Darwin Initiative: Final Report

To be completed with reference to the "Writing a Darwin/IWT Report" Information Note: (https://www.darwininitiative.org.uk/resources-for-projects/reporting-forms-change-request-forms-and-terms-and-conditions/).

*It is expected that this report will be a **maximum** of 20 pages in length, excluding annexes)*

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 Copacabana Antaquilla, ANMIN Apolobamba protected area
Darwin grant value	£ 292,302.00
Start/end dates of project	1 April 2019 – 31 March 2022
Project leader's name	Oscar Loayza Cossio
Project website/blog/social media	https://bolivia.wcs.org/
Report author(s) and date	Oscar Loayza, Fabián Beltrán, Humber Alberto, Omar Torrico, José Luis Mollericona, Manuel Salinas, Ariel Reinaga & Lilian Painter. 31 May 2022

1 Project Summary

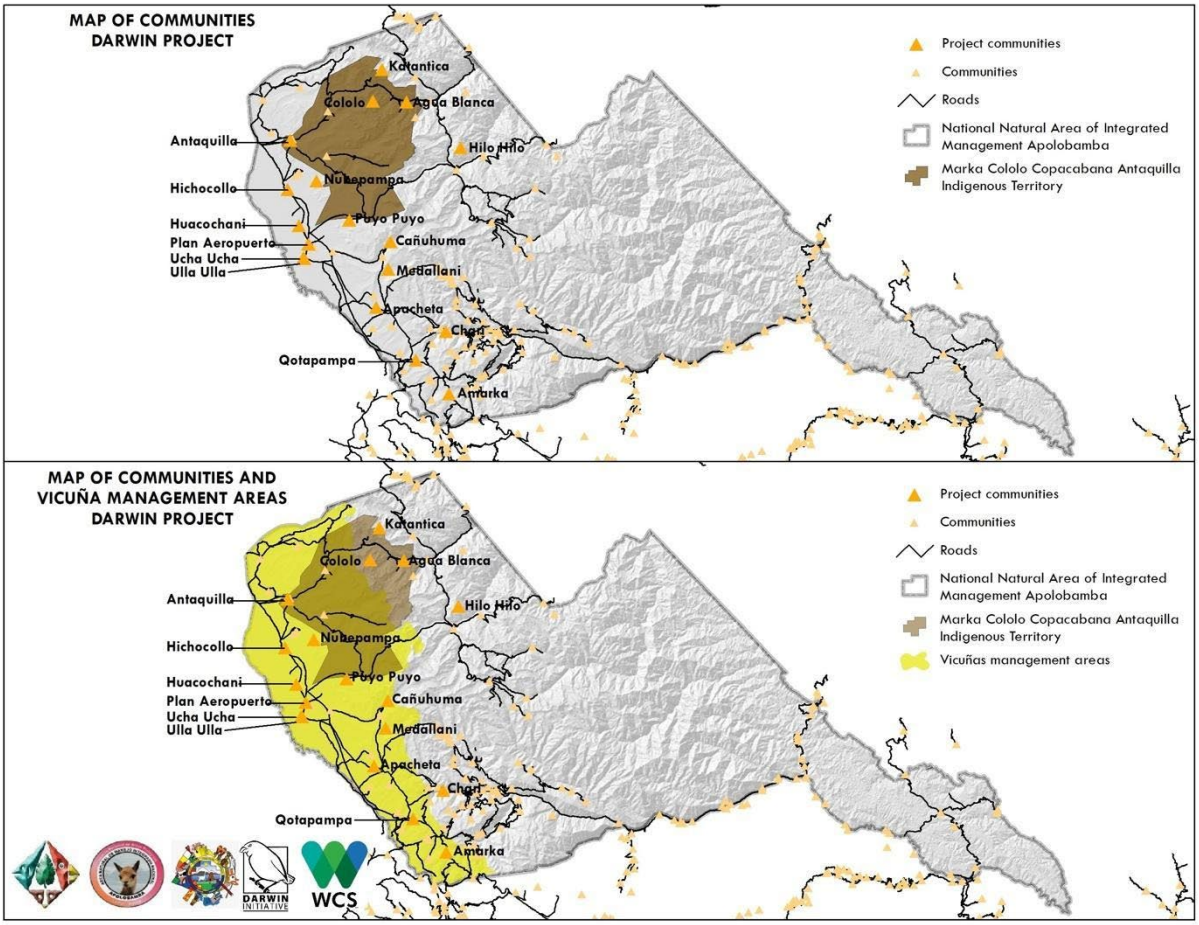
This project aimed to reduce the cumulative effects of overgrazing of pastures and peatlands, climate change, and mining over 100,000 hectares in the highlands of Apolobamba protected area and Marka Cololo indigenous land in Bolivia by improving pasture and peatland management.

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 density of vicuñas in Bolivia is found here. Shearing of vicuña wool had a baseline of 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 and gold mining activity and pollution.

The project developed participatory pasture management agreements and improved vicuña handling. By improving pasture and peatland management, the project led to conservation of critical biodiversity habitat, and of wider ecosystem benefits to pastoralists managing wild and domestic camelids. Specifically, healthy pastures improved the nutritional condition and immune response of vicuña, thereby reducing the impact of mange on animal health and wool production.

Reducing the impact of rounding up animals close together and poor shearing hygiene is also key to maintain low mange transmission.

This project provided 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 Apolobamba park guards. It also increased the capacity of the ARCMVA (in Spanish, Asociación Regional de Comunidades Manejadoras de Vicuña-Apolobamba) by developing a business and organisational strengthening plan, including an analysis of obstacles and opportunities for women´s participation. The project leveraged local knowledge and promoted regional collaboration to share lessons learnt under different threat and management contexts.



2 Project Partnerships

A key strength of this project and a critical component to its successful long-term implementation, was its ability to create, maintain and foster partnerships. WCS worked with the National Service of Protected Areas (SERNAP), the Apolobamba protected area, the Marka Cololo Copacabana Antaquilla indigenous organisation, the ARCMVA and the ACOFIVB (in spanish, Asociación Comunitaria para la Comercialización de Fibra de Vicuña de Bolivia) to implement this project. The first three partners have rights and responsibilities over the proposed area of intervention, and the latter two have rights and responsibilities over the target vicuña population and management, and all have been involved in discussions about implementation of project activities.

