

TUNGKYONG DHO (LAKE)

A Biodiversity Heritage Site in Hee-Gyathang, Dzongu, North Sikkim



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BACKGROUND:

Biodiversity Heritage sites (BHS) are well defined areas that are unique, ecologically fragile ecosystems- terrestrial, coastal and inland waters and marine having rich biodiversity comprising of any one or more of the following components: richness of wild as well as domesticated species or intra specific categories, high endemism, presence of rare and threatened species, species of evolutionary significance, wild ancestors of domestic/cultivated species or their varieties, past pre-eminence of biological components represented by fossil beds and having significant cultural, ethical or aesthetic values and are important for the maintenance of cultural diversity, with or without a long history of human association with them.

The concept of biodiversity heritage sites conceived under section 37 of India's Biological Diversity Act, 2002 (<http://nbaindia.org/content/106/29/1/bhs.html>). The existing legally defined protected area network in India consist of National Parks, Wildlife Sanctuaries, Conservation and Community Reserves as notified under India's Wildlife (Protection) Act, 1972. However, the purpose of BHS provision is to cover those sites which are not covered under the already existing PA network that are important from the biodiversity point of view.

In India, 18 Biodiversity Heritage Sites have been declared till now; the state of Karnataka has the highest number (4) of BHS followed by West Bengal (3) and state of Madhya Pradesh (2).

DZONGU VALLEY:

It is a specially protected area for aboriginal/ indigenous primitive tribe considered to be the original inhabitant of Sikkim called as Lepchas, a restricted place to non- residents of Dzongu, which has a very unique cultural and historical significance. Lepchas are believed to have settled in Sakyong Village of Dzongu when they first arrived in Sikkim during the time of migration. The area is fully inhabited by the particular community with a population size of 8550 and 1200 households as per the 2011 census data and is located in the northwestern part of Sikkim. It is administratively falls under the Mangan division in the North of Sikkim. It spans over around 80 sq. km encompasses 30 villages with an elevation ranging from 800m to 6000 m asl. The valley is well demarcated by the Teesta River in the southeast side and the mountains of Khanchendzonga range in the west. In fact it falls entirely in the Khanchendzonga biosphere reserve with far flung villages deep within the Khanchendzonga National Park. The Rongyang

Chu, a tributary of Teesta bisects Dzongu into two halves, the northern “Upper Dzongu” and southern “Lower Dzongu”.

The Lepcha community deeply believes that their existence is substantiated in protecting and worshipping Khanchendzonga, further, if a person lives his life truly performing his duties towards nature and accomplishing noble deeds, person will be rewarded by an afterlife of eternal bliss at Mayal Lyang. They also believes that haven is somewhere hidden in the foothills of Khanchendzonga

The Lepchas, as in other communities have their own share of clan or caste and are nature worshipper and custodians since the time immemorial. According to Lepcha legends at on time there were many divine priests living in Mayal-Lyang i.e. present day Sikkim who were endowed with spiritual and occult powers. All priests were believed to be created through lakes, caves, mountains and rivers in the region and each of clan were to worship different place of creation, and creators. Each of these created followers were given different clans w\to workshop, their place of creation and their creators. The decedents of that clan who worships lakes, rivers and mountains are known as the “Rong-Kups” or the modern day Lepchas. There are several folklores, story books and movies that have documented the very unique cultural and ecological association of the communities in the valley.





Brief Description of the Hee- Gyathang Village:

Out of 30 villages within Dzongu, 22 Hee-Gyathang is a small Gram Panchayat Unit (GPU) situated 15 km away from north district headquarter i.e. Mangan, geographically located at 27° 28' 48.57" N and 88° 30' 57.96" E comprises of six wards namely; Mantyang Tingkyong, Sudur Bringbong, Tashi Choling Gumpa, Ravong Brengkatam, Sangdong and Gnon. The GPU has total 303 households mainly engaged in horticulture, agriculture and animal husbandry practices. Crops like rice, wheat, millet, buckwheat are majorly cultivated along with cash crops such as large cardamom (*Amomum subulatum*), mandarin orange (*Citrus reticulata*), ginger (*Zingiber officinale*) and broom grass (*Thysanolaena maxima*). The gram panchayat unit has 80 year old heritage Tashi Choling monastery and Tinkyong Lake as important cultural assets. The village falls in the buffer of Khanchgendzonga National Park (KNP), a world heritage site under mix category with subtropical mixed broadleaved forests comprises of dominant tree species such as *Macaranga*, *Schima*, *Eugenia*, *Castanopsis*, *Bamboos*, *Alnus* etc.

