ATREE
Ashoka Trust for Research in Ecology and the Environment

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Eastern Himalayas

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The old man and the bees

"I would get irritated by the buzzing of bees visiting the orange orchard during flowering season. It was unbearable!" recalls Pratap *baje* (grandfather), sipping his tea on a cold winter morning. "So many bees…so many different kinds! This whole valley would smell so good with the aroma of orange flowers. It was as if someone had sprayed some perfume!"

The old farmer in his 80s was my host in the village of Zoom, Sikkim. Memories seemed to flash across his wrinkled face as he spoke. "I had three hives and they would be full of honey this season. One was attacked by a *malsapro* (yellow-throated marten)." He then pointed to an ageing orange tree. "In 1974 (confirms the year with his wife) this very tree yielded 5218 fruits. We sat and counted each one of them. Now even a mature tree does not yield more than 1500. If there were bees like earlier things would have been better. Bees help in mixing plants (he probably meant cross pollination) and make them hardy."

Orange is a major cash crop in Sikkim.

I asked him about bees in the wild and he recalled the days when he would go honey hunting with friends in the dense forest patches nearby. "If you go now you will not even find a dead bee. A bottle of honey costs five hundred rupees today. Everything is gone," he says in a resigned manner. He thinks the use of pesticides killed both harmful and useful insects and that there is no food for bees in the wild because the forests have been cleared. "What should we do *nani* (child)?" he asks, perhaps thinking I am an expert on the subject.

My doctoral study examines the role of forest fragments in provisioning pollination services to Sikkim mandarin orange by providing habitat and food resource to bees. My study is one of the few from the region that takes an interdisciplinary approach to understanding the myriad issues surrounding forest fragments and ecosystem services. With not many published record of bees of Sikkim, conversations like the one with Pratap *baje* will serve as oral histories of past pollinator diversity, and hopefully I will have some answers to his question by the end of my PhD.

- Urbashi Pradhan

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Dyes from invasive weeds

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ATREE has initiated a new approach to manage the spread of the invasive *Eupatorium* in Sikkim by promoting the use of the plant for dye making. Two villages in South Sikkim—Lingee and Kaw—have been chosen for the pilot project.

The first round of training on natural dye extraction for communities has been completed. Three persons from these villages were also sent to Gandhigram Rural Institute, Tamil Nadu where they were given hands-on training on dye extraction processes. Since then, two demonstration programmes have been conducted at the project site by the trainees. The aim was to train other interested youth and also try dye extraction with weeds like *Ageratum conyzoides*.

The project is a response to growing concerns over the spread of invasive species, especially *Eupatorium* spp, which is adversely affecting cardamom based agro-forestry system in Sikkim. The objectives of the project are to train local communities in extraction of natural dyes from *Eupatorium* as an alternative to synthetic dyes in the manufacture of local crafts, fabrics, toys and the other artefacts, to design and develop newer products based on the dye, and to develop rural and urban market strategies and linkages for natural dyes.

In recent years there has been a greater focus on the use of natural dyes due to ecological and environmental problems related to the use of synthetic dyes. Many synthetic dyes have been found to be potentially carcinogenic. Rural communities can benefit from this as it will improve and diversify their livelihoods and also lead to management of the invasive in the landscape.

Alien invasive plants are a major threat to biological diversity, capable of causing extinction of native plants, altering habitats and causing ecosystem imbalance. India is home to a large number of invasive species, either introduced during the colonial period as well as through the nursery trade and other trade pathways. Among the most noxious are *Lantana*, water hyacinth, *Parthenium* and *Eupatorium*.

-Karuna Gurung
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Training on Improved Cook Stoves

A ten day training programme on Improved Cook Stove (ICS) was organised at Rampuria forest village from 5-14 October. The training was conducted by master trainers from Namsaling Community Development Centre (NCDC), an NGO promoting renewable energy technologies in eastern Nepal.

Improved cook stove (ICS), particularly mud brick ICS, is one of the most simple, inexpensive and widely used technologies designed to improve combustion efficiency of biomass and reduce exposure to indoor air pollution. The benefits of ICS includes: increased thermal efficiency, conservation of forests by reducing fuelwood consumption, reduction in women's drudgery, reduction in indoor air pollution and smoke-related health disorders, and prevention of fire hazards.

