

**North East Threatened Species Conservation Programme
(NETSCOPE) of Aaranyak**

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Report submitted to the
Rufford Small Grants Foundation

Funding period
2007-2008
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Submitted By

Aaranyak

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Background:

India is among the top ten-mega diversity countries and has two of the 25 global hotspots of biodiversity, the Western Ghats and the Eastern Himalayas. Despite extensive deforestation in recent decades, India has managed to retain large areas of terrestrial ecosystems under protection. The protected areas in India comprise only about 20% of the area under forests. There are proposals to include an additional 100,000 km² to the existing 140,000 km² to the protected area network. The protected areas include national parks, tiger reserves, and wildlife sanctuaries.

At no other place in India is this challenge to conserve natural resources more serious than in the North East India which is a transitional zone of Indo-China, Indian and Indo-Malayan flora and fauna. This mountain cum flood plain region is under tremendous pressure from a burgeoning population, tourism, large dams, timbers and tea industry. As a result, forests and watersheds are being degraded and fertilizers and pesticides are polluting rivers used in tea plantations and other types of intensive agriculture. In addition, deforestation and forest degradation is putting hundreds of endemic plants and animal species at risk.

Northeast India's vast remaining forest tract still left unexplored, while, human pressure on it has increased tremendously. Although there is extensive degradation of forest and water resources in the region, the causes of this degradation are poorly understood. Nor is there much appreciation and awareness about the causes and consequences of decline in natural resources among the general public and the policy makers. Equally important is that there is virtually no monitoring system in place to detect spatial and temporal changes in forests, biodiversity and water shed functions. During the last decade a huge amount of the primary forest has been lost due to logging and shifting agriculture. Increase in population due to immigration and lack of family planning among the people has added to the woe.

Research on the vanishing forest and its flora and fauna has been ignored or least prioritized. This is though due to the lack of initiatives and sufficient funds that has resulted into lack of manpower, which is another major concern for rich rain forest areas like the North East India. It has also become necessary to explore the faunal and floral diversity of the unexplored areas before they are lost forever. More over the region lacks proper documentation of threatened species which needs to be done urgently in order to assist the concerned government agencies to take appropriate steps for conservation of threatened species and their habitats in the Northeast India.

Keeping this in mind Aaranyak developed this programme to initiate and continue its applied research and conservation work on various threatened species of the northeast India. This effort, in one hand will enhance the knowledge base on threatened species and on the other hand offers opportunity and encouragement to younger generation to work for conservation of nature, which will sustain conservation efforts in the long run. The younger are also guided by senior and experienced conservation biologist available within Aaranyak and other institutions, like colleges and universities.

This endeavour started experimentally in 2006 that has received tremendous support and could certainly be termed as a very successful initiative of Aaranyak and Rufford Maurice Laing Foundation. This report describes about successful implementation of the first year grant.

Objectives:

The objectives of this initiative are to build human resources in the Northeast region of India and generate information that could assist the long term conservation and protection of threatened species in the Northeast India.

The fund received was used in the following manners__

1. Student Awards:

This grant award was initiated to support undergraduate and postgraduate student to_

- a. Identify the future conservationists.
- b. Give them an exposure on conservation actions and research at their young age and encourage them to develop the same as profession and
- c. Help in building institutional relationships across educational institutions, teaching communities, students, forestry department and NGOs.

During the second year of this programme four student grants were awarded amounting GBP 700 (Rupees 55,000/-). See [Table 1](#).

2. Seed Grants:

This grant was awarded to budding conservationist of the region who have already shown their potential through various activities and able to catch attention of an expert (a referee) in an attempt to_

- a. Identify and encourage young conservationist to acquire and develop skills in fieldwork contributing towards conservation of natural resources.
- b. Give them an opportunity to meet other experts from the conservation communities.
- c. To address bigger conservation issues with the help of initial findings and raise required resources to address those issues as follow up action.

During the second year of this programme four seed grants were awarded amounting GBP 1500 (Rupees 1, 25,000/-). See [Table 1](#).

3. Aaranyak-Rufford Small Grants:

The Aaranyak-Rufford Small Grant (ARSG) was awarded to conservationists in their early part of professional development. The purpose of this grant was to_

- a. Encourage and enable young professionals to prepare themselves for professional conservation work and expand their horizon.
- b. Encourage teamwork and develop leadership quality within the team leader.

