

# INTERIM REPORT- III

**People's Trust for Endangered Species**

**By: Jihosuo Biswas, Richard Taro; Sudipta Nag  
& S.M. Mohnot**

**Adopting an inclusive approach of research, capacity building, community education and outreach to conserve Western Hoolock Gibbon in Karbi Anglong under Kaziranga-Karbi Anglong landscape, Assam, India**



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**Interim Report -III**

**1<sup>st</sup> March 2015**

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## PROGRAM ASSOCIATES

### INVESTIGATOR



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### ADVIDSORS



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### RESEARCHERS



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## HIGHLIGHTS OF THE MAJOR ACCOMPLISHMENT

- The census of western Hoolock gibbon in Dhanshiri-Barlangpher and Khuriming – Panimur – Amren forest complexes under Karbi Anglong district was carried out and the estimated population is 125 – 155 groups and 370 – 450 individuals for two forest complexes. The group size is small ( $2.8 \pm 0.6$ ) with lower percentage of juvenile (18.05%) and infants (14.5%) indicated low recruitment rate and infant mortality.
- The available habitat left for gibbon in these priority complexes is 374.5 km<sup>2</sup> of which 75.9 km<sup>2</sup> is primary habitat and 298.5 km<sup>2</sup> is secondary habitat. Habitat destruction in the form of jhoom cultivation and illegal logging was found to be single largest factor affecting the population in these forest complexes.
- Hunting in Dhanshiri - Borlangfer priority forest complex and Khuriming RF results low population size.
- A total six one day long school programs covering 450 students on Hoolock gibbon Hang On was organized.
- One all whether 4x4 vehicle with crew cabin (Tata Xenon) was donated to North Karbi Anglong WLS for patrolling and under operation.
- As a part of capacity building program, two one week long training program for front line forest staffs has been scheduled on 5<sup>th</sup> April to 12<sup>th</sup> April and 19<sup>th</sup> April to 26 April, 2015 at Assam Forest School, Guwahati. 60 numbers of staffs has already been deputed to attend the training program. On successful completion of the training program, the front line staff will be facilitated with Field kits and Field gears for patrolling and materials has already been procured.
- One day long workshop on Gibbon Conservation Assessment was organized at Diphu, Karbi Anglong for Forest Range Officer and Deputy Range Officers.
- Conservation Action Plan for Hoolock gibbon in KA was released.
- Two paper based on this study were presented in international (IPS) seminars.

## PROJECT GOAL & OBJECTIVES

**Goal:** Conserving Dhanshiri - Borlangfer and Khuriming - Panimur - Amren forest complexes focusing on Western Hoolock Gibbons as flagship species.

### Objectives

- (i) *Research:* To collect baseline information on population density, habitat status and demographic status of gibbons and to identify threats in remaining two complexes e.g. Dhanshiri-Borlangfer and Khurimming-Panimur-Amreng forest complexes, which covers 6 forests under these 2 complexes.
- (ii) *Action Plan:* To develop site specific action plan for Hoolock gibbon in the Karbi Anglong Autonomous Council (KAC).
- (iii) *Capacity building:* To train front line forest staff of Karbi Anglong Autonomous Council (KAC) on different techniques of wildlife monitoring to improve their skills.
- (iv) To boost the morale of the staffs for better performance by facilitating field gears and equipments.
- (v) *Education:* To initiate community outreach program through participatory conservation awareness and education campaign for the species. 20 one day long school education program, 10 one day long community education program, 3 three days long intensive education programs.

## GIBBON POPULATION ESTIMATION

Altogether 285 km long transect having ~ 4.5 km each was laid in two forest complexes covering all forest and vegetation type for demographic and habitat survey.

A total of 48 individuals in 16 family groups and one lone male individuals of western Hoolock gibbon were observed during the survey. Of these, 34 individuals in 14 family groups was observed in Dhanshiri-Borlangfer forest complex and 14 individuals in 4 family groups and one lone male individuals were observed from Khurimming-Panimur-Amreng forest complex.