The project was collaborative and worked with host country institutions, as demonstrated through the relationship with the SERNAP (in Spanish national protected area service) and ACOFIVB to establish baselines. In addition, vicuña health issues have been leveraged to the national level in particular with the participation of the General Biodiversity Directorate (DGB-AP).

During the project, WCS team coordinated activities with SERNAP and the ANMIN Apolobamba protected area, the Puquina's indigenous territory of Marka Cololo Copacabana Antaquilla, ACOFIVB and the ARMV Apolobamba; and representatives of 12 local vicuña manager

communities (VMC): Agua Blanca, Cololo, Cañuhuma, Medallani, Amarka, Puyo Puyo, Apacheta, Antaquilla, Hilo Hilo, Ulla Ulla, Ucha Ucha y Plan Aeropuerto.

3 Project Achievements

3.1 Outputs

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

Activity 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.*

The baseline assessment was already presented in year 1 and was complemented with drone overflights during years 1 and 2. From these overflights, a set of images of the dry and wet seasons of 2020 and 2021 were made available for analysis by undergraduate thesis students. Overall baselines were established for 61,342 hectares of pastures and 19,110 hectares of peatlands.

Activity 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.*

A flight plan for a drone was carried out on 9 identified peatlands with different livestock stocking rates. The images evaluated were photographed in March and December 2020, May 2021 and March 2022. The overflights were carried out in the peatlands of Ulla Ulla, Plan Autopista, Ucha Ucha and Puyo Puyo, sampling 2,231 hectares within a total area of *19,110 hectares* of peatlands.

Vegetation indices were obtained, which indicate that 36% of the peatland vegetation is poor, 47% is in fair condition and 17% of the peatlands have vegetation in good condition. Although images captured with drones show that the vegetation indices of the peatlands are between good and fair, these were contrasted with the results of additional vegetation surveys on peatlands. These specific studies showed that for peatlands, there is an average of 13 species per study site, the cover is made up of 81% vegetation, 1% water, and the rest is organic matter and others. These more specific vegetation indexes show that these peatlands are of good conservation quantity and quality of vegetation (88% of peatlands vegetation, 8% other vegetation and 4% disturbed areas). The average biomass production is 1,176 kgMS/ha, with a carrying capacity of 1.7 alpacas/ha/year. Currently, there is an over stocking of more than 3%, which indicates that the peatlands can be affected and could be vulnerable to a process of retreat due to the animal over stocking. Eighty-two percent of the peatlands are deeper than 1.8m, which means that they have been well established for many years.

61,342 hectares of pastures were evaluated and showed an intermediate conservation condition through imaged captured with drones. The average species richness for pastures is 22.12 sps/study site, which are made up of 54% vegetation coverage, 13% bare soil, 8% above ground bryophytes, 7.5% organic matter and other. More specific vegetation evaluations on pastures identified thirty-four botanical families and more than 178 species. According to the response on grazing, 77% correspond to species that are palatable to local livestock, the remaining are non-palatable and toxic species, according to the vegetative cycle 90% are multi-annual species and 10% are annual species. The average forage production for pasture is 176 kgMSM/ha, which can support 0.46 alpacas/hectare, currently there is an animal load of 0.74 Alpacas/hectare, having an animal overload of more than 60%, consequently there is overgrazing of pastures. In response to the results, there is a Conservation proposal and a pasture management plan , as well as a database of vegetation cover and plant species of pastures and peatlands.

The drone overflights have generated more than 7,000 images. The construction of the mosaics generated by the images can be found in the annex of the reports generated by the Agisoft Metashape software.

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

Based on the already completed monitoring plan for biodiversity indicators, different workshops were conducted in coordination with Apolobamba protected area personnel (both park guards and the director) to include selected indicators into the existing protected area Integral Monitoring Program (PMI). Out of a total of 21 indicator species of plants and animals, that were selected previously based on their high vulnerability to climate change and representativeness of the Andean native grasslands and peatlands, an additional 10 species were selected for inclusion within the protected area monitoring plan. The species were selected based on their vulnerability to climate change and the skills the park guards have on identifying them on the ground. These indicator species have started to be monitored during the patrolling campaigns starting in April 2021 after the implementation of a capacity development workshop with the park rangers and the protected area technical team, to define the monitoring methodologies to be employed.

The report of the training workshop was attached in the last report. This should have been held in La Cabaña (Ulla Ulla), central camp of ANMIN Apolobamba, in December 2020, but due to the pandemic, was held on March 25th 2021. During the workshop Apolobamba personnel agreed to incorporate "indicator species of grasslands and peatlands" into the Integral Monitoring Program (PMI) of the protected area. The Baseline and distribution maps of these new indicator species have been established (reported in 2021) and are now used in the field for verification. The first field data on these indicators was presented in July in the protected area monitoring report and it is also incorporated in the second report 2021. To support park guards in the appropriate use of data collection methodologies, WCS technical staff have provided supervision through different field visits, the first of which is started in the month of May 2021 and finished in March 2022.

Activity 1.4. Exit evaluation of biodiversity indicator species in peatlands and native grasslands is established in Year 3.

The results are presented in the monitoring report of the Apolobamba protected area (Annex Final Monitoring Report). However, during this semester, two training sessions have been conducted on monitoring biodiversity indicator species in peatlands. To this end, a team of 5 park rangers received training in La Cabaña (Ulla Ulla), central camp of ANMIN Apolobamba, in December 2021 and March 2022. These trainings have been aimed at establishing a team of park rangers, so that they will oversee following up on data collection for indicator species and can be incorporated into the monitoring reports of the protected area.

