounds. We were also able to confirm that those species and ecosystems currently considered vulnerable to climate change, are also considered so by the local people in Apolobamba. Workshop results are planned to be shared with the Regional Association of Community Vicuña Managers and Apolobamba PA staff to define strategies to be included in an Action Plan to face climate change (Annex 10. Climate change baseline in areas of vicuña distribution in Apolobamba PA). All the information on mange prevalence that was gathered during the vicuña captures in October 2019, as well as the evaluation of the quantity and quality of the vicuña fibre, will be fed into the climate change scenarios to project prevalence into the future

Output 3: Apolobamba protected area, Marka Cololo indigenous organization, and the Regional Association of Vicuña Managers establish a pasture, peatlands and their water sources, and vicuña health management plan (*Activity 3.1).*

Activity 3.1 Community workshops to present results of baseline evaluations of pastures and peatland condition and develop zoning plan based on three categories of management (conservation, restoration and management).

Although there are no activities planned for this Output during Y1 of the project, several tasks have been conducted, advancing towards the development of the management plans of pasture, peatlands and water sources, and the vicuña health management plan. A census of vicuña population in Apolobamba and Sajama protected areas was carried out between August and September 2019 by the ARCMV, CMV, SERNAP and WCS.

In AMNI Apolobamba 12,734 vicuñas were registered, with a social structure of 57% family groups, 41% only-male herds, 1% solitary individuals, and 1% undefined groups. Family groups are composed by 61% adult females, 27% calves, and 12% breeding males locally called *jañachos*. Natality rate was estimated in 44%, and the male: female ratio was 1:4.9.

In Sajama National Park, a total of 892 vicuñas were counted, with a social structure of 54% family groups, 44% only-male herds, 1% solitary individuals and 1% undefined groups. Family groups are composed by 57% adult females, 31% calves, and 12% breeding males. Natality rate was estimated in 55%, and the male: female ratio was 1:4.6. There is evidence of an important decrease in vicuña population by 48.98% compared to the 2018 census (1,821 vicuñas), due to limited access to foraging grounds, mainly peatlands, since local herders have started fencing the areas for individual use by family cattle, contrary to the previous traditional community management (Annex 11. Report on vicuña census Apolobamba, 2019).

Additionally, training was conducted on best techniques in vicuña management, herding, capture, shearing and release. As part of the capacity building, a workshop was held with the participation of 347 people (42% women and 58% men) (Annex 12. Participant lists August 29th, 2019). From September to December of 2019, WCS worked with the Regional Association of Vicuña Managers (ARCMV) and ANMIN Apolobamba to continue training. Afterwards, two meetings were conducted in September 2019 to organize the shearing campaigns, with a total participation of 116 community representatives, the majority of them men (6% women and 94% men) (Annex 13. Attendance lists September 2019). Mechanical shearing was implemented for 70% of the animals, with a total production of 490.5 kg of raw, uncleaned vicuña fibre, with an average fibre length of 2.8 cm (Annex 14. Report on vicuña shearing campaigns in Apolobamba, 2019).

Output 4: Increased resilient livelihoods through improved business capacity and quality control of the Regional Association of Vicuña Managers of Apolobamba (*Activities 4.1 and 4.3*).

Activity 4.1 Diagnostic of business and organizational challenges for the Regional Association of Vicuña Managers, including opportunities and obstacles for women's participation across the process.

At the beginning of January 2020, the Community Association for Commercialization of Vicuña Fibre (ACOFIVB-Bolivia), with WCS technical support, organized a workshop in La Paz (Bolivia), to evaluate achievements and progress on vicuña management to date, and to identify priority actions to ensure the long term conservation of vicuñas in Bolivia, with the participation of 26 representatives from the Ministry of Environment and Water, the General Biodiversity Directorate, the National Service of Protected Areas and other regional associations of vicuña managers and supporting institutions. As a result, a strategic agreement was signed to coordinate a common work plan between governmental institutions and the vicuña manager associations, establishing as priority actions, the health of vicuñas and cattle, conservation of their habitat, establish compatibility of vicuña management with other productive activities in the communities, commercialization of vicuña fibre, and regulatory and institutional aspects. At the venue, WCS presented the results of the vicuña census in Apolobamba, the studies and workshops on veterinary medicine, and improvement of shearing techniques which has resulted in improvement of fibre quality, with economic support from the Darwin Initiative and the Welttierschutgesellschaft (WTG), Germany. We also shared the preliminary results on the evaluation of pastures, peatlands and water courses in Apolobamba, which will provide information to inform required measures to ensure conservation and good nourishment for wild and domestic camelids (Annex 15. Workshop plan, the strategic agreement signed, and selected photographs of the event).

Activity 4.3 Diagnostic of challenges in management practices to reduce mange and reduce fibre losses during shearing and fibre selection.

In September of 2019, the Community Association for the Marketing of the Vicuña Fibre of Bolivia (ACOFIVB) and WCS signed a cooperation agreement to carry out joint actions towards ensuring the conservation and sustainable management of wild vicuña (Annex 16. Agreement between WCS and ACOFIVB in WCS Bolivia News room). ACOFIVB represents 11 Regional Associations of Vicuña Managing Communities (ARCMV) that brings together more than 100 Vicuña Managing Communities (CMV) in the departments of La Paz, Oruro, Potosí, Tarija and Cochabamba. Under this agreement, we will develop management tools for the vicuña management communities (CMV), the Regional Associations (ARCMV) and the ACOFIVB association, as a conservation model for the species and its habitat, benefiting vicuña managing communities in Bolivia.

To act upon the challenge to improve management practices to reduce mange and fibre losses during shearing campaigns, in the first semester of the project, initial steps were taken starting from improving the tools used to shear the animals such as electric razors to produce a more homogenous fibre length and reduce the time for manipulating animals, consequently reducing stress. Later on, between January and February 2020, a two-week training course was conducted in Apolobamba, at the ARCMV facility, with the participation of 81 people from 14 vicuña manager communities organized in two groups, each group fulfilling a total of 55 hours of theory and hands-on practice. A total of 81 people participated, out of which, 46% were women (Annex 17. Participant lists). A total of 517 vicuña fleeces were processed to remove unwanted bristles and were able to refine 77 kg of high quality fibre, always under the supervision of the three expert certified teachers (Annex 18. Certificates of the course).

After the training course, the process of cleaning the fleeces was conducted by participants in their communities, under permanent supervision and guidance of the people trained and the local authorities. To date, a total of 2,421 fleeces have been processed (78%), and we hope to be able to finish processing the remaining 22% when the COVID 19 sanitary alert is over (Annex 19. Report on training and bristle removal processing in Apolobamba).

