The Rufford Foundation
Final Report

Congratulations on the completion of your project that was supported by The Rufford Foundation.

We ask all grant recipients to complete a Final Report Form that helps us to gauge the success of our grant giving. The Final Report must be sent in **word format** and not PDF format or any other format. We understand that projects often do not follow the predicted course but knowledge of your experiences is valuable to us and others who may be undertaking similar work. Please be as honest as you can in answering the questions – remember that negative experiences are just as valuable as positive ones if they help others to learn from them.

Please complete the form in English and be as clear and concise as you can. Please note that the information may be edited for clarity. We will ask for further information if required. If you have any other materials produced by the project, particularly a few relevant photographs, please send these to us separately.

Please submit your final report to jane@rufford.org.

Thank you for your help.

Josh Cole, Grants Director

Grant Recipient Details	
Your name	Debby Ng
Project title	Implementing CNVR efforts to manage populations of domestic dogs (*Canis familaris*) in conflict with wildlife in Nepal's Annapurna Conservation Area (ACA)
RSG reference	21659-1
Reporting period	May 2017 – May 2018
Amount of grant	£5000
Your email address	torva.anser@gmail.com
Date of this report	23 Sept 2017

1. Please indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.

Objective	Not achieved	Partially achieved	Fully achieved	Comments
#1 Survey: Assess number of dogs in target villages				Two surveys were conducted – one in February 2017, and another in early August 2017.
#2 Logistics and volunteer outreach				Good logistical support from the various District Livestock Offices, and local volunteers.
#3 Community outreach: Community volunteers reach out to dog owners to inform them about where to travel to with their dogs, and how and when they can assess the services that will be delivered by our team.				Not all locals convinced about effectiveness of neutering as population control. Waiting to "see to believe". In the meantime, necessary to continue education and convince residents and authorities not to cull neutered animals so that outcomes of neutering project can be realised. In 2017, 35 dogs were hung to death in the village of Tukuche (2,595m), and in Jomsom (2,750m), street dogs were gathered onto trucks then relocated into lower lying areas because residents didn't want to kill them, but their actions created problems for wildlife and other residents. In Muktinath (3,850m), a dead cow was laced with poison and left in the hills with the hope that some dogs would eat it and die, but local report that jackals were killed instead.
#4 CNVR effort: Involves the catching, neutering, vaccinating and release of dogs and cats.				104 dogs were neutered, and 151 cats and dogs were vaccinated against rabies. An estimated 10% of dogs observed evaded traps and were not able to be neutered or vaccinated.

#5 Post-op inspection: Veterinary team revisits villages where dogs have been neutered to inspect animals.				Surgical wounds of all animals healing well. There was one mortality: an old street dog with prevailing health issues did not respond well to the anesthetic. According to the veterinarian, its blood pressure probably dropped too low.
#6 Monitoring & Evaluation: Reconnecting with villagers and inspecting street animals to assess health of the neutered animals.				All animals healthy

2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).

Two main unforeseen challenges emerged:

1. Most residents in the village of Kalopani decided not to neuter their dogs, only wishing to vaccinate, they were concerned dogs would not survive/be physically compromised after neutering. Only seven of the 40+ dogs in the village were neutered, but we are working hard with the seven to ensure that they survive and fare well so that other villagers can be convinced o f the effectiveness and reliability of our procedure.

These communities do not have a culture of medicine. For you and I, when we seek medical advice or intervention, we trust the methods because it is something we are accustomed to since young. Many locals we work with are still skeptical about the safety of the neutering procedure. Tackling this challenge is a long term and ongoing effort. My colleague, Mukhiya Gotame, our project representative and a resident of the Annapurna region, is constantly in contact with locals to assuage their fears and concerns about the perceived negative effects of neutering. For example, if a dog becomes ill or dies several months after surgery, locals often blame our procedure. Often, the body is disposed of by the time the message is relayed so no examination can be done. Although free-roaming dogs could encounter many effects

2. About a dozen dogs between the villages of Jomsom and Muktinath were extremely hard to catch using methods employed in previous years and in other villages. The vast and open landscape meant dogs could escape in several directions and remain hidden for long periods of time. We were not able to overcome this challenge now, but I am communicating with experienced dog catchers in Singapore, Hong Kong, Australia, India, and Thailand to learn and hopefully implement effective and humane methods. I am somewhat comforted

to have learned through meetings with these experts that dog catching is the "number 1 factor" that limits the rate of neutering.