CULTURAL SIGNIFICANCE OF THE LAKE

Origin of Hee-Youngmingmoo Clan and Tungkyong Dho (Lake):

Tungkyong Dho (Lake) is believed to be one of the oldest natural dho (lake) directly related to the Hee-Youngmingmoo clan of Lepcha community in Dzongu in North of Sikkim. It spans over 0.0650 ha within the Mantayang Tingkyong ward under 22 Hee-Gyathang Gram Panchayat Unit of Dzongu, North Sikkim.





Photo: Annual Ritual Performance at Tungkyong Lake during Pang Lhabsol

Excerpts from the article by Namgyal Lepcha (MLAs, Dzongu) and Dr. Sonam Rinchen Youngmingmoo (Dept. of Science & Technology, Gangtok)

Each Lepcha clan of today has their own story to tell about their place of origin and their clans. The story of the creation of the “Hee-youngmingmoo” clans, found mainly in the lower Dzongu has a very unique and ecological relevance with the story in preservation and conservation of a sacred Tungkyong lake and sacred “Deeng-Gnu Leek” a mini fish it harbors.



Photo: *Danio* sps. sacred fish of Tungkyong Lake

“Once there lived a divine priest called “Kumzer Agyen”, thought to be originated from “Lung Ming Duo” who lived in a forest called “Purfok Dang” (a place above present Leek busy in upper Dzongu). One day this priest took a stroll carrying his bow and arrow, towards lower Dzongu. He reached a place “Tong-kyong” (just below Hee-Gyathang today) and had a rest on a big flat stone nearby. While resting to his surprise he saw a huge monkey watching him eagerly, who started retreating to the tree tops when “Kumzer Agyen” looked back at him. Seeing this

Kumzer Agyen rose to his feet and asked the retreating monkey, why he was running away, as he was not there to do any harm to him. At this the monkey replied that he was afraid that he would kill him with his bow and arrow. In the meantime “Kumzer Agyen” was aware of the real identity of the huge monkey, through his divine power. Even then he asked “Aren’t you the master of this place ‘Thing-Gogmu’?”

The monkey was surprised at his sudden revelation of his own identity. Then monkey replied to his utter shock “Oh! Yes, I am the master of this place Thing-Gogmu.” I live in a place called ‘Thungpum-Reel Partam’ (now place near Gyathang monastery). Their identities open to each other – Kumzer Agyan, a diving priest and Thing Gogmu a divine being in the guise of a monkey – Kumzer Agyan suggested doing some good thing that would be useful for the future generation of the human kind, as they were masters in their own fields, instead of wasting away their time uselessly. “Thing Gogmu” accepted the suggestion and they started digging a selected spot to create a lake came up and they started planning their next venture. But to their astonishment one day, a beautiful maiden emerged from that lake and to their utter amazement accused them of trying to disrupt the peaceful place and warned them of dire consequences if they continued with their disruptive activity. The maiden vanished after the stern warning.

Though stunned at the first, these two were more anxious to see the maiden again. They did not leave the place, but instead made the lake stronger and cleared the surrounding beautifying it more. They waited for days, but then the maiden did not show up. One fine day “Kumzer Agyen” told “Thing-Gogmu”

Oh! Master of this place Thing-Gogmu, come what may, I promise you that, this beautiful maiden that showed up from this lake shall be made your wife”.

“Thing-Gogmu” was thrilled and overjoyed at the prospect. They waited and waited, for weeks and months but the maiden did not show up again. Thing -Gogmu was frustrated and he was on the verge of losing his heart. At last “Thing-Gogmu” decided to go for divination (in order to see whether his dream of marrying the maiden will be fulfilled or not). So he took a big round stone and from “Rungnue Kyong (Tista) and told ““Kumzer Agyen” I will throw this

stone from “Kurnot Kung” (now a place between Lingdong and Ring Khola) and if it reaches “Tung-Pom Reel Partam”, you will be able to fulfill your promise and I shall realize my dream”. So saying he threw the stone in shot put fashion, which really reached the place “Tung-Pom Reel Partam”.

