Project Update: December 2018

Background

Traditional mountain livelihoods predominate in high altitude areas, tightly integrated with transhumance and other livestock systems and finely adapted for subsistence within the steep terrain and highly variable climatic conditions and availability of endemic and high biodiversity/medicinal plants. The strategy of traditional mountain livelihoods such as animal husbandry, transhumance and collection, use and trade of medicinal plants are common within the rugged and semi-arid mountains of limited accessibility. The pursuit of collection, use and trade of mountainous high-value medicinal plants such as *Paris polyphylla*, *Nardostachys grandiflora*, *Neopicrorhiza scrophulariflora*, *Ophiocordyceps sinensis*, *Taxus contorta* etc., is historic and prevalent. Local livelihood and primary health care as well as household economy of mountain community has long been maintained by these high altitude medicinal plants.

Available collection/trade records of government of Nepal showed that the high value high altitude species *O. cordyceps*, *N. grandiflora*, *Selinum tenuifolium*, *N. scrophulariflora*, *T. contorta*, *P. polyphylla* have long been collected and traded in Kailash Nepal region because of their lucrative returns (DoF 2000-2016). The collection and use of plants, hailed for socio-economic gain, cultural retain and drug development has now been threatened due to local people's changing perceptions and their socioeconomic and cultural transformations.

Despite the traditional livelihood strategies are tightly integrated with mountain biodiversity, and local geography, they are highly vulnerable and posing additional pressure to the biodiversity in the changed contexts of land use, socio-culture and climate and curtailed by the limited distribution and population of endemic medicinal plants. Within that baseline, this study extends the survey in three mountainous districts of far western Nepal and assesses the population, distribution and conservation of high altitude MAPs through mapping and modelling approaches. In this pursuit, the following are the specific objectives of this study.

1) Enumerate/freelist all high altitude/mountainous medicinal plants of Kailash-Nepal (Darchula, Bajhang and Humla) and assess their socio-cultural and conservation values.
2) Evaluate the distribution, population and conservation of the most threatened medicinal plants based on ecology (low population/density/frequency); geography (narrow/limited distribution) and socio-culture (high trade and cultural value; indigenous conservation strategies).
3) Identify the most vulnerable plants in terms of geography, ecology, socio-culture and conservation and guide district forest offices and local stakeholders for necessary conservation measures.
4) Map and model aridity of the area and monitor and model the distribution of the selected five most vulnerable plants in terms of increasing aridity, human and market pressure, land-use, climate and socio-cultural changes.

5) Outreach local and global communities and call for collaborations.

Project update:
March 2018: Project approved

April-August 2018: Desk review

September 2018: Nepal field preparation

October 2018: Nepal Field (Florida Atlantic University, USA – Kathmandu, Nepal).

Preliminary findings:

- November-December 2018: Field visit (Ktm-Darchula, Bajhang and Baitadi) (Ripu Kunwar, Keshav Lamichane)

Collectors collected *Polygonatum cirrhifolium* (Khiraunla) from Rapla and Sunsera forests and transporting to lowland markets. Shot from Hikila, Darchula.

- December 2018: *Ex-situ* conservation and Nursery development at Nigladi, Banja, Darchula (C/O DFO Darchula and Mr. Amar Singh Dhami) (In progress).

A district level meeting was held with DFO, Hari Pandey and Amar S Dhami.

आज मिति २०६८।८। [illegible] यस दुवरी सामुदायिक वन उपभोक्ता समितीको अध्यक्ष श्री [illegible] सिंह महर ज्यूको अध्यक्षतामा बैठक बसि तपशिल बमोजिमको अनुसुचीमा तपशिल बमोजिमका निर्णय यस पारित गरिए ।

	श्री दिलिप सिंह महर	अध्यक्ष
	,, पदम सिंह महर	उपाध्यक्ष
	,, हरिश सिंह महर	सचिव
	,, डोला देवी महर	कोषाध्यक्ष
जयमीत	,, जय सिंह महर	सदस्य
डोली	,, डोली देवी महर	सदस्य
	,, देवकी ,, धामी	सदस्य

