

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	Dikpal Krishna Karmacharya
Project title	Eyes in the Sky: Use of conservation drone for long term ecological monitoring and conservation of globally threatened Vultures in Himalayan regions of Nepal.
RSG reference	18403-B
Reporting period	February 2016-February 2017
Amount of grant	£10000
Your email address	dikpal.karmacharya@gmail.com
Date of this report	March 2017

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

Objectives	Not achieved	Partially achieved	Fully achieved	Comments
Eyes in the sky				<p>The ecological surveys were made from the trails on the peaks of mountains for wider visualisation of both the sides, as bird's-eye view. 4K UHD camera of conservation drone was employed for the portraits of species and habitat during surveys without operating the aircraft. Operating Unmanned Air Vehicles (UAV) was open before the 2015 mega-earthquake in Nepal, but Nepal Government cracked down on their use post-earthquake due to uncontrolled influx through international media and humanitarian teams. Long- term monitoring of vultures in the Himalayas has been progressing, since 2013 by local team and experts but was stopped in 2015 due to quake.</p>
Capacity building training and workshops				<p>Our project organised and supported for the following capacity building training and workshop programmes to uplift the skills of future conservation leaders:</p> <ul style="list-style-type: none"> • Field based training on 'Application of Camera traps, Data loggers, Silva compass, GPS receiver, Range finder, Spotting scope and Conservation drone' on 16th February 2016 at Department of Zoology, Institute of Science and Technology, Bhaktapur Multiple Campus. • 'Grant Writing Development for Youth' from 3rd -5th August, 2016 organised by PROLINOVA, Natural History Museum, Tribhuvan University (TU). Programme was also supported by USAID-Funded Asia Farmer to Farmer (F2F) programme, Winrock International, Institute of Science and Technology (IOST), TU.

			<ul style="list-style-type: none"> • Training on 'Application of modern technologies: Mobile apps, Data loggers and Conservation Drone in wildlife research, monitoring and conservation' on 14th August 2016, at Central Department of Zoology, TU. • Training on 'Application of modern technologies: Mobile apps, Data loggers and Conservation Drone in wildlife research, monitoring and conservation' on 4th September, 2016 at Basu College. • Field based training on 'Application of Camera traps, Data loggers, Silva compass, GPS receiver, Range finder, Spotting scope and Conservation drone' on 13th December, 2016 at Coronation garden, Kirtipur.
Mentorship			<p>We have gathered 45 scattered hidden treasures and sundry enthusiasts as mentees to prepare the backup for future conservation. We supported them for following programmes to enhance their real field based knowledge on wildlife research, monitoring and conservation managements:</p> <ul style="list-style-type: none"> • Ms Genuine Prajapati and Ms Bijaya Manunkarmi were selected for '15th Annual Field Course in Conservation Biology and Global Health' organized by Nepal Biodiversity Research Society (NEBORS) and University of Washington, USA from 1st -5th February, 2016 held at Department of National Park and Wildlife Conservation (DNPWC), Babarmahal. • All of mentees were taken to participate on 'National Wildlife Week' organised by DNPWC and Bird Conservation Nepal (BCN) on 16th April, 2016 held at 'Shivapuri Nagarjun National Park'. • Mr Sanjib Acharya from Sunsari, Mr Bishwash Gurung and Mr. Antim Gurung from Ghandruk were selected for the assistantship for field work in Annapurna region from 24th May to 6th June, 2016. • All of mentees were engaged for 'Visit to Natural History Museum' Swayambhu on 27th

			<p>July, 2016.</p> <ul style="list-style-type: none"> • Ms Genuine Prajapati and Ms Rojeena Basi were selected for '10-days Geographic Information System (GIS) and Remote Sensing (RS) training' organised by Resources Himalayan Foundation/ Environmental Graduates in Himalaya from 10th -19th August, 2016 held at Conservation chautari. • 28 mentees were engaged for 'Visit to Central library and laboratories of Central Departments of TU' on 28th August, 2016. • Ms Rojeena Basi was selected for 3 months internship opportunity at Natural History Museum, IOST, TU from August to November 2016. • Ms Basi was also selected for the '19 days Wildlife Research Techniques Training 2016' organized by Friends of Nature from 10th -28th December, 2016, held at Kathmandu and Kapilbastu. • 22 mentees participated on 'Two-day Leadership Development Training' from 30th - 31st December, 2016, organised by Basu College and technically supported by National Youth Federation Nepal. • Ms Jamuna Prajapati and Ms Shreejana Awal were engaged for 'Visit to Farmlands of Lumbini IBA, Jagdishpur Ramsar Site, Bardia National Park and Suklaphanta Wildlife Reserve' from 1st - 8th February, 2017.
Monitoring of species			<p>During the field season May-June, 2016, we recorded following ornithological information of Annapurna region using 'G-bird' mobile apps:</p> <ul style="list-style-type: none"> • 144 species of birds • 15 species of raptors • five species of vulture • 890 sightings of 3390 individual birds • Max. sightings: Himalayan vulture 87 times, large -billed crow 46 times • Max. counts: Eurasian tree sparrow 726 individuals, Himalayan swiftlet 405 individuals, large-billed crow 334 individuals