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Trainees prepare the frame for an improved cook stove at Rampuria village

Nine participants from six villages took part in the programme. It was focused on training a group of promoters/trainers who would then help households build ICS in the forest villages in Darjeeling. During the ten-day training, participants learnt to make nine different models of ICS, customised to meet the particular needs of households, and six ICS were installed in Rampuria Forest Village. Since then, a total of 23 ICS have been installed in villages in and around Senchel Wildlife Sanctuary and Singalila National Park. ATREE is also looking at energy use patterns at the household level in 8 villages in and around Singalila National Park and Senchel Wildlife Sanctuary.

-Chirag Rai and Michelle Gurung
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Community-based disaster management

A training programme on Community-based Disaster Response and Management was held at Rampuria Forest Village on 27-28 August 2012. Ten participants from Rampuria and Rambi Forest villages took part in the programme.

The theoretical sessions covered types of disasters, implications at community and household level, causes of disaster, and assessing and building the capacity of the community to respond to disaster. The second part focused on practical response systems – like task forces with clear roles, first aid boxes, use of local medicine, control of fire, and dealing with accidents and emergencies using locally available materials.

© Prakash Tamang/ATREE

In the event of a disaster like landslide or earthquake, the community is often the first line of response. State and other relief agencies can take hours or days to even arrive at a disaster site, especially in hilly and mountainous terrain. Government and non-government agencies are therefore focusing on community-based disaster risk reduction and response, and are training communities to respond and manage disaster risk at the local level. The training was conducted by Sudeep Bomzan and Robert Lepcha from Anugyalaya Darjeeling Diocesan Social Service Society, a local NGO partner and member of the Darjeeling NGO Network.

-Prakash Tamang
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Health camp in Phedikhola

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ATREE, SPYM Darjeeling and Harm Reduction Centre collaborated to organise a health camp for the residents of Phedikhola, Dilpa and Phoktey villages on the eastern fringes of Singalila National Park. Over a hundred people availed of free consultation, tests and medicines at the camp held at Phedikhola on 19th August. It was staffed by two general physicians, two homeopaths and a pathologist.

The forest and forest-fringe villages in the area have poor access to healthcare facilities, with the nearest block hospital some two hours away. There is lot of outmigration in search of employment and therefore a high associated risk of STDs, HIV and hepatitis.

- Chirag Rai
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Climate change and disaster risk reduction

ATREE has initiated a project on climate change and disaster risk reduction in the Sikkim and Darjeeling Himalayas. The project titled 'Linking Disaster Risk Reduction, Climate Change Adaptation, and Sustainable Landscape Development Goals in the Eastern Himalayas' is being supported under START (global change System for Analysis, Research and Training).

Four inception meetings have been organised at three sub-divisions namely Chungthang and Dzongu sub-divisions of North District, Sikkim and one at Rimbick, Darjeeling District, and a district-level workshop at Darjeeling district. The meetings brought to light the ground realities, shortcomings in the present disaster management systems and the challenges faced by stakeholders at various levels. In none of the cases were local communities or government agencies prepared to deal with the human suffering, financial loss and physical damage that followed a disaster. Nor did it appear that there was any planning in response to known regional seismic and climate-related risks. One of the prime lessons that came out of the workshops was the need for greater emphasis on bottom up approaches to disaster risk reduction and disaster management, including formation of village level disaster management committees and training and equipping them.

The Sikkim-Darjeeling region lies in a high seismic zone (zone IV) as well as a very high hazard region with respect to landslides. On 18th September 2011 a powerful earthquake (6.9 on the Richter scale) shook Darjeeling, Sikkim and Eastern Nepal, causing widespread infrastructural damage and loss of life. In May 2009, tropical cyclone Aila swept over the Darjeeling Hills in West Bengal, India, pounding the steep hillsides with continuous rain for three days, causing numerous landslides leading to loss of life and severe damage to roads, drains and other infrastructure.

-Tenzing Ingty and Barkha Subba
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Transboundary Manas Conservation

ATREE participated in a workshop for stakeholders of Transboundary Manas Conservation Area (TraMCA) in Bhutan and India, held in Pheuntsholing, Bhutan during 13-14 December 2012. The workshop was facilitated by WWF to bring stakeholders together to discuss conservation issues and develop a strategy for operationalizing TraMCA.

TraMCA was conceptualized in 2011 with the vision to jointly develop and manage a transboundary conservation area between India and Bhutan for the benefit of wildlife and people. Good field level collaboration already exists between the two countries in the Manas area. Joint wildlife monitoring surveys have also been undertaken in both the Royal Manas National Park, Bhutan and Manas National Park, India resulting in a joint report titled "Tigers Across Borders" released in October 2012.