जिल्ला वनप्रति निम्नि उपस्थित

	अमर सिंह धामी एकाण्डे वन अधिकृत
	केशव नगरिकोटी - अनुसूचनकर्ता
	रुद्र म कुँवर - PhD Student, FAU, USA

अन्य आमन्त्रित उपस्थितहरू

	श्री गौर सिंह महर
	श्री धन सिंह महर
जयसिंह	,, जय ,, ,,
	,, करम ,, ,,
	,, केलेक ,, ,,
	,, गोविन्द ,, गोविन्द
	,, अर्जुन ,, ,,
	,, गौर सिंह कंडाल
	,, शशन सिंह महर
	,, राधा देवी महर
	,, [illegible] महर
	माना सिंह महर
	माना देवी महर
	रमा देवी महर
	विमला देवी महर
	नारा देवी महर
	मानमती देवी महर

प्रस्तावना → ① Ruffor को आर्थिक सहयोगमा नर्सरी उत्पादन
② Ruffor को आर्थिक सहयोगमा नर्सरी उत्पादन
③ नर्सरी उत्पादनकालागी हरेक वर्षको सहयोग

निर्णयहरू → ① प्रस्ताव नं. १ मात्रो बहुमत बहुमतले गर्दा दुवरा सामुदायिक वन उपभोक्ता समिति - महाकाली - ४ बौंज [illegible] नर्सरी उत्पादन तोरसल्ली, सुदूरपश्चिम निजी नर्सरी व्यवसायीसंघ तथा उत्पादनकालागी Ruffor Foundation UK को सहयोगमा अनुसन्धान कर्ता श्री रिपु कुँवर ज्यूलाई प्रस्तुत सामुदायिक वनको नर्सरी उत्पादनको लागी चन्दा सहयोग - आर्थिक सहयोग रु ६०००/- सुदूरी बहालाई स्वीकृत गर्दै हार्दिक धन्यवाद दिने निर्णय सर्वसहमत पारित गरियो ।

निर्णय नं ② प्रस्ताव नं. २ मात्रो बहुमत गर्दा निर्णय नं. १ मात्रो उपलब्ध भएको रकमको प्रयोग गर्दै डिजिटल सिस्टम वन व्यवस्थापन संचालनका सम्बन्धमा सहयोगमा नर्सरी उत्पादन गर्ने निर्णय सर्वसहमत पारित गरियो ।

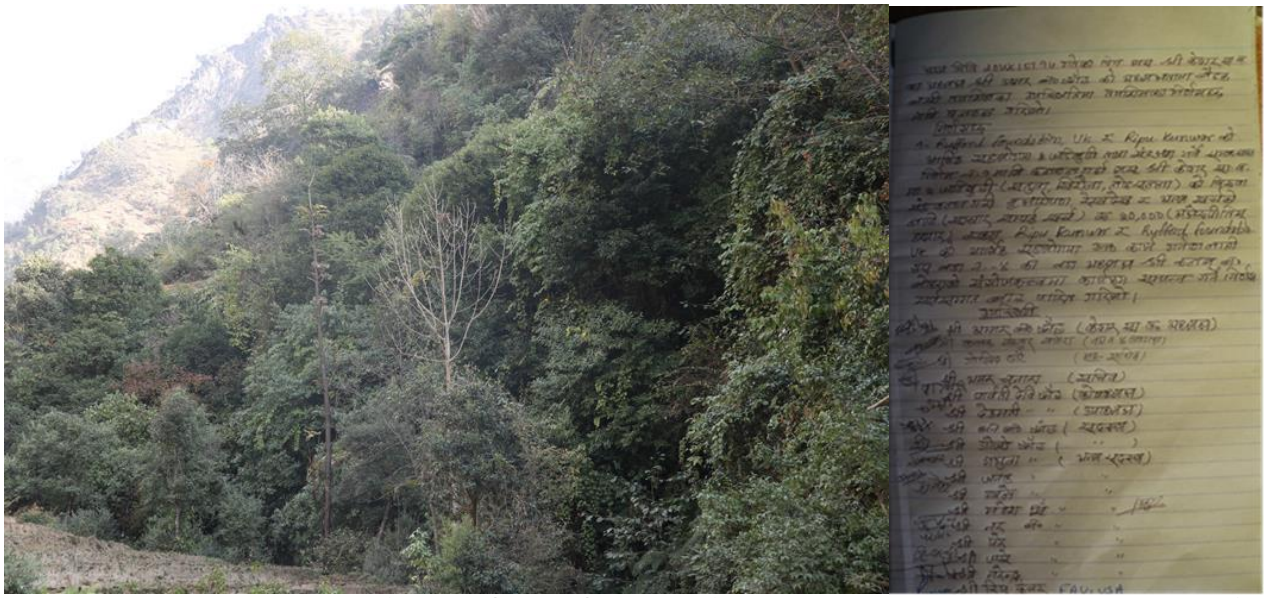
निर्णय नं ③ प्रस्ताव नं. ३ मात्रो बहुमत गर्दा प्रस्तुत सामुदायिक वन क्षेत्र को निकलाडीमा नर्सरी उत्पादन क्षेत्र बनाउन गर्ने निर्णय सर्वसहमत पारित गरियो ।