There still exists a stone which is believed to be the same stone and the place of where the stone rested; a small mound was formed and the place called “Gogmu” Kung till today. After some gap of staying away, the two again visited the lake, hoping to see the maiden and to their good luck they saw the maiden coming out in greeting. This time she inquired who they were and where they were from? “Kumzer Agyen” introduced them and asked who she was and she happens to appear from the lake.

“I am GNUE KYONGMU, the nymph of this lake”.

Thus their identities were opened. “Thing-Gogmu” was secretly excited and only in his dream but today she was right there in front of his in flesh and bone, and talking to them. His joy knew no bounds and was finding difficulty in trying to keep him in check.

“Kumzer Agyen” continued.

We two are here with a mission, which would benefit the future generation of mankind. But today, since I came to know that you two are from the same place, I suggest that you two; “Thing-Gogmu and Gnue Kyong Mu” unite yourself mentally, spiritually and physically and keep on with the good work of this area. I hope you two will not let this place to be defiled and carry the name and the burden of this place in your shoulders, for generations to come”.

With these words of advice and blessings, “Kumzer Agyen” returned to his place “Perfok Dang” in Leek.

After the departure of “Kumzer Agyen” , Gnue Kyong Mu having little choice , since she could-not disobey the words of the divine priests or leave Thing-Gogmu, left with him. But before she left the lake she took out a louse from her hairs and threw it into the lake, which turned immediately into “Deng Gnu Leek” (Mini fish). Then she prayed that just like the way fish multiplied itself and grew in numbers, may her offspring’s also increase, prosper and their descendents too. With this prayer she left with Thing-Gogmu to “Tung-Pom Reel Partam.”.

So as desired by “Kumzer Agyen” the two Thing-Gogmu and Gnue Kyong Mu, lived as husband and wife. She gave birth to a baby girl named “Nue Nung Du” who changed herself to

separate goddess. Her second child was a boy named “Turyon Turheemoo”. Her third child was a baby boy named “ Hee-youngmingmoo”. The two boys grew up and married. The children of these two boys carried their fathers name as their title and leading to the generation of “Turyon Turheemoo” and the “ Hee-youngmingmoo” . These two sub castes gradually multiplied and spread far and wide. These days, the two clans have a substantial amount of presence in Hee-Gyathang in lower Dzongu.

The prayer of “Gnue Kyong Mu” was aptly an amply answered, her wishes were fulfilled. The descendents of “Thing-Gogmu and Nue-kyongmu treats, till date, Tung-kyong Dho (Lake) is still a sacred lake. They worship and keep the surrounding of the lake clean. Not only these two clans but the other clans too treat this lake as sacred. The Lepchas sanctify this lake yearly through “MUN PUDIM” and through lama also.

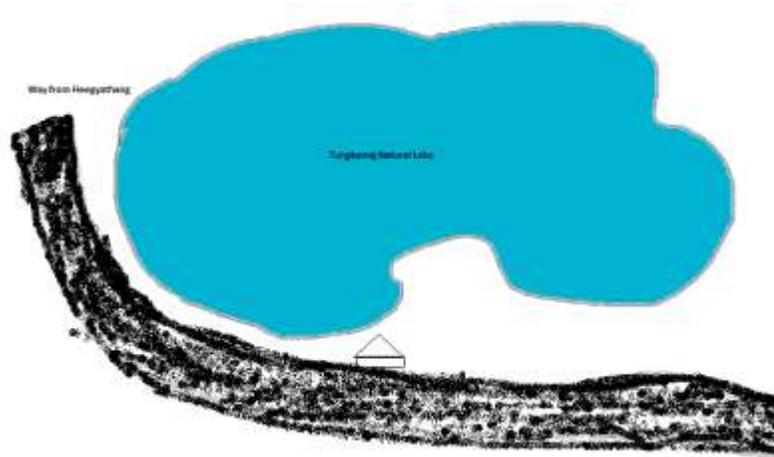
The fish “DengGnu Leek” still exists in the lake and the size of the fish never grow bigger than the little finger. The “Hee Youngmingmoo” and the “Turyon Turheemoo” never harm the little fishes. If they do so they are rewarded with severe sores and blisters on their heads.

The fisheries department might be having different name and views about the origin of the fish, however, for the Lepchas, especially among the two descendent clans. As long as “Hee Youngmingmoo” and “Turyon Turheemoo” exists under the sun, it will not perish. Many many “Hee Youngmingmoo” are today found to be migrated from the place of origin to south and west of Sikkim as well.