Output 5: Good practices are shared for sustainable and resilient management of pastures, peatlands and their water sources, biodiversity conservation, improved vicuña health, and resilient livelihoods with other vicuña manager associations and in coordination with the biodiversity national authority (DGB-AP).

Although there were no activities planned for Y1, in September 2019, ACOFIVB as the national representative of the regional associations of vicuña community managers, signed an agreement with WCS to work jointly towards the integrated sustainable management of vicuñas in Apolobamba and other regions within the distribution of wild vicuña populations. We expect this alliance will contribute to ensure resilient livelihoods in Apolobamba and the other regional associations of vicuña communities in the country, with an important economic return to the communities committed to the project.

We also took advantage of the ACOFIVB network to provide assistance in good practices of vicuña management with other regional associations of vicuña managers in Bolivia such as Potosí and Sajama. In January 2020, ACOFVB and WCS organized an inter institutional workshop to conduct an analysis of vicuña management in the country and signed an agreement to work towards improving current limitations through an inter institutional committee with the participation of DGBAP, SERNAP, departmental authorities, Regional and Community Associations of Vicuña Managers and others.

3.2 Progress towards project Outputs

Output 1: Completed diagnostic of peatland and their water sources; native pastures and associated biodiversity indicator species.

Indicator 1.1 Baseline evaluation on the condition and stocking rates over 100,000 hectares of native pastures and 1,400 hectares of peatlands and their water sources established in Year 1.

Field work for the baseline evaluation on the condition and stocking rates over pasture and peatlands of Apolobamba, as well as associated biodiversity indicators has been concluded. The two undergraduate students conducting research, with the support and guidance from the local technicians and park guards, sampled 99 plots representative of both native pastures and peatlands. Currently, data is being analysed to be able to determine stocking rates, through information from interviews with herders and identification of their grazing grounds. An alternative method is being explored which is by direct counting of individual animals from aerial images taken by an aerial drone (Annexes 04 and 05 above).

The field evaluation has adjusted the total area of vicuña distribution to 108,342 hectares, of which 41,395 hectares are covered by native pasture and 8,456 hectares by peatlands.

Indicator 1.3 Baseline survey of biodiversity indicator species in peatlands and native grasslands is established in Year 1.

A baseline list of indicator species of both plants and animals has been defined for integrated monitoring in the area of vicuña distribution in Apolobamba Protected Area. The list includes ten species of plants considered vulnerable to climate change and are representatives for both Andean native grasslands and peatlands, as well as two species of endemic fish, an endemic frog, four species of large and conspicuous birds, and four species of mammals.

Output 2: Completed diagnostic of vicuña health condition and mange prevalence as an indicator of carrying capacity and climatic trends.

Indicator 2.1 Baseline of vicuña mange prevalence and health condition is established in Y1.

The clinical baseline information of vicuña mange prevalence and health condition has been established in Y1, and the main results have been included in the summary report on mange

prevalence and other ecto and endoparasites in vicuñas from Apolobamba. Main results show that in a representative sample of 331 vicuñas, prevalence of parasites was generally low, with ticks and lice representing 16%, and mange-mites representing 12.1%, and a high prevalence of helminths and coccidians, averaging 83.85%. Finally, through an evaluation of presence/absence of sarcopic mange in a representative sample of 5,392 vicuñas captured (representing 42.4% of the whole vicuña population estimated for Apolobamba), and registered by the ARCMV Apolobamba, prevalence was considered low, 2.2% (Annex 20. Report on vicuña health conditions in Apolobamba).

Indicator 2.3 Participatory identification of climate change scenarios, with 40% women participants, and their influence on the condition of pastures, peatlands and their water sources; mange prevalence and vicuña fibre production is completed in Y1.

The first stage of the analysis of climate change scenarios and their influence on pastures, peatlands and water sources in Apolobamba has been a historical analysis of changes in temperatures and rainfall from 1950 to 2000, showing a trend towards an increase in temperature and a reduction in rainfall both in amount and seasonality.

In order to share results and to determine local perception on climate conditions, a workshop was held on February 8th 2020, and results showed that local perception compared to actual climatic tendencies obtained in our analysis coincided. A total of 45 people participated in the event, out of which, 39.5% of them were women. Workshop results are planned to be shared with the Regional Association of Community Vicuña Managers and Apolobamba PA staff to define proper strategies to be included in an Action Plan to face climate change by Y2. See 3.1 above for further references.

Output 3. Apolobamba protected area, Marka Cololo indigenous organization, and the Regional Association of Vicuña Managers establish a pasture, peatlands and their water sources, and vicuña health management plan.

Indicator 3.1 Pasture, peatlands and their water sources management plan (including monitoring program) established between the Apolobamba protected area, the Marka indigenous organization, and the Regional Association of Vicuña Managers, with 40% women's participation, is approved by Y2.

Activities developed in Y1 have made important progress towards establishing a pasture, peatlands and water sources management plan, and the vicuña health management plan. All the baseline information has been gathered on the ground, with participation of local stakeholders and application of technology such as the use of drones to find new ways to get a wider view of the study area.

In the series of meetings held in Apolobamba, we were able to support vicuña herders plan for the census and the shearing campaigns. In the meetings and workshops held between May and September 2019, a total of 862 people participated, out of which, 33% were women (288 people) and 67% were men (574).

- Classroom training on health management. Participants included 219 people (33 % women and 67% men) from 10 communities (Annex 07. Participant lists Classroom training May 2019).

- Field school was held on the use of veterinary drugs in domestic camelids. Participants included 180 people from 10 out of 14 vicuña manager communities in Apolobamba (35% women and 65% men) (Annex 08. Participant lists Classroom training July 2019).

- A meeting to coordinate and plan for the upcoming vicuña census in August. The meeting was attended by 16 community representatives from 10 vicuña manager communities and 2 representatives of the protected area

- Workshops on good practices for managing vicuñas, with the participation of 347 people (42% women and 58% men) (Annex 12. Participant lists August 29th, 2019.

- Two meetings were conducted in September to organize the shearing campaigns, with a total participation of 116 community representatives, most of them men (6% women and 94% men) (Annex 13. Attendance lists September 12th and September 26th 2019.

Additionally, censuses of vicuña population in Apolobamba and Sajama protected areas were conducted, and a population size of 12,734 vicuñas was estimated for Apolobamba, while vicuña population in Sajama was just 892 vicuñas, representing a decrease in vicuña population by 48.98% compared to the 2018 census mainly due to the fencing of grazing areas, something that needs to be avoided in Apolobamba, and will be stated clearly in the management plan of peatlands, pastures and water courses.

