

# The Rufford Foundation

## Final Report

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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](mailto:jane@rufford.org).

Thank you for your help.

**Josh Cole, Grants Director**

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Grant Recipient Details	
<b>Your name</b>	Shiva Devkota, PhD
<b>Project title</b>	Initiative on addressing the ecology, ethnomycology and conservation issues of wild mushrooms in the Southern flanks of Annapurna Conservation Area, Nepal
<b>RSG reference</b>	25337-1
<b>Reporting period</b>	July 11, 2018 - July 10, 2019
<b>Amount of grant</b>	£5,000
<b>Your email address</b>	shivadevkota12@yahoo.com
<b>Date of this report</b>	August 19, 2019

**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
Permits and local supports				Research permit was obtained from the Department of National Parks and Wildlife Conservation under Ministry of Forest and Environment, and another permission was obtained from National Trust for Nature Conservation - Annapurna Conservation Area Project's (NTNC-ACAP) office at Pokhara for a research period (1 year).
Meetings and knowledge sharing / awareness programmes				Three local level meetings were organised on edibility of wild mushrooms, conservation of their habitats, and building capacity of the stakeholders through knowledge sharing/ dissemination.
Establishment of transects along the elevational gradients to understand species diversity and their ecology				All total 30 transects of sized 25 x 5 m were established at 15 different elevational bands from Birethati 1,000m asl to nearby Annapurna Base Camp hotels 3,800 m asl with in an interval of 200 m along the Modi river basin. Three field trips were made covering pre-monsoon, mid-monsoon and late monsoon.
Interviewing of IPLCs (Indigenous people and local communities) to document ILK on wild mushrooms				Questionnaire survey on ethnomycology has been conducted with 61 local respondents' aged 8 to 81 covering different casts (mainly Brahmins, Gurungs, Magars and Dalits) and religions.
Herbarium preparations and Identifications				Most of the collected specimens are identified, well preserved and in a process of making well labelled herbaria for the deposition at herbarium centres. Only few of the collections are waiting for the re-confirmation.

Nutrient profiling of locally available and important mushrooms species				Though not proposed in a proposal, we have conducted additional laboratory works to find out the major bio-active compounds and antioxidant activities of the seven wild mushrooms collected from our research area. More species will be studied in next year.
Making educative posters and brochures for the knowledge sensitization				We have made posters mainly showing deadly poisonous mushrooms species from our research site, we collected during surveying. We also prepared two different brochures highlighting several ways of identification of edible and poisonous mushrooms, modes of poisoning, preventive and curative measure of poisoning. Also, another brochure is prepared on caterpillar fungus ( <i>Ophiocordyceps sinensis</i> ) as demanded by local communities because this caterpillar fungus is also a part of fungal group and abundant in our research areas.
Publications / Outreach / other promotion				Three scientific manuscripts are being prepared based on complex data analysis to submit in ISI journals answering the interlinked research questions. Similarly, we have shared or planning to disseminate gained experience and knowledge via different formal and informal meetings, workshops, conferences and radio programme.

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

Extreme rainfall / snowfall, heavy storm, slippery trails and flash floods were the major obstacles. Though such situation is expected and common during monsoon season but during this project period, it was too much rain and floods causing some human casualties and also swiped away several locally made bridges.  
<https://www.kailashhimalaya.com/news/view/reconstruction-of-lodges-at-annapurna-base-camp-begins>  
<https://trektournepal.com/annapurna-base-camp-will-reopen-soon/>

The threat of leeches and insects were scary while hunting mushrooms in dark and damp places. Principal researcher was seriously caught with bugs and got high degree fever, swollen legs and nausea for about a week. Altitudinal sickness was mild and we didn't suffer much.

Concerning the data, we hadn't been able to include all the primary data in this reporting period. As our last field trip ended a month before and few of the specimens yet to be confirmed, we decided not to include the comprehensive list of the collections with their taxonomic details here in this report.

It is worthwhile to mention that we decided to submit our findings for quality journals with considerably good impact factors. So, it might takes next few months to have complete species and occurrences data as a supplementary file. We will be happy to share such publications in Rufford project update link in near future.