In the framework of the above, on the one hand, 8 indicator species of wetlands and grasslands of ANMIN Apolobamba have been incorporated into the Integrated Monitoring Program of the protected area: *Vultur gryphus*, *Oresochen melanopterus*, *Phoenicopterus chilensis*, *Fulica gigantea*, *Leopardus jacobita*, *Lagidium viscacia*, *Hippocamelus antisensis*, *Vicugna vicugna.* Therefore, 8 vertebrate species are already being monitored and their distribution data are already in two reports of the 2021 monitoring programs (Annex: two reports). On the other hand, for flora species, we have initial data on distribution points obtained through iNaturalist, where 5 flora species included under this indicator will be incorporated into the next monitoring reports in 2022 (*Oxychloe andina*, *Distichia muscoides*, *Distichia filamentosa*, *Senecio caenscens*, Werneria lanatifolia) and the proposed methodologies are already included in the monitoring instruments of the protected area (Annex: Apolobamba Monitoring Instruments). An analysis of trends was not possible during the duration of this project but, will be carried out from the end of 2022 onwards by the protected area.

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

Activity 2.1. Baseline of vicuña mange prevalence and health condition is established in Year 1.

The baseline document on the prevalence of sarcoptic mange was completed and presented in the previous Annual Report 1.

Activity 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.

During the third year of the study on the prevalence of mange in vicuñas in support of the National Program for the Conservation and Sustainable Use of the Vicuña in the Apolobamba National Integrated Management Natural Area (ANMIN), 396 vicuñas were sampled from September to

December 2021 in 15 communities: Hilo Hilo (n=31), Amarka (n=10), Puyo Puyo (n=32), Medallani (15), Ulla Ulla (n=25), Chari (n=25), Ucha Ucha (n=37), Hichocollo (n=37), Nubepampa (n=40), Plan Aeropuerto (n=25), Apacheta (n=20), Cololo (n=36), Huacochani (n=32) and Cañuhuma (n=31). The biological samples obtained were blood, blood serum, feces and skin scrapings.

17 types of parasites and their prevalence were detected: for protozoa *Eimeria punoensis* (71.3%), *E. alpacae* (24.7%), *E. lamae* (3.2%) and *E. macusaniensis* (0.5%); Nematodes, *Trichuris* sp. (48.1*%), Nematodirus* cf. *spathiger* (41.5%), *N*. cf. *battus* (29.3%), Order Strongylida (24.7%), *Capillaria* sp. (11.4%), *Marshallagia* sp. (8%), *Lamanema* sp. (6.6%) and *Strongyloides* sp. (4.5%); Cestodes *Moniezia benedeni* and *M. expanza* (both <2%). In the case of ectoparasites, *Amblyomma parvitarsum* (14.64%), *Sarcoptes scabiei* var. *aucheniae* (9%), lice *Microthoracius praelongiceps* and *M. minor* (both 1.76%).

An evaluation of hematological parameters was also performed, obtaining in female vicuñas (n=49) Erythrocytes millions/mm3 14.56; Hematocrit (%) 42; Total solids (g/dl) 5.7; Platelets thousands/mm3 65.21; Leukocytes thousands/mm3 10.93; Neutrophils (%) 62; Neutrophils (%) 5; Basophils (%) 0; Eosinophils (%) 1; Lymphocytes (%) 32 and Monocytes (%) 2. In male vicuñas (n=29) these parameters were: Erythrocytes millions/mm3 14.97; Hematocrit (%) 42; Total solids (g/dl) 5.8; Platelets thousands/mm3 65.46; Leukocytes thousands/mm3 9.93; Neutrophils (%) 63; Fallen neutrophils (%) 5; Basophils (%) 0; Eosinophils (%) 0; Lymphocytes (%) 31 and Monocytes (%) 2. These values are within the ranges recorded for the species.

And as part of a master's thesis between the Institute of Molecular Biology and Biotechnology of the UMSA, SERNAP Apolobamba and WCS, an analysis of micronuclei in vicuña blood cells was carried out (Master's thesis progress report), finding significant differences between the areas with three levels of mining (Wilks' Lamba = 0.607, gl1= 4, gl2= 56, P < 0. 01),

The frequency of micronuclei was higher in vicuñas found in areas with high mining activity, in buccal cells there were no significant differences between mining levels. The frequency of micronuclei is higher in areas with high and medium mining activity compared to areas with low mining activity. In addition, the frequency of micronuclei is significantly higher in buccal cells than in blood cells (Wilks' Lamba = 0. 203, gl1= 2, gl2= 59, P < 0.001). Regarding nuclear abnormalities, no significant difference is observed in any of the cell types between the three mining intensity levels. However, it is evident that the frequency of nuclear abnormalities is higher in blood cells compared to buccal cells. The frequency of micronuclei and nuclear abnormalities in blood cells is related to the organism's response to exogenous agents, foreign to the cell (Torrez-Bugarín et al. 2018), such as mining waste. High frequencies of micronuclei and nuclear abnormalities are associated with increased sensitivity to mutagens, and this sensitivity has been considered a direct measure of cancer susceptibility (Bonassi et al. 2011).

Comparing the results of sampling events for mange diagnosis in vicuñas from ANMIN Apolobamba we observed low prevalence of sarcoptic mange in 2018 (9.8%), 2019 (12.1%) and 2021 (9%), and using the records of all observations during capture, shearing and release events from ARCMVA, with prevalence of 2.20% in 2019 and 3.2% in 2021. In addition to the study of haematology of Apolobamba vicunas, it can be inferred that there is a good state of health of these wild populations and sarcoptic mange is a disease with endemic characteristics in Apolobamba. But we also observed, through the recent genotoxicity study, that the increased gold mining activity is generating a genotoxic impact on the health of this wild species.

Activity 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 are completed in Year 1.*

The baseline report on scenarios of climate change and its influence on pastures, peatlands and vicuña health is complete and validated; and was presented in the first annual report.

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 (Activities 3.1 & 3.3)

Activity 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.*

The different communal diagnostics are the basis for a management plan for vicuña shearing, vicuña health, grasslands, and peatlands. We currently have the technical documents completed and validated (List of recipients) by the communities, for the management and use of vicuña, which involves the following pillars: socio-organizational, technical management process, protection and conservation, habitat conservation and health; A grassland and peatland management plan was also prepared and completed, but is still in the process of being validated by the communities of Apolobamba (Annex 4). Social participation at the community level included the participation of the membership of ARCMVA 1,436 vicuña herders (37% women).