The overall average group size of both the forest complexes was  $2.8 \pm 0.6$  per family groups ranging from 2 to 4 individuals (table -2). Both the forest complexes having similar group size (Dhanshiri-Borlangfer forest complex  $2.8 \pm 0.4$  and Khurimming-Panimur-Amreng forest complex  $2.8 \pm 1.0$ ).

Although, the percentage of age group (adult to juvenile and infant) varies considerably between forest complexes and also from forest to forest even within the same complex.



Photo: Data collection by PI & Researchers

### **Gibbon population estimation:**

We recorded 95 duet calls across 19 listening sites in two forest complexes. We did not heard any calls from Tamulbari RF under Dhanshiri - Borlangfer forest complex and Panimur RF under Khuriming -Panimur- Amren forest complex, which are heavily disturbed by human activities. We have confirmed the absence of Hoolock gibbon from these two localities from the villagers, so we discard both the RFs for our calculation. All the 19 listening post or sites (LP) are mapped.

Based on satellite data and GIS analysis, the available habitat of Hoolock gibbon in Dhanshiri - Borlangfer forest complex is about 325.8 km<sup>2</sup> including primary (60.6 km<sup>2</sup>) and secondary habitat (285.2 km<sup>2</sup>). The overall density of gibbon Dhanshiri - Borlangfer forest complex irrespective of habitat type is  $0.31 \pm 0.23$  groups' km<sup>-2</sup> for the larger 1-km listening radius and  $0.46 \pm 0.28$  groups km<sup>-2</sup> for the 600m listening radius excluding Daldali RF. But the density of gibbon in both the listening radius yielded greater result (0.51 & 0.86 groups/ km<sup>2</sup>) from that of Borlangfer RF (0.08 & 0.0 groups/ km<sup>2</sup>) as well as between habitat types i.e. primary forest habitat and secondary forest habitat. On the other hand the average group size of gibbon in this forest complex is  $2.8 \pm 0.4$  individuals per group. The estimated Hoolock gibbon population in Dhanshiri - Borlangfer forest complex would be between 100 to 125 groups and 300 to 350 individuals with the mean number predicted at approximately 325.

Similarly the available habitat of Hoolock gibbon in Khuriming -Panimur- Amren forest complex is about 48.7 km<sup>2</sup> including primary (15.3 km<sup>2</sup>) and secondary habitat (33.44 km<sup>2</sup>). Overall density of gibbon irrespective of habitat type is  $0.41 \pm 0.19$  groups' km<sup>-2</sup> for the larger 1-km listening radius and  $0.51 \pm 0.32$  groups' km<sup>-2</sup> for the 600m listening radius. Here also, the density of gibbon in both the listening radius yielded greater result (0.69 & 0.87 groups/ km<sup>2</sup>) from that of Amren RF (0.11 & 0.14 groups / km<sup>2</sup>) as well as between habitat types i.e. primary forest habitat and secondary forest habitat. The average group size of gibbon in this forest complex is  $2.8 \pm 0.1$  individuals per group. The estimated Hoolock gibbon population in Khuriming - Panimur- Amren forest complex would be between 25 to 30 groups and 70 to 85 individuals with the mean number predicted at approximately 80 individuals.

## HABITAT ASSESSMENT AND MAPPING

Altogether 450 vegetation sample plots were taken at each 500m intervals and at the Hoolock gibbon encounter point during survey of 285 km long transect. Data on habitat quality (within the existing forest and not the actual forest boundary) showed that almost 30.6% of the area of Dhanshiri - Borlangfer complex has less than 20% canopy cover, while 45.4% area of Khuriming – Panimur - Amren complex has less than 20% canopy cover (table – 6). Data also indicate that Dhanshiri - Borlangfer complex have 44.4% area with moderate ( $\leq 50\%$ ) canopy cover which constitute the secondary habitat and 25% area with good canopy cover ( $\geq 50\%$ ) or closed canopy cover which constitute the primary habitat of gibbon. While in Khuriming – Panimur - Amren complex 36.6% area have moderate canopy cover ( $\leq 50\%$ ) and only 18.2% area with good canopy cover ( $\geq 50\%$ ) that constitutes the primary habitat of gibbon.