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

#### **Major outcome 1 # Knowledge on the distribution / ecology of wild mushrooms from the pristine area**

We have established in total 30 permanent transects of sized 25 x 5 m at 15 different elevational bands from Birethati 1,000m asl to nearby Annapurna Base Camp hotels 3,800 m asl with in an interval of 200 m along the Modi river basin. Though we planned to find four land use types (natural forests, exploited forest, meadow and crop field) at each elevational level, it was not possible in every elevational band. So, we modified our plans of having only two replicated transects at each elevational level of available land use types.

In this study, we succeeded to meet our major objective of recording fungal flora of the studied area. We have recorded altogether 115 mushroom species belonging to 55 families and 83 genera from different elevational gradients. The broad range of taxonomical and ecological groups of mushrooms suggests that the variation of species composition along the elevational gradient is a heterogeneous type with longer gradient. There is a significant correlation of the total mushroom species richness with the elevation and canopy openness ( $p \leq 0.05$ ). Similarly from the total transects, 30 different tree/shrub species from 24 families were identified. *Rhododendron arboreum* (23.2%), *Betula utilis* (14.4%) and *Myrsine capitellata* (8.4%) were the dominant species inside the transects.

All the specimens were identified up to generic level and 21 species are still waiting for their final confirmation to assign their species names. In the species level Polyporaceae was the largest family with having 14 different species and Agaricaceae and Hymenochaetaceae were the second and third largest having eight and five species respectively. Similarly Boletaceae, Xylariaceae, Clavariaceae and Gomphaceae harbour four species in each respectively.

Having permanent transects will serve to make further comparative studies in future. For the long run, best available knowledge from this research is important to decide what urgent action must be taken and also further comparative studies will underpin sustainability, as well as resilience in the face of prevailing global change.