Now a days, when we pass by the Tung-kyong Lake, we are reminded of the divine priest “Kumzer Agyen” , Thing-Gogmu and the nymph of the lake “Gnue Kyong Mu” by the fishes in the lake. Thus, the lake Tung-kyong is a mark of identity of the Lepchas of yesterday, today and for the coming days.

OWNERSHIP /RIGHTS OF THE BHS SITE:

Shri. Chung Chung Lepcha, son of Lt. Chedup Lepcha of Mantayang Tingkyong ward under 22 Hee- Gyathang gram panchayat, Dzongu, North Sikkim have donated the BHS plot including natural lake with an area of 0.0650 ha to Hee-Gyathang, Biodiversity Management Committee with written agreement dated on 6th January 2020.



Area of BHS:

The area of Tungkyong natural lake has an area of 0.0650 Ha shown below on the recent survey map. The geographic Coordinates of the lake are as below:

1. East: N 27.48379° E 88.51193°
2. West: N 27.48386° E 88.51152°
3. North: N 27.43372° E 88.51182°
4. South: N 27.49383° E 88.51180°

Administrative control and land use:

After the deed agreement the BHS plot under the control of Hee- Gyathang BMC and division Mangan.

Current status of land ownership:

Currently, the BHS site i.e. Tungyong Lake is under the ownership of Hee Gyathang Biodiversity Management Committee.

Demographic profile of the area:

The population is entirely the Lepcha community in the Hee-Gyathang Gram Panchayat Unit which comprises of six wards namely; Mantyang Tingkyong, Sudur Bringbong, Tashi Choling Gumpa, Ravong Brengkatam, Sangdong and Gnon with 303 households in total mostly engaged in farming by occupation along with government service holders, contractors, tourism stakeholders and local business owners.



Ecological Profile of the area

Faunal Profile

1.	2.	3.	4.	5.	6.	7.	8.
Animal Type	Local Name	Scientific Name	Habitat	Description	Associated TK	Mode of Hunting, collecting (if any)	Other details
Mammal	Kalo Bhalu	<i>Ursus thibetanus</i>	Broad-leaved and Temperate Coniferous forest	Crescent shaped white mark on its glossy black chest	Bile has medicinal properties and used to cure ailments such as Asthama, Gastritis, etc	Trapping with <i>paso</i> , shooting	Bear menace is often observed in the GPU
Mammal	Bandar	<i>Macaca mulatta</i>	Near human habitation, sub-tropical evergreen forests	Reddish brown or grey in colour with pink face	Meat of this species is used to cure gastritis. Meat can also be used to prepare <i>Jhaar</i> which is used to cure bone related problems including gouts	Accidental death of animals in the process of chasing them away when they raid crops	Monkey menace is persistent problem in the GPU
Mammal	Damsi	<i>Hystrix brachyura</i>	Forest habitats, and in scrubby, open areas close to forest. upto 1800 m elevation	Body covered with quills which are sharp, rigid structures	Meat has a medicinal value. Quills used by traditional folk healers <i>Bongthing</i>	Not reported	It often encroaches agricultural area and damage crops
Mammal	Kala	<i>Paguma larvata</i>	Sub-tropical forest	Dark brown to black animal with greyish-buff under parts	Not reported	Trapping especially during cardamom harvest season	Destroys ripe cardamom fruit and, seedlings
Mammal	Raj Pankshi	<i>Petaurista</i> sp.	Moist evergreen broadleaf forest, temperate forest, coniferous forests	Dark red body with elastic skin, attached from wrist to ankle, used to glide	Considered sacred by the local community	Nocturnal and arboreal animal	Not reported
Mammal	Mirga	<i>Muntiacus muntjak</i>	Sub-tropical & temperate forests	Glossy brown coat with no under fur	Skin is considered as good for making stool during religious	Trapping, shooting with the support of domestic dogs	Fore limbs are longer than the hind limbs