All the information generated, coordination spaces and training events are establishing strong enough ground for the health management plan for vicuñas to be finished on time, and to be constructed in a participatory way by the different stakeholders in the area: Apolobamba Protected Area, the Marka Cololo Copacabana de Antaquilla, ARCMV and the 14 vicuña managing communities.

Output 4: Increased resilient livelihoods through improved business capacity and quality control of the regional association of vicuña managers of Apolobamba.

Indicator 4.1: 1 Business and organizational plan for the regional association of vicuña managers is completed, with 40% women's participation, by the end of ***Year 2.***

WCS Bolivia has led the development of several meetings with the ARCMV and communities of vicuña managers in Apolobamba and other regions, as well as with the national ACOFIVB and government authorities and formalized their joint efforts through signed agreements to work jointly in identifying priority actions to ensure the long-term conservation of vicuñas in Bolivia. The inter-institutional alliances established will ensure a wide range of capabilities and representativity to develop improved business capacities for vicuña managers.

Indicator 4.3: Evaluation of increase in effort and additional economic benefit as a result of changes in shearing and fibre selection protocols by ***Y3****.*

So far, technical capacities have been developed in the vicuña manager communities to improve fibre quality during the shearing campaigns by using electrical razors, and also the process of adding value to the vicuña fleeces by doing clean-up of bristles, which it is estimated to increase the quality of the final product by an estimated 20-25% (Source, Humber Alberto 2020). Out of the 81 people participating in the processing of the vicuña fleeces, 46% were women (almost 1:1 ratio), highlighting the importance of the women's role in the vicuña management process.

Output 5: Good practices are shared for sustainable and resilient management of pastures, peatlands and their water sources, biodiversity conservation, improved vicuña health, and resilient livelihoods with other vicuña manager associations and in coordination with the biodiversity national authority (DGB-AP).

Indicator 5.1 At least 1 inter-institutional agreement for replication of management of pasture, peatland and their water sources for biodiversity conservation and resilient livelihoods signed with other vicuña manager associations elsewhere in Bolivia is signed by project end.

ACOFIVB is the national representative of vicuña manager communities, represented by 11 regional associations of vicuña managers that represent more than 100 vicuña Community Managers covering all the vicuña distribution in Bolivia (La Paz, Oruro, Potosí, Tarija and Cochabamba) aiming at guaranteeing conservation, protection, control and sustainable management of vicuñas, preservation of their habitat, and ensuring that economic benefits return to the communities. In September 2019, ACOFIVB signed an agreement with WCS to work jointly towards the integrated sustainable management of vicuñas in Apolobamba and other regions

with wild vicuña populations. We expect this alliance will contribute to improve management and resilient livelihoods in Apolobamba and the other regional associations of vicuña communities in the country, with an important economic return to the communities.

Building on the experiences from activities in Apolobamba by Y1 of the project, we made progress towards sharing the good practices of vicuña management with other regional associations of vicuña managers in Bolivia. We organized a workshop on January 2020, with the participation of DGBAP, SERNAP, departmental authorities, Regional and Community Associations of Vicuña Managers and other communal, governmental and private sector institutions to establish a work plan to improve management of vicuña populations and their habitat (Annex 21. Agreement between ACOFIVB and WCS, and agreement and work plan between SERNAP and WCS).

We are already working with other regional associations of vicuña managers affiliated to ACOFIVB by providing them with technical support and training, on sanitary monitoring, extraction of biological samples for laboratory analysis and mange and other parasite diagnosis.

3.3 Progress towards the project Outcome

Outcome 1: Sustainable and resilient management of pastures and water sources leads to conservation of critical biodiversity habitat, such as peatlands; improved vicuña health, and resilient livelihoods.

Activities in Y1 have been contributing towards reaching sustainable and resilient management of pastures and water sources by establishing the baseline characteristics of these ecosystems that are key for survival of wild vicuña populations and maintenance of local livelihoods. By Y2, with the complete reports on the diagnostics of pastures, peatlands and water courses, we will be able to propose well-supported management guidelines, and a monitoring system that already has estimated a baseline on the distribution of the indicator species in these key habitats (See indicator report in Annex 22 above).

So far, the indicators selected to measure progress towards the Outcome by Y1 are achievable and adequate. We have established a baseline income contribution from vicuña management of 119 USD per year for each family in the 14 Apolobamba communities participating in the project, and have also established baseline health conditions, and have also carried out a population census.

3.4 Monitoring of assumptions

The four assumptions and risks identified for the Outcome level results: *Sustainable and resilient management of pastures and water sources leads to conservation of critical biodiversity habitat, such as peatlands, improved vicuña health, and resilient livelihoods*, hold true, mainly dealing with political conflicts that prevented travel to Apolobamba during the last quarter of 2019 and first quarter of 2020. Nevertheless, the team has found ways to continue making progress by having established local capacities in Apolobamba so that local leaders, local technicians and park guards could continue activities related with their field of expertise. As an example, the vicuña association of Apolobamba, together with park guards have continued monitoring vicuñas and reporting back to the team, also reporting other wildlife during their patrols in the area.

As for the assumptions related to demand for vicuña fibre, it also holds true, although there may be effects in market prices due to the world economic crisis derived from the long quarantine period of the COVID 19 pandemic. The main vicuña fibre market is found in Italy and since it has been one of the hardest hit countries it is possible that demand for this luxury material for the fashion industry may be affected.

The legal framework under which the vicuña populations are managed is established and clear, since they move inside communal lands, an indigenous territory (Marka Cololo Copacabana Antaquilla), and a protected area (Apolobamba), they are protected under law, and the vicuña managers have full rights to apply the management guidelines established by the national environmental authority.

As for the last assumption # 4 related to extractive activities such as mining, WCS has been working with the protected area and local communities developing capacities for better mining practices. All previous Outcome level assumptions also apply to the five Output level results.

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

The project will have a positive impact on biodiversity and poverty alleviation. It will reduce cumulative effects of overgrazing, climate change, and mining over 100,000 hectares in the Apolobamba protected area and Marka Cololo indigenous land by improving pasture and peatland management and promoting responsible mining standards. Apolobamba is a key biodiversity area (KBA) within the Tropical Andes Biodiversity Hotspot. The most important population of vicuña in Bolivia is found here, and shearing of vicuña wool results in local earnings of USD158,800 a year for 1,335 people in a region where extreme poverty affects 73% of the population. The project proposes to respond to threats to biodiversity and livelihoods by providing technical information on vicuña and pasture health and supporting pasture management agreements. We will develop long-term capacity to independently manage and monitor vicuña health in the future, in coordination with park guards. We will also increase the entrepreneurial capacity of vicuña managers by developing a business and organizational strengthening plan, including an analysis of obstacles and opportunities for women's participation. Finally, we propose to share results with vicuña managers in Bolivia and Peru and with the International Union for Conservation of Nature (IUCN).