Ecological monitoring			<p>During the field season , we recorded following climatological information of Annapurna region using 'Easy Data Logger':</p> <ul style="list-style-type: none"> •Average Maximum Air Temperature 25.84545 (degrees C) •Average Minimum Air Temperature 13.14545 (degrees C) •Average Dew Point Temperature 5.909091 (degrees C) •Average Relative Humidity 41.75455 (%)
Monitoring of effect of devastating earthquake 2015 on nesting sites			<p>During the field season, we observed only fallen down of fragile steep sandy cliffs, old houses and cracks on the rocky cliffs of the study area. Most of the faults are seen on the rocky cliffs having the nests of Himalayan vulture, bearded vulture and Egyptian vulture but those are still using by them.</p>
Monitoring of NSAIDs			<p>During the field season, no any NSAIDs diclofenac was recorded from four agrovets of Mustang.</p>
Monitoring of food availability			<p>Livestock information was compiled from District Agriculture Offices.</p>
Monitoring of livestock carcasses			<p>During the field season following livestock carcasses were recorded, which were exposed to feed vultures</p> <ul style="list-style-type: none"> •One yak carcass in Manang •One yak carcase in Kalopani •One ox carcass in Jomsom
Monitoring of dead Vultures			<p>During the field season, no any dead vulture was recorded.</p>
Conservation awareness and education			<ul style="list-style-type: none"> •One-day school education programme on 'Save the Vulture, Save Wildlife, Save Nature for Human welfare' was organised at Janahit Higher Secondary School, Jomsom, Mustang on 30th May, 2016. Altogether 80 local students, staffs, club members, conservation practitioners and media persons actively participated in the event. •International Vulture Awareness Day (IVAD) - 2016 was celebrated at Basu Higher Secondary School and College on 4th September, 2016.

			<p>More than 115 students from different districts of Nepal studying at this school actively participated in the event.</p> <p>http://www.vultureday.org/2016/Organisation.php?code=2083</p> <p>http://www.vultureday.org/2016/Organisation.php?code=2084</p> <p>http://www.vultureday.org/2016/Organisation.php?code=2148</p>
Vulture Key rings			<p>Our project produced key rings containing vulture conservation messages, which were distributed to local students and farmers during outreach programmes.</p>
Practicing Mobile conservation library in Himalayas			<p>Various conservation resource materials published by DNPWC, BCN, Natural History Museum (NHM), Himalayan Nature, Global Primate Network (GPN)-Nepal, Biodiversity Conservation Society (BIOCOS) and Annapurna Conservation Area Project (ACAP) were collected. All the collected resource materials were attached, displayed and handed over to the local schools, clubs, community groups, public libraries, information centres, seminar halls, hotels, restaurants, guest houses, tea shops, tourist check posts, non-governmental, governmental and community based offices to flood up the conservation messages in mass for long run.</p>
Support to University students for Master's degree dissertation			<p>Our project supported to two students (Shraddha Tiwari and Rabita Duwal) of Central Department of Zoology, Tribhuvan University for their Master's degree dissertation.</p>

<p>Publications/ Dissemination</p>			<p>Our work supported by Rufford Foundation and other partners was presented at</p> <ul style="list-style-type: none"> • 'Student Conference on Conservation Science' organised by Beijing Forum at Peking University, China from 6th- 8th November, 2015. • 'Seventh National Conference on Science and technology 2016' organized by National Academy of Science and Technology (NAST) at Hotel Yak and Yeti from 29th -31st March, 2016. <p>Here is the link of the event prepared by NAST for Television Program (including me, my poster and interview at 21:08 on timeline) which was broadcasted on Nepal Television on 2nd April 2016.</p> <p>https://www.youtube.com/watch?v=cESauXXkpTc</p> <p>Some media highlights</p> <p>http://www.sambadmedia.com/?p=158</p> <p>https://thehimalayantimes.com/nepal/vulture-census-begins-annapurna/</p> <p>http://www.annapurnapost.com/annanote/news/2663</p> <p>http://kathmandupost.ekantipur.com/news/2016-12-23/vulture-count-starts-in-acap-vicinity.html</p> <p>http://reviewnepal.com/variety/vulture-census-begins-in-acap-vicinity.html</p> <p>Field story from Munir Virani, Director, The Peregrine Fund, Africa Programme</p> <p>https://assets.peregrinefund.org/docs/pdf/research-library/2014/2014-Virani-zen.pdf</p>
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2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).

