The rural communities who are dependent on these wild edibles forage for these close to their villages in forests which may be private or state owned. The most commonly used wild edibles that have an urban demand are Sisnu (Stinging nettles), *Urtica dioica*, Tama (Bamboo shoots) (*Bambusa vulgaris* and *Phyllostachys edulis*), Ningro, Young Fern fronds (*Diplazium esculentum*), Nakima (*Tupistra nutans*), Chingfing, Hogweed (*Heracleum nepalense*), Bokey timbur, Schezwan pepper (*Zanthoxylum alatum*), Thotney (*Aconogonum molle*), wild mushrooms among many others.

There is potential of cultivating wild edibles that have high demand in the urban markets so that their populations in the wild are not impacted with the increase in demand. Further empirical data is required to assess the role these bioresources play in helping people tide over difficult times brought about by events like pandemics, natural disasters and others.

We are in the midst of the monsoon season. It is wet and foggy everywhere, most of the time and difficult to move around. With these wet and humid conditions there is a bounty of wild edibles. Roots, tubers, rhizomes, leaves, shoots, fruits, stems, tendrils of a variety of wild and non-cultivated edibles plants flood our markets. These are cooked as part of our daily food, pickled for preservation, dried/smoked for off-season use or used for medicinal and cultural purposes.

Mountains are hotspots of bio-resources and cultural diversity as well as important sites of traditional knowledge. Mountains provide various ecosystem services to communities for their wellbeing. Among these are the diversity of wild edible plants found in our forests, agroforestry systems and even in the fields of rural communities.

Wild edibles are greatly valued throughout the hills and mountains and serve as an important source of food and are an integral part of our diets. Edible wild plants also supplement the diet of rural communities where access to cultivated seasonal vegetables may not be available. Some of these also bring income to rural households as they are in high demand seasonally in urban areas. Most of the rural communities who are dependent on these wild edibles forage for these close to their villages in forests which may be private or state owned.

The most commonly used wild edibles that have an urban demand are Sisnu (Stinging nettles), *Urtica dioica*, Tama (Bamboo shoots) (*Bambusa vulgaris* and *Phyllostachys edulis*), Ningro, Young Fern fronds (*Diplazium esculentum*), Nakima (*Tupistra nutans*), Chingfing, Hogweed (*Heracleum nepalense*), Bokey timbur, Schezwan pepper (*Zanthoxylum alatum*), Thotney (*Aconogonum molle*), wild mushrooms among many others.

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One Health initiative in West Sikkim

As a part of the National Mission on Biodiversity and Human Well-being, Government of India, with a Sub-Programme on One Health and Zoonoses in India, the aspirational district of West Sikkim was identified for surveys pertaining to One Health. Sikkim, an agrarian state with rich biodiversity, increasing human population, touristically important, high in infrastructure development and transboundary in location provides the right ingredients to make it vulnerable to zoonotic diseases.

Our objectives of the work included (1)prioritization of zoonotic disease in West Sikkim, (2)identification of potential sentinel surveillance sites and (3)inter-sectoral collaboration of partners to implement One Health framework. We also wanted to understand the knowledge gaps in wildlife host, vector, and pathogen in West Sikkim for disease modelling. Several rounds of consultations, key informant interviews and a meeting to foster coordination between relevant institutions to work synergistically under the One Health Framework was conducted. Extensive review of literature, was also a part of this work.

Prioritization of diseases in the district revealed that Dengue and Scrub typhus were diseases of concern with their currently rising incidences in Sikkim. The six mammal groups - Rodents, Bats, Ungulates, Primates, Carnivores and the Soricomorphs (shrews and moles) that are of major concern for zoonoses had updated information from the state with rodents and bats having the highest number of species. However, there were research gaps on disease epidemiology, vector and pathogen ecology from the region.

In the near future we will be organising workshops/meetings with the relevant line departments of the government, academia,
research institutes, private enterprises, non-government organisations, panchayats, Biodiversity management committees, etc, to share information as well as to validate the prioritized disease list, finalize the sentinel surveillance sites listed and establish effective collaboration to work in synergy in future.

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Events

International Biodiversity Day

On 22nd of May 2021 to observe the International Day for Biological Diversity 2021, we hosted an online campaign to document Homestead gardens locally known as Kothebari. As part of this year’s theme “We’re part of the Solution #ForNature” ATREE worked with community members in 4 districts of Sikkim, Darjeeling and Kalimpong districts of West Bengal to document the diversity of food crops in homestead gardens. Although most of them are small in size, they are not only a repository of nutritious food crops but also serve as habitats for birds, butterflies and other flora and fauna. For many rural communities during events like the pandemic when supply chains are disrupted and market access is not possible these spaces serve as sources of food. 249 respondents from across the six districts participated in the event and 96 different food crops were recorded.