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

The project will contribute importantly to Goal 15, "Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss." It will directly address the following targets by reducing wetland degradation, promoting local pasture management, and promoting sustainable management of a CITES Appendix II species such as vicuña. During 2019, we have made progress towards ensuring conservation and sustainable use of natural highland pastures and peatlands, as well as water courses therein, and services they provide for the Andean mountain ecosystem as a whole, including wildlife and local people, in line with obligations under international agreements.

By working with the local stakeholders towards integrated management for vicuñas and habitats they live in, we will also have an impact in reducing poaching and trafficking of the highly valuable vicuña wool, providing ways to conduct well-managed shearing campaigns, resulting in healthy vicuña populations and production of high-quality fibre coming from legal community-run businesses to be sold internationally at good prices. Additionally, we are working towards contributing to other targets of Goal 5 that are included in the project:

- By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts.

The project will also contribute to Goal 1, "End poverty in all its forms everywhere." It will directly address the following targets by supporting resilient livelihoods of Andean pastoralists:

- By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance.
- By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters.

5. Project support to the Conventions, Treaties or Agreements

The project is committed to contribute to the four main international Conventions, Treaties and Agreements listed below:

- Convention on Biological Diversity (CBD)

The project will support the objectives of the Convention on Biological Diversity (CBD) by addressing the Aichi Strategic Goals through reducing the direct pressures on biodiversity and promoting resilient sustainable use by Andean pastoralist communities in Apolobamba, as well as enhancing benefit sharing and capacity building of an indigenous organization and pastoralist associations. We will address the following Aichi Strategic Goals: **Goal B** by reducing the direct pressures on Andean pastures and peatlands, arising from climate change, overgrazing and mining, supporting sustainable vicuña management, as well as ensuring conservation of biodiversity; **Goal D** by enhancing the role of Andean ecosystems and their contribution to local livelihoods, and specifically those of women and indigenous local communities. As well as by strengthening ecosystem resilience by reducing the threat of mining and developing local capacity for pasture management; **Goal E** by respecting and supporting the customary use of vicuñas in an indigenous land and promoting intercultural knowledge sharing between the vicuña manager associations between Peru and Bolivia, and with the International Union for Conservation of Nature (IUCN), Species Survival Commission (SSC), and Red List Authority Coordination (SAC).

- Nagoya Protocol on Access and Benefit Sharing (ABS)

We will address the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits by supporting indigenous ownership, and fair and equitable use of a wildlife species. The CBD establishes that a person or institution seeking access to genetic resources in a foreign country should seek the prior informed consent of the country in which the resource is located. Moreover, the person or institution must also negotiate and agree on the terms and conditions of access and use of this resource. This includes the sharing of benefits arising from the use of this resource with the provider as a prerequisite for access to the genetic resource and its use. Conversely, countries, when acting as providers of genetic resources, should create conditions to facilitate access to their genetic resources for environmentally sound uses and not impose restrictions that run counter to the objectives of the CBD.

- Convention on International Trade in Endangered Species (CITES)

This project will produce information on the importance of pasture management for ecosystem and animal health; and for fibre production for a wild vicuña population listed on CITES Appendix II. The information will be relevant to all others similarly listed, which include all populations in Bolivia and Peru, as well as semi-captive populations in northern Argentina and northern Chile. Appendix II listing allows trade in wool and derived products under strict management.

- Ramsar Convention on Wetlands (RAMSAR)

Finally, we will support the Ramsar Convention by enhancing pasture management to reduce pressure on Andean peatlands, focusing in particular on the effects of mining and overgrazing and on fostering agreements between multiple local stakeholders and the protected area authority.

6. Project support to poverty alleviation

The most important population of vicuña in Bolivia is found in Apolobamba, and shearing of vicuña wool results in local earnings of $158,800 a year for 1,335 people in a region where extreme poverty affects 73% of the population. In the Apolobamba region, traditionally living with vicuñas and sharing the same landscape has been part of their daily lives for forever. Both these biodiversity and livelihood values are threatened by poor pasture management arising from lack of information on carrying capacity, conflicting land use practices and inadequate animal handling during shearing. These issues are being addressed as reported above.

In the coming years of the project, we will also increase the entrepreneurial capacity of vicuña managers by developing a business and organizational strengthening plan, including an analysis of obstacles and opportunities for women's participation. We expect that by Y3, the 1,335 vicuña herders from Apolobamba communities (at least 40% women) will increase their income by 20% from a baseline of 119 USD a year.

7. Consideration of gender equality issues

In Y1 we have achieved women's participation in project training activities of between 33% to 46%. Additionally, three women expert certified teachers from Potosí were contracted to improve fibre selection in the ARCMV Apolobamba' headquarters.

It is important that improved fibre selection does not result in an increase in work for women that later on is not recognized. We will quantify the resulting gains to ensure this information is considered in the benefit distribution.

In the coming years, we will strengthen the role of women participants (40%) in the short and long term by developing a business and organizational strengthening plan for the Regional Association of Vicuña Managers. We will develop both documents with a focus on gender and productive chains, identifying obstacles and opportunities for women's participation across the productive process and in benefit distribution.

8. Monitoring and evaluation

The monitoring and evaluation plan has been supervised by the project lead, with support from the team and monitoring staff of the Marka Cololo and protected area. The national protected areas and indigenous organizations have existing monitoring and evaluation plans, developed with WCS technical support, and linked to Management Plans and Life Plans, respectively.

The current Evaluation and monitoring plan still stands as stated in the project document:

Output 1 will be verified by comparing the exit evaluation with the baseline on the condition of pastures and peatlands and their water sources. We will also carry out baseline and exit evaluations on biodiversity indicator species distribution in peatlands and native grasslands with project staff. Baseline evaluations for these indicators have been concluded.

Output 2 will be verified by comparing baseline and exit evaluations on mange prevalence and health condition; and by the workshop reports on climate change scenarios, including participant lists disaggregated by gender. Baselines have been concluded.

Indicators for **Outputs 3, 4 and 5** will be reported on in the following years.

9. Lessons learnt

We have noticed strong coordination within the vicuña managers' internal organizational structure, from associates to families, communities, the regional associations and within the national association. Good coordination was also possible with the government authorities, especially DGBAP, SERNAP and ANMIN Apolobamba. However, there is a need to emphasize coordination with municipal authorities from Pelechuco, Curva and Charazani to increase their support to the vicuña management plan.