3. Some residents still unconvinced about the effectiveness of neutering as a solution to controlling dog population numbers. As the dogs are not culled, there is no immediate knock-down effect on dog numbers. Many struggle to comprehend how keeping down alive can reduce dog numbers. The only solution to this challenge is time, patience, and a continuation of this effort until most of the dogs are neutered (i.e. approximately 85% of estimated total population of dogs in the district; 85% is the World Health Organization recommended proportion of dogs to be neutered to significantly reduce dog overpopulation and prevent potential rabies outbreak)

3. Briefly describe the three most important outcomes of your project.

1. We have educated local communities about how neutering helps prevent the emergence of diseases that are affecting domestic dogs (that can be both an asset and a pest, depending on circumstance) and their livestock. This method was previously unheard of and irrelevant to local communities because the veterinary skills and drugs necessary for such an endeavour are not accessible to these communities whose average wage is US$5/day.
2. We have implemented methods to facilitate the transition from a culture of culling and poisoning, to one of
3. We have prevented the births of an estimated 485* free-roaming dogs in Mustang this year alone. Most of these pups would live within or at the edge of wilderness areas, where they directly (e.g. harassment, predation) and indirectly (e.g. displace wildlife because of their presence) impact native wildlife such as hares, foxes, jackal, pheasants, deer, and native sheep.

*Estimate based on the following: 33% of the dogs neutered this year were female. Female dogs in Himalaya have two litters, of up to 7 pups a year. Mortality rates are low, with most pups surviving their first year.

Figure 1. Himalayan goral sighted in Ghasa (2200m) during our vaccination effort.

Figure 2. Himalayan wolf sighted in Yak Kharka (4700m) on 3 Oct 2017, 21km southeast from Muktinath (3800m).

4. Briefly describe the involvement of local communities and how they have benefitted from the project (if relevant).

Local communities were fundamental to our work.

- In Jomsom, Kagbeni and Muktinath, local groups supported our team by walking throughout their village, to distribute pamphlets (in Nepali) and explain the benefits of neutering and vaccination to their fellow villagers. These local volunteers also helped collect street dogs, and convince dog owners who were initially unwilling to neuter their dogs.

Figure 3. Dog catcher, Buddhi Rasaili, and local volunteer, Tashi Gurung from Muktinath (3800m), explain our project to villagers in Jharkot (3750m).

Figure 4. Young monks from Gompa Kupa (Kyipar) monastry in Tukuche learn about neutering and anti-rabies vaccinations, as Buddhi Rasaili (foreground) prepares to anaesthetize a dog.

- In Jomsom and Kagbeni, veterinarians from the District Livestock Office (a government-funded agency with the responsibility of monitoring and maintaining livestock health) participated in our neutering effort by assisting our veterinarian. These vets shared that it was their first time observing modern veterinary procedures being conducted on dogs and cats. Vets in Kagbeni had not witnessed the methods we used to deliver intravenous anesthesia, and the procedure to spay female dogs. They shared that castration of dogs and cats was occasionally conducted on young (male) animals without anesthesia, using primitive methods such as cutting the blood flow to the testicles with rubber bands.

- The local veterinary team we collaborated with gained the experience of working in a high elevation region none of them had ever visited, and learned the additional challenges of working in an area that is not only rural but physically challenging as well (due to the low oxygen environment).

- The local dog catchers, more used to working in urban and peri-urban areas, gained experience of catching dogs in rural and agrarian landscapes. The knowledge and skills they gain from this experience can better inform the methods they use to trap dogs in other similar environments.

Figure 5. Feral dogs in Muktinath (3800m) resting at the edge of a cliff. The extreme landscape made approaching and trapping dogs extremely challenging.

Figure 6. Buddhi Rasaili surveying for free-roaming dogs in the vast landscape of Muktinath.