A total of 3,000 seedlings of three species, *Taxus contorta, Paris polyphylla* and *Polygonatum cirrhifolium* (Khiraunla, Setochini), will be produced in Dhukura Community Forest User Groups, Banjha 3, Darchula with some support from DFO, Darchula. CFUG Chairperson Dilip Singh Mahara is coordinating in establishment of nursery and production and distribution of seedlings.

A site for Nursery establishment, Dhukura CFUG, Nigladi, Banjha, Darchula

- December 2018: In-situ conservation of medicinal plants and Nursery Development in Kedar Community forest user group in Deulek, Bajhang C/O Mr. Kalak S Bohora, Village Chairperson and Mr. Amar Dhat, Chairperson CFUG.

A total of 1,500 seedlings of *Taxus contorta, Paris Polyphylla* and *Polygonatum cirrhifolium* (500 each) will be produced and conserved.



Kedar CFUG, Deulek, Bajhang (upper) Commitment by Kedar CFUG members in conserving seedlings of *Taxus contorta*, *Paris polyphylla* and *Polygonatum cirrhifolium* (lower).

Discussion with Kedar CFUG members, Deulek, Bajhang.

Kedar CFUG members working out on making a work plan of seedling development and distribution (Deulek, Darchula) and conservation of selected plants.

- December 2018: Data compiling and synthesis (In progress).

a) A free list of 768 flowering plants of four districts (Humla, Baitadi, Darchula, Bajhang) was developed (draft).

b) Six species were identified as locally important for monitoring and modeling.

c) Their conservation status was catalogued.

d) Diversity and distribution records of the selected species were developed.

e) Estimated biomass stock (tons) in forests.

f) Trade records of selected six medicinal plants in a period of five years (2012-2016).

a)

Species	CITES 1979	Shrestha & Joshi 1996	CAMP list 2001	IUCN 2001	GoN 2001	GoN 2006, 2010	Local threat
Aconitum spicatum Bikha,	--	Commercially threatened	Vulnerable	Vulnerable	--	□	*
Dactylorhiza hatagirea Panchaunle	□	--	Endangered		Ban for export outside the country without processing	□	***
Nardostachys grandiflora Jatamansi	□	Endangered	Vulnerable	Rare	Ban for export outside the country without processing	□□	***
Neopicrorhiza scrophulariflora Kutki,	--	Endangered	Vulnerable	Vulnerable	Ban for export outside the country without processing	□□	**
Paris polyphylla Satuwa	--	Vulnerable	Vulnerable	Vulnerable	--	--	***
Taxus contorta Loth Salla	□	Vulnerable	Endangered		Ban for export outside the country without processing	□□	***