An aspect that needs to be tackled more strongly, is the visibility of women's role in the vicuña management processing chain, since cultural barriers are still a limitation.

There is a large local demand for additional practical field schools on health management for domestic camelids and sheep.

Vicuña health can be managed at a national scale to leverage the interest and capacities of different institutions, such as ACOFIVB, DGBAP, SERNAP, departmental governments and vicuña manager associations.

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

No previous reviews of project implementation have been received. However, we respond to the comments of the Darwin Expert Committee which proposed some actions to make the project stronger.

1. To support the direct relationship between better grazing leading to healthier vicuña populations, we will monitor pasture condition, vicuña body condition and mange prevalence. According to Peig & Green (2009), body condition can be used as a proxy to health condition. Further results of these analysis will be shared in next report.
2. In order to ensure sustainability of veterinary services to manage vicuña health beyond the project, we are conducting joint and coordinated work with the ARCMV Apolobamba authorities and local representatives, and the Apolobamba ANMIN/SERNAP counterparts to strengthen preventive sanitary management, improving existing protocols and generating new protocols that ensure animal wellbeing during the vicuña capture campaigns.

11. Other comments on progress not covered elsewhere

In addition to the comments on the social and political conflicts in the country during the last quarter of 2019, and the sanitary emergency in the first quarter of 2020, which have already been mentioned in Subsection 3.4 above, the fluctuation of the pound has affected the project budget. This year we have absorbed this impact by covering transport costs with matching funds. The upcoming national elections in Bolivia, which are expected to take place between July and September 2020 may also have impacts in project implementation.

12. Sustainability and legacy

We will ensure sustainability of our actions by: a) developing written documents documenting the agreements regarding management of pastures, peatlands and their water sources; as well as vicuña shearing, health and fibre processing; b) incorporating the habitat management agreements and monitoring protocols within the management practices formally approved by Apolobamba protected area and the Marka Cololo de Antaquilla and their monitoring programs; c) strengthening alliances for habitat and species management and monitoring between the protected area, the Marka Cololo de Antaquilla, the Regional Association of Vicuña Managers and the National Vicuña Management Program; d) promoting participation of miners in efforts to improve mining practices through an alliance with the Better Gold Initiative, with which WCS has been working for the last three years.

13. Darwin identity

The Darwin identity has been acknowledged in communications related to the vicuña management activities, either by recognizing their support in writing, or by adding the logo where appropriate. The Darwin logo has been included in all documents resulting from workshops and relevant documents produced as part of the project activities. Publications are included in Table 2 below. Additionally, a news release on the vicuña management activities in Apolobamba in January 20020 is available in the News Room of WCS Bolivia web page.

Additionally, in the latest March 2020 Darwin Newsletter, the vicuña management project in Apolobamba is featured and its contributions to gender equality in Apolobamba.

Finally, the Darwin logo is included in Participant lists and field reports as shown in the annexes.

14. Safeguarding

WCS's policies and procedures are framed by the organization's Code of Conduct, a revised and updated version of which was formally adopted in February 2019. This provides explicit guidance as to how WCS personnel must comport themselves during their work, and applies to all staff at WCS as well as those that act on behalf of WCS. The Code of Conduct covers diverse issues such as conflicts of interest, safeguarding human rights, combatting human trafficking, sexual harassment, protection of whistle-blowers and many others. Under the Code of Conduct WCS

personnel are accountable for their actions and the actions of others under their management authority, and for ensuring compliance with the Code of Conduct. The Code of Conduct prohibits bullying, harassment and sexual exploitation and abuse, and child abuse as well as documents WCS's organizational commitment to comply with human rights standards and human subjects' protections as it undertakes its conservation work. WCS follows established national and global standards for safeguarding human rights including the World Bank Social Framework, the UN Declaration on the Rights of Indigenous Peoples, and the Belmont Report that outlines the ethical principles and guidelines for the protection of human subjects of research. WCS has also established a Global Grievance Redress Mechanism to ensure that we respond in a consistent and timely way across the organization to investigate, document and take appropriate action to address complaints of alleged human rights abuses by WCS staff, partners, consultants or anyone working on our behalf.

15. Project expenditure

Table 1: Project expenditure during the reporting period (1 April 2019 – 31 March 2020)

Project spend (indicative) since last annual report	2019/20 Grant (£)	2019/20 Total Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)				
Consultancy costs				
Overhead Costs				
Travel and subsistence				To reduce impacts on budget due to a reduction of exchange rates, additional travel costs have been covered w/ matching funds.
Operating Costs				
Capital items (see below)				
Monitoring & Evaluation (M&E)				
Others (see below)				
TOTAL				

Annex 1: Report of progress and achievements against Logical Framework for Financial Year 2019-2020

Project summary	Measurable Indicators	Progress and Achievements April 2019 - March 2020	Actions required/planned for next period
Impact Sustainable pasture management reduces threats to peatlands and their biodiversity; and improves livelihoods of 1,335 vicuña managers (40% women), by improving vicuña nutritional status and reducing mange prevalence.		In Year 1, we made important progress to contribute towards improving the livelihoods of 1,335 vicuña managers by establishing the baseline conditions of both habitat and health conditions of the wild vicuñas in Apolobamba, conducting vicuña censuses and evaluating the health condition for over 42,4% of total estimated vicuña population (12,703 vicuñas censuses and 5,392 animals checked for mange presence). In order to establish the baseline conditions of the grazing areas (native pastures and peatlands) standardized methodologies were tested and applied, sampling a representative area of the adjusted intervention area (108,342 hectares of vicuña distribution area, including 41,395 hectares of native grasslands (38.2%) and 8,456 hectares (7.8%) of peatlands). Additionally, the Regional Association of Vicuña Community Managers of Apolobamba (ARCMV) have already established inter-institutional alliances to achieve long-term sustainable vicuña management, with government support.	[redacted]
Outcome Sustainable and resilient management of pastures and water sources leads to conservation of critical biodiversity		**01 & 02**. Diagnostics of pastures and peatlands have covered a representative area of the estimated	Although fieldwork activity has been concluded, some additional data is being compiled through interviews with