For habitat analysis and mapping, we procured recent satellite images of IRS P LISS-III for both Dhanshiri - Borlangfer and Khuriming – Panimur - Amren forest complexes and analyzed it in GIS environment to get the actual picture of vegetation cover in these two complexes. Based on ground truthing survey we classified the six types of landscape elements (LSE) from both the Dhanshiri - Borlangfer and Khuriming – Panimur - Amren forest complex under Karbi Anglong district. The Physical Landscape Elements are (i) Semi ever green forest, (ii) Moist mixed deciduous forest, (iii) Scrub forest (jhum abandoned, (iv) Degraded forest, (v) Agricultural land with shifting (jhum) cultivation within notified forest and (vi) water bodies. All these landscape elements are spatially well distributed all over these parts of Dhanshiri - Borlangfer and Khuriming – Panimur - Amren forest complexes.

Most of the semi evergreen forest lies in the Dhanshiri RF under Dhanshiri - Borlangfer forest complex and Khuriming RF under Khuriming – Panimur - Amren forest complex. These patches have substantial value in Hoolock gibbon conservation since it forms the ideal habitat of Hoolock gibbon and most of the groups were found from these areas. While most of the parts of both the forest complexes are dominated by the mixed-moist deciduous type of forest.



We estimate the available gibbon habitat from satellite data. These data also tally with our vegetation sample data, which indicate that only 38.3% of the total vegetation cover under Dhanshiri - Borlangfer forest complex excluding Daldali RF constitutes the gibbon habitat. We have calculated the habitat available to gibbon in Dhanshiri - Borlangfer forest complex is about 325.7 km<sup>2</sup> of which 60.6 km<sup>2</sup> is dense forest that constitutes the primary habitat having  $\geq 50\%$  canopy cover and 265.12 km<sup>2</sup> is the secondary forest of Hoolock gibbon having moderate canopy cover ( $\leq 50\%$ ). Similarly, in Khuriming – Panimur - Amren forest complex, only 26.2% of total vegetation cover have attributed to gibbon habitat. We have calculated the available habitat of gibbon in Khuriming – Panimur - Amren forest complex is about 48.72 km<sup>2</sup> of which only 15.28 km<sup>2</sup> is dense forest that constitutes the prime habitat having  $\geq 50\%$  canopy cover and 33.44 km<sup>2</sup> is the secondary forest of Hoolock gibbon having moderate canopy cover ( $\leq 50\%$ ).



Photo: Primary habitat with good forest canopy



Photo: Secondary habitat with moderate forest canopy



Photo: Jhoom abandoned forest



Photo: Illegal logging

## CONSERVATION EDUCATION CAMPAIGN

A mass awareness campaign was carried out in the fringe villages of these forest complexes under Karbi Anglong district of Assam to bring about awareness about the importance of the forest and Hoolock gibbon conservation and the role of local communities in conservation of the forest resources. Our objective was to protect and promote the Western Hoolock Gibbon by teaching students and community members an active learning methodology for creating interest and affection for WHG using a whole gamut of teaching techniques. For that we used a manual featuring Hoolock Gibbon called Help(ing) Hoolock Gibbon Hang on! It was developed by Zoo Outreach Organization, India in collaboration with Wildlife Conservation Society, USA. It has five units' viz., Introduction and evaluation methods; introduction to South Asia's only lesser apes; Hoolock Gibbon in our culture; Understanding and acting and; understanding species problems and solutions. Apart from the manual, 12 different educational items, like posters, packets, musk, stickers, were given to each participant. In addition to this, all participants received other items of related teaching literature.