As part of the implementation of this Management Plan, distribution maps for indicator species of flora and fauna in the Apolobamba area have been prepared and included. The maps and information generated are already included in the protected area's monitoring report. The park rangers' expertise on these species has been corroborated through field identification. Field-generated points have been superimposed on these maps and are included in the 2021 monitoring reports. The survey methodologies have been included in the protected area's monitoring instruments and the data obtained by the park rangers will be constantly evaluated, following up on the correct application of the survey methodologies through meetings. The data collection form has been validated with the park rangers, incorporating common names of the wild species and the species distribution maps were complemented by obtaining data through the use of the identification and registration application iNaturalist (https://www.inaturalist.org), which allows constant monitoring of the data collected. To date, more than 800 records and 312 species have been identified and data are available for threatened plant species that are part of the indicators (*Oxychloe andina*, *Distichia muscoides*, *Distichia filamentosa*, *Senecio caenscens*, *Werneria lanatifolia*) (see Final Report annex).

Activity 3.2. *Agreement is established with legal miners on the pasture, peatlands and their water sources management plan by Year 2.*

During the month of August 2021, a study was conducted to identify mining activity overlapping key areas of water sources, wetlands and pastures for vicuña populations affected by gold mining activities in ANMIN Apolobamba, which was systematized in geo-referenced maps that served as the basis for defining a preliminary strategy for the construction of agreements between legal gold mining cooperatives and ARCMVA, including intervention guidelines, in the hope that this process will motivate the conservation of vicuña populations threatened by mining, through the implementation of good practices to reduce their impact on water sources, wetlands and pastures. These intervention guidelines were presented and validated at an event for leaders of the mining federations FENCOMIN, FEDECOMIN LP, FECOMAN and FERRECO.

By the end of August 2021, initial meetings were organized with leaders of mining federations (mainly FEDECOMIN LP) and representatives of ARCMVA, in which it was possible to present the proposed strategic guidelines for reducing the impacts of mining activities superimposed on areas with a high presence of vicuñas within Apolobamba, showing their interest in addressing this issue.

On the other hand, during the months of October 2021 to January 2022, through the agreement between WCS, MEDMIN Foundation and SBGI and with financial support from HELVETAS, jointly implemented good mining practices in 2 pilot mining cooperatives in Apolobamba, with particular emphasis on the preservation of water bodies, wetlands and pastures, focused on the previously defined intervention guidelines.

The following are technical documents of good practices implemented in the mining cooperatives Águilas de Oro in the community of Puyo Puyo and Tierra Hermosa in the community of Suches, respectively:

- The implementation of mining tillage plans for the reduction of soil degradation.

- The use of clean technologies to reduce and/or eliminate the use of mercury for gold recovery.
- Proposal of best practices to reduce the impact of mining on endangered species and critical ecosystems.

Due to the favourable results of this process, HELVETAS will support by June 2022 the implementation of Field Schools in the pilot mining cooperatives, aimed at key stakeholders, to socialize these processes and encourage their replication with other legal mining cooperatives.

From February to April 2022, meetings were held with mining leaders of FEDECOMIN LP, where they socialized the implementation of good mining practices in Águilas de Oro and Tierra Hermosa, achieving their predisposition to carry out a training program organized by FEDECOMIN LP with the support of WCS. The program will motivate their affiliated mining cooperatives in the Puyo Puyo and Antaquilla sectors to conserve water sources, pastures and wetlands, and it is expected that these activities can be carried out starting in June of this year.

Finally, after this process, on Thursday, May 19, 2022, a meeting was held in the community of Puyo Puyo, where through the assembly meeting of ARCMVA (with the participation of traditional authorities and park rangers), an agreement was reached for the conservation and protection of vicuñas and their ecosystems, emphasizing the motivation of good mining practices in the area.

Activity 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.*

Using the information established in the vicuña health baseline, coordinated with the ARCMVA; different documents have been developed to guide the next fibre harvest and with the participation of the ARCMVA member (37% women).

a) Technical manual on best animal welfare and sanitary practices for vicuña wool harvest
b) Practical manual on best animal welfare and sanitary practices for vicuña wool harvest
c) Technical instrument to guide vicuña management and fibre shearing in Apolobamba.

Activity 3.4. *Health management protocol presented to the Biodiversity authorities (DGB-AP) for formal approval.*

The General Directorate of Biodiversity and Protected Areas (DGBAP), ACOFIVB and ARCMVA and the Wildlife Conservation Society have approved and published the following documents:

The first two manuals mentioned in Activity 3.3, and the following 4 additional documents;

Biosecurity protocol for vicuña fibre harvest in Bolivia

Guide for fleece management during shearing and fibre selection for sale.

Guide for mechanical shearing of vicuna

Manual of best practices for alpaca productive and sanitary management in Apolobamba.

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

Activity 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.

We developed, validated and approved the following institutional strengthening documents for ACOFIVB :

1) Organizational diagnostic of ACOFIVB and the current business plan for vicuña fibre harvest.
2) Organizational strengthening plan for ACOFIVB
3) Business plan for the community association ACOFIVB

All these instruments were formally approved by ACOFIVB though letters sent to WCS.

Activity 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.*

At the beginning of the project, during the 2019 vicuña fibre harvesting season, 15 vicuña management communities carried out a total of 53 vicuña herding, capture and shearing activities, with a social participation of 4091 people (58% women and 42% men), 3094 vicuñas were sheared, obtaining a total of 444.62 kg of selected vicuña fibre. A total of USD 161,831 was obtained from the sale of the fibre, 82% of which went to the communities.

During the third year of the 2021 project, 3 new vicuña management communities (CMV) were added with a total of 18 communities managing vicuñas. The communities carried out a total of 78 activities of herding, capture and shearing of vicuñas (32% more than the first year), with a social participation of 6,924 people (38% women and 62% men), 40% more than in the 2019 season. A total of 4,999 vicuñas were sheared (38% more than the previous season), obtaining a total of 814.31 kg of vicuña fibre (45% more than the previous season). For the sale and marketing that is still in process, we expect a sale for obtain a total of USD 255,966 (37% more compared to the 2019 season) All data are reflected in the annual report on the use of vicuña.

In order to achieve and improve the harvesting rates and results, training courses and workshops were held, among them:

- Training workshop of vicuña fibre selection between January and February 2020 during 15 days with 81 participants (46% Women y 54% Men) and project beneficiaries.
- Training workshop on the use of electrical sheers with vicuñas and alpacas, September 2021, before the vicuña shearing and with the participation of 35 people (8 women and 27 men),
- Training workshop on the use of technical guidelines for vicuña management. This activity was carried out during the vicuña shearing campaigns (2019, 2021).