habitat, such as peatlands, improved vicuña health, and resilient livelihoods.	**0.1** 100,000 hectares of currently unmanaged pastures are under improved management by **Year 2.** **0.2** 1,400 hectares of currently unmanaged peatlands and their water sources are under improved management by **Year 2**.	108,342 hectares of the distribution area of vicuñas in Apolobamba, with the analysis being conducted for each of the two main grazing areas of vicuñas: native dry grasslands, and peatlands.	local people through the help of local technicians. Laboratory analysis on organic matter and related information is still being processed.
	0.3 Distribution of threatened and indicator wildlife species of peatland health increases for at least 25% of species by **Year 3**, from a baseline to be established in Year 1.	**0.3** A list of 20 biological indicator species has been established (Annex 24. Baseline of indicator species for monitoring).	Next step is to socialise results with the ANIMIN Apolobamba.
	0.4 Income of 1,335 vicuña herders (at least 40% women) increases by 20% by **Year 3**, from a baseline of 119 USD a year.	**0.4 NA**	Complete analysis on vicuña fibre volumes (offer) and demand, recurring costs, opportunities and limitations; as well as benefit distribution.
	0.5 11,000 vicuña have reduced incidence of mange or increased health condition by at least 10% by **Year 3**, from a baseline to be established in Year 1.	**0.5** Baseline study on mange-mite prevalence in vicuñas from Apolobamba has been established and considered low (2,2% on average) (Annex 20. Vicuña health report)	In the next year, a vicuña health monitoring protocol will be established to be applied in Apolobamba, which will be easily applied elsewhere.
Output 1. Completed diagnostic of peatland and their water sources; native pastures and associated biodiversity indicator species.	**1.1** Baseline evaluation on the condition and stocking rates over 100,000 hectares of native pastures and 1,400 hectares of peatlands and their water sources established in **Year 1**.	**1.1** Baseline evaluation on stocking rates and current conditions has been established (Annex 04. Progress reports on research). Final results will be presented in the next annual report (Y2).	
	1.2 Exit evaluation on the condition and stocking rates over 100,000 hectares of native pastures and 1,400 hectares of peatlands and their water sources is established in **Year 3**.	**1.2 NA**	

	1.3 Baseline survey of biodiversity indicator species in peatlands and native grasslands is established in **Year 1**. **1.4** Exit evaluation of biodiversity indicator species in peatlands and native grasslands is established in **Year 3**.	**1.3** Baseline survey on biodiversity completed. See Annex 24 for further detail. **1.4 NA**	
Activity 1.1 Baseline survey of stocking rates in native pastures and peatlands.		Completed (Annex 04 & 05)	Surveys are completed, and analysis of organic matter and identification of species collected is in process. With the additional information, we will be able to establish carrying capacity and determine current grazing impact status.
Activity 1.2 Exit evaluation of stocking rates in native pastures and peatlands.		NA	
Activity 1.3 Baseline survey of biodiversity indicator species in peatlands and native grasslands.		Completed (Annex 24)	
Activity 1.4 Exit evaluation of biodiversity indicator species in peatlands and native grasslands.		NA	
Output 2. Completed diagnostic of vicuña health condition and mange prevalence as an indicator of carrying capacity and climatic trends.	**2.1** Baseline of vicuña mange prevalence and health condition is established in **Year 1**. **2.2** By **Year 3**, exit evaluation shows improved health condition of wild vicuña or a reduction of at least 10% in mange prevalence in vicuña. **2.3** Participatory identification of climate change scenarios, with 40% women participants, and their influence on the condition of pastures, peatlands and their water sources; mange prevalence and	**2.1** Baseline of mange prevalence has been concluded establishing basic characteristics of population structure of vicuñas in Apolobamba. Health evaluation was concluded as planned, and it was established a mange prevalence of 2,2%, although there is a tendency of higher prevalence in some communities vs. others (See Annex 20 for further details). **2.2 NA** **2.3** The participatory workshop on climate change perceptions was conducted in February 2020 with the participation of a representative number of women (39.5%) (Annex 9B). We will feed all the information generated on local perceptions back to the climate change scenarios on of pastures, peatlands and water sources; mange prevalence and vicuña fibre production.	

	vicuña fibre production is completed in **Year 1**.		
Activity 2.1 Baseline evaluation of mange prevalence and health condition of vicuña.		Completed (Annex 20).	Based on the health indicators obtained, a monitoring plan will be established to be able to adapt it to the current integrated monitoring plan conducted by the park guards of Apolobamba.
Activity 2.2 Exit evaluation of mange prevalence and health condition of vicuña.		**NA**	
Activity 2.3 Participatory workshop to identify climate change scenarios and their influence on pastures, peatlands and their water sources, mange prevalence and vicuña fibre production.		Completed, with the participation of 45 people, out of which, 39,5% were women.	Next steps will be to present final climate scenarios to the communities in Apolobamba and visualize the effect of the application of good management practices to the wild vicuña population.
Output 3. Apolobamba protected area, Marka Cololo indigenous organization, and the regional association of vicuña managers establish a pasture, peatlands and their water sources, and vicuña health management plan**.**	**3.1** Pasture, peatlands and their water sources management plan (including monitoring program) established between the Apolobamba protected area, the Marka indigenous organization, and the regional association of vicuña managers, with 40% women's participation, is approved by **Year 2.** **3.2** Agreement is established with legal miners on the pasture, peatlands and their water sources management plan by **Year 2**. **3.3** Vicuña health management plan (including monitoring plan) approved between Apolobamba protected area, Marka Cololo indigenous organization, and the regional association of vicuña managers, with 40% women's participation, and their implementation has begun in **Year 2**.	**3.1** Progress towards developing a management plan through a participatory process has started by conducting vicuña censuses in Apolobamba to establish population size and other population characteristics as the baseline information for all the analysis required (See Annexes 11 & 14 for reports on vicuña census and shearing campaigns). **3.2 NA** **3.3 NA**. **3.4 NA.**	

	3.4 Health management protocol presented to the Biodiversity authorities (DGB-AP) for formal approval by **Year 3**.		
Activity 3.1 Community workshops to present results of baseline evaluations of pastures and peatland condition and develop zoning plan based on three categories of management (conservation, restoration and management).		Vicuña censuses were conducted in the different zones of the Apolobamba vicuña distribution areas, as the first step towards developing the diagnostics and management plan (Annex 11).	Workshops will be conducted to present and share preliminary results in the first months of Y2, depending on political and COVID-19 sanitary alert conditions.
Activity 3.2 Community workshops to present results of baseline evaluation of vicuña health and mange prevalence and develop vicuña health management plan.		NA	Activity is planned to take place during Y2, with meetings schedule to be defined with the ARCMV Apolobamba and the Marka Cololo Copacabana Antaquilla leaders.
Activity 3.3 Community workshops to develop monitoring plan for pasture and peatland condition monitoring.		NA	
Activity 3.4 Workshops with miners to agree respect for management plan for pastures, peatlands and their water sources.		NA	
Activity 3.5 Community workshops to develop monitoring plan for vicuña health and mange prevalence.		NA	
Output 4. Increased resilient livelihoods through improved business capacity and quality control of the regional association of vicuña managers of Apolobamba.	**4.1** Business and organizational plan for the regional association of vicuña managers is completed, with 40% women's participation, by the end of **Year 2**. **4.2** Reduced mange prevalence, improved shearing, and fibre selection increases income of 1,335 vicuña managers (40% women) by at least 20% by the end of **Year 3**. **4.3** Evaluation of increase in effort and additional economic benefit as a result of changes in shearing and fibre selection protocols is conducted by **Year 2**.	**4.1** An initial step towards developing a business and organizational plan for ARCMV Apolobamba was the organization of an inter institutional workshop to conduct a joint analysis on the vicuña management situation, and define a work plan towards an integrated management plan of vicuñas in Apolobamba and elsewhere in the other regional vicuña associations in Bolivia. **4.2 NA** **4.3** The agreement established between WCS and ACOFIVB in Sep 2019 has opened the door for conducting a joint effort towards improving quality and quantity of vicuña fibre under the premises of good management practices. Since ACOFIVB groups all the affiliated ARCMVs in Bolivia, successful	