### **Awareness campaign at School level:**

Total of six schools from fringe areas of Panimur-Amren forest complexes comprising 450 participants were covered during the education campaign (table – 10). These one day long programs were organized in the school premises during the school hours. For which necessary arrangements were made in consultation with the school Head Master / Mistress. In the school level awareness campaign, the general components were:

- a) A preliminary session of introduction and conveying the objectives of the program.
- b) Distribution of education materials like sticker, pamphlet, poster etc.
- c) Lecture on biodiversity, role of animal and plant on ecosystem and the importance of forest and wildlife and Hoolock gibbon conservation.
- d) Demonstration of different facts and figure of Hoolock gibbon and different ecological models.
- e) Screening of wildlife films.
- f) Light refreshment and appraisal.



Sl no	Name of the School	Male Student	Female Student	No. of Teacher
1	Nihang Rongphar ME School	59	41	4
2	Upper Dokmoka LP School	43	37	3
3	Tekelangiuun ME School	43	48	5
4	Rui-Ikpi LP School	35	55	3
5	Barim Longsa LP School	47	35	3
6	New Life English School	35	44	4

Table - 10: List of school and student participants in awareness campaign.



## CAPACITY BUILDING

Karbi Anglong being the Autonomous Council (KAC) under the ‘VI<sup>th</sup> Schedule’ of the Indian Constitution, where forest and environment is council subject and state cannot interfere on it. In absence of any separate wildlife division, there is very weak capacity of protection and tasks for managing the PAs are by the normal territorial forest department of and most staff are trained in traditional forestry.

Recently, one of our recommendation based on our previous project, which was articulated in ‘Action Plan of Hoolock gibbon in KA’ for the establishment of one Wildlife Division and three wildlife range to exclusively look after the wildlife and its management issues in Karbi Anglong is under review. For initial stage, forest department, KAC has agreed to establish one such range office in the strategic location of Haldibari under North Karbi Anglong WLS by upgrading the existing Haldibari Beat to Wildlife Range with deployment of more staff, which will strengthen the protection and enforcement. The KAC forest authority has already started construction of its office and the camp at Haldibari (see photographs) and once the range office is being in place, deployment of more staff and supplies will automatically come in to force.



Photo: Forest Office & Camp for staff at Haldibari under construction



### Infrastructure development:

Since, one of the objectives of the current project is to achieve much needed conservation intervention of gibbon in PAs of Karbi Anglong through infrastructure development to enhance protection. In an attempt to improve the protection scenario one all terrain 4 x 4 Tata Xenon vehicle with crew cabin was provided to North Karbi Anglong WLS. It is worth mentioning that the sanctuary is situated just opposite site of the world famous Kaziranga NP and having habitat contiguity. Wild animal from Kaziranga including Hoolock gibbon during used to visit the sanctuary. In this connection a flag off ceremony was organized on 22<sup>nd</sup> October 2014 at Diphu by Primate Research Centre NE India (PRC) in collaboration with Forest Department, Karbi Anglong, which was attended by Executive Member (EM), Forest, Karbi Anglong Autonomous Council as Chief Guest.



Photo: Flag off ceremony of the patrolling vehicle for North Karbi Anglong WLS



The ceremony was attended by senior forest officials of KAAC like, Dr. Abhijit Rabha, Addl. PCCF, KA, Mr. Jaysing Bey, DFO, East Karbi Anglong Division, Mr. Jaganath Rongpi, DFO, Karbi Anglong West Division, Mr. R.S. Ingti, DFO, Silviculture Division and many others. Dr. Abhijit Rabha, Addl. PPCF thanked the organizer PRC for their effort and said that this will certainly increase the morale of the front line forest officials. He also lauded the organizer and supporting agency for extending their support which is long awaited and which could not be managed by department due to fund crunch. He call for the all out effort to the forest official to protect wildlife. The vehicle was provided to the Haldibari Beat which is proposed for separate wildlife range of North Karbi Anglong WLS to enhance mobility for protection.