## Study area and transects

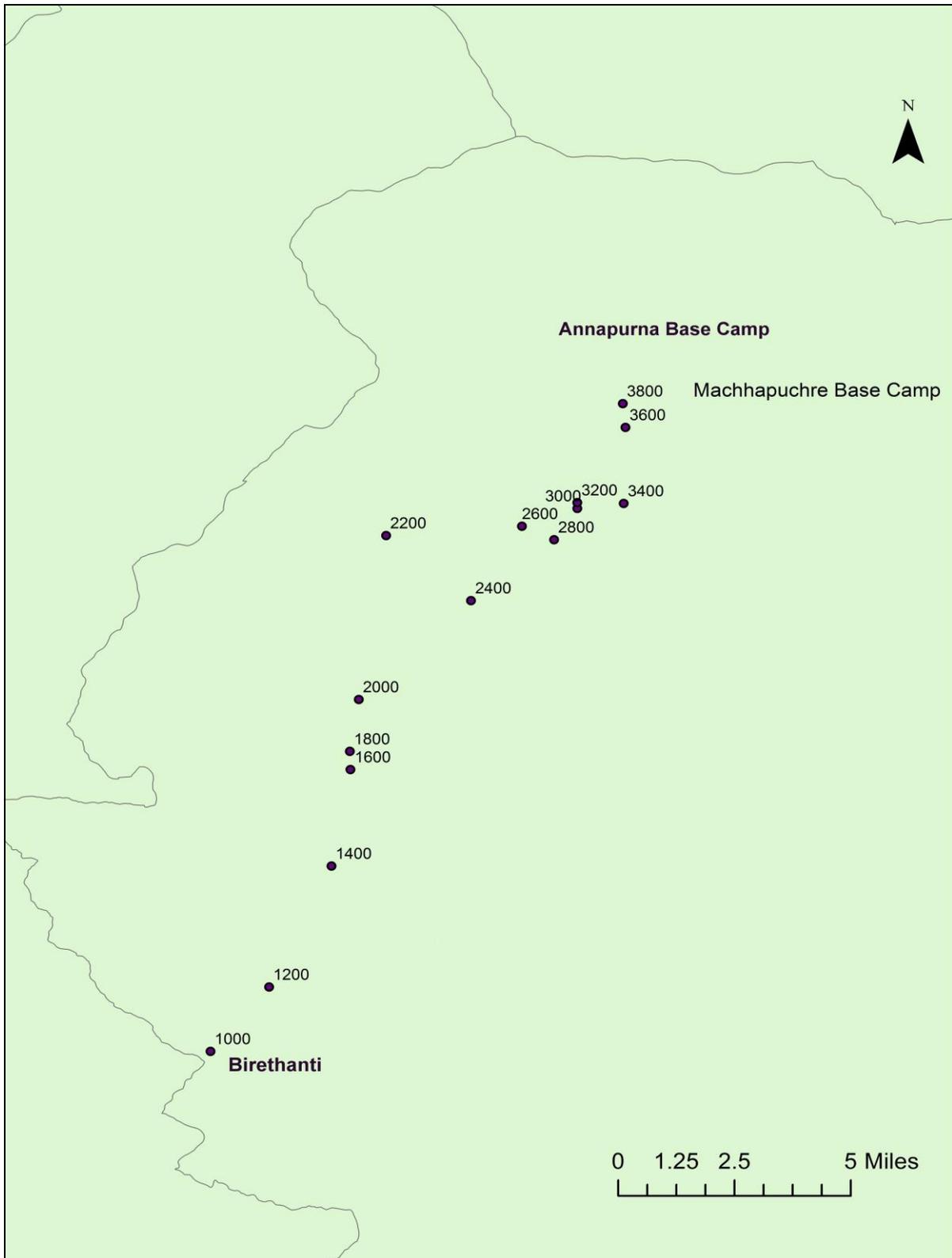


Fig 1: Our research transects were laid out from 1000 m (Birethanti) up to 3800 m (in between Machhapuchre and Annapurna Base camp) in every 200m elevational level.

**Major Output 2# Documentation of Indigenous and local knowledge (ILK) on edible and poisonous mushrooms species and their socio-economic importance.**

Questionnaire survey on ethnomycology has been conducted with 61 local respondents' aged 8 to 81 covering different casts (mainly Brahmins, Gurungs, Magars and Dalits) and religions. Household-scale data regarding income from and costs involved in harvest of wild mushrooms benefits has been surveyed.

According our preliminary findings, nearby 45 mushroom species are inextricably interlinked with the wellbeing of local communities with their culinary value (CV), medicinal value (MV) and aesthetic and decorative value (ADV). Detail documentation about the species in use, modes of their uses, preventive and curative measures applied by the local communities to overcome possible mushroom poisonings are included in a draft manuscript and will be for the public access after acceptance for the publication. Concerning the use values, Pearson's Chi-squared test ( $\chi^2$ ) was applied using the statistical software R and significant difference ( $p = <0.05$ ) are found along elevational gradients or locations of the settlements, cultural groups and ethnicity of the respondents.



Fig 2. Highly preferred edible mushrooms from the southern flanks of Annapurna Conservation Area (*Termitomyces eurhizus*, *Laetiporus sulphureus*, *Pleurotus ostreatus*, *Morchella conica* from L to R) Pictures: Shiva Devkota

As we came to know that some of the mushroom species (*Grifola frondosa*, *Termitomyces euzirices*, *Laetiporus sulphureus*, *Auricularia auricala-judae*, *Flmmulina velutipes*, *Daldinia concentrica* and *Trametes versicolor*) are dominant and some of them are also used by the local communities, we decided to make study on their major bio-active compounds and antioxidant activities to have some baseline data for the further studies. Dried specimens were extracted via Soxhlet extractor using methanol as a solvent. Individual extracts were then screened for two major bioactive compounds - phenolic and flavonoid and their antioxidant activity. Three different in vitro antioxidant systems - DPPH, OH, and superoxide radical scavenging activity were used to determine their antioxidant potential. Findings from this study is included as a supportive information in a manuscript.

Having generous knowledge and practices including both science and indigenous and local knowledge (ILK) from this study, synergies could be built among such information in order to recognise and respect the contribution of ILK to the conservation and sustainable use of fungal resources and ecosystems. With such findings and documentations we are supporting the SATOYAMA Initiative where integrating traditional ecological knowledge and modern science to promote innovations is greatly envisioned.