During the second year of this programme five ARSG were given away amounting GBP 6500 (Rupees 5, 21,500/-). See [Table 1](#).

4. Continuation Grant:

This grant was meant for the competent ARSG winner that deserves continuing his last conservation initiative. However, being first year of the program there was no continuation grant required and the Grants management decided to spend this money as matching amount for tiger conservation in the region. The amount GBP 1800 (Rupees 1, 50,000/-) was matched to the grants provided by other donors to carry out tiger research and conservation in the Kaziranga National Park.

5. Rapid Response Grants:

This grant was meant to address SOS in biodiversity conservation in the region in situation like flood, wildlife diseases, protected area staff emergency medication, anti poaching tool repairing, rapid EIA, etc. This would help in addressing some of the recurring and basic emergency response in conservation of biodiversity in the region. During the second year of this programme three Rapid Response Grants were given away amounting GBP 2500 (Rupees 2, 00,000/-). See [Table 1](#).

6. Grants Management:

This amount has been spent for personal expenses of the Grants Manager who handled the administration and fund disbursements. The amount budgeted was GBP 2000 (Rs. 1, 62,000/-).

7. Other Activities:

This grant has helped Aaranyak in generating additional financial resources for its ongoing and planned activities in the following manner:

1. Part of this grant was shown as contribution from Aaranyak while requesting grants from other donors that assisted in generating an additional US\$ 46000 (GBP 25000) as matching.

Expenditure Statement (Summary):

▼ Budget Head	Original budget	Final budget	Expenses	Balance
Amounts in GBP ►				
Students Award	1000	700	700	0
Seed Grants	1500	1500	1500	0
Aaranyak-Rufford Small Grants	6000	6500	6500	0
Rapid Response Grants	2500	2500	2500	0
Continuation Grant	2000	1800	1800	0
Grants Management	2000	2000	2000	0
Total	15000	15000	15000	0

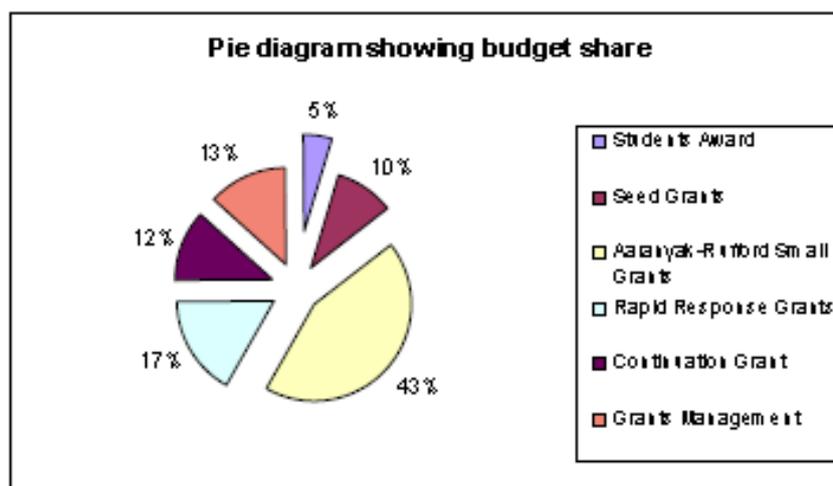


Table 1: List of grantees, project title and amount awarded under different grant heads for the period 2007-08.

Sl.#	Grantee	Title of the Project	Amount
I.	Aaranyak-Rufford Small Grants (click on the link for details)		
1	Dhrubajyoti Kalita	Development of Communication Skill of Teachers & Environment Activists by supporting Training and Resource Materials.	110000
2	Dipak Konwar	Environmental Education Programme for the local youths and school students of Bongaigaon and Chirang District of Assam.	100000
3	Bibhab Kumar Talukdar	Camera Trapping Equipments for Aaranyak.	91027
4	Udayan Borthakur	Noninvasive population genetic monitoring of Greater One-Horned Rhinoceros (<i>Rhinoceros unicornis</i>) in Assam: A pilot study to standardize protocols for dung DNA analysis.	152290
5	Aaranyak	GIS based habitat mapping of the Laokhowa and Buhrachapori Wildlife Sanctuary, Assam.	68183
			521500