As a result of the Project support the rate of harvest in the third year, in relation to the total vicuña population, is much higher (37%) than the previous annual average 6%.

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

With the implementation of the project, thanks to the effort and implementation of fleece management techniques and improvement in shearing (implementation of mechanical shearing), very favorable results have been generated, not only in performance and production, but also in the social-organizational aspect, in the conservation, protection, control and surveillance of the vicuña, among the most outstanding we have:

- The number of vicuña management communities increased from 15 to 18.
- Mechanized shearing was implemented in 70% of communities in the first year (2019) and 88% in the third year (2021) in ARCMVA communities.
- In the two vicuña fibre harvesting efforts (2019 and 2021), 48% of selected fibre (with added value) and 52% of clean fibre was offered to the market.
- The ARCMVA has the highest utilization rates in the region, 24% in the first year of the project and 37% in the third year.

These results are reflected in the economic income for the communities.

Activity 4.4*. New market linkages with buyers of high quality fibre.*
The business plan prepared and approved by ACOFIVB identifies several marketing alternatives for vicuña fibre, which will be applied in the marketing of the fibre obtained in the 2021 campaign. These are included in the Business plan of the community association for the commercialization of vicuña fibre from Bolivia – ACOFIVB.

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).

Activity 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.*

Through the agreement between ACOFIV-Bolivia and WCS, the project has leveraged information and experiences to the national level. For example, during the last semester the following activities have been developed in support of other regional organizations that manage vicuña:

1) Technical Report: Vicuña parasite evaluation by the vicuña managers in Tomave, Potosí, Bolivia, 2021.
2) Technical report: Vicugna in the community of Villa Remedios, Ayllu Collana Baja, La Paz, Bolivia, 2021.
3) Technical report: Evaluation of vicuña parasites in the community of Ayllu Collana Primero, ARCMV Wila Kollo, Oruro-Bolivia, 2021.

In addition, ACOFIVB and WCS have jointly published documents on good practices in vicuña management, shearing and fibre selection, which are attached in Annexes 1, Output 3..

Activity 5.2. Project results available digitally to the IUCN SSC SAC network.

A request was made to IUCN SSC SAC for the inclusion of technical publications generated in this project. IUCN SSC SAC staff are currently redesigning their website and indicated that the links to the publications will be included on their new website (Email response attached).

3.2 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.*

The baseline characteristics of the ecosystems that are fundamental for the health and survival of vicuña populations and for the maintenance of local livelihoods were established. The diagnosis of grasslands, wetlands and watercourses and the health and management of the vicuña has been established. Wildlife environmental indicator species have also been established and monitoring is now carried out by previously trained park rangers. The pasture, wetlands and watercourses management plan has been validated and was developed with the main stakeholders at the local, governmental and vicuña manager levels.

A baseline income from vicuña management of US$119 per year was established for each family in Apolobamba's 14 communities. By the third year, an income baseline of US$187 per year per family has been established in 18 communities. In this period of time the number of communities and families benefiting from vicuña management has increased, but also the income has increased by 36% compared to the first year. This is a reflection of improvements in shearing, the ability to better manage the fibre and the increased participation of the Apolobamba communities.

We have established a baseline of vicuña health. The prevalence of mange in the 1st year was 9.8%, in the 2nd year it was 12.1% and in the 3rd year it was 9%, which is generally considered a low prevalence and of endemic characteristics. In addition, the set of parasites found were those expected for vicuñas and the hematological ranges were normal. Therefore, it is concluded that the Apolobamba population is healthy, but a genotoxicity study indicates that vicuñas found in areas of intensive mining are being affected by mining contamination.

3.3 Monitoring of assumptions

Assumption 1: *Political conflicts do not prevent travel to Apolobamba.*

The political and social conflicts experienced in Bolivia during October and November 2019 and during February and March 2020 have generated several impacts: 1) difficulty in making field trips; 2) radical change in public authorities and, therefore, delay in resuming activities and progress; 3) absence of a specific person responsible for vicuña in the DGB-AP for several months; 4) operational and financial difficulties in protected areas and, therefore, in ANMIN Apolobamba, limiting normal coordination and work. Nevertheless, the team found ways to continue making progress by having established local capacities in Apolobamba so that local leaders, local technicians, and park rangers could continue activities related with their field of expertise. As an example, the vicuña managers association of Apolobamba, together with park rangers have continued the vicuña fibre management and monitoring of vicuñas and reporting back to WCS´s technical support team.

Assumption 2: *Continued demand for vicuña fibre.*

In the marketing of the 2019 and 2020 shearing season, no demand problems have been identified, despite the global economic crisis caused by COVID-19, the prices achieved have been within the framework of what was expected, including preferential prices thanks to the inclusion of fibre selection in much of the fibre obtained in Apolobamba as a strategy to provide added value to the product. The marketing of the 2021 shearing season has not yet taken place and is in the process of being certified by the environmental authority for bidding. By increasing the number of buyers for Bolivian fibre, ACOFIVB believes that it will also be able to obtain beneficial offers for the communities that manage vicuñas in Apolobamba and the rest of the country.

Assumption 3: *Legal framework under which wild vicuña populations are managed does not change.*

The legal framework under which the vicuña populations are managed has remained as established and clear.

Assumption 4: *Extractive activities and conflicts for access and use of natural resources do not prevent agreements on pasture management.*

WCS has been working for the last four years on capacity building in the protected areas of the Madidi Landscape to reduce the impacts of gold mining using best practices (technical, social and environmental) in legal gold mining activities. However, the increase of illegal mining activities in protected areas is evident (about 85% of more than 200 identified mining operations are illegal).

Assumption 5: *Continued regional interest on this issue.*

We have not identified any changes in relation to regional interest on vicuña sustainable management.

All previous Outcome level assumptions also apply to the five Output level results.

