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## EDITORIAL

In the year 2014, we witnessed an event that bring hope in the hearts of those who are fighting for the cause of saving rivers. One of the largest Dam in human history **Glines Canyon Dam** on the Elwha River was demolished setting free the river water from human control. The idea of dismantling existing dams appear to raise many questions in our mind especially amongst developing countries like India where Government is pushing hard to construct large number of hydro electric projects (HEPs) on Indian rivers for harnessing electricity. But the question is why USA is proactively dismantling dams?

To know the answer one need to look back into the history of Elwha river. Before the construction of Dam the river was the rich-

est in Salmon in Olympic peninsula region and for generations lower Elwha Klallam tribe was dependent on it. However after the construction of dams the tribal people suffered while the region benefitted from the electricity



Oct 04 11 08:03:35  
Glines Canyon Dam

generated. After years of struggle the tribal people won the case and it was decided to dismantle the dam. However it was at very slow pace.

In 2016, reporters of National Geographic reported significant improvement in river flow and redevelopment of river

banks and gravel bars along the river mouth after demolition of dam. It also added 70 acres of new beach and riverside estuary habitat for crabs, clams and other species. The salmon have already started growing in Olympic Peninsula and this will be a one significant step in saving river.

In this newsletter issue we are focusing on impact of hydro electric projects on environment from Indian perspective. The articles are related with dam building activities and their impacts on upstream fauna and how people perceived these projects. I hope readers will get some insight of development in mountains.

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## LARGE HYDRO ELECTRIC PROJECT PROPOSED IN ARUNACHAL PRADESH, INDIA

The Centre proposed to make a multipurpose river valley project on Siang river (a major tributary of Brahmaputra) in Arunachal Pradesh. It is the biggest dam ever proposed by Government in Upper Siang district with 300m height with power generation capacity of around 10,000 MW.

The State Government press note

stated:

The state will benefit through its 12% free power share that comes to about Rs 2400 crores per annum as revenue. Another Rs 200 crores per annum will be added through its 1% free power share, which will be used exclusively for local area development. Besides Rs 4500 crores proposed for rehabilitation and resettlement package, the project will attract an investment of Rs 80000 crores with huge employment generation and creation of several economic opportunities.

Despite this indigenous communities are against such big dams in their region as they fear of losing their farmland. The current proposal will draw criticism by Environmentalist who time to time raises concerns regarding such project. Earlier NGT has halted similar projects therefore Govt should be cautious for implementing such projects. (Source: Scroll.in, 18 Oct, 2017)

## DAM BUILDING ACTIVITIES AND THEIR IMPACTS ON HIMALAYAN BIRDS

In a study conducted in upper Beas valley, Himachal Pradesh, by Virat a research scholar, Department of Environmental Studies, Delhi University investigated the impacts of Parvati Hydro electric Project development on Himalayan birds. In the study Sainj valley is extensively surveyed which is a part of upper Beas valley comes under sensitive ecosystem zone with mixed conifers and broadleaf forests. These forests provide suitable habitats to Schedule-I to Schedule-IV birds and animals e.g. Snow Leopard, Blue sheep, Western Tragopan, Cheer Pheasant, Himalayan Monal, Kaleej Pheasant, Koklass Pheasant and Himalayan Griffon etc. The region also has fast flowing streams and river which are being exploited to generate electricity therefore number of Hydro electric Projects like Pandoh Dam, PHEP and Sainj Hydro electric Project are constructed.



Parvati Hydro Electric Project Stage-II

Dam construction causes regional scale land use change due to road construction, tunnel boring, impoundment of river, dumping of earth material along the slopes of mountain, establishment of labour colonies and influx of large number of people. During the study tree nesting bird abundance declined with increase in HEPs disturbance. The avian species richness and abundance also reported to decrease in areas where HEPs construction was underway. The study showed shrub cover is also critical for maintaining avian diversity in Sainj Valley. Some bird species are more sensitive to HEP development as their abundances declined with increase in HEPs disturbance that include, Western tragopan, Himalayan woodpecker, Bar tailed treecreeper, Ultramarine flycatcher, Cheer pheasant, Oriental turtle dove, Great Barbet, Dark throated thrush and Grey headed canary flycatcher.



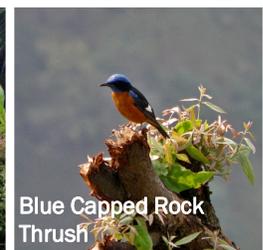
Asian Paradise Flycatcher



Common Rose Finch



Chukar Partridge



Blue Capped Rock Thrush

Based on land use/land cover satellite maps showed land use change in the valley which likely to affect bird diversity of Sainj valley. Our study also showed bird community changed within degraded habitats due to HEPs. Therefore with the commencement of PHEP Himalayan birds have been affected.