The stakeholders at the workshop included officials from both the National Parks in India and Bhutan, WWF network, and NGOs and CBOs working in the landscape. Detailed discussions were held on the conservation issues, challenges and opportunities in transboundary Manas. There was general agreement on a detailed action plan, timeline and budget for activities in the region.

-Niraj Kakati
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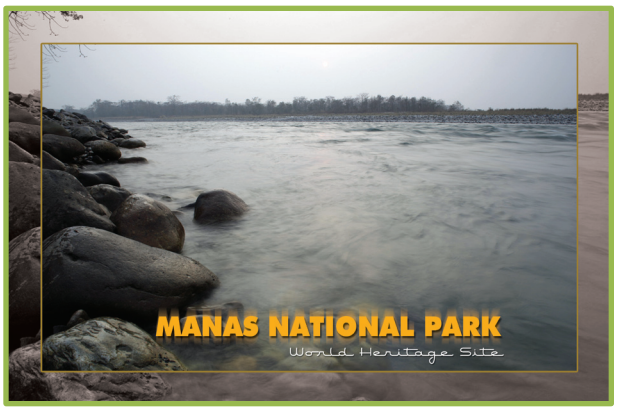

GRANTEE REPORT

Promoting ecotourism in the Balpakram Baghmara Landscape

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The amazing diversity of the Balpakram Baghmara landscape is being documented as part of an effort to promote ecotourism and community-based conservation in Meghalaya. Surveys in this part of the Garo Hills have so far recorded 26 amphibian species, 18 lizard species, 20 snake species, 330 species of butterflies (including 50 species protected under schedules I, II and IV of the Wildlife Protection Act 1972), 350 species of moths and 327 species of birds.

This initiative by the Samrakshan Trust is aimed at developing diverse tourism packages for niche tourism and to strengthen small scale and locally managed ecotourism initiatives that support conservation and benefit local communities. The project is being supported through the 'ATREE Small Grants for Research in NE India'.

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Community-based eco-tourism has been initiated at two sites and workshops have been held to train members of the Siju Eco Camp and Gongrot Eco Camp. The members of these camps also visited Sikkim and Shillong, under the aegis of a government sponsored ecotourism capacity building programme, for training on various aspects of eco-tourism like guiding, hospitality, tourism management, advertising and marketing. Samrakshan has also been able to leverage support from the Forest Department (Territorial) to expand the ecotourism initiative by establishing a new eco-camp at Karwani, a village under Baghmara Reserved Forest.

The focus of Samrakshan's conservation efforts in the Balpakram Baghmara landscape is to incentivize the conservation of community forests. These forests are threatened by the spread of monoculture plantations and coal mining. The ecotourism project aims to establish a linkage between sustainable livelihoods and successful community conservation and contribute to the development of a conservation model that can be replicated in regions with similar forest and land-tenure characteristics.

-Kamal Medhi
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Recognition

Niraj Kakati, Coordinator - ATREE Guwahati, has been nominated to the Regional Expert Committee for undertaking Management Effectiveness Evaluation of the Protected Area network in India by the Ministry of Environment and Forests (MoEF), Government of India. The sites will include National Parks and Wildlife Sanctuaries in six states of the north-eastern region.

Workshops attended

Anand Gazmer and **Tenzing Ingty**. Nov 3-4 2012. Third National Research Conference on Climate Change, Bangalore, India.

Karuna Gurung, **Chirag Rai** and **Annesha Choudhury** participated in the Young Ecologists Talk and Interact (YETI) 2012 meet organised by the Wildlife Institute of India with the support of Doon University at Dehradun from 5-7th December 2012. Karuna presented a poster on the DBT-supported project titled 'Invasive species management in Sikkim: opportunities for community livelihood enhancement'. Chirag Rai presented a poster on 'Energy use patterns in the Darjeeling Himalayas: opportunities for sustainable use models'.

Samuel Thomas. 5 December 2012. Workshop on Sikkim Earthquake Response Sharing. Organised by Anugyalaya DDSSS and Indo Global Social Service Society, Gangtok, Sikkim.

Sarala Khaling presented a poster on the project "Integrated approaches for adaptive resilience-based management of forests for supporting agro-systems in the Sikkim-Darjeeling Himalayas" at the Sub-Global Assessment Network Annual meeting organized in Stellenbosch, South Africa in November 2012 by the World Conservation Monitoring Centre-UNEP.