In the end, it is worthwhile to mention that, our team collaboration and socio-economic cum ethnomycological survey was greatly done by the presence of women socio-economic analyst (Research Associate - Ms. Poudel) in a team. Clear linkage with local mothers groups, elderly people and the way she was supporting a team are few of the evidences concerning the effect of gender diversity on team performance and positive practical consequences for knowledge system. With this lesson and evidence, now we can strongly argue that gender balance is important to increase the productivity of team collaboration and which we happily minimised such gap.



Fig 3. Locally dominated poisonous mushrooms from the southern flanks of Annapurna Conservation Area (*Amanita pantherina*, *A. concentrica*, *A. hemibapha* and an unidentified *Amanita* sp. from L to R). Pictures: Shiva Devkota

### **Major Output 3 # Knowledge sharing and raising awareness of broader community on wild mushrooms**

Mushroom poisoning is a serious and an alarming threat in Nepal though concerned authorities have not paid much of their serious interests to address such cases. Some of the mushroom poisoning cases within last 2 months are highlighted below. Being witness to such tragedies, we tried our best to raise awareness among the collectors and policy makers - with the hope in reducing the numbers of such tragedies.

July 30, 2019

<https://myrepublica.nagariknetwork.com/news/one-killed-after-consuming-mushroom-curry/>

July 29, 2019

<https://myrepublica.nagariknetwork.com/news/three-die-after-consuming-wild-mushroom-curry/>

July 15, 2019

<https://www.nepal24hours.com/six-die-after-consuming-wild-mushroom-curry-in-palpa-nepal/>

July 14, 2019

<https://myrepublica.nagariknetwork.com/news/one-dies-13-sick-after-consuming-wild-mushroom/>

June 29, 2019

<https://thehimalayantimes.com/nepal/wild-mushroom-claims-life/>

June 9, 2019

<https://myrepublica.nagariknetwork.com/news/two-girls-die-after-consuming-wild-mushroom-curry/>

This project has increased the level of understanding on the edibility of wild mushrooms among the locals, students, teachers, enthusiastic, amateurs and mycophilic communities in general and to the local governing bodies to prevent or minimise such tragedies to some extent. We shared knowledge and findings on wild mushrooms via three different awareness camps and several informal discussions / group meetings among the different stakeholders (promotional material -I). Findings were also broadcast from the very famous radio station <http://www.rudiosafalta.com/> (having more than 100K social media followers) with an aim to reach to the semi-urban and urban communities via media (<https://www.facebook.com/rudiosafalta/videos/724590041303695/?t=0>).



Fig 4: Ms. Durga Adhikari, RJ at Radio Safalta and Dr. Shiva Devkota, Principal Investigator of this project during the program in Radio studio.

After such initiations and media coverage, the principal investigator has been receiving several phone calls, messages and invitations to share his knowledge on wild mushrooms and also to explore edible and poisonous mushrooms of their areas. This interview has been already viewed by more than 9800 people (by 08.06.2019) on Facebook page and radio programme has reached to the millions of listeners. Another impact of this initiation is that local authorities are also paying their interests (somehow) and local schools are also interested to organise mushroom poisoning awareness classes to the school level students, community forests users groups (CFUGs) and local eco clubs. In fact, this interview has played very instrumental roles in spreading strong message and awareness on wild mushrooms.

Recently, the District Police Office of Palpa (neighbour district of our research area and one of the mushroom poisoning prone district of Nepal) has launched a campaign against mushroom poisoning. Indeed, this is very compelling initiation taken by the state against mushroom poisoning and its consequences. The campaign is being organised with the slogan of "let's not eat wild mushrooms, stay safe" covering wider geographical boundaries of eight urban municipalities and rural municipalities in the district. This is super-exciting and very good initiation.