**Summary report on
Grants awarded and activities carried out during 2007-2008**

Under

**Aaranyak Small Grants for
Nature Conservation in Northeast
India**

In association with



Sl.#	Grantee	Title of the Project	Amount
II. Seed Grants			
1	Purnima Devi	Conservation Education Programme for School Children of Guwahati with two separate modules for both privileged and underprivileged group.	35000
2	Bipul Das	Assessment of the status of butterflies in Manas Reserve Forest and capacity building towards awareness and conservation.	30000
3	Chatrapati Das	Assessing the status of human-wildlife conflict in the fringe villages around Orang National Park.	40000
4	Aaranyak	Sharing Conservation Experiences between Communities of Manas Tiger Reserve of Assam and Khonoma Village of Nagaland.	20000
			125000
III. Student Grants			
1	Mrinmoy Rajbongshi	Distribution and Status Survey of Biofuel Plant Species Found in Kamrup District.	15000
2	Suraj Chetry	An assessment of the status of threatened species of butterfly diversity in Upper Dehing West Block Reserve Forest, Digboi.	15000
3	Phalgun Chetia	Arachnids of Kaziranga National Park.	10000
4	Y Makheso	Assessment of Bushmeat hunting and pressure on wildlife at Saramati, Nagaland.	15000
			55000
IV. Continuation			
1	Aaranyak	Monitoring Tigers of the Kaziranga National Park.	150000
V. Rapid Response Grants			
1	Aaranyak	Purchase of Camera Trap Accessories for Tiger Monitoring in Assam.	95000
2	Aaranyak	Upholding Tiger Conservation in Orang National Park: Compensation for loss of domestic animals.	50000
3	Ashok Dey	Logistic support to local conservation groups working around the Manas Tiger Reserve through raincoat.	55000

Title of the Project: Development of Communication Skills of Teachers & Environment Activists by supporting Training and Resource Materials.

Project Investigator: Dhrubajyoti Kalita.

Project objectives:

1. To make the participants closer to the Resource Centres by utilizing the facilities available and can continue in the desired direction of creating awareness amongst the students as well as community about environment.
2. To develop communication skill of educators.
3. To introduce the teachers to low cost teaching methods and their uses.
4. To develop the organizing capacity of the participants.
5. To develop & distribute environment awareness materials.

Project Update: (Up to February 2009)

[<back to Table 1>](#)

Summary of Activities:

	Month	Duration & Place	Total Participants	In collaboration with
1	23-26 March 08	One Day, Karbi-Anglong	4 teachers (all male)	From one Hills District – Karbi-Anglong
2	20 May 08	One Day, Guwahati	19 (Male-14, Female-5)	6 Schools from Kamrup Metro Districts
3	23 May 08	One Day, Dhemaji	400 school Children & School teachers	Eco-Club, Dhemaji Girls' HS School.
4	19 June 08	One day, Dhemaji	50 teachers	Eco-Club, Dhemaji Girls' HS School, Assam Science Society, Dhemaji Branch
5	24 Nov 08	One Day, Jalkhana (Tihu)	18 (Male-15, Female-3)	Tihu Sahitya Sanskritik Gosthi
6	10 January 09	One Day, Dhemaji	More than 100 participants from 19 institutes	Arjyabhatta Sc. Centre, Dhemaji Development Block
7	1 February 09	One Day, Abhayapuri, Bongaigaon	More than 70 participants from 11 institutes	Aaranyak Bongaigaon Unit