- We also reached out to the Nepal School of Mountain Warfare (NSMW) in Jomsom for two purposes: 1) to gain access to street dogs residing within their premises; and 2) encourage and convince the military that their working dogs are adding to the street dog problem as their staff are conducting casual dog breeding programmes within the army school, but as the dogs are not "working dogs" and hence not under the school's purview, the army has declined responsibility of the surplus of dogs released onto the streets by such "hobby projects". We are hopeful that continued persuasion and education might change their minds in the future.

  The NSMW conducts training and exercises for their students and working dogs in wilderness mountain regions between Jomsom (2800m) and Nilgiri (>7000m).

During the treks, the dogs interact with native wildlife, that may contract or transmit pathogens to the dogs.

Figure 7. Our team with staff from the Nepal School of Mountain Warfare at their headquarters in Jomsom. Figure 8. Students from a school in Kalopani visit our camp to learn about how neutering and vaccinations can protect human and animal health.

- In Kalopani, a local village school teacher brought her class to our field camp to observe how dogs are prepared for surgery and neutered. Our team also spoke to the students to explain the importance of vaccination and neutering, and how it promotes animal welfare and prevents disease outbreaks.
- Our vet also walked through villages to inspect the health condition of dogs, and where neutering or vaccination was not possible, treatments were given to alleviate symptoms of illness. This builds rapport with the community, and helps us learn about the kind of care (or lack of) that communities give domestic animals, which could have implications for wildlife disease.

Figure 9. A resident from the village of Jharkot (3,750m) has her dog treated to relieve symptoms of abdominal effusion (ascites).

5. Are there any plans to continue this work?

Yes. My team and I intend to maintain our effort to improve rabies vaccination and neutering in regions within Annapurna we have already had an impact, and continue to extend our reach to other areas of Annapurna such as Upper Mustang, which is the intended destination for autumn 2018. We will be conducting a survey in spring (April) to determine feasibility of the location and estimate the domestic dog population. We have already raised half the funds that will be necessary to carry out this effort. Upper Mustang is an extremely remote region of Annapurna that requires additional permits to enter, and foreigners are limited to a 10-day stay in the area. Permits can be extended at a cost of US$50/day. Residents from Upper Mustang who learned about our work in lower Mustang have approached us to share their problems with domestic dogs and encouraged us to bring our project to them.

In addition, I have received a grant of US$10,000 to conduct a survey of canine distemper virus in the Manang region of Annapurna. This survey will complement our efforts to mitigate disease outbreak in domestic dogs that could spill over to impact native carnivores like foxes, wolves, wolverines, bears, and leopards. Research for this study will start in May 2018, and will give us an opportunity to measure the effectiveness of our neutering and vaccination efforts in Manang (2014, 2016). Such complementary studies can help strengthen and improve relationships with locals as it demonstrates our long-term commitment to helping them resolve their problems with free-roaming dogs – hopefully our determination and resolve will inspire similar attitudes amongst the community. Our continued interactions with the communities we work with also serve to educate and encourage more members of the community to support us, and each other, in our efforts.

6. How do you plan to share the results of your work with others?

Results have been shared on the following platforms:

- HMP Newsletter that was sent to 203 subscribers. These comprise individual donors, volunteers, veterinarians and animal welfare/conservation groups that have expressed interest in our work.
- HMP website.

7. Timescale: Over what period was The Rufford Foundation grant used? How does this compare to the anticipated or actual length of the project?

The grant was used over a period of 17 weeks (from the start Task #3 Community outreach, to Task #6 Monitoring and Evaluation). This is exactly as anticipated.

8. Budget: Please provide a breakdown of budgeted versus actual expenditure and the reasons for any differences. All figures should be in £ sterling, indicating the local exchange rate used.