The researcher said, "India's primary forest is fast disappearing these forest are critical for our ecosystem health, Himalayas constitutes important and major forest cover of India along with many endemic plant and animal species and therefore any development project proposed in eco sensitive zone should be avoided and only be allowed after comprehensive and long term EIA studies".

Source: Jolli, V., 2017. Hydro Power Development and Its Impacts on the Habitats and Diversity of Montane Birds of Western Himalayas. *Vestnik Zoologii*, 51(4), pp.311-324. <https://doi.org/10.1515/vzoo-2017-0036>

## IN SEARCH OF WESTERN TRAGOPAN: STATE BIRD OF HIMACHAL PRADESH

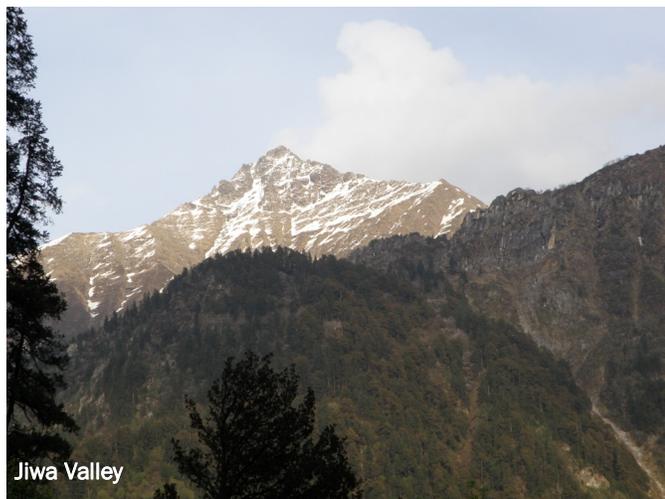
Western Tragopan *Tragopan melanocephalus* is a medium sized (71 cm) pheasant found within the altitudinal range of 2400-3600 m during Summer and >1350 m in Winter of Western Himalayas (Kazmierczak 2009). It inhabits understory vegetation of mixed coniferous forest and steep slopes of alpine shrub land. This pheasant make loud calls in early morning during spring season. It's a secretive bird and therefore difficult to sight but can be identified its distinct call. It displayed sexual dimorphism which means male and female look different. As in case of others birds tragopan males are much brighter and colourful to attract female and display its fitness.

It's an endemic and rare bird of Western Himalayas. It's a Schedule-I species of Indian Wildlife (Protection) Act and currently classified as Vulnerable under IUCN Redlist category. Its population is reported from Jammu and Kashmir, Himachal Pradesh and Uttarakhand. Its estimated population in the wild ranges from 2500-3500 individuals (Birdlife International 2016).

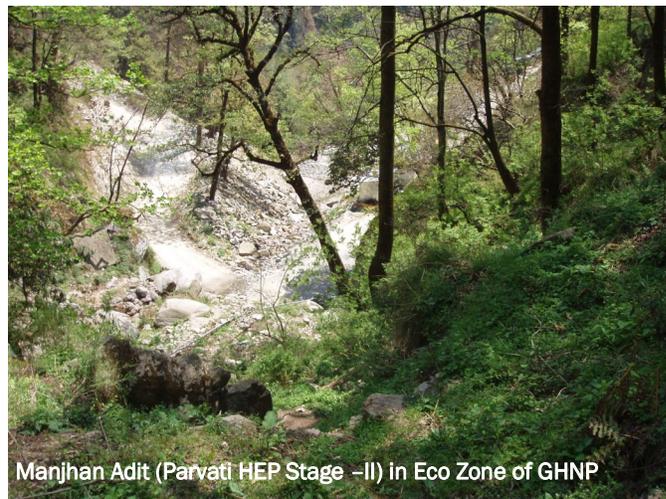


Deforestation, collection of medicinal plants and edible mushroom, hunting and poaching, forest fire and dam building activities in their habitats are the potential threat for survival of this. Their population is scattered and isolated. Some of its population is confined in Himachal Pradesh's Chamba and Kullu protected areas.. However in both these areas Hydro power project is under operation which likely to affect its population. In a study Jolli and Pandit (2011)

reported their population responded negatively to HEP development in Jiwa Valley (Great Himalayan National Park Conservation Area). Considering its sensitive bird species such projects have further deteriorated its habitats. To mitigate such effects **Himachal Pradesh Forest Department** in collaboration with **World Pheasant Association** carried out breeding program in **Sarahan Pheasantry** where captive breeding program is bring run. Though it has raised hope for survival of tragopan however we donot know if such bird will able to occupy their native niche and defend themselves from predators successfully in the wild. Moreover there are chances of dilution of genetic diversity if individuals of related individuals are bred. Therefore efforts need to be made for improving the forest cover and quality of forest and bring back in-situ conservation in main stream for saving tragopan.