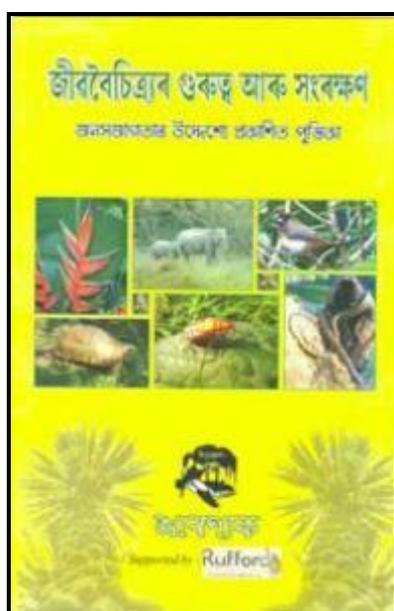
Awareness programme



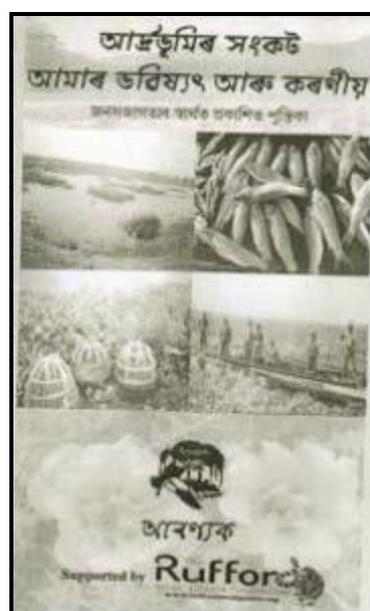
Awareness programme

Publication of Education Materials:

Sl. No.	Items	Subject & Quantity	Utilization
1	3000 No. Booklet	Wetland Conservation	Distributed among District Coordinators, Children Science Congress; Science Centres; Bongaigaon, Media Houses, NGOs members, schools
2	3000 No. Booklet	Bio-diversity	Distributed among District Coordinators, Children Science Congress; Science Centres; Bongaigaon, Media Houses, NGOs members, schools
3	1000 No. Magazine Cover	School Programme	Distributed among teachers and NGO members to make low cost education materials
4	15 No. Banners	Environment Conservation	Exhibited during different awareness programme



Local language booklet on biodiversity



Local language booklet on wetland

Title of the Project: Environmental Education Programme for the local youths and school students of Bongaigaon and Chirang District of Assam.

Project Investigator: Deepak Konwar

Project objectives:

1. To educate, motivate and involve the students on the values and needs of conservation of our natural resources.
2. To create public awareness to reduce the man made negative impacts on our environment and on biodiversity.
3. To spread the message of awareness among the people through the students *vice-versa*.
4. To generate public support for conservation activities involving local youths and members of Aaranyak.
5. To develop the skill of the young members by giving them opportunity to address the public about the environment and biodiversity related issues.



Awareness programme

Project Update (Feb 2009):

Four out of the ten schools targeted were covered during the last four months. In addition to that awareness programmes were also conducted in public place. Both environmental games and talks on environment related topics were organized in these schools. A cycle rally was carried out to create awareness among general mass involving students and members of Aaranyak.



Cycle rally

Title of the Project: [Camera Trapping Equipments for Aaranyak.](#)

Project Investigator: [Bibhab Kumar Talukdar](#)

Project Objectives:

1. To match cost of camera trap equipments of Aaranyak purchased during 2007-08.

Project Update:

Camera trap is a modern tool to monitor and record animal movement in less accessible forest areas. During 2007-2008 we purchased camera trap equipments costing approximately US\$ 30000. Few other donors also assisted this bulk purchase to facilitate building Aaranyak's Camera Trapping resources and expertise. An amount of Rupees 91027 (GBP 1200 approx.) was spent from this grant to match the purchase of Camera Traps. The other donors that assisted the purchase are David Shepherd Wildlife Foundation, Seaworld Bush Garden Conservation Fund and Rufford Maurice Laing Foundation.

[<back to Table 1>](#)



Active Infrared Camera trap Unit



Camera and the sensor unit mounted on wood, while a hog deer being photographed from the opposite end.

Title of the Project: Noninvasive population genetic monitoring of Greater One-Horned Rhinoceros (*Rhinoceros unicornis*) in Assam: A pilot study to standardize protocols for dung DNA analysis.