The project was operated by the well experienced experts, local team members in collaboration with all the project partners, therefore, we didn't face any major difficulty during the project, except some unregulated political strikes which made the unavailability of vehicles to reach the stations on time. To overcome this we hired private cars and steered during the nights despite of bumping trails of the geographically remote Himalayas.

Besides, we stopped operating UAV due to sudden crack down on their use by government from post-earthquake to check uncontrolled influx through international media and humanitarian teams. Therefore, we used 4K cam of conservation drone for portraits and made test flights to coach during capacity build up trainings. The UAV will be made available to obligate parties in Nepal to employ it for conservation benefits with due training.

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

- a. Our project discovered the huge nesting sites of Himalayan vultures, Egyptian vultures, bearded vultures, golden eagle and many other birds along with their status and distribution in Nepal Himalayas. We have not recorded any dead vultures and NSAID diclofenac in the areas due to its effective banning in Nepal, indicating the Himalayas as wider and safer landscape for the scavenging birds.
- b. Our project shaped 48 well trained biologists for future conservation via capacity build up trainings, workshops and mentorship opportunities.
- c. Our project flooded conservation messages to huge mass of local people, farmers, students, faculty members, media persons, visitors, tourists, members of community based/governmental/non-governmental organisations via 'education outreach' and 'conservation libraries' established in local schools, clubs, community groups, public libraries, information centres, seminar halls, hotels, restaurants, guest houses, tea shops, tourist check posts, community based/governmental/non-governmental offices. The conservation libraries are still spreading and will have been dispersing conservation messages continuously in Himalayas for coming eras.

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

The project was initiated jointly with local people, local communities and local project partners since beginning. The local environmental journalist, Niraj Thakali from Jomsom was appointed as project co-ordinator to co-ordinate with local partners. Sanjiv, Bishwash and Antim from Ghandruk received stipend for the assistantship. They improved their knowledge from experts and now leading national and international tourists for birding and trekking.

Total 80 local students, staffs, club members, conservation practitioners and media people benefited from 'Save the Vulture, Save Wildlife, Save Nature for Human welfare' programme held at Janahit Higher Secondary School, Jomsom, Mustang, locating on the lap of Himalaya.

Total 48 students enhanced their expertise on application of modern tools and technologies in wildlife monitoring and conservation management through capacity building trainings, workshops and mentorship opportunities. Most of them have engaged on diverse conservation missions.

More than 10,000 people benefited from conservation libraries by broadening their conservation education. Conservation libraries established in local schools, clubs, community groups, public libraries, information centres, seminar halls, hotels, restaurants, guest houses, tea-shops are attracting more visitors, tourists and guests, which have helped local communities to raise income through tourism services.

5. Are there any plans to continue this work?

This is the collaborative ideal work for the species and habitat conservation in Nepal Himalayas, which has also helped to improve livelihood of local people. Most of the projects only focus on species monitoring, school outreach, distribution of t-shirts, posters and leaflets which are not sufficient for the long term species conservation, unless they involve local communities covering larger landscapes. Despite of such projects, many times we see the news highlight saying mass death of scavenging vultures and predators due to animal poisoning. Therefore, we have planned to mitigate such incidents throughout its range in forthcoming moment.

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

Major results and activities of our projects have already been highlighted by national and local media, daily papers and FM radios. The team members are sharing and furthermore planning to share the results of our work among global communities through presentation in national and international workshops and conferences. The activities and findings will be also shared with concerned public via formal and informal reports, articles, bulletins and newsletters of the project partners. The concise outcomes of our work will be disseminated with the worldwide network through our official websites of GPN Nepal (primatelife.org) and online social network Facebook page (<https://www.facebook.com/PrimateLife/?fref=ts>). The results will be also shared in forms of detailed reports to the supporter; RSG, Oriental Bird Club (OBC), Whitley Wildlife Conservation Trust (WWCT), IDEAWILD and SAVE consortium. Summary of our works are now available in Birding Asia of OBC, proceedings of NAST and Beijing Forum. In addition manuscript is on the way in preparation for the journals to make the results accessible to global forum.