Jiwa Valley



Manjhan Adit (Parvati HEP Stage -II) in Eco Zone of GHNP

## SURVEY OF IMPACT OF HYDRO POWER PROJECTS ON THE LIFE OF HIMALAYAN PEOPLE

Sainj valley also known as God valley is a gorgeous valley with many picturesque sites. It is situated in Kullu District of Himachal Pradesh. One can access it via NH 44 and is approximately 485 Km from New Delhi. The valley has rugged and steep slopes alongwith fast flowing rivers like Sainj Khad and Jiwa Nal which make it suitable site for hydro power generation. The site was identified in 1990's and dam building activity began in the region in 2001. The aim of such project is to generate electricity, provide employment opportunity to locals which ultimately ushered economic development of valley. Around 2/3<sup>rd</sup> of its area is under protected area network (Great Himalayan National Conservation Area and Sainj Wildlife Sanctuary) and many native people are dependent on forest natural resources for their livelihood. After the commencement of HPPs it is expected to bring significant changes in native rural people. Therefore, it's important to know how native people perceived these projects. Our research team conducted a survey based questionnaire research in Sainj Valley, Kullu district of Himachal Pradesh. The survey was performed in June-July 2015 i.e. in Summer season to know the native people opinion on hydro power projects (HPPs). The questions were specifically designed keeping in view the people livelihood and basic needs. Our team was led by Dabe Ram and Chuni Lal and were assisted by students previously associated with us. Our team surveyed different areas of Sainj Valley and surveyed 48 individuals.



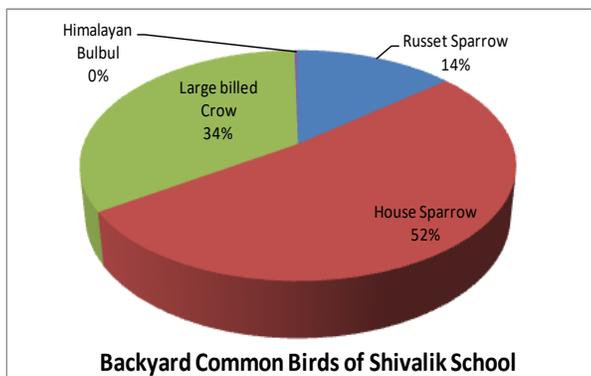
The survey revealed that native rural people perceived HPPs as positive and believe it had significantly brought positive change in their life and were therefore in favour of HPPs. However, large section of native people had not been benefited of HPPs. The decline in agriculture production, change in cropping pattern and poor access of water were witnessed by native people which showed other side of the coin. The dependence of native people on forest resources has not declined much and still number of local individuals depends on forest resources to supplement their income. Though, in current scenario people has benefited from such projects, however it is not known if it will be sustained for long time due to current unsustainable agriculture practices and limited employment opportunities. Moreover, Government should provide adequate compensation to the affected individuals by either providing a suitable land for agriculture or employment under various rural sector schemes.

Source: Jolli, V. (2017). Hydro power projects-boon or bane for the rural communities of Western Himalayas. *Present Environment and Sustainable Development*, 11(1), 55-64. <https://doi.org/10.1515/pesd-2017-0005>

## CITIZEN SCIENCE: YOUTH AND ENVIRONMENT

Himachal Pradesh is known for its rich diversity of birds. The varied topography, landscapes and optimum forest cover and proximity to Delhi, Punjab and Haryana States has promoted tourism related activity in towns of Himachal Pradesh. Apart from this Himachal is also known as Dev Bhoomi which means it's a land of Gods many Hindu's, Sikh deity places have been worshiped since time immemorial. As a result lakhs of pilgrimage visit HP during summer. These towns has emerged as major economic centre for State. These towns are rich in bird diversity due to proximity to forest and farmland. However there is no continuous and long term monitoring in these towns there we establish monitoring sites in Kullu, Mandi, Sainj, Dharamshala, Palampur, Kangra, Dalhousie, Chamba and Bharmour. We have been monitoring towns along Beas River since 2015, however during June 2017 we have added Dalhousie, Chamba and Bharmour sites in our monitoring program. In order to engage students, an environmental awareness lecture was organized in Bharmour Tehsil of Chamba to identify common birds of their backyard. We selected Shivalik Public School, Bharmour (T), a school situated in the lap of nature and located close to India's historical and religious temple 84 Mandir. 25 students of the school attended the lecture. Followed by field exercise They were encouraged to count birds of their school campus. Following students participated and counted the birds.