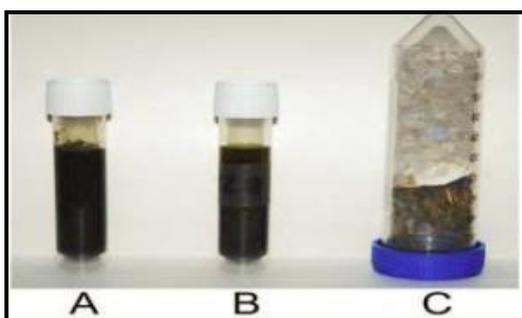
Project Investigator: Udayan Borthakur

Project Objectives:

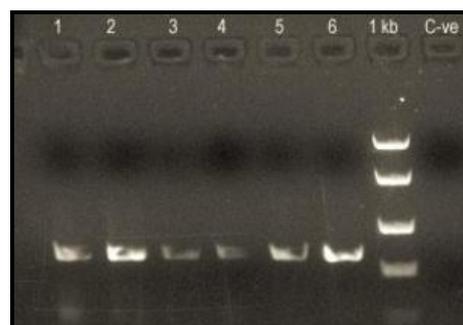
1. Quantitative evaluation of various preservation and DNA extraction methodologies for rhino dung collected from natural habitats of Assam as a source of DNA.
2. Selection of markers for gender differentiation of rhinos from dung DNA samples.
3. Selection of the minimum number of polymorphic microsatellite markers for rhino individual identification from dung samples.

Project Update:

1. Dung sampling was carried out in Kaziranga National Park, Orang National Park and Pobitora Wildlife Sanctuary. Fresh rhino dung samples (n=30) were collected, including those from the localities of known individual rhinos.
2. Dung preservation and DNA extraction methodologies were evaluated with PCR screening of two nuclear and one mitochondrial DNA marker. We have found that dung samples preserved in DETs buffer and extracted by a modified protocol of QIAamp DNA Stool Kit (QIAGEN Ag., German) yields the highest success rate of PCR (85% and 90% respectively for nuclear and mitochondrial DNA markers).
3. Standardized a Y-chromosome based marker system to differentiate gender of the rhinos from dung DNA samples. A part of this marker system (unpublished data) was originally developed by scientists at CREW, Cincinnati Zoo, with whom we have started working collaboratively on Indian rhinos in Assam.
4. Under the third and final objective, we have already started working on PCR standardization of microsatellites developed from *Rhinoceros unicornis* (Zschokke *et al.* 2003). Upon completion of the screening of these microsatellites, we will be able to determine the minimum number of polymorphic loci needed to individualize *Rhinoceros unicornis* from dung DNA samples.



Rhino dung samples preserved in:
– DETs buffer; B – 90-95% ethanol; C
– Silica gel



A (Left) Agarose gel visualization of PCR amplification of mitochondrial marker (600 bp) from rhino dung samples



Agarose gel visualization of rhino dung DNA extraction. DNA typically forms a smear on the gel due to degradation in the dung samples

Title of the Project: GIS based habitat mapping of the Laokhowa and Buhrachapori Wildlife

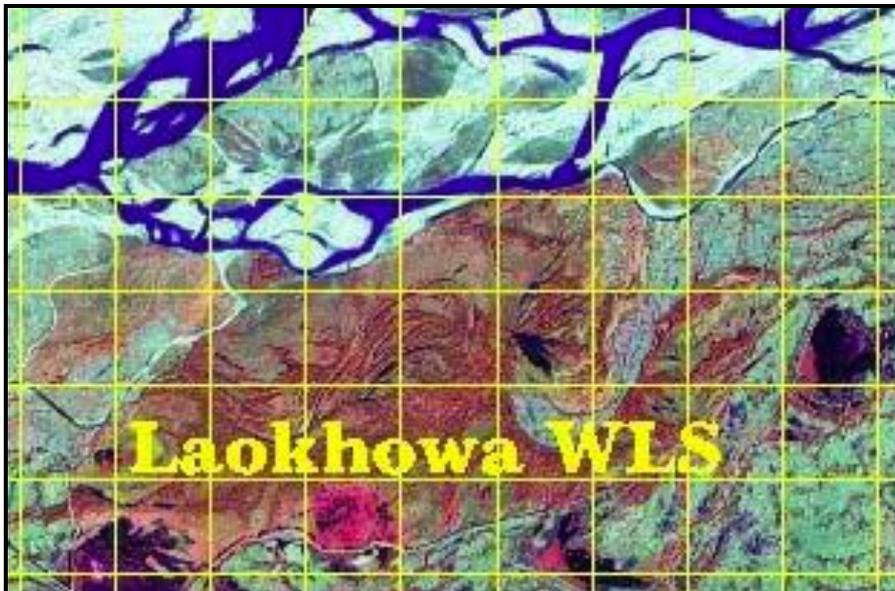
Project Investigator: Aaranyak.