### **Hoolock gibbon Action Plan Released:**

‘Conservation Action Plan of Hoolock gibbon in Karbi Anglong’ was also released by Mr. J. Singnar, EM Forest etc along with the flag-off ceremony of the vehicle. In his speech, Dr. Jihosuo Biswas, Coordinator, PRCNE emphasized the need of establishing separate wildlife wing of the Karbi Anglong to look after the management issue of the wildlife. Speaking to the occasion, Mr. Singnar, EM also lauded the effort of PRC and said that only concerted efforts from every corner can protect the forest and wildlife in Karbi Anglong as forest department alone cannot protect it. He also emphasized the need to have separate wildlife division and manpower for proper management.



Photo: Hoolock gibbon Action Plan being released by EM, Forest, KA and other Forest Officers.



### **Capacity building Workshop for mid level forest officials:**

A one day long capacity building program on Hoolock gibbon Conservation for mid level Forest officers like Forest Range Officers and Deputy Range Officers were organized at Diphu Forest IB on 23<sup>rd</sup> October 2014. Altogether 22 participants were attended the workshop. In the program, Dr. Jihosuo Biswas, Coordinator, Primate Research Centre NE India describes the conservation scope and challenges with special reference to Hoolock gibbon in Karbi Anglong. He also presented the result of PRC's Hoolock gibbon population and habitat estimation and said that Karbi Anglong consists >65% of the total state population of Hoolock gibbon which are distributed in five priority forest complex in Karbi Anglong prioritized for long term conservation of Hoolock gibbon.



### **Capacity building Workshop for frontline forest staffs:**

We have already procured the materials to be supplied to front line forest staffs from the current project and from the matching grant from USFWS like field kits, field gears and vehicle for patrolling which will be handed over shortly as a part of our next year activities. Similarly to boost the morale and provide basic knowledge to front line forest staffs, two training program will be conducted phase by phase to 60 number of staffs which will be done in our next year activities.

## ACTIVITIES TO BE CARRIED OUT IN NEXT PHASE

1. Capacity building cum training of front line forest staffs: 2 Nos which will be started from 5<sup>th</sup> April, 2015
2. Facilitating field kits and field gears to front line forest staff of Karbi Anglong ( 60 Nos) which will be scheduled from 5<sup>th</sup> April, 2015
3. Socio-economic study and threat assessment of Khuriming – Panimur – Amren forest complex.
4. One day long conservation education campaign (5 Nos)
5. Three days long in house nature orientation camp (2 Nos).
6. Community education campaign (10 Nos)



## Appendix – I

### Field Techniques for Wildlife Monitoring & Management Venue - Assam Forest School, Jalukbari, GHY -14 Details of the classes

- a. Day -1 : Arrival
- b. Day -2 : Integration and Biodiversity of the area, Importance of the Area
- c. Day -3 : Wildlife Census & Monitoring Techniques for Tiger, Elephant, Rhino and Primates
- d. Day -4 : Wildlife Census & Monitoring for birds, reptiles, amphibians, butter flies and ungulates
- e. Day -5 : Habitat assessment and mapping
- f. Day -6 : Wildlife Crime, Laws and Anti-poaching
- g. Day -7 : Wildlife management. Valedictory, Field kit & certificate distribution
- h. Day -8 : Departure

**1<sup>st</sup> Training program on Field Techniques for Wildlife Monitoring & Management from 5<sup>th</sup> April, 2015 to 12<sup>th</sup> April, 2015.**