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

Original impact

The project proposed to provide technical information on vicuña and pasture health and supporting pasture management agreements. Healthy pastures would lead to improvements in the nutritional condition and immune response of vicuña, thereby reducing the impact of mange on animal health and fibre production. Providing veterinary assistance to better understand mange dynamics and improve shearing hygiene reduced mange-mite transmission. We also developed long-term capacity to independently manage and monitor vicuña health in the future, in coordination with park guards. Matching funds supported training events on sustainable mining practices.

We also increased 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 shared results with vicuña managers in other countries with the International Union for Conservation of Nature (IUCN).

Contributions

During the project we generated diagnoses of the prevalence of mange and other parasites, and published manuals (for technicians and communities) to reinforce good animal welfare practices and vicuña health practices while handling vicuñas, a biosecurity protocol for vicuña handlers in relation to Covid-19, and manuals for the best use of vicuña fibre in mechanical shearing and fibre selection. Technical documents were also produced on the diagnosis of pastures, wetlands and water. the establishment of wild species to be monitored by park rangers, the impact of mining, and the preparation of a management plan for pastures, wetlands, and water. All of these were based on participation during vicuña shearing and workshops with the communities and the protected area and provided tools and guidelines for maintaining the health of the vicuñas and their habitat.

Likewise, the workshops and training have raised the interest of the communities, who at the same time have increased the quantity and quality of fibre obtained and the economic benefits received by the families.

Through the development of a business plan, the entrepreneurial capacity of vicuña handlers (by ACOFIV Bolivia) has been significantly improved. This business plan strengthens the organization of this association and expands its trading capabilities for the benefit of the communities that handle vicuñas in Apolobamba and across the highlands of Bolivia.

All reports, publications and Plans were prepared, presented and validated with the communities and/or their representatives (ARCMVA), with the protected area (SERNAP), with the Environmental Authority (DGB-AP) and with ACOFIV Bolivia. IUCN SSC SAC will include our technical publications on its website.

4 Contribution to Darwin Initiative Programme Objectives

4.1 Contribution to Global Goals for Sustainable Development (SDGs)

The project contributed 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 directly addressed the following targets by reducing wetland degradation, promoting local pasture management, and promoting sustainable management of a CITES Appendix II species such as vicuña. We contributed 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 have also had 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.

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

- By 2030, ensure that all men and women, 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.

4.2 Project support to the Conventions or Treaties (e.g. CBD, Nagoya Protocol, ITPGRFA, CITES, Ramsar, CMS, UNFCCC)

This project contributed directly and indirectly to obligations under various conventions, treaties, and agreements, both national and international.

CBD: by 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 organisation and pastoralist associations. The project worked closely with the DGB-AP that is part of the focal point of the CBD (Viceministry of Environment, Biodiversity, Climate Change and Forestry Development and Management). We directly supported the national program on vicuña management.

Nagoya Protocol on Access and Benefit Sharing (ABS): by supporting indigenous ownership, and fair and equitable use of a wildlife species.

CITES: through producing 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.

RAMSAR: through enhancing pasture management to reduce pressure on Andean peatlands, focusing on the effects of mining and overgrazing and on fostering agreements between vicuña managers, legal mining cooperatives and the protected area authority

4.3 Project support to poverty alleviation

Poverty alleviation is an inherent component of this project through its stated impact to improve livelihoods. The project has highlighted 'the most important population density 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 forever. Poor pasture management arising from lack of information on carrying capacity, conflicting land use practices and inadequate animal handling during shearing have been addressed by this project and contributed to supporting poverty alleviation as a result. As a lower middle-income country, the business and organisational strengthening implemented through this project will support Bolivia's economy, and the experiences has also leveraged local knowledge and promoted regional collaboration to share lessons learnt under different threat and management contexts. Sharing of results with camelid managers across Bolivia, and with the International Union for Conservation of Nature (IUCN) will further support poverty alleviation actions in other countries, such as Peru.

4.4 Gender equality

During year 1, under normal fieldwork conditions, we achieved the participation of 81 people (women 47%).

During year 2, due to the limitations caused by COVID-19, we were unable to carry out regular activities. This has affected the participation and number of women attending.

During the 3rd year, activities with the communities were resumed:

- Gathering and checking of selected fibre for its commercialization (four days in December 01 to 04, 2021): 189 people (women 22%). View list of participants.

- On December 10, 2020, a workshop was held throughout the day to validate the results of the assessments of vicuña health, grasslands and wetlands, and climate change diagnostics. Twenty-nine people participated in this workshop (7% women). The Workshop Report, and the list of participants are included.

- Participation of the local communities involved 6,520 people (men and women) during the vicuña fibre harvesting season from September to November (herding, capture and shearing of vicuñas). Of all the participants, 38% were women and 62% were men, as reflected in the 2021 report.

We strengthened the role of women participants (40%) in the short and long term, developing a business and organizational strengthening plan with ACOFIVB. We developed both documents with a focus on gender and production chains, identifying obstacles and opportunities for women's participation in the entire production process and in the distribution of benefits.

4.5 Transfer of knowledge

During the project, six internship students (4 women and 3 men) in veterinary and zootechnical careers from two Bolivian universities participated as part of their formal training in activities with the Apolobamba communities. Most of the internship students (3 females and 2 males) are currently working on their veterinary and zootechnical theses to obtain their bachelor's degree. Two Bolivian engineering students (1 female and 1 male) have already completed their undergraduate theses studying peatlands, pastures and water in Apolobamba.

The technical team has participated in national (Bolivia) and international (Latin America) seminars and congresses presenting results of vicuña health evaluations, vicuña fibre management and pasture, wetlands, and water management.

All these training events for students and participation in professional events had a strong component of conservation and animal welfare, health and management practices for the vicuña and its habitat. Likewise, when IUCN SSC SAC has requested technical reports for its publications, these were provided for their use.

The technical content of the manuals and protocols was prepared jointly by WCS, ACOFIVB, the protected area service (SERNAP), and the environmental authority (DGB-AP). These products were designed and edited by the WCS Communication Unit. These documents were also disseminated in digital format through social networks and distributed in printed and digital format to national and subnational authorities and technical staff, universities and communities directly and indirectly related to the conservation of vicuña and its habitat.

4.6 Capacity building

A total of 81 community members (46% women and 54% men) from Apolobamba were trained and assessed to become "masters of vicuña fibre selection". Their specialized work is currently paid by the communities.