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 Rufford Foundation grant was used from February 2016 – February 2017. Monitoring of species and ecological parameters lengthened slightly than the anticipated time frame due to unregulated political strikes. Remaining all the components went smoothly within the proposed time line.

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
Monitoring of species, climatology, ecology, NSAIDs, food availability, livestock carcasses, dead vultures (1920+320+470)	2710	2922	212	Extra expense was due to lengthened field work and hiring of cars because of lengthy political strike. Additional expense was managed via CUNY university's USAID- funded project.
Assistantship, resource person and porter service (126+1040)	1166	1363	197	Extra expense was due to lengthened field work and hiring of cars because of lengthy political strike. Additional expense was managed via CUNY university's USAID- funded project.
Capacity building training and workshops	360	476	116	We proposed for three days capacity building training and workshop but the project additionally supported more three days trainings. Additional expense was managed via organizers-PROLINOVA, Natural History Museum, TU, USAID-Funded Asia Farmer to Farmer (F2F) programme, Winrock International and IOST.
Mentorship	2160	2484	324	Additional expense was managed by project partners

				Bhaktapur Multiple Campus, Basu College and GPN Nepal.
Conservation awareness and education	800	800	00	NA
Vulture Key rings	498	498	00	NA
Practicing Mobile conservation library in Himalayas	306	306	00	NA
Support to University students for Master's degree dissertation	400	400	00	NA
UAV conservation drone	1200	1200	00	NA
Climatic data logger	400	400	00	NA
GPS units, Binoculars, Computer, Multimedia	2158	2158	00	Equipment support received from IDEAWILD, USA
Total	12158	13007		We received 10000 from RSG, field gears of 2158 from IDEAWILD and remaining cost managed through varied project partners.

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

Annually millions of dollars are spending to save a single vulture individual in the world, majority of the cost are spending for habitat protection and captive breeding. Until the conservation messages reach to door-to-door and farmer-to-farmer throughout their range, future of these majestic birds are not secured, because a single poisoned carcass can kill hundreds of scavenging vultures at once. Therefore, mass education throughout vultures' range zone is very vital for the next steps to mitigate such incidents in future and to secure them for the next generating.

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

Yes, we have used the Rufford Foundation logo along with the logos of all the project partners in every activity and in every allied material produced during this project. RSGF was publicised via its logo keeping on the prominent position in all the disseminated relevant publications, slide shows, presentations and highlighting on the news.

11. Any other comments?

Many times our works have been selected for the presentation in the national and international conferences to expose our findings with global mass. But, unfortunately we could not able to attend many international platforms only due to lack of travel bursary. Such platforms not only provide the chances to share our discoveries in front of international communities but also provide the opportunities to sharp our career in conservation via networking with of experts from the universe.

On other hand, it also publicities RSGF among the world. Therefore, I would like to request RSGF to allocate international travel bursaries for the Rufford grantees from developing countries like Nepal for the presentations.

I would like to express my deep gratitude to Rufford Foundation, Oriental Bird Club (OBC), and Whitley Wildlife Conservation Trust (WWCT) for pecuniary supports. My yawning gratitude also goes to IDEAWILD for the field equipment supports. My sincere thanks go to 'The Peregrine Fund (TPF), CUNY University-USA, Beijing Forestry University-China, Tribhuvan University-Nepal, Zoological Society of London (ZSL)-Nepal, Bhaktapur Multiple Campus, Basu College, National Trust for Nature Conservation (NTNC), Annapurna Conservation Area Project (ACAP), Department of National Park and Wildlife Conservation (DNPWC), Bird Conservation Nepal (BCN), Himalayan Nature, WWF-Nepal, Friends of Birds (FOB), Friends of Nature (FON), Natural History Museum and IOST for direct and indirect technical supports. I would also like to extend my thanks to District Livestock Service Offices (DLSO), District Forest Offices (DFO), District Administration Offices (DAO), Local Development Officers (LDO), District Police Offices (DPO), District Agriculture Development Offices (DADO), Women Development Offices (WDO), District Paravet and Livestock Associations (DPLA), Village Development Committees (VDCs), Jana Mukti Youth Club-Jomsom, Janahit Higher Secondary School-Jomsom, hotels, restaurants, local community groups, youth groups, media, schools, political representatives, farmers and students for project partnership, collaborations and affinity during entire project period. Loads of appreciations to all the referees for their recommendations and continuous guidance. Lastly, I am very much thankful to all who supported directly or indirectly to accomplish this project. I hope for the similar supports in upcoming times to continue our conservation initiatives. Thank you.