	4.4 New market linkages with buyers of high quality fibre by **Year 3**.	activities conducted in Apolobamba will be applied in other regions and internationally, with agreements with neighbouring countries. **4.4 NA**	
Activity 4.1 Diagnostic of business and organizational challenges for the regional association of vicuña managers, including opportunities and obstacles for women's participation across the process.		Initial activities have been conducted towards establishing priority activities towards ensure the establishment formal alliances with key partners at the government level and scientific institutions.	In Y2, a complete analysis of the business and organizational challenges for the ARCMV Apolobamba will be developed, including the role women managers have in the complete process of vicuña fibre processing.
Activity 4.2 Workshop to develop business and organizational strengthening, including increasing women's participation across the process.		NA	
Activity 4.3 Diagnostic of challenges in management practices to reduce mange and reduce fibre losses during shearing and fibre selection.		An initial analysis of vicuña management limitations in Apolobamba between WCS and ACOFIVB allowed to take first steps to develop capacities in better shearing techniques as well as leaning new techniques of increasing the quality of vicuña fibre such as de-hearing of the fleece (See Annex 17 Report training workshop of vicuña fleece processing).	
Activity 4.4 Evaluation of effort and additional economic benefit as a result of changes in shearing and fibre selection protocols.		NA	
Activity 4.5 Workshop to develop vicuña health management plan.		NA	
Activity 4.6 Workshop to present training materials on business and organizational and vicuña health management plan.		NA	
Output 5. Good practices are shared for sustainable and resilient management of pastures, peatlands and their water sources, biodiversity conservation, improved vicuña health, and resilient livelihoods with other vicuña manager associations and in coordination with the biodiversity national authority (DGB-AP).	**5.1** At least 1 inter-institutional agreement for replication of management of pasture, peatland and their water sources for biodiversity conservation and resilient livelihoods signed with other vicuña manager associations elsewhere in Bolivia is signed by project end (**Year 3**).	**5.1** Please refer to 4.1 and 4.3 on the agreement established between WCS and ACOFVB and the interinstitutional agreement to work towards improving vicuña management for the good of the species, the habitat and the local communities that watch over them. **5.2 NA**	

	5.2 Project results available digitally to the IUCN SSC SAC network by the end of the project (**Year 3**).		
Activity 5.1 Workshop to present results on pasture and peatland condition, biodiversity, vicuña health and livelihoods, including women's participation with the biodiversity authority.		NA	
Activity 5.2 Workshop to present results on pasture and peatland condition, biodiversity, vicuña health and livelihoods, including women's participation to other vicuña associations in coordination with the biodiversity authority.		NA	
Activity 5.3 Develop and share digital documents with the project reports with the IUCN SSC SAC.		NA	

Annex 2: Project's full current logframe as presented in the application form (unless changes have been agreed)

Project Summary	Measurable Indicators	Means of Verification	Important Assumptions
Impact: Sustainable pasture management reduces threats to peatlands and their biodiversity; and improves livelihoods of 1,335 vicuña managers (40% women), by improving vicuña nutritional status and reducing mange prevalence.			
Outcome: Sustainable and resilient management of pastures and water sources leads to conservation of critical biodiversity habitat, such as peatlands, improved vicuña health, and resilient livelihoods.	0.1 100,000 hectares of currently unmanaged pastures are under improved management by Year 2. 0.2 1,400 hectares of currently unmanaged peatlands and their water sources are under improved management by Year 2. 0.3 Distribution of threatened and indicator wildlife species of peatland health increases for at least 25% of species by Year 3, from a baseline to be established in Year 1. 0.4 Income of 1,335 vicuña herders (at least 40% women) increases by 20% by Year 3, from a baseline of 119 USD a year. 0.5 11,000 vicuñas have reduced incidence of mange or increased health condition by at least 10% by Year 3, from a baseline to be established in Year 1.	0.1 Report of pasture and peatland management plan implementation. 0.2 Maps of pastures and peatlands under improved management. 0.3 Baseline and exit evaluation of distribution of threatened wildlife and indicator species of peatland health. 0.4 List of beneficiaries of benefit distribution amongst vicuña herders. 0.5 Baseline and exit report of mange prevalence in vicuñas.	Political conflicts do not prevent travel to Apolobamba. Continued demand for vicuña fibre. Legal framework under which wild vicuña populations are managed does not change. Extractive activities and conflicts for access and use of natural resources do not prevent agreements on pasture management.
Outputs: 1. Completed diagnostic of peatland and their water sources; native pastures and associated biodiversity indicator species.	1.1 Baseline evaluation on the condition and stocking rates over 100,000 hectares of native pastures and 1,400 hectares of peatlands and their water sources established in Year 1. 1.2 Exit evaluation on the condition and stocking rates over 100,000 hectares of native pastures and 1,400 hectares of peatlands and their water sources is established in Year 3. 1.3 Baseline survey of biodiversity indicator species in peatlands and native grasslands is established in Year 1.	1.1 Baseline report of native pastures; peatlands and their water sources condition and stocking rates, and accompanying maps. 1.2 Exit report of native pastures; peatland and their water sources condition and stocking rates, and accompanying maps. 1.3 Baseline report of distribution of threatened and indicator species of peatlands and native grasslands.	Political conflicts do not prevent travel to Apolobamba.