Day	8.00-9.00	Theme	10.00-11.00	11.00-11.30	11.30-12.30	12.30-1.45	1.45-2.45	2.45-3.45	3.45-4.00	4.00-5.00	8.00-9.00
<b>Day-1</b> 05.04.15	<b>Arrival</b>					<b>Lunch</b>			<b>Arrival</b>		<b>DINNER</b>
<b>Day – 2</b> 06.04.15	<b>BREAKFAST</b>	<b>Inaugural Biodiversity &amp;</b>	Inaugural session	<b>Tea &amp; Evaluation</b>	Introduction to the course and rules & regulation of AFS Dr. J. Biswas & Mr. D.K. Das	<b>Lunch</b>	Biodiversity of Eastern Himalayas Prof. P.C. Bhattacharjee, GU	Climate change & its impact on Biodiversity Dr. Alka Bhargav, CCF	<b>Tea</b>	Biodiversity Assessment and Monitoring Dr. Jayanta Das, WWT	<b>DINNER</b>
<b>Day – 3</b> 07.04.15	<b>BREAKFAST</b>	<b>Wildlife Monitoring &amp; Census Techniques</b>	Tiger Census Techniques Dr. A. Rava, Adl. PCCF	<b>Tea &amp; Evaluation</b>	Elephant Census Techniques Mr. Bhupen Talukdar, DCF	<b>Lunch</b>	Rhino Census Techniques Mr. C.R. Bhobra, CF	Gibbon / Primate Census Techniques Dr. Jihosuo Biswas, PRC	<b>Tea</b>	Ungulates Monitoring & Census Techniques Ms. Alolika Sinha, WII	<b>DINNER</b>
<b>Day – 4</b> 08.04.15	<b>BREAKFAST</b>	<b>Wildlife Monitoring &amp; Census Techniques</b>	Bird Monitoring & Census Techniques Prof. P.C. Bhattacharjee, GU	<b>Tea &amp; Evaluation</b>	Butterfly Diversity & Monitoring Techniques Prof. Jatin Kalita, GU	<b>Lunch</b>	Tracks & Sign for Biodiversity Assessment & Monitoring Dr. Nabajit Das, BH College	Amphibians and Reptiles Monitoring Techniques Dr. Dr. N.K. Choudhury, DK College	<b>Tea</b>	Small Population & its future challenges Dr. Jihosuo Biswas, PRC	<b>DINNER</b>
<b>Day – 5</b> 09.04.15	<b>BREAKFAST</b>	<b>Habitat Assessment &amp; Mapping</b>	Vegetation Sampling Techniques Dr. Pranab Bujarbarua, Handique College	<b>Tea &amp; Evaluation</b>	Habitat Management Dr. Pranjal Bezbaruah, Grasshooper	<b>Lunch</b>	Use of GPS & Field work D Mr. Kulen Sinha, AFS	Habitat Mapping Dr. Pranjit Srama, Darrang College	<b>Tea</b>	Field work- Using GPS & Group Presentation Mr. Kulen Sinha, AFS	<b>DINNER</b>
<b>Day – 6</b> 10.04.15	<b>BREAKFAST</b>	<b>Wildlife Crime, Laws and Anti-poaching</b>	Anti-poaching Patrols Mr. Ritesh Bhatta, CF (Rtd)	<b>Tea &amp; Evaluation</b>	Anti-poaching Patrols Continue Mr. Ritesh Bhatta, CF (Rtd)	<b>Lunch</b>	Offence Report Preparation Mr. C.R. Bhobra, CF	Wildlife Laws Dr. Gopal Chetry	<b>Tea</b>	Problem solving on Wildlife Crime (GD) Mr. P.S. Das, DCF	<b>DINNER</b>
<b>Day – 7</b> 11.04.15	<b>BREAKFAST</b>	<b>Adaptive Management &amp; Closing ceremony</b>	Eco Development & Sustainable livelihood Dr. Surajit Baruah	<b>Tea &amp; Evaluation</b>	Rescue & Rehabilitation Dr. Rathin Barman, WTI	<b>Lunch</b>	Evaluation	Valedictory	<b>Tea</b>	Field Kits & Certificate distribution	<b>DINNER</b>
<b>Day – 8</b> 12.04.15	<b>BREAKFAST</b>	<b>Departure</b>									

**2<sup>nd</sup> Training program on Field Techniques for Wildlife Monitoring & Management from 19<sup>th</sup> April, 2015 to 26<sup>th</sup> April, 2015.**