1.	2.	3.	4.	5.	6.	7.	8.
Animal Type	Local Name	Scientific Name	Habitat	Description	Associated TK	Mode of Hunting, collecting (if any)	Other details
					chanting, performing offerings to God		
Mammal	Ghoral	<i>Naemorhedus goral</i>	Subtropical to Temperate forest	Has a gray or gray-brown coat with tan legs, lighter patches on its throat, and a single dark stripe along its spine	Not reported	Shooting	Males have short manes on their necks. Ghoral is crepuscular
Mammal	Lotharkey	<i>Dremomys lokriah</i>	Sub-tropical and temperate forests	It has bright orange throat, chest, and belly. Chunky body, short limbs, small ears and a pointed snout	Not reported	Sometimes hunted when it damages crops	Diurnal and arboreal species that also forages on the forest floor.
Reptile	Gurbey Sanp	<i>Ovophis monticola</i>	Sub-tropical to temperate forest	Reddish Brown pit-Viper snake. Crown covered by small scales rather than large shields, while the scales are usually smooth, feebly imbricate	Skeleton and moulted skins are used by traditional folk healers. Bones have medicinal value	Killed with the help of sticks	Venomous snake, Nocturnal, inactive during day time. Triangular head.
Mammal	Malsapra	<i>Martes favigula</i>	Tropical to alpine	It has elongated thorax with short fur with blackish brownish with reddish cheek swith white hair tips, flanks and belly are bright yellowish.	Not reported	It is an excellent poultry and honey raider.	Diurnal and arboreal species that also forages on the forest floor and small mammals.
Reptile	Kalo Gurbey Sanp		Tropical to alpine	It has elongated thorax with short fur with blackish brownish with reddish cheek swith white hair tips, flanks and belly are bright yellowish.	Not reported	It is an excellent poultry and honey raider.	Diurnal and arboreal species that also forages on the forest floor and small mammals.
Reptile	Cobra sanp/Naag	<i>Naja kaouthia</i>	Tropical to Sub-tropical forest	Snake with hood, diamond shaped	Considered as deity and	Killed with the help of sticks	Venomous snake,

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Animal Type	Local Name	Scientific Name	Habitat	Description	Associated TK	Mode of Hunting, collecting (if any)	Other details
				marking on head	offered puja by local communities especially during <i>Nag Panchami</i> . Skeleton, fangs and moulted skins are used by traditional folk healers. Bones have medicinal value		Crepuscular, inactive during day time.
Reptile	Sirsirey	<i>Dendrelaphis pictus</i>	Sub-tropical forest	Slender body, fast moving, rather gliding	Not reported	Killed with the help of sticks	Non-venomous snake
Reptile	Harreau	<i>Ptyas nigromarginata</i>	Temperate forest	Green coloured body, fast moving, very ferocious	Not reported	Killed with the help of sticks	Non-venomous snake
Mammal	Fyauro	<i>Vulpes aureus</i>	Sub tropical and temperate forest, they venture into human settlement during the night.	Brown in colour lives in group	Not reported	Not reported	Hunt poultry and raid eggs.
Mammal	Nigaley		Sub tropical and temperate forest and near human settlement	Black spots in brown background	Not reported	Not reported	Hunt poultry
Lizard	Nepali- Vethi (Gecko)	<i>Hemidactylus sp.</i>	Tree bark, Ceiling, behind the furniture, house wall and beneath the stone.	Pointed snout and slender body.	Not reported	Direct hitting.	
Lizard	Nepali-Bhale mungro	<i>Japalura variegata</i>	Tree, above and beneath the stone.	Pointed snout and slender body with spikes.	Not reported	Direct hitting.	
Mammal	Ooth	<i>Lutra sp. in Rongyong chu</i>	Tropical to temperate river and streams	The fur is more or less dark brown on the back, shading to grey on the belly and throat with W shaped upper border with	Not reported	Fish net trapping and	Hunt fish from the fish pond and fish trap, mostly nocturnal.