	1.4 Exit evaluation of biodiversity indicator species in peatlands and native grasslands is established in Year 3.	1.4 Exit report of distribution of threatened and indicator species of peatlands and native grasslands.	
2. Completed diagnostic of vicuña health condition and mange prevalence as an indicator of carrying capacity and climatic trends.	2.1 Baseline of vicuña mange prevalence and health condition is established in Year 1. 2.2 By Year 3, exit evaluation shows improved health condition of wild vicuña or a reduction of at least 10% in mange prevalence in vicuña. 2.3 Participatory identification of climate change scenarios, with 40% women participants, and their influence on the condition of pastures, peatlands and their water sources; mange prevalence and vicuña fibre production is completed in Year 1.	2.1 Clinical baseline evaluation of mange and physical condition of at least 30% of sheared vicuña in Apolobamba. 2.2 Clinical exit evaluation of mange and physical condition of at least 30% of sheared vicuña in Apolobamba. 2.3 Report and list of participants of participatory workshops to identify climate change scenarios and their influence on pastures, peatlands and their water sources; mange prevalence and vicuña fibre production.	Political conflicts do not prevent travel to Apolobamba.
3. Apolobamba protected area, Marka Cololo indigenous organization, and the regional association of vicuña managers establish a pasture, peatlands and their water sources, and vicuña health management plan.	3.1 Pasture, peatlands and their water sources management plan (including monitoring program) established between the Apolobamba protected area, the Marka indigenous organization, and the regional association of vicuña managers, with 40% women's participation, is approved by Year 2. 3.2 Agreement is established with legal miners on the pasture, peatlands and their water sources management plan by Year 2. 3.3 Vicuña health management plan (including monitoring plan) approved between Apolobamba protected area, Marka Cololo indigenous organization, and the regional association of vicuña managers, with 40% women's	3.1 Management plan, accompanying zoning maps, list of participants, and signed agreement between Apolobamba, Marka indigenous organization and the regional association of vicuña managers. 3.2 Signed agreement and list of participant mining cooperatives. 3.3 Health management protocol, list of participants, and signed agreement between Apolobamba protected area, Marka indigenous organization and regional association of vicuña managers.	Political conflicts do not prevent travel to Apolobamba.

	participation, and their implementation has begun in Year 2. 3.4 Health management protocol presented to the Biodiversity authorities (DGB-AP) for formal approval.	 3.4 Letter from the regional association of vicuña managers to the Biodiversity authorities.	
4. Increased resilient livelihoods through improved business capacity and quality control of the regional association of vicuña managers of Apolobamba.	4.1 Business and organizational plan for the regional association of vicuña managers is completed, with 40% women's participation, by the end of Year 2. 4.2 Reduced mange prevalence, improved shearing, and fibre selection increases income of 1,335 vicuña managers (40% women) by at least 20% by the end of Year 3. 4.3 Evaluation of increase in effort and additional economic benefit as a result of changes in shearing and fibre selection protocols. 4.4 New market linkages with buyers of high quality fibre.	4.1 Business and organizational plan document, list of participants, and signed approval by the regional association of vicuña managers. 4.2 Shearing campaign and sales reports. 4.3 Report of increased effort by women and men and additional economic benefit of changes in shearing and fibre selection. 4.4 Offers to buy high quality fibre.	Legal framework under which wild vicuña populations are managed does not change. Continued demand for vicuña fibre. Extractive activities and conflicts for access and use of natural resources do not prevent agreements on pasture management.
5. Good practices are shared for sustainable and resilient management of pastures, peatlands and their water sources, biodiversity conservation, improved vicuña health, and resilient livelihoods with other vicuña manager associations and in coordination with the biodiversity national authority (DGB-AP).	5.1 At least 1 inter-institutional agreement for replication of management of pasture, peatland and their water sources for biodiversity conservation and resilient livelihoods signed with other vicuña manager associations elsewhere in Bolivia is signed by project end (Year 3). 5.2 Project results available digitally to the IUCN SSC SAC network (Year 3).	5.1 Signed inter-institutional agreement with vicuña managers from elsewhere in Bolivia, as well as protected area and biodiversity authorities (DGB-AP). 5.2 Project documents available digitally.	Continued regional interest on this issue.

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 survey of stocking rates in native pastures and peatlands.

1.2 Exit evaluation of stocking rates in native pastures and peatlands.

1.3 Baseline survey of biodiversity indicator species in peatlands and native grasslands.

1.4 Exit evaluation of biodiversity indicator species in peatlands and native grasslands.

2.1 Baseline evaluation of mange prevalence and health condition of vicuña.

2.2 Exit evaluation of mange prevalence and health condition of vicuña.

2.3 Participatory workshop to identify climate change scenarios and their influence on pastures, peatlands and their water sources, mange prevalence and vicuña fibre production.
3.1 Community workshops to present results of baseline evaluations of pastures and peatland condition and develop zoning plan based on three categories of management (conservation, restoration and management).
3.2 Community workshops to present results of baseline evaluation of vicuña health and mange prevalence and develop vicuña health management plan.
3.3 Community workshops to develop monitoring plan for pasture and peatland condition monitoring.
3.4 Workshops with miners to agree respect for management plan for pastures, peatlands and their water sources.
3.5 Community workshops to develop monitoring plan for vicuña health and mange prevalence.
4.1 Diagnostic of business and organizational challenges for the regional association of vicuña managers, including opportunities and obstacles for women's participation across the process.
4.2 Workshop to develop business and organizational strengthening, including increasing women's participation across the process.
4.3 Diagnostic of challenges in management practices to reduce mange and reduce fibre losses during shearing and fibre selection.
4.4 Evaluation of effort and additional economic benefit as a result of changes in shearing and fibre selection protocols.
4.5 Workshop to develop vicuña health management plan.
4.6 Workshop to present training materials on business and organizational and vicuña health management plan.
5.1 Workshop to present results on pasture and peatland condition, biodiversity, vicuña health and livelihoods, including women's participation with the biodiversity authority.
5.2 Workshop to present results on pasture and peatland condition, biodiversity, vicuña health and livelihoods, including women's participation to other vicuña associations in coordination with the biodiversity authority.
5.3 Develop and share digital documents with the project reports with the IUCN SSC SAC.

Annex 3: Standard Measures

Table 1 Project Standard Output Measures

Code No.	Description	Gender of people (if relevant)	Nationality of people (if relevant)	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
3	Undergraduate Engineering students from Engineering Department (Engineering Military University) (*Annexes 02 & 04 in the report*)	1 woman and 1 man	Bolivians	2	0	0	2	2
6A 6B	81 (*Annexes 17, 18 & 19*) 2 weeks	81 people: (37 women and 44 men)	Bolivians	81	0	0	81	81
23	Welttierschutgesellschaft (WTG)	Funding from all other sources						

Table 2 Publications

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

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

Checklist for submission

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