<https://myrepublica.nagariknetwork.com/news/palpa-police-launches-campaign-against-wild-mushroom/?categoryId=opinion>

In parallel, another major outcomes from this aspect is we have brought three types of

printed materials on wild mushrooms focusing on local grassroots communities. They are printed in Nepali language using very simple words. One poster (promotional material - II) and two leaflets (promotional material - III and IV) will be supportive for their knowledge and understanding on wild mushrooms. Such promotional materials are available to download from project profile page ([https://www.rufford.org/projects/shiva\\_devkota](https://www.rufford.org/projects/shiva_devkota))

Though it is still early to count in as an outcome of the project, but surely findings from this research will be included and cited in "Sustainable use of wild species assessment" being prepared by Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) - a UN entity with Headquarters in Bonn, Germany



Fig 5: Picture showing a freshly collected and ready to cook wild mushrooms (*Termitomyces eurhizus*). This species is very common, and widely consumed among all the ethnic communities and age groups in Annapurna Conservation Area. In this study, we have identified five localities from Birethanti (1000m) upto Upper Sinuwa (3000m) with their rich occurrences and distributions. Picture: Shova Poudel: Location - Bamboo, ACA).

(<https://www.ipbes.net/deliverables/3biii-sustainable-use>) Dr. Devkota, is serving as an IPBES fellow and his contribution in this assessment mostly focused on the status, conservation and sustainable use of fungal diversity, associated ILK and policy support tools.

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

Starting from the inception of the project, we made very good contacts with Annapurna Conservation Area Project research officers, field staff and locally elected community leaders, as we were fully aware that community participation and function have an important influence on project's, sustainability and success. Their suggestions and cooperation were instrumental in bridging gap between local stakeholders and our research team members. As per our project's framework, to establish research transects along the elevational gradient in different vegetation types, local involvement, their supports and cooperation were important in many cases.

Secondly, local communities comprising of different ethnic groups, age groups and religious beliefs were involved in the project activities in one and other ways. Our local field staff was from local indigenous community and was so helpful to work in the field level activities. Our questionnaire survey was focused on the residents in different attitudinal gradients. It was nice to hear and document their experiences, beliefs and local folklore concerning wild mushrooms through their active participation and cooperation.

Knowledge sharing and awareness camps on wild mushrooms for the students, teachers and interested people went well and local's participations were exciting. As this programme had some obligations of time period and funding, we could not organise many campaigns though demanded by other neighbouring schools and conservation clubs. Anyway, we are happy that at least we were succeeded to be together with local communities for their knowledge enhancement. We are committed with locals that in next phase of this project, we will run more awareness camps and radio programmes. After all working among the local communities for last 1 year and having clear understanding on their community context - we must thanks to their suggestions and active participation which made us motivated to work further for their welfare and wellbeing.



Fig 6: Locals got surprised after seeing so diverse morphological variations of wild mushrooms during an informal talk. Photo album containing pictures of mushrooms collected from their area was found to be a very good reference tool to hear their wealth of knowledge on different species. (Photos: Shova Poudel)

## 5. Are there any plans to continue this work?

This initiation should not be stopped and it is utmost necessary that we must continue working on wild mushrooms in next season too. Our team is the first to start mushroom exploration en route to the Annapurna Base Camp and one of the few teams in Nepal who are actively working on different aspects of fungi comprising their ecology, sociology and science-policy interface.

Now with this study, we have clear pictures of fungal distribution, ecology and ILK on mushrooms from the southern flanks of Annapurna. In the next iteration of this project, we will work on proceeding with the conducting of similar studies on the eastern and northern flanks of the Annapurna Range with heterogeneous landscape and climatic conditions i.e. Marshyangdi valley starting from Besishahar (1000 m) to Manang (4000 m). This kind of study help to have a complete picture of fungal diversity, ecology and associated ILK in Annapurna Circuit. Such evidence based research helps to understand existing fungal flora and their associated knowledge in two different climatic conditions in the Annapurna Sanctuary.