Item	Budgeted Amount	Actual Amount	Difference	Comments
Expedition and Community leader salary for 12 months	1600	1600	0	**Non-RSG funds**
Honorarium for 1 intern for 12 months	800	800	0	Intern was not able to attend 16-day field trip **(Non-RSG funds)**
Travel - Car rental and fuel charges, public transportation charges, Conservation Area Permits etc. for travel within field site	4570	3218	-1352	Opted for 2 days of bus travel instead of hiring car **(Non- RSG funds)**
Living expenses – Meals and accommodation for field team (12 persons) for 16 days	3400	2605	-795	Local hotel owners were supportive of our project and gave discounts on accommodation
Medical supplies – vaccines, surgical supplies, etc. for ~250 animals	1600	1383	-217	Neutered 104, vaccinated 151
Totals	**11970**	**9606**	**-2364**	

* 1 GBP = 1.34961 USD, 23 September 2017, xe.com

9. Looking ahead, what do you feel are the important next steps?

1. To bolster the effectiveness of our project, and safeguard the impact of our efforts, it is essential that we continue to engage locals, and prevent culling through patient education.

    a) Important next steps include influencing and educating educated, and influential leaders in the district so that they can advise and encourage their constituents accordingly.

2. To improve on future efforts, we plan to refine our method of dog catching so that we can improve our neutering rate. Important next steps include:

    a) Learning methods from experts in the field, and ensuring we have the best tools available for the task (e.g. humane snares, portable traps, control poles, etc.)
    b) involving locals in the capture and trap development process, as they have the best knowledge of the landscape and will have access to the materials most suited to the environment (e.g. free-roaming dogs in rural areas are less likely to enter a pen made of metal, than a pen made of wood and/or stone.


Figure 10. Concept for a dog trap used by trappers in Hong Kong wilderness areas. A similar design to be adapted for use in Himalayan areas.

10. Did you use The Rufford Foundation logo in any materials produced in relation to this project? Did The Rufford Foundation receive any publicity during the course of your work?

The Rufford Foundation Logo was used on our t-shirts during fieldwork (Above: dog catchers carry a sedated dog to our neutering camp), on our website, and in our newsletter. The support granted to this project by the Rufford Foundation was also mentioned in an article titled, "Saving wildlife, dogs, and people at the same time", in Singapore's leading English daily newspaper, The Straits Times, which was published in print and online on 11 Aug, 2017.

11. Please provide a full list of all the members of your team and briefly what was their role in the project.

Debby Ng, Project Director – International fund raising, donor and volunteer recruitment, International PR and Marketing (i.e. public, school, and corporate talks, engaging public press), ensures team is aligned with mission and objective. Plans and organizes budget and itinerary.
Mukhiya Gotame, Expedition Leader - primary community outreach officer, communicates with beneficiaries throughout the year, local stakeholder engagement, and outreach to community leaders and government agencies. Domestic fund raising. Monitors the number of dogs culled and the survival of neutered animals after team departs from camp. Plans budget and schedule. Organizes logistics and accommodation in Himalaya.
Ajay Narsingh Rana, Intern - leads communications and is based in Kathmandu. Plans budget, itinerary, organizes transport and accommodation in Kathmandu and Pokhara.
Khageshwaar Sharma, Veterinary Team Manager – Organizes veterinary staff,

supplies (i.e. drugs, medicines, etc), and equipment
Dr Bikash Shrestha, Veterinarian
Saroj Jirel, Veterinary Nurse
Buddhi Rasaili, Veterinary Technician/Animal handler
Prakash Chaudhary, Veterinary Technician/Animal handler
Bibash Rana Magar, Veterinary Technician/Animal handler
Phillippa Reid, Volunteer – Data collection. Recorded demographic data of animals brought to camp (e.g. age, sex, breed, owned/feral.)
Adam Jaworski, Volunteer – Animal handler, veterinary assistant.

12. Any other comments?

I intend to apply for the second Rufford Small Grant. As the education of locals is becoming increasingly essential to the success of this programme, a future project might be to design and implement an education campaign that is focused on impressing upon locals: 1) the long-term effect of neutering as a population control method; and 2) that the success of the project hinges on their cooperation to not cull the dogs. Such an education campaign would involve training local representatives to give talks at schools or town halls within the districts we are working. Talks could be complemented by large format posters that could be permanently installed in community areas. It would also be beneficial to work with local businesses (e.g. hotels and guesthouses) to raise awareness of impact of dogs on wildlife to domestic and international visitors.

Since 2018 will have two projects occurring (the canine distemper survey in s pring, and our regular neutering and vaccination work in spring and autumn), such an education campaign would likely launch in 2019, or late 2018 at best.

Our team in Muktinath. Thank you for the opportunity!