Sarala Khaling, **Sunita Pradhan**, **Niraj Kakati**, **Anand Gazmer**, **Urbashi Pradhan**, **Karuna Gurung**, **Tenzing Ingty** and **Samuel Thomas**. 7-10 August 2012. 2nd Asian Regional Conference of the Society for Conservation Biology. Bangalore, India.

Tenzing Ingty. 21-22 November 2012. International Conference on Climate Change Impacts and Adaptation for Food and Environmental Security. SEARCA, Los Baños, Laguna, Philippines.

Publications

Borah, J. et al. 2012. Tigers Across Borders: Tigers in the Indo-Bhutan Transboundary Manas Conservation Complex. MNP/RMNP/WWF-India/Aaranyak/ATREE/UWICE/Bhutan Foundation, New Delhi.

Thomas, Samuel. 2012. Tragedy on the commons. *Current Conservation*. Vol 5 Issue 3.

Book chapters

Ingty, T., Bawa, K.S., 2012. Climate change and indigenous peoples. In Arrawatia, M.L., Tambe, S. (Eds.), *Climate Change in Sikkim: Patterns, Impacts and Initiatives*. Information and Public Relations Department, Government of Sikkim, Gangtok.

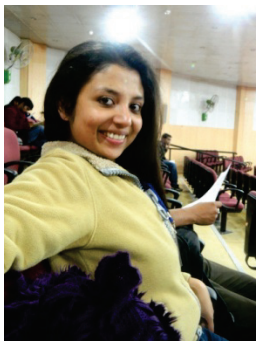
Bawa K, Ingty, T., 2012. Climate change studies in Sikkim an introduction. In Arrawatia, M.L., Tambe, S. (Eds.), *Climate Change in Sikkim Patterns, Impacts and Initiatives*. Information and Public Relations Department, Government of Sikkim, Gangtok.

Grants received

Donor: US Fish and Wildlife Service, Rhinoceros and Tiger Conservation Program
Project Title: Recovery of the Tiger *Panthera tigris* and its prey in Manas National Park, India
Period: April 2012 - April 2014
Amount: US$ 58,610
Principal Investigator: Dr. Robert John Chandran

Donor: IUCN – SOS (Save our Species) Grant
Project Title: Conserving the Critically Endangered White-bellied Heron, *Ardea insignis* in key sites of the Manas Tiger Reserve in Assam, India.
Period: Dec 2012 – Jun 2014
Amount: US$ 66,209
Principal Investigator: Dr. Sarala Khaling, Regional Director – Eastern Himalayas, ATREE.

New staff



Annesha Chowdhury has joined the Eastern Himalayas Programme as Junior Research Fellow on the Tata Social Welfare Trust-funded project - 'Integrated approaches for adaptive resilience-based management of forests supporting agro-ecosystems in the Darjeeling-Sikkim Himalayas'. Annesha was born and raised in Darjeeling. After completing her Master's in Zoology, she taught Biotechnology at the Department of Zoology in St Joseph's College, Darjeeling, and Biology at Nepali Girl's Higher Secondary School, Darjeeling. She also undertook a preliminary study on the status and distribution of Chinese Pangolin (*Manis pentadactyla*) in Darjeeling for the Forest Department.

Michelle Gurung has joined the Eastern Himalayas Programme as a Programme Associate on the Department of Biotechnology-supported livelihoods project in the villages of Darjeeling and North Sikkim. Additionally she will be responsible for administration and operations at the Darjeeling office. Michelle studied Sociology at St. Xavier's College, Kolkata and has a PG Diploma in Human Rights from Indian Institute of Human Rights, New Delhi. She worked at the Commonwealth Human Rights Initiative (CHRI), New Delhi on Access to Information in the Commonwealth countries. Her work interests are issues related to policy and governance and she is particularly interested in the Forest Rights Act.

Sourya Das has joined the Eastern Himalayas Programme as a post-doctoral Fellow. He has a Master's degree in Rural Development and Management from the University of Kalyani and a PhD from Indian Institute of Technology, Kharagpur. His doctoral thesis was on 'Utilization and Management of Wetland Resources in West Bengal'. Before joining ATREE, Sourya worked as a consultant with the Agriculture Finance Corporation Limited on the national project titled 'Repair, Renovation and Restoration of Derelict Water Bodies Directly Linked to Agriculture'.

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 Himalayas and Assam, and works with a range of local partners in the other states of north east India.

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