On the other hand, we must integrate and respect the voice and needs of indigenous people and local communities (IPLCs) to organise further knowledge sharing and mushrooms poisoning awareness campaigns in ACA area. Having much knowledge from this research work, and with respect to the such suggestions made by local people, schools and conservation clubs : during a next round of research we will establish more strong networks with the newly formed Provincial Government Ministry of Industry, Tourism, Forest and Environment (<http://moitfe.gandaki.gov.np/en/>), with the Western Regional Health Directorate (<http://dohs.gov.np/regions/>), and with The Association of Community Radio Broadcasters Nepal (<https://acorab.org.np/>), to start more effective initiation to minimise poisoning tragedies and also to assess the contribution of fungi to multidimensional human wellbeing at local level. Multi-stakeholder participation, collaboration and collective intelligence will greatly help to achieve our goals.

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

Principal Investigator, Dr. Devkota had shared his recent findings and experiences from this project among the participants of "IPBES First Author Meeting on Sustainable Use of Wild Species Assessment: Montpellier, France December 2<sup>nd</sup> to 7<sup>th</sup>, 2018:" and also in the "IPBES Fellows workshop: Marrakesh, Morocco, April 21<sup>st</sup>-25<sup>th</sup> 2019. IPBES is placed under the auspices of four UN entities: UNEP, UNESCO, FAO and UNDP and administered by UNEP and it was so nice to share our findings among the scientists from around the globe. For the days ahead, we are planning to apply various ways to share the results of our last one year hard work. Some of them are:

**A. Scientific and op-ed publications:** Three manuscripts on different thematic areas are being finalised to submit for the following ISI journals. Once published, links will be shared on project update. Thanks to our three mentors (referees) for their continuous guidance and suggestions in preparing the following draft versions.

# Theme: Knowledge and uses of mushrooms

Journal: Journal of Ethnobiology and Ethnomedicine

<https://ethnobiomed.biomedcentral.com>

# Theme: Distribution of fungal species along elevational gradients  
Journal: Biodiversity and Conservation  
<https://link.springer.com/journal/10531>

# Theme: Macromycetes from the Southern flanks of Annapurna Landscape  
Journal: Mycosphere  
<http://www.mycosphere.org/>

**B. Meetings and Media:** The results of conducted research will be disseminated making presentations in different forums.

**PI Dr. Shiva Devkota** is visiting Nairobi, Kenya (November 21st-25th 2019) to attend second authors meeting of IPBES - Sustainable Use of Wild Species Assessment; where he will share recent information and findings on wild mushrooms. His experience working together with Indigenous and local communities will be supportive in preparing ILK related chapter.

**Research Associate Ms. Shova Poudel** will share her experience working with local communities in local FM station (date not fixed but tentatively on August 21st 2019). Additionally, she is also sharing her experience together with mothers groups to make them curious and attentive towards the wild mushrooms.

**Research Associate Mr. Ram P Khanal** will share his experience and knowledge on ecology and distribution of higher plants and mushrooms in a college level workshop to be held at Amrit Science Campus, Kathmandu, Nepal (Dec, 2019). The topic of his presentation is fixed as:

*Diversity and distribution of wild mushrooms along the elevational gradient is determined by tree species, vegetation composition and microenvironment: Lessons from the Annapurna Sanctuary, Nepal Himalayas*

More outreach articles will be published and update will be made on social media to make people aware on wild mushrooms.

**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 mostly used during the fieldwork period. Thanks to the RF in considering an extension of a project report submission to August 2019 (as communicated and suggestion made by Jane Raymond, Trust Administrator, RF on July 18th 2019).

Activities	Months (2018-2019)												
	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July
Buying 1 unit Handheld Garmin GPSmap60CSx													
Buying Measuring tapes (n=2), Compass (n=1), Leach proof socks (n=3)													
Buying Solar battery charger (n=1), batteries (n=2 pairs)													
Stationeries and communication													
Printing of pictures and posters													
Local Transportation													
Stakeholders meetings													
Field logistics													
Remuneration for Local Assistant													
Chemicals for the specimens identification													
Archiving material for herbarium specimens of mushrooms and plants													
Data analyses, herbarium studies and report writing													
Permits and local supports													
First-Aid Boxes													
Contingency													