Project objectives:

1. To assist the wildlife manager by providing GIS map of habitats, species distribution and land use in and around the sanctuary.
2. To create a Decision Support System (DSS) for the sanctuary to make plan to enhance protection and conservation in the park.

Project Update:

This project was sanctioned only in the month of February and the field work is planned from 28 March 2009. An update is expected by May 2009.



Laokhowa WLS on the floodplain of the Brahmaputra River.

Title of the Project: Conservation Education Programme for School Children of Guwahati with two separate modules for both privileged and underprivileged group.

Project Investigator: Purnima Devi Barman

Project objectives:

1. To conduct audio visual environmental education programmes in schools highlighting local and global key issues.
2. Environmental education to underprivileged student groups with separate module.
3. Involve students while conducting environmental education programmes.
4. Facilitate to publish students' innovative ideas in environmental conservation initiatives in print media.
5. To prepare an environmental education conservation oath for the children.



Project Update (February 2009):

The project has been carried out among the school children of Greater Guwahati area. So far, 20 environmental education programmes in 14 schools could be completed. In each programme environmental education slide shows followed by discussions on local and global biodiversity issues and games on ecosystem and biodiversity conservation basics were arranged. Out of these 20 programmes, 8 programmes were follow-up programmes after an average gap of about one month. In the follow up programmes, environmental quiz and speech competitions were organized among the children. In each programme, children were encouraged to write in the environmental issues and selected writings were sent to the local media houses for publications. One of the main outputs of this programme was a poster made by the students on biodiversity learning exercise. Children were told about the biodiversity concept and they come up with the novel idea of making a poster with the various species found in their own house and kitchen, which they use in their daily life. In the each environmental education programme an oath and a signature campaign were conducted amongst the students and this activity was lauded by the various other environment conscious citizens of Guwahati.



Awareness programme



Awareness programme

Title of the Project: Assessment of the status of butterflies in Manas Reserve Forest and capacity building towards awareness and conservation.

Project Investigator: Bipul Das

Project objectives:

1. To conduct systematic survey of butterflies in Manas Reserve Forest in order to determine their diversity and abundance, and build a database.
2. To prepare educational material in the form of Poster of some selected butterflies.
3. To train up at least three members of Aaranyak (Graduate or undergraduate) in Butterfly identification and conservation.
4. Conducting public meeting cum awareness campaign in various schools in that area.

Project Update (till Feb 2009):

This project was newly granted and field work has just started. A field trip was conducted to train up undergraduate students recently.



Observing butterfly during a field trip



Title of the Project: Assessing the status of human-wildlife conflict in the fringe villages around Orang National Park.

Project Investigator: Chatrapati Das

Project objectives:

1. To assess the current status of human-wildlife conflict, and people's attitude.
2. Identification and evaluation of the effectiveness of the mitigation measures currently being used and recommend site specific remedial measures.
3. Dissemination of wildlife awareness among the fringe community to help them comprehend the likely causes of conflict for a positive and effective mitigation measure.
4. Support the ongoing Tiger-human conflict monitoring through community participation i.e. CTCU (community tiger conservation unit).

Year	# of People killed
1990	3
1997	1
1999	1
2000	3
2001	1
2002	1
2004	1
2005	1
2006	3
Total	15

Table 1: Number of people killed by Tiger
(Data source: Park Authority)

Project Update (till Feb 2009):

Orang can be considered as hotbed for human tiger conflict as the record proves here. Since 1990, as many as 15 people were killed by tigers around the Orang NP. This number is considerably high as far as human casualty is concerned due to human-animal conflict. Further, as many as 33 incidences of livestock lifting cases are also recorded around the park since 1993.

Such high level of conflict has taken toll on the tigers in the park as the local community has become hostile towards tigers. As a result, 13 incidences of tiger killing by villagers have been recorded in the park. This is a very high price the tigers have paid for a smaller conservation area like Orang NP.