Day	8.00-9.00	Theme	10.00-11.00	11.00-11.30	11.30-12.30	12.30-1.45	1.45-2.45	2.45-3.45	3.45-4.00	4.00-5.00	8.00-9.00
<b>Day-1</b> 19.04.15	<b>Arrival</b>					<b>Lunch</b>			<b>Arrival</b>		<b>DINNER</b>
<b>Day – 2</b> 20.04.15	<b>BREAKFAST</b>	<b>Inaugural Biodiversity &amp;</b>	Inaugural session	<b>Tea &amp; Evaluation</b>	Introduction to the course and rules & regulation of AFS Dr. J. Biswas & Mr. D.K. Das	<b>Lunch</b>	Biodiversity of Eastern Himalayas Prof. P.C. Bhattacharjee, Gauhati University	Climate change & its impact on Biodiversity Dr. Alka Bhargav, CCF	<b>Tea</b>	Biodiversity Assessment and Monitoring Dr. Jayanta Das, WWT	<b>DINNER</b>
<b>Day – 3</b> 21.04.15	<b>BREAKFAST</b>	<b>Wildlife Monitoring &amp; Census Techniques</b>	Tiger Census Techniques Dr. A. Rava, Adl. PCCF	<b>Tea &amp; Evaluation</b>	Elephant Census Techniques Mr. Bhupen Talukdar, DCF	<b>Lunch</b>	Rhino Census Techniques Mr. C.R. Bhobra, CF	Gibbon / Primate Census Techniques Dr. Jihosuo Biswas, PRC	<b>Tea</b>	Ungulates Monitoring & Census Techniques Ms. Alolika Sinha, WII	<b>DINNER</b>
<b>Day – 4</b> 22.04.15	<b>BREAKFAST</b>	<b>Wildlife Monitoring &amp; Census Techniques</b>	Bird Monitoring & Census Techniques Prof. P.C. Bhattacharjee, Gauhati University	<b>Tea &amp; Evaluation</b>	Butterfly Diversity & Monitoring Techniques Prof. Jatin Kalita, Gauhati University	<b>Lunch</b>	Tracks & Sign for Biodiversity Assessment & Monitoring Dr. Nabajit Das, BH College	Amphibians and Reptiles Monitoring Techniques Dr. Dr. N.K. Choudhury, DK College	<b>Tea</b>	Small Population & its future challenges Dr. Jihosuo Biswas, PRC	<b>DINNER</b>
<b>Day – 5</b> 23.04.15	<b>BREAKFAST</b>	<b>Habitat Assessment &amp; Mapping</b>	Vegetation Sampling Techniques Dr. Pranab Bujarbarua, Handique College	<b>Tea &amp; Evaluation</b>	Habitat Management Dr. Pranjal Bezbaruah, Grasshooper	<b>Lunch</b>	Use of GPS & Field work D Mr. Kulen Sinha, AFS	Habitat Mapping Dr. Pranjit Srama, Darrang College	<b>Tea</b>	Field work- Using GPS & Group Presentation Mr. Kulen Sinha, AFS	<b>DINNER</b>
<b>Day – 6</b> 24.04.15	<b>BREAKFAST</b>	<b>Wildlife Crime, Laws and Anti-poaching</b>	Anti-poaching Patrols Mr. Ritesh Bhatta, CF (Rtd)	<b>Tea &amp; Evaluation</b>	Anti-poaching Patrols Continue Mr. Ritesh Bhatta, CF (Rtd)	<b>Lunch</b>	Offence Report Preparation Mr. C.R. Bhobra, CF	Wildlife Laws Dr. Gopal Chetry	<b>Tea</b>	Problem solving on Wildlife Crime (GD) Mr. P.S. Das, DCF	<b>DINNER</b>
<b>Day – 7</b> 25.04.15	<b>BREAKFAST</b>	<b>Adaptive Management &amp; Closing ceremony</b>	Eco Development & Sustainable livelihood Dr. Surajit Baruah	<b>Tea &amp; Evaluation</b>	Rescue & Rehabilitation Dr. Rathin Barman, WTI	<b>Lunch</b>	Evaluation	Valedictory	<b>Tea</b>	Field Kits & Certificate distribution	<b>DINNER</b>
<b>Day – 8</b> 26.04.15	<b>BREAKFAST</b>	<b>Departure</b>									