**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
1 unit Handheld Garmin GPSmap60CSx	220	208	-12	
Measuring tapes (n=2), Compass (n=1), Leach proof socks (n=3)	75	69	-6	
Solar battery charger (n=1), Chargeable batteries (n=2 pairs)	50	47	-3	
Stationeries and communication	60	54	-6	
Printing of pictures and posters	200	225	+25	
Kathmandu-Birethanti (Field Entry Point)-Kathmandu for two members (Public transport) x 3	190	225	+35	
3 Local stakeholders meetings	450	422	-28	
Per Diem : Lodging and Food: £ 15 /day x 3 persons x 68 field days (Breakfast £ 2+Lunch £4.5+Dinner £4.5+Bed £ 4 = £ 15)	2925	3060	+135	Due to heavy rainfall needed to extend field work for 3 more days than expected
Remuneration ( excluding Per Diem) only for a local Asst. (£ 150 x	375	375		
Chemicals for the specimens identification	65	72	+7	
Archiving material for herbarium specimens of mushrooms and plants	80	55	-25	
Data analyses, herbarium centres visit and report writing	90	78	--12	
Permits and local supports	75	75		
First-Aid Boxes (n=3 for three visits)	60	57	+3	
Contingency	85	35	-50	
<b>Total</b>	<b>5000</b>	<b>5057</b>	<b>+57</b>	PI managed the deficit.

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

Nepal which is located in the central Himalayan region is the centre of origin, adaptation, growth and dominance of different biotypes. Many interesting species are present within narrow elevational gradients starting from the lower belt to the higher landscapes. Among the study species, wild mushrooms are very poorly

explored and described irrespective to the higher plants and flagship animals. So, next priorities should be to foresee mycological surveys in many virgin lands, seeking their diversity, genetic variation and ecology.

Having concluded from the evidence available from this research, it is necessary to visit different locations (east to west and north to south) and interact with indigenous people and local communities (IPLCs) to document existing indigenous and local knowledge (ILK) on wild mushrooms before such precious information perish without transferring from one generation to another generations. Having such knowledge would help to understand associated knowledge, folklore, species conservation status (on visual bases) and also their socio-economic nexus.

Furthermore, as it is said that it is never too late to start good thing, further approaches should be started to dissect mushroom poisoning scenarios in different areas of Nepal. The collection and consumption of wild species is intrinsically linked with the poverty level of collectors or harvesters. In many rural areas of Nepal, poor people who are residing in remote, marginal and forested localities have very limited livelihood options and opportunities. The role that wild mushrooms play in food security appears to be underestimated and not very well understood. Such communities are mostly collecting mushrooms in season and sadly mushroom poisoning is a serious threat to them. So, concerned authorities and research based organizations must develop effective collective action or appropriate strategy and intervention to minimise such tragedies.

**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 in banner, three-fold brochures, posters and PowerPoint slides. While delivering an interview in a radio programme The foundation's name is greatly highlighted and acknowledged. Importantly, the foundation will be acknowledged (as quoted below) in three manuscripts which are in progress for the ISI journals.

"The study was kindly supported by a research grant (Grant Agreement No. 25337-1 to SD) of the Rufford Foundation, UK"

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

	Team Members				
ROLES	Mr. Shiva Devkota	Ms. Shova Poudel	Mr. Ram Prasad Khanal	Mr. Ishowr Thapa	Field Asst
	Doctorate	Masters	Masters	Graduates	Literate
	Mycologist	Social Analyst	Plant Ecologist	Biotechnologist	ILK
Development of					

project concept					
Planning of activities					
Selection of transects					
Establishment of contacts with stakeholders					
Preparation and Identification of fungal herbariums					
Preparation and identification of higher plants herbariums					
Statistical analyses the data collected					
Chemical profiling of selected samples					
Questionnaire Surveys					
Design of posters, and brochures					
Knowledge sharing					
Writing manuscripts					

## 12. Any other comments?

We are thankful to The Rufford Foundation (RF), for given opportunity to have financial support and our mentors who had kindly provided their recommendation letter, due to which, together with locals' support, studies on wild mushrooms in the remote terrains of Annapurna Conservation Area have been granted and successfully implemented. Before this study, there were no comprehensive and reliable data on diversity, ecology and ethnomycological knowledge even from the well linked and globally highlighted touristic conservation area.