1.	2.	3.	4.	5.	6.	7.	8.
Animal Type	Local Name	Scientific Name	Habitat	Description	Associated TK	Mode of Hunting, collecting (if any)	Other details
				numerous whiskers.			
Mammal	Bandel	<i>Sus scrofa</i>	Open forest at high elevation.	Bulky, short and thin legs.	Not reported	Traps, gun and direct killing by weapons.	It raids the potato and maize farms
Mammal	Salak	<i>Manis sp.</i>	Low elevation forest		Scles used by healers as traditional medicine	Traps and direct killing	They make burrows in the forest areas
Mole	Chuchundra	<i>Suncus murinus</i>	Forest and agricultural field.	Long snout, elongated with round ears.	Not reported	Traps, fire and direct killing if sighted.	
Insect	Bhir Mauri	<i>Apis dorsata</i>	Open forest trees and boulders on hills	Small flying insect like wasp.	Not reported	Smoke	
Insect	Ghar mauri	<i>Apis cerena</i>	Open forest trees and agricultural field.	Small flying insect like wasp.	Not reported	Smoke	
Insect	Bachum	<i>Vespa sp.</i>	Open forest trees agricultural field.	Small flying insect like wasp.	Not reported	Fire	
Asian Hornet	Aringal	<i>Polistes sp.</i>	Open forest trees agricultural field.	Small flying insect like wasp.	Not reported	Fire	
Potter Wasp	Pahele	<i>Eumenes sp.</i>	Open forest trees agricultural field.	Small flying insect like wasp.	Not reported	Fire	
Golden paper Wasp	Sun barula	<i>Polistes sp.</i>	Open forest trees agricultural field.	Small flying insect like wasp.	Not reported	Fire	
Bumblebee	Bhamaura.	<i>Bombus haemorrhoidalis</i>	Open forest trees and agricultural field	Small flying insect but larger than bees.	Not reported	Fire	
Frog	Tic Tickey Paa (Nep) Deng Kutic (Lep)	<i>Amalops formosus</i>	Agricultural field, Chir khola and Paa khola	Short and slimy body.	Not reported	Night catching.	
Frog	Luk Pok Tuluk(Lep)/ Manpaa	<i>Paa leibigii</i>	Agricultural field, Rongyoung chu and local streams	Short and slimy body.	Not reported	Night catching.	
Frog	Peray pa/	<i>Paa sp</i>	Agricultural field, Rongyoung chu and local streams	Short and slimy body.	Not reported	Night catching.	
Toad	Kasray vyagutta.	<i>Duttaphyrnus himalayanus</i>	Near water source in open areas.	Short and slimy body..	Not reported	Hit by stone and mess	

1.	2.	3.	4.	5.	6.	7.	8.
Animal Type	Local Name	Scientific Name	Habitat	Description	Associated TK	Mode of Hunting, collecting (if any)	Other details
	Tuktuke (Lep)						
Black Bulbul	Jurali	<i>Hypsipetes leucocephalus</i>	Found near to roadside and farms	Long tail and plumage ranges from slate grey to shimmering black with reddish anal parts.	Not reported	Direct target killing and sometimes trap is made.	
Black Drongo	Chibe	<i>Dicrurus macrocercus</i>	Commonly seen on tall trees near farms and forest	Glossy black and with wide forked tail	Not reported	Direct target killing and sometimes trap is made.	It raids beans and maize during the harvesting season
Great Barbet	Nayuli (Nep) Kunew Fo	<i>Megalaima virens</i>	Open areas on large trees.	Blue head with yellow beak with greenish plumage	Not reported	Direct target killing and sometimes trap is made.	It damages the fruits of guava and papaya and other fruits
Grey treepie	Kokaley (Nep) Korebong	<i>Dendrocitta formosae</i>	Forest and also commonly seen in roadside.	Face and throat are black.	Not reported	Direct target killing and sometimes trap is made.	
Chesnut Crowned Laughing Thrush	Bhyakura (Nep) Sumok Fo (Lep)	<i>Trochalopteron erythrocephalum</i>	Open habitat but mostly near to forest fringes	White plumage with body ranges to black.	Not reported	Direct target killing and sometimes trap is made.	
Common Kestrel	Besara	<i>Falco tinnuculus</i>	Open habitat but mostly on forest.	Plumage is light chestnut-brown with narrow blakish stripes.	Not reported	Direct target killing and sometimes trap is made.	
Blue Whistling Thrust	Kalchoura (Nep) Chapmong Fo (Lep)	<i>Myophonus caeruleus</i>	Commonly seen in dense forest and trees and human habitataion	Brighter blue on shoulder.	Not reported	Direct target killing and sometimes trap is made.	
Serpent Eagle	Cheel	<i>Spilornis cheela</i>	Nearby village forest, rests on big trees such as bombax trees	Wings are long with brownish plumage.	Not reported	Direct target killing and sometimes trap is made.	
Long – tailed Minivet	Rani chari	<i>Pericrocotus ethologus</i>	Forest and also commonly seen in roadside trees and shrub.	Black head with red and black body.	Not reported	Direct target killing and sometimes trap is made.	
Oriental Magpie	Dhobini Chari	<i>Copsychus saularis</i>	Open woodland and agricultural	Distinctive white and black birds	Not reported	Direct target killing and	