## Appendix - II

**List of Front line Forest staffs who will be participating the training programs:**

Sl. No.	Division	Range	Name of the staff	Rank
1	KA Division East	Western Range	Mr. Sanjoy Engti	Fr I
2		Western Range	Mr. Bikram Teron	Fr I
3		Western Range	Mr. Admond Terang	Fr I
4		Protection Range	Mr. Babu Ram Kro	Fr I
5		Eastern Range	Mr. Sarnelip Hanse	Fr I
6		Eastern Range	Mr. Ashim Rongphar	Fr I
7		Central Range	Mr. Welson Rongphar	Fr I
8		Central Range	Mr. Mongal Timung	Fr I
9		North Western Range	Mr. Don Bora	Fr I
10		North Western Range	Mr. Jagat basumatary	Fr I
11		North Eastern Range	Mr. Suna Singh Timung	Fr I
12		Northern Range	Mr. Babu Ram Bey	Fr I
13		Northern Range	Mr. Loren Phangcho	Fr I
14		Northern Range	Mr. Parasar Saikia	Fr I
15		Northern Range	Mr. Prosenjit Killing	Fr I
16	Working Plan	Working Plan	Mr. Bimal Bey	Fr I
17		Working Plan	Mr. Bijon Teron	Fr I
18		Working Plan	Mr. Putu Koch	Fr I
19		Working Plan	Mr. Renon Kro	Fr I
20		Working Plan	Mr. Dimbaswar Bora	Fr I
21		Working Plan	Mr. Reshamlal Bhusal	Fr I
22		Working Plan	Mr. Sikari Rongpi	Fr I
23		Working Plan	Mr. Joysing Timung	Fr I
24		Working Plan	Mr. Bikram Teron	Fr I
25		Working Plan	Mr. Manik Tisso	Fr I
26	West Division		Mr. Dorsing Timung	Fr I
27			Mr. Longbiram Tisso	Fr I
28			Mr. Krishna Rongphar	Fr I
29			Mr. Buddha Narzary	Fr I
30			Mr. H. Bhattacharjee	Fr I
31			Mr. Biju Rongpi	Fr I
32			Mr. Ranji Engti	Fr I
33			Mr. Nokjeer Hanse	Fr I
34			Mr. Sunsing Timung	FG
35			Mr. Jitsing Rongpi	FG
36			Mr. Ramesh Terang	FG
37			Mr. Chamsing Timung	FG



38			Mr. Khorsing Engti	FG
39			Mr. Putul Borah	FG
40			Mr. S.J. Gogoi	FG
41			Mr. B.R. Rongphar	FG
42			Mr. Bishnu Bora	FG
43			Mr. Ritu Rajbonshi	FG
44			Mr. Rajib Ahmed	FG
45			Mr. Nirmal Rabha	FG
46			Mr. Deben Teron	FG
47			Mr. Ajoy Hanse	FG
48			Mr. Sing Hanse	FG
49			Mr. Marsonly Hanse	FG
50			Mr. Surya Rongpi	FG
51			Mr. Khiram Bey	FG
52			Mr. Dirchumai Rongpi	FG
53			Mr. Devid Rongpi	FG
54			Mr. Burasing Hanse	FG
55			Mr. Sikari Kramsa	FG
56	Hamren Division		Mr. Harsing Teron	Fr I
57			Mr. Someswar Tokbi	Fr I
58			Mr. Harsong Kramsa	Fr I
59			Mr. Raju Ronghang	Fr I
60			Mr. Swagat Baruah	Fr I