World Environment Day

A similar online campaign was conducted to celebrate the World Environment Day 2021. “Ecosystem Restoration” was the theme this year, emphasizing on resetting our relation with nature and calls on this generation to make peace with nature as #GenerationRestoration. To observe this day we collaborated with individuals and enthusiasts, across Darjeeling-Sikkim Himalaya in a drive to ‘plant at least one native tree species’ within their surroundings and to contribute to restoring degraded ecosystems. The plantation drive was conducted for two days from the 3rd-5th of June 2021 where 411 individuals participated and 1,040 saplings of 74 multiple use species of trees were planted in all six districts of the Sikkim-Darjeeling Himalaya.

Training on Brick making for Improved Cook Stoves

Sittong (300 m to 1,700 m) is a large village located in the Kurseong Sub Division of Darjeeling district, West Bengal. The area is mainly inhabited by the Lepcha indigenous group. Fuelwood is one of the main sources of energy largely for cooking, preparing livestock feed and space heating. Fuelwood is mostly extracted from the government owned forest of the Kurseong Territorial Division. Owing to the high demand for fuelwood, such extraction may put pressure on forests and this could be a potential driver of deforestation and forest degradation.

Under the NOREC (Norway) supported project – “Strengthening resilience and reducing vulnerabilities of rural communities of Africa and Asia” we are promoting Improved Cook Stoves (ICS) for reducing the use of fuelwood. Although most houses also have gas cylinders for cooking it is
considered expensive and refilling is a problem in these remote areas. Fuelwood on the other hand is free. ICS is a technically modified version of traditional cooking stove which is efficient both in fuel wood consumption and smoke emission. Further, ICS is made with locally available materials like mud bricks, cow dung, saw dust, salt, sugar, iron rod etc and is low cost. A two day training of trainers on brick making was conducted (26th - 27th April 2021) at Sittong 2 Gram Panchayat Unit (GPU) lower Toryok with the objectives to develop capacity of local youth and women as technical resource person on construction of ICS units, and to scale up ICS models, sale and distribution. 15 participants, mainly women from SHGs, local youth and GPU representatives took part in this training. These participants were trained to become resource persons and we hope to organise them into a micro enterprise for ICS promotion in this region.

Sanjeeb Pradhan & Prakash Tamang (sanjeeb.pradhan@atree.org & prakashtamangrampuria@gmail.com)

Promoting sustainable agriculture practices in a remote village in Sikkim

A five-day training was organised in coordination with the local Panchayat members and Self Help Groups. 23 farmers participated in the training. The training included interactive and hands-on sessions. Some of the topics included maximising land use, maintaining crop diversity, soil and water management, nutrient requirements and management, identification and management of common insect pests and diseases in crops. The resource persons also demonstrated preparation and application of botanical pesticides and insecticides from local natural resources, preparation of Indigenous Microorganisms (IMOs), vermi-compost manures using locally available materials.

Vikram Pradhan & Tshering D Bhutia (vikram.pradhan@atree.org & tshering.bhutia@atree.org)

Forests enroute to Manzing, Dzongu - Vikram Pradhan

Manzing village in Dzongu valley, North Sikkim is perhaps one of the remotest villages in the state. There is no motorable road to the village and the only way to reach the village is through a narrow steep 5 Km footpath through dense forest, agroforestry and sheer drop slopes. This settlement of around 40 Lepcha families depend on agriculture for their livelihoods. Few products are sold by carrying them to the local market in Mangan. The communities reached out to us for hands-on training on agriculture practices that are sustainable, environment friendly and climate smart. Traditional practices are linked closely to nature but they wanted to be made aware of all the modern technology and understand the concept of sustainable agriculture practices in the mountains with small and marginal land holding.

Participants preparing materials for vermi-composting pit - Vikram Pradhan

Preparing bricks for the ICS - Sanjeeb Pradhan
Known Unknowns: Limthure Yimchunger

Mr. Limthure Yimchunger is a young conservationist from Fakim Village (near Indo-Myanmar border) under Pungro Sub-division, Kiphire District of Nagaland. He was instrumental in setting up the first conservation organisation in his village - the Bhutan Glory Eco-club where he organised numerous sensitisation and awareness campaigns especially to curb hunting of wildlife in the Fakim area. The club he led was also involved in documenting the biodiversity found around the Fakim area as well as the Fakim Wildlife Sanctuary. Along with his friend Tsuseki, Limthure was awarded the Salim Ali Community Award for Nature Conservation by Bombay Natural History Society in 2019. He was an intern with Green Hub, Tezpur for a year and is a trained videographer and photographer. More recently he joined the Kiphire Forest Division, Government of Nagaland and this has provided him with opportunities to do what he is passionate about. “I am a salaried government employee now, but my passion for conserving the flora and fauna of my state is the same and I am ready to go the extra mile for conservation”.

Grants


Publications


ATREE’s mission is to promote socially just environmental conservation and sustainable development by generating rigorous interdisciplinary knowledge that engages actively with academia, policy makers, practitioners, activists, students and wider public audiences. ATREE’s Northeast / Eastern Himalayas Programme has a direct presence in the Darjeeling and Sikkim Himalaya with a range of local partners in the other states of North East India.

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