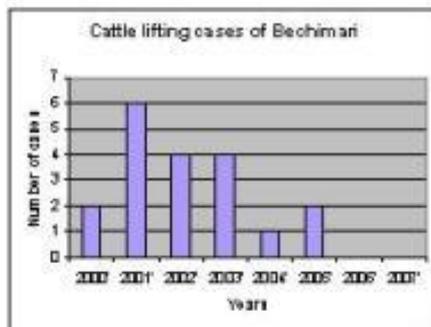
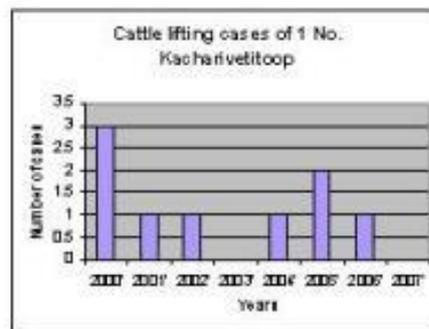
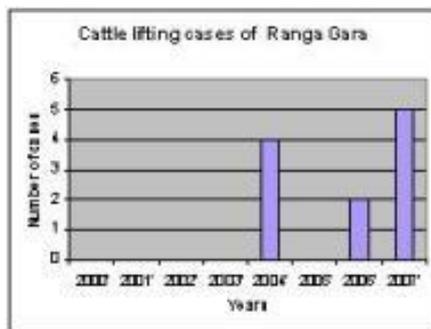
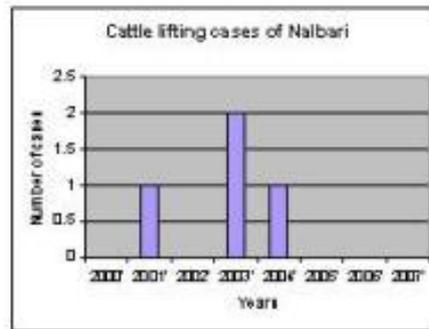
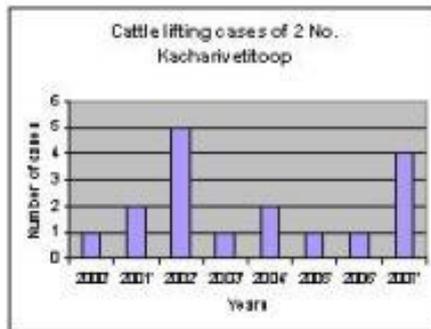
A cattle killed by tiger



A poisoned tiger

Human/Tiger Conflict Evaluation:

Five fringe villages were surveyed involving the CTCUs to found out the past cases of tiger depredation in the area. Preliminary result of the survey shown as chart below while we analyze the load of data.



Title of the Project: [Sharing Conservation Experiences between Communities of Manas Tiger Reserve of Assam and Khonoma Village of Nagaland.](#)

Project Investigator: [Aaranyak](#)

Project objectives:

The principal objective of this project is to share community conservation experience between the Angami Tribe of Nagaland and group of local conservation workers from Manas Tiger Reserve.

Project Update (Feb 2009):

The selection of conservation workers is going on and the study tour has been planning in the month of April 2009.



A sign and map put up by the communities in Nagaland

Title of the Project: Distribution and Status Survey of Biofuel Plant Species Found in Kamrup District

Project Investigator: Mrinmoy Rajbongshi

Project objectives:

1. To study population distribution of plant species used in biofuel production.
2. To develop a habitat map of the plants identified.
3. To develop a strategy for their conservation.

Project Update (June 2009):

The survey was initiated and field work is going on. Primarily it was found that two plant species viz. *Ricinus communis* and *Pongamia pinnata* were found to be widely distributed in study area.



Ricinus communis



Pongamia pinnata

Title of the Project: An assessment of the status of threatened species of butterfly diversity in Upper Dehing West Block Reserve Forest, Digboi.

Project Investigator: Suraj Chetry

Project objectives:

1. Documentation of the butterfly fauna within Upper Dehing West Block RF and its surroundings.
2. To study the habitat utilisation of the butterflies in the fixed transects areas.
3. To study the host plant interrelationship of the larva and of the adult butterfly species during feeding.
4. To identify Important Butterfly Area (IBA) of this region.
5. To educate the public about the importance of butterflies and their conservation.