- 1) Abhishek
- 2) Kartik Thakur
- 3) Pallavi Sharma
- 4) Satakshi Thakur
- 5) Abhinandan Pathania
- 6) Salochna
- 7) Nikhil
- 8) Kartik Thakur
- 9) Vikrant sharma
- 10) Anchal
- 11) Pallavi
- 12) Vinod
- 13) Saksham
- 14) Kartik
- 15) Tanish Chouhan
- 16) Aditi
- 17) Tanuja
- 18) Ankush
- 19) Seema
- 20) Abhishek
- 21) Riya
- 22) Rohit Thakur
- 23) Abi Chauhan
- 24) Sahil Sharma
- 25) Kamal Kishor



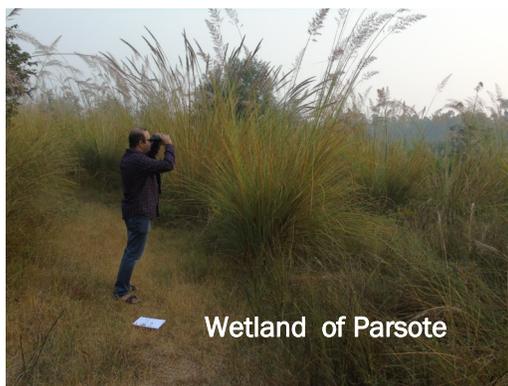
The students survey showed that House sparrow and Large billed crow were the predominant bird species.

## Preliminary Field Survey of Chos of Hoshiarpur: A Potential Wetland Site of Punjab

Hoshiarpur is situated in north east part of Punjab State of India and falls under Beas-Satluj Doab. It shares boundary with Kangra and Una district of Himachal Pradesh and thus occupy position at the foothills of Shivaliks range of Lesser Himalayas. Many small rivers discharge water through numerous small river channels which shaped the landforms of Hoshiarpur. These river channels are prominent feature of this district and are popularly known as Chos. These Chos are seasonal and remain flooded during monsoon while dry during summer and winter seasons.

Parsote a small village around 5 km from Mahalpur and 15 km from Hoshiarpur city of Punjab has **Chos** which extended upto 2-3 km in the region. The chos was surveyed during early November i.e. pre winter season. A 2 km trail was covered with local villager named Gopi, who is well acquainted with the area. The site had mangoes, neem and eucalyptus trees at the periphery of the wetland and these wetland are surrounded by agricultural fields. The Chos has predominantly phragmites and typha plant species. During the preliminary survey we observed silverbills, avadavats, munias, whitethroat, white throated kingfisher, black winged stilts, Indian pond heron. Apart from this wild boars were also spotted.

The adjoining agricultural field had Greater coucal and Red napped ibis flocks along with cattle egrets. The presence of these wetlands birds contribute in biological diversity of this region. These birds make wetland ecosystem function by cycling of energy and nutrients. These wetlands also helps in recharging ground water, prevent flood and drought in the region. Apart from providing fish and honey it also help in purify water and ensure clean drinking water in the region. the locals. During the interaction with local villagers told us that now water table has gone down.



Wetland of Parsote



Black winged stilt

We reported sand mining in the region from these wetlands. But we did not know if they had the permission to collect sand from wetlands. Moreover now river water from mountains is regulated through check dams which has significantly reduced the chos areas. This may be the reason for decrease in ground water table of the region.

The region has experienced short term economic gain through reclamation of wasteland/wetland which add up in cultivated land and increased farmers income. However it comes with a cost i.e. loss of water purification of river water, ground water recharging, food, fodder and fuel through this important ecosystem.

**Dr. Virat Jolli**  
BEST, New Delhi.

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## ACTIVITES



**Summer Bird Count** Program conducted in Towns of Himachal Pradesh in June and July 2017. Dr. Virat, Mr Dabe Ram and Mr. Chuni Lal collected the field data in Kullu, Mandi, Chamba, Shimla, Dalhousie, Dharamshala, Kangra and Palampur.



**Winter Bird Count**, Dec 2017 was hosted by **BEST**. Our Field assistants Mr. Dabe Ram and Chuni Lal coordinated the activity and engaged local school students in bird counting. Students count number of Himalayan bird species under their supervision.

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Signature



**Panchakki: A Vanishing Water Mill**

Panchakki or water mill uses flowing water to run the milling process. It uses hydropower to grind the grains and thus not pollute the environment. These mills can be seen in hilly states of India. In the past they were quite popular. However, in the last decade their number start decreasing and now one can find them at few places. During my filed visit to Kullu, I along with my field staff got the opportunity to visit Hurla Valley where we spotted one such mill. We saw a small hut near a fast flowing stream. When we inquire, local people told us that it's a Ghraat or Panchakki. On reaching there we saw an old man was working on this machine and grinding grains. We asked him some questions with lot of curiosity but he was reluctant to reply. I believe this machines are now loosing popularity as people now purchasing flour directly from market secondly hydro power projects has occupied their position. Soon these mills can only be seen in books as they are now vanishing from Himalayas.

**Dr. Virat  
BEST**