Stakeholders in different strata are greatly benefitted through this project and this research opens door for the further science-society-policy dialogue. We are optimistic that our next phase of project will also be kindly funded by the RF and we assure you to bring real impacts of the project to the society and in the scientific forums. Any comments, suggestions, recommendation and further discussion are calmly anticipated and will be highly appreciated.



Showing a freshly collected specimens and discussing about locals vast array of knowledge is an important part of ethnomycological survey. This helps to understand ILK on natural resources among the IPLCs. In the mean time, we could also share our knowledge on mushrooms to make them aware and attentive on mushrooms poisoning.



Knowledge sharing with the school teachers. Such discussions empowers them to foster related understanding, learning, sharing and decision making skills on wild mushrooms. Mostly in rural areas, teachers are the main carriers of updated

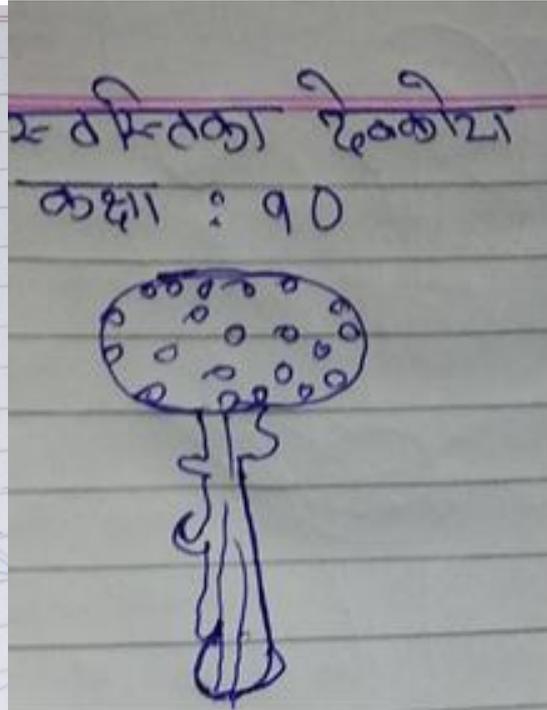
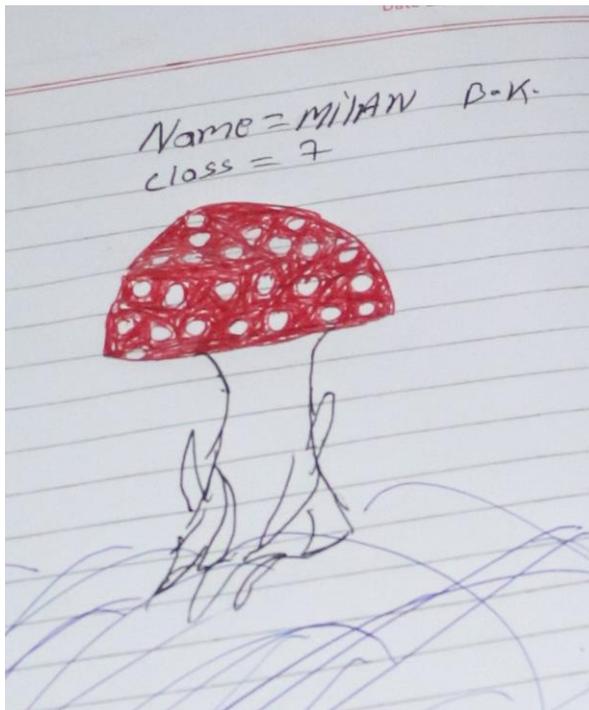
information, knowledge and they are playing an important roles in societal changes and awareness.



Demonstration of freshly collected mushrooms to the students, teachers and local communities and to listen local's perspectives and knowledge was very important and fruitful approach to be integrated with the local communities.







Interaction together with students, teachers and researchers made our awareness mission more open, lively and productive. Printed poster, leaflet and brochures with colour pictures of locally available and interesting mushrooms were the point of attraction among the students. They also made sketches of poisonous mushrooms after their learning about the features of such species.