CITES: Controlled trade for assuring the survival of species (□); GoN (2006, 2010) National priority species for economic development (□); GoN (2006, 2010) National priority species for research and economic development (□□)

b)

	Species name	Vernacular name	Study district (Density/ha)				Total districts recorded (out of 75)
			Baitadi	Baihana	Darchula	Humla	
1	*Aconitum spicatum*	Bikha		0.03	0.04	0.07	27
2	*Bergenia ciliata*	Vedaite					
3	*Dactylorhiza*	Hathajadi	0	0.02	0.03	0.03	14

4	*Delphinium himalayi*	Atis					
5	*Jualans regia*	Okad					
6	*Nardostachys grandiflora*	Balaichan		2.25	1.76	2.33	25
7	*Neopicrorhiza scrophulariiflora*	Katuko	0	0.41	0.54	0.74	21
8	*Ophiocordyceps sinensis*	Buti					
9	*Paris polyphylla*	Satuwa	0.06	0.11	0.13	0.09	36
10	*Rheum australe*	Dolu					
11	*Taxus contorta*	Salla	0.01/100	0.02	0.03	0.03	43

c)

District	*Aconitum spicatum*	*Dactylorhiza hatagirea*	*Nardostachys granbdiflora*	*Neopicroprhiza scrophulariflora*	*Paris polyphylla*	*Taxus contorta*
Baitadi	-	-	-	-	26	6,526
Bajhang	48	7	814	256	33	81,885
Darchula	34	9	690	330	31	12,918
Humla	139	26	1997	1213	15	123,722

d) Trade records of Selected six medicinal plants in a period of five years (2012-2016)

SN	**District**	**FY 68-69 (2012)**	**FY 69-70 (2013)**	**FY 70-71 (2014)**	**FY 71-72 (2015)**	**FY 72-73 (2016)**
1.	Achham			Pp		
2.	Baglung		As, Na, Pp	As, Na, Ns, Pp		
3.	Baitadi					
4.	Bajhang				As, Na, Ns, Pp	
5.	Bajura		As, Na, Ns, Pp			As, Na, Ns
6.	Banke				Pp	Pp
7.	Dadeldhur				Pp	Pp
8.	Dailekh	Na, Pp	Pp	Na, Pp	Na, Pp	Na, Pp
9.	Darchula	Pp				Pp
10.	Dhading		As, Na, Pp			
11.	Dolpa	As, Na, Ns, Pp	Na, Ns, Pp	Na, Ns	Na, Ns, Pp	Na, Ns, pp

12.	Dolakha	Pp				
13.	Doti				As, Pp	Pp
14.	Gorkha	Na, Ns, Pp	Na, Ns, Pp			
15.	Humla					Na, Ns
16.	Ilam				Pp	As
17.	Jajarkot		As, Na, Pp	As, Ns	As, Na, Ns	As, Na, Ns, Pp
18.	Jumla		Pp	As, Na, Ns, Pp		
19.	Lamjung	As, Na, Ns, Pp	As, Na, Ns, Pp	As, Ns	Ns	Na, Ns, Pp
20.	Mugu			As, Na, Ns, Pp	As, Na, Ns, Pp	
21.	Myagdi	Na, Ns, Pp		As, Na, Ns, Pp		As, Na, Ns, Pp
22.	Panchthar					Pp
23.	Okhaldhun			Pp	Pp	Pp
24.	Ramechap		Pp			
25.	Rasuwa					As, Ns
26.	Rukum	Na, Ns, Pp		Na, Ns, Pp		As, Na, Ns, Pp
27.	Sankhuwa	Pp				Pp
28.	Sindhupalc			As, Pp		
29.	Sunsari	As				
30.	Surkhet		Na, Ns			
31.	Taplejung				Pp	Pp
32.	Tehrathum	Pp	Pp	Pp	As,Pp	Pp

As=A spicatum, Ng=N grandiflora, Ns=N scrophulariflora, Pp=Paris polyphylla