

## **Project Update: October 2011**

### **Project summary:**

Butterflies are recognized as a biomarker and playing a critical role in ecosystem. In spite of their valuable functions in ecosystem this beautiful insect receives limited conservation attention. According to my project aim “generate information on the butterfly diversity of key protected areas”, I have completed a pilot survey including one Tiger Reserve, namely Nameri Tiger Reserve, five Reserve Forest namely Panbari Reserve Forest, Nambar Reserve Forest, Dili Reserve forest, Jokai Reserve Forest, Joypur reserve forest and three Wildlife Sanctuary namely, Gibbon Wildlife Sanctuary, Borajan Wildlife Sanctuary and Bherjan wildlife Sanctuary. I am unable to survey in the Dehing Patkai Wildlife Sanctuary due the some unfavourable political scenario within and neighbouring area of this Wildlife Sanctuary. During my survey time used Mckinnon’s method for butterfly sampling. This method requires walking in a given area till 20 species are recorded. A total of 210 species of butterflies have been identified.

### **Study area:**

#### **Nameri Tiger Reserve:**

Nameri Tiger Reserve now declared as Nameri National Park nestled at foothills of Eastern Himalya. It covers an area of 200 sq kms. It is located in Sonitpur district of Assam. The habitat of Nameri National Park is made up of tropical evergreen forest, semi evergreen forest, moist deciduous forest and open grassland.

#### **Panbari Reserve Forest**

Panbari Reserve Forest located in Golaghat district of Assam and is near the Kaziranga National Park. The habitat of Panbari Reserve Forest is made up tropical evergreen forest. It covers an area of 12 sq km.

#### **Nambar Reserve Forest**

Nambar Reserve Forest located in Golaghat district of Assam. It covers an area of 236.86 sq km. The habitat is made up semi evergreen forest.

#### **Dili Reserve Forest**

Dili Reserve forest located in Sibsagar district boarding two states Assam and Arunachal Pradesh. It covers an area of 16.7 sq kms. The habitat of Dili Reserve Forest is made up with semi evergreen and deciduous forest.

#### **Gibbon Wildlife Sanctuary**

Gibbon Wildlife Sanctuary also known as Hollongpar Gibbon Wildlife Sanctuary due to Hollong tree gobbled up the habitat of this sanctuary. It covers an area of 20.98 sq kms and located in Jorhat district of Assam. The Gibbon Wildlife Sanctuary famous for primate community especially for Hoolock Gibbon.

### **Jokai Reserve Forest**

Jokai Reserve Forest has been rich treasure trove of flora and fauna. The habitat of Jokai Reserve Forest is made up evergreen forest

### **Borajan Wildlife Sanctuary**

Borajan Wildlife Sanctuary located in Tinsukia district of Assam. It is a small forest patch an area of 5 sq kms. Its habitat made up with tropical semi evergreen forest.

### **Bherjan Wildlife Sanctuary**

Bherjan Wildlife Sanctuary situated in Tinsukia district. It is a small forest patch almost an area of 11 sq km. The habitat of Bherjan Wildlife Sanctuary is made up tropical semi evergreen forest.

### **Joypore Reserve Forest**

Joypur Reserve Forest located Dibrugarh district, bordering two state Assam and Arunchal Pradesh. High humidity and high rainfall is the special feature of this reserve forest. The habitat is made up with rain forest and semi evergreen forest. Joypur Reserve Forest spread over an area of 108 sq km.

### **Method:**

#### **Mckinnon's Method**

This method was developed by McKinnon & Philip (1993) after their work on birds in Indonesia. This is a simple method developed to get a quick idea of the species richness and composition in an area. The method is very useful if there are time constraints and only few days of fieldwork. It can easily be used for butterfly surveys.

Count of butterflies conducted at two or three localities or sites provide indices of abundance between sites and quantitative and qualitative measures of similarity of Lepidoptera between the survey sites. This method has been tested both in the hills and in the plains and has been found to be quite useful and efficient in generating indices of species richness lists at different sites during multi-site surveys.

This method requires walking in a given area till 20 species are recorded. This number of 20 can be reduced to 10 or 15 if the survey sites have impoverished Lepidoptera. If several sites are being compared, then the number of species list has to be constant for all for drawing comparisons. Once a list of 10, 15 or 20 species is complete, another list is prepared. A species occurring in previous list can be recorded on several lists (Table 1). Commonly occurring species will get recorded on several lists. For an area, 16 such lists of either 10, 15 or 20 species is fine, however given the size of habitat and time limitation even 10 lists from an area will allow worthwhile comparison. The rate of completing a list is a function of richness of an area. In more rich areas 10 such lists can be accumulated in 2 - 2 ½ hours if on an average each list takes 15 minutes. This will also depend on an observer's ability to detect and identify the species

quickly. This method if it is being used to compare different survey sites, needs recording of additional information i.e. time of start and time of end, habitat conditions etc.

### **Result:**

During surveyed period 210 butterfly species in 5 families namely Papilionidae (20sp.); Nymphalidae (102sp.); Peridae (25sp.); Lycaenidae (36sp.) and Hesperidae (27sp.) have been identified and few identifications yet to be done. The unfavorable weather condition specially the heavy rain affected the survey of this beautiful flying insect. In spite of the bad weather condition 11 rare species have been identified above the mentioned Reserve Forest/ Tiger Reserve/ Wildlife Sanctuary, namely- Banded lineblue, Archduke, Dark archduke, Great evening brown, Chinese bushbrown, Peal's plamfly, Unbroken Sergeant , Studded sergeant, Perak lascar, Sullied sailer, Grey count. Peal's palmfly and Plain bushbrown are endemic in Assam, observed in Panbari RF near Kaziranga NPK. In this present investigation the distribution of butterflies in the surveyed areas as bellow-

**Nameri Tiger Reserve-** Papilionidae (14sps.), Nymphalidae (62sps.), Peridae (17sps.), Lycaenidae (19sps,) and Hesperidae (12sps.).

**Panbari Reserve Forest-** Papilionidae (15sps.), Nymphalidae (62sps.), Peridae (18sps.), Lycaenidae (21sps.) and Hesperidae (11sps.).

**Nambar Reserve Forest-** Papilionidae (13sps.), Nymphalidae (73sps.), Peridae (21sps.), Lycaenidae (24sps,) and Hesperidae (21sps.).

**Bharjan Wildlife Sanctuary-** Papilionidae (15sps.), Nymphalidae (49sps.), Peridae (14sps.), Lycaenidae (22sps,) and Hesperidae (9sps.).

**Barjan Wildlife Sanctuary-** Papilionidae (13sps.), Nymphalidae (47sps.), Peridae (11sps.), Lycaenidae (17sps,) and Hesperidae (11sps.).

**Joypur Reserve Forest-** Papilionidae (17sps.), Nymphalidae (110sps.), Peridae (21sps.), Lycaenidae (31sps,) and Hesperidae (13sps.).

**Dili Reserve Forest-** Papilionidae (19sps.), Nymphalidae (61sps.), Peridae (11sps.), Lycaenidae (17sps,) and Hesperidae (7sps.).

**Jakai Reserve Forest-** Papilionidae (11sps.), Nymphalidae (67sps.), Peridae (21sps.), Lycaenidae (17sps,) and Hesperidae (13sps.).

**Gibbon Wildlife Sanctuary-** Papilionidae (16sps