Two male park rangers have been trained in mechanical vicuña shearing since the first year of the project, and by being part of the protected area, they provide valuable support to the communities.

Before the start of the shearing season, a total of 35 community members (23% women and 73% men) were trained in mechanical shearing during the month of September 2021. In addition, 25% (2 women and 7 men) were hired by the local communities to carry out the mechanized shearing of vicuñas.

Two young students (male community members from Apolobamba) have gained experience in vicuña fibre management, mechanized shearing and evaluation of pastures and wetlands. One of them is currently part of the WCS team as a technical field assistant, and the other has been hired by the La Paz Departmental Government to provide technical support to other regions.

5 Sustainability and Legacy

The ARCMVA membership has increased from 15 to 18 participant communities, mainly due to the training that strengthens the better management of vicuña fibre and increases family income. This is the community organization that has the largest vicuña population in the country and complies with environmental authority and ACOFIVB guidelines. Marka Cololo Copacabana

Antaquilla has a strong commitment to continue supporting the vicuña management communities that overlap with its territory.

All technical products such as diagnostics, protocols, manuals and especially management plans are management tools that allow decision-makers in the Marka, the Regional Association and the protected area to outline strategies and actions. This makes it possible to establish and apply best practices for welfare, health and management of vicuña fibre, best practices for pasture, wetlands and water management, as well as best practices for mining activities that overlap with key natural resources, biodiversity and communities.

Two legal mining companies in Apolobamba are interested and committed to the protected area to continue applying good mining practices. In addition, the Bolivian Mining Federations are expected to comply with validated guidelines to reduce mining impacts on water bodies, pastures, and wetlands.

The institutional organization and trading capacity of ACOFIVB has been strengthened for the benefit of all vicuña management communities in Bolivia.

6 Lessons learned

The most notable aspect is the level of coordination achieved with all levels of vicuña management, from the national level, through work with ACOFIVB, to the regional level through fluid coordination with ARMVA, and at the local level with all the vicuña management communities in the protected area.

Despite changes at the governmental level, there has been close coordination and work with the public agencies involved, the ANMIN Apolobamba protected area, SERNAP and DGBAP, who value the project and its contribution to the sustainable use of the vicuña.

The greatest shortcoming has been the restrictions for carrying out face-to-face events due to travel and meeting restrictions during the pandemic. Although we have tried to remedy this partially by means of meetings through virtual platforms, there have been many difficulties due to the irregular, scarce or non-existent internet signal in Apolobamba.

We believe that by carrying out baselines and building management and monitoring plans for vicuña, vicuña health, pastures and wetlands, we have identified the main bottlenecks and proposed the most appropriate courses of action that will improve the management of the species, as well as species and habitat conservation in the medium and long term.

By working on the Business Plan and an Organizational Strengthening Plan at the level of the national organization ACOFIVB, that is directly responsible for the collection and marketing of vicuña fibre in the country, in coordination with the government authorities, we will achieve a significant impact at the level of all the regional organizations and communities that manage vicuñas and not only in the Apolobamba region, as was initially planned.

During the last six months, restrictions due to the COVID-19 pandemic have decreased significantly, which has allowed the WCS technical team to support ACOFIVB and ARCMVA in organizing the vicuña population estimate and the vicuña capture and shearing campaign for the 2021 management year almost normally. In this context, both the Apolobamba vicuña population estimation and the capture and shearing campaign have been successfully completed, and in.

Mining is currently a major threat to the region. This threat is due on one hand to the fact that most of the mining cooperatives are illegal, and in the other hand, the loss of pastures, wetlands and water, in addition to contamination. This is causing socioeconomic changes, with a decrease in the quality of life of the local inhabitants and impacting human health and the wild and domestic components of the vicuña habitat.

6.1 Monitoring and evaluation

The monitoring and evaluation plan has been supervised by the project lead, with support from the technical team and monitoring staff of the Marka Cololo Copacabana Antaquilla and Apolobamba protected area.

The current Evaluation and monitoring plan still stands as stated in the project document, except for Output 1:

Output 1 Trends in abundance from baseline was not established but monitoring of these indicators is now part of the protected area monitoring protocol. Analysis of these data will begin at the end of 2022.

Output 2 was 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.

Output 3 was verified by following up on the implementation of vicuña and grassland and wetland management plans and by including the biodiversity monitoring indicators identified with the project in the protected area's monitoring program. In addition, vicuña management and health plans were submitted to the biodiversity national authority (DGB-AP). The management plans were finalized and validated.

Output 4 was verified with the formal approval of the Business Plan and Organizational Strengthening Plan by ACOFIVB and with the evaluation of the 2021 season shearing compared to 2019. Plans by ACOFIVB were approved and the 2021 shearings showed a higher yield of quality fibre benefiting a greater number of communities and families compared to 2019.

Output 5 was verified with the support to 11 regional organization of vicuña handlers through ACOFIVB (106 communities involved), and with the submission of all instruments generated to the IUCN SSC SAC Network. An agreement was signed with COFIVB, through which technical management documents and vicuña health studies were developed in other regions of Bolivia. The published technical documents will be incorporated into the new IUCN SSC SAC website.

6.2 Actions taken in response to annual report reviews

Below, we respond to the comments to our previous annual report that required further clarification.

Comment 1. It would be useful for reporting purposes if the project could provide and refer to its workplan or include a Gantt chart when reporting (particularly if delayed due to COVID-19).

We attach the work plan we use as a team to follow up on activity implementation, including commitments with matching funds.

Comment 3. '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'. Could the project clarify how these plans and MEL plans are linked with the project MEL, as well as any data collection overlaps / synergies.

The Integrated Monitoring Programs (PMI) of the protected areas have a basic set of indicators established by SERNAP that are obligatory for all national protected areas that have this instrument and the capacity to do so. However, the protected areas, due to their different characteristics, can include additional indicators for measurement, With the project's support, additional indicators related to biodiversity and vicuñas have been identified and are being incorporated into the Apolobamba protected area's PMI so that they can be measured, consolidated in the official database, analysed, and included in the protected area's biannual monitoring reports.