Project Update (February 2009):

The survey is going on and initially 41 species of butterfly has been reported under this project.



Title of the Project: [Arachnids of Kaziranga National Park.](#)

Project Investigator: [Phalgun Chetia](#)

Project objectives:

1. Enumerating the diversity of Arachnids of Kaziranga National Park.
2. Preparing and publishing the checklist.

Project Update:

This project is sanctioned only in March 2009. Update expected in July 2009.



Title of the Project: [Assessment of Bushmeat hunting and pressure on wildlife at Saramati, Nagaland.](#)

Project Investigator: [Y Makheso](#)

Project objectives:

1. Enumerating the number and species of animals hunted in the villages.

Project Update:

This project is sanctioned in March 2009. Update expected in July 2009.



Slow Loris for sale in a market in Nagaland



Leopard Cat, hunted by locals in Nagaland

Title of the Project: **Monitoring Tigers of the Kaziranga National Park.**

Project Investigator: **Aaranyak**

Project objectives:

1. Evaluate, monitor and document population of tiger and its prey animals.

Project Update (February 2009):

This project, in collaboration with the Directorate of the Kaziranga National Park was started in December 2009. The ongoing camera trapping operations in the park has provided excellent information on the status of the tigers in the park. Preliminary data suggests that the tigers are thriving in the park and is a very healthy breeding population.

The study is expected to finish the camera trapping in the park by March and come up with estimation of tigers in the park by May 2009.

This project was co sponsored by the David Shepherd Wildlife Foundation, UK.



A camera trapped male in Kaziranga



A camera trapped female in Kaziranga



A camera trapped rhino in Kaziranga



An elephant caught on camera while smashing the other

Title of the Project: **Purchase of Camera Trap Accessories for Tiger Monitoring in Assam.**

Project Investigator: **Aaranyak.**

Project objectives:

To support ongoing tiger monitoring activities of Aaranyak by supplementing camera trap accessories.

Project Update (February 2009):

As Equipments are prone to damage by animals and weather, Aaranyak has purchased additional accessories like camera cables to meet the requirement of ongoing monitoring programme in Kaziranga and Orang National park.

Title of the Project: **Upholding Tiger Conservation in Orang National Park: Compensation for loss of domestic animals.**

Project Investigator: **Aaranyak.**

Project objectives:

To minimize human tiger conflict in Orang National Park.

Project Update (February 2009):

The gradual increasing of human tiger conflict has lead to more retaliatory killing of tigers and 9 tigers died due to retaliation during the period 2000-2006. The height of intolerance and the animosity have reached to such degree that entire family of tiger (three cubs and their mother) was poisoned to death by fringe villagers in early November 2006 as a retaliatory action. Further another family of tiger was killed by poisoning in the park in 2008.

Keeping this in mind Aaranyak has offered compensation to the villagers who lost their domestic animals due to lifting by tigers. The first round of compensation was distributed in December 2008.

Title of the Project: **Support to local conservation groups working around the Manas Tiger Reserve through raincoat.**

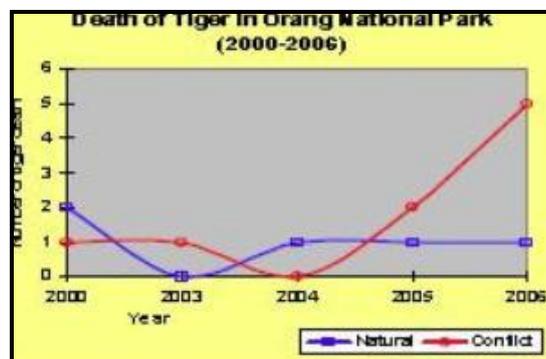
Project Investigator: **Ashok Dey**

Project objectives:

The main objective of this project is to encourage and support community based conservation movement in Manas Tiger Reserve.

Project Update (February 2009):

The order for raincoat purchase has already been placed and raincoats will be distributed in April 2009.



Chief Conservator of Forests (CCF) Mr BB Dhar, handing over compensation money to one of the villagers