1.	2.	3.	4.	5.	6.	7.	8.
Animal Type	Local Name	Scientific Name	Habitat	Description	Associated TK	Mode of Hunting, collecting (if any)	Other details
Robin			field, often close to human habitations with water source	with sharp shaky tail		sometimes trap is made.	
Oriental Turtle Dove	Taamey Dhukur	<i>Streptopelia orientalis</i>	Open woodland and agricultural field, often close to human habitations	Black and white stripes patch on neck.	Not reported	Direct target killing and sometimes trap is made.	
White-crested Laughing Thrush	Kolkoley (Nep) Khurhyo (Lep)	<i>Garrulax leucolophus</i>	Open forest and agricultural field.	Head white with a crest, throat and chest are darker olive brown.	Not reported	Direct target killing and sometimes trap is made.	
Ants	Ratho, kalo and sikari, Byangpate	<i>Solenopsis sp.</i>	Tree bark beneath the stone.	Small size with varying colour.	Not reported	Ashes and fire	
Beetle	Gobray kiro	<i>Scarabaeus sp.</i>	Cow dung.	Hard black exoskeleton.	Not reported	Use of Ashes	
Butterfly	Mormon, cabbage white, swallowtail etc.	<i>Papilio polytes</i>	In fruiting and flowering plants along the roadside, human habitation and forest areas	Wings are black with some white and red spots	Not reported	Direct killing	
Dragon fly	Pani kira	<i>Orthetrum glaucaum</i>	Paddy field and water source	Thin body of different colour with delicate wings	Not reported	Direct killing, kids play with a thread tied at the end part of its body	
Scorpion	Bichee	<i>Euscorpions asthenurus</i>	Under the stone and tree barks	Black body with poisonous pouch at the tip of tail.	Not reported	Direct target killing, many are poisonous	





Flora profile

1.	2.	3.	6.	7.	8.	9.
Flora Type	Local Name	Scientific Name	Planted for	Uses (usage)	Part used	Associated TK
Okhar	<i>Juglans regia</i>	Temperate, Sub-tropical altitudes	Wild/ Agroforestry	Fruit is consumed, sold in the market and timber is use	Fruit is crucial during the bhai tika	Used for timber and fruits
Kattus	<i>Castanopsis tribuloides</i>	Sub-tropical altitudes	Wild/Agroforestry	Fruit is consumed, sold in the market, highly preferred firewood	Water retaining capacity in the forest areas	Used as timber or for fuel-wood
Kainjal		Sub tropical and temperate altitudes	None	None	None	Entire GPU
Siris		Sub tropical and temperate altitudes	Leaves are decomposed for high quality manure	None	None	Entire GPU
Phirphirey		Sub tropical and temperate altitudes	none	None	None	Entire GPU
Lampatey		Sub tropical and temperate altitudes	None	None	None	Entire GPU
Dhuppi	<i>Cryptomeria japonica</i>	Low to high altitudes	firewood	None	None	Entire GPU
Chilaaney	<i>Schimawallich</i>	Sub-tropical temperate	Wild/Agroforestry	Fruit and bark is used as medicine	Highly preferred fuel-wood species	Bole is used to make traditional plough, plough handle and handle for other tools
Malato	<i>Macaranga</i> spp.	Temperate, Sub-tropical altitudes	Wild/Agroforestry	Leaves as cattle fodder	Leaves are used to make Tapara, Bohota, duna	Used as fuelwood
Uttis	<i>Alnus nepalensis</i>	Temperate, Sub-tropical altitudes	Wild/Agroforestry	Branches/bark for firewood	Excellent associate of large cardamom, proved good shade conditions, supplies nitrogen through nitrogen fixation	Enhances soil fertility, grown widely in landslide areas, fast growing agroforestry species.

Threats and Pressure on Biodiversity Heritage Site:

1. Introduction of other ornamental fish in the lake like golden fish.
2. Developmental activities in the nearby areas in the Hee - Gyathang GPU
3. Road along the lake
4. Natural disaster (Landsides are very frequent in Dzongu) etc.