Comment 7. The project has not commented on its exit strategy, and should do so in its next AR. In particular, the project should highlight the details of how. Which are the relationships and partners that will take aspects of work forward? Would activities cease to exist? How would strengthen alliances support the area moving forward? Etc.

The project is focused on developing capacities and instruments that can strengthen the sustainable management and conservation of vicuña by the ARMV in Apolobamba protected area. Both entities are autonomous and have been functioning since before the project was implemented and thus guarantee that all the instruments developed will continue to be implemented once the project is completed.

Likewise, the work at the national level through ACOFIVB and the public agencies SERNAP and DGB-AP will allow not only the scaling up of the results and instruments developed, but also the

continuity of their application, as they will become formal instruments of the national organization of vicuña management communities and of the public authorities responsible for protected areas and wildlife management, respectively.

Finally, WCS has a long-term commitment to the region and to support for vicuña, pasture and peatland management in Apolobamba.

Comment 8. The project should comment on its VFM and give examples of this as appropriate.

Initially the project proposed to have an impact improving management capacity over 100,000 hectares and the livelihoods of 1,335 people, as a result of the coordination with the national association of vicuña managers and the national biodiversity authorities our impact will now reach 8,468 (Information from ACOFIVB 2021) people and all managed vicuña populations in the country.

9 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 technical documents produced as part of the project activities. Finally, the Darwin logo is included in all Participant lists, workshop reports memories and field reports.

The Darwin Initiative Funding is presented as a distinct project within the reporting of WCS to the national authorities. Because of this, and the review of management protocols by the biodiversity and protected area authorities (DGB-AP and SERNAP) both are familiar with this project and its funding.

The editing of project documents was carried out with each of the authors, and the revision was made by the team: the coordinator, and later by the government agencies in charge of the subject, such as the National Protected Areas Service and the Ministry of the Environment & Water, via the General Division of Biodiversity. Out of the five technical documents generated, three were printed and two were digital. A total of 1,000 copies of each document were printed and delivered to ACOFIV Bolivia for distribution to state agencies, municipal and protected area authorities, and mainly to the 111 vicuña handling communities throughout the country.

The distribution of all digital publications was carried out through the elaboration of briefing notes and messages to distribute the documents by posting them on the WCS website and Facebook page.

[redacted]

The complete communication report, all publications, and the notes and messages prepared for dissemination can be found at the following link.

[redacted]

10 Impact of COVID-19 on project delivery

The impact of the COVID-19 pandemic has been mainly due to the travel restrictions that made travel to the field impossible between March and October 2020 and between January and March 2021. This made holding training workshops, coordination meetings and other face-to-face events impossible and has hence delayed the social validation of several of the management protocols. Efforts have been made to remedy this situation using digital communication platforms. However, these have had limited effectiveness because of connectivity limitations despite the effort and interest of the communities and regional and national organizations there are important connectivity limitations.

To address these delays, we have advanced in the review of the different management protocols with ACOFIVB and once a meeting can be held with the Apolobamba regional association all documents will be reviewed and approval sought in one meeting. Since the national association has already provided feedback, we expect the process of local approval to be quicker.

To allow regional associations to proceed with vicuña sheering campaigns and plan for the campaign in Apolobamba later in 2021 a Biosecurity Protocol was developed, presented, and approved by the national biodiversity authorities (DGB-AP). Although, digital communication mechanisms were used in a limited way, connectivity is an obstacle in this part of Bolivia. This limitation has raised awareness in the vicuña association, leadership, and community members overall of the importance of prioritizing improvement to their access to digital communications in their negotiations with government authorities, due to its importance for education, health, territorial and natural resource management, as well as political participation.

To make sustainable use of vicuña viable, the competent authority (DGBAP) has asked ACOFIVB to develop a biosecurity protocol. Within this framework, WCS has supported ACOFIVB's technical team and in coordination with DGBAP in the formulation of this protocol, which has been approved by the competent authority and has been published and distributed to all the regions at the national level through ACOFIVB. This protocol provides guidance on all biosecurity measures that should be adopted by technicians and vicuña handlers during the handling of the species, in the context of the COVID-19 pandemic. [redacted]

11 Finance and administration

11.1 Project expenditure

Project spend (indicative since last annual report	2020/21 Grant (£)	2020/21 Total actual Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)	[redacted]	[redacted]	0.35%	
Consultancy costs	[redacted]	[redacted]	-6.34%	
Overhead Costs	[redacted]	[redacted]	-1.01%	
Travel and subsistence	[redacted]	[redacted]	7.44%	
Operating Costs	[redacted]	[redacted]	-0.10%	

Capital items (see below)	[redacted]	[redacted]	2.28%	
Others (see below)	[redacted]	[redacted]	1.97%	
TOTAL	**£ 105,856**	**£ 105,856**		

Staff employed (Name and position)	**Cost (£)**
Oscar Loayza - Project Leader	[redacted]
Jose Luis Mollericona - Veterinarian	[redacted]
Herminio Ticona - Community extensionist	[redacted]
Victoria Lagos - Administrative assistant	[redacted]
José Armando Isla - Apolobamba protected area monitoring staff	[redacted]
Humber Alberto - Marka Cololo monitoring staff	[redacted]
Omar Torrico - Climate Change Specialist	[redacted]
TOTAL	[redacted]

11.2 Additional funds or in-kind contributions secured

Please confirm the additional funds raised for this project. This will include funds indicated at application stage as confirmed or unconfirmed, as well as additional funds raised during the project lifetime. Please include all funds relevant to running the project as well as levered funds for additional work after the project ends. N.B.: the total of both these sections is the figure required for Annex 3, Q23.

Were any additional in-kind contributions secured during the project?

Source of funding for project lifetime	**Total (£)**
WTG	[redacted]
Laguntza Foundation	[redacted]
TOTAL	

11.3 Value for Money

With an investment of £ [redacted] WCS and local partners (indigenous territory and protected area) and national strategic partners (ACOFIVB and DGBAP) have achieved significant results in terms of health (measured by the low prevalence of sarcoptic mange over time) and sustainable use of vicuñas (measured by the amount of fibre obtained and fibre selection), as well as rational use of resources (measured by pastures and wetlands) for the benefit of biodiversity and livestock. In addition, we have obtained £[redacted] as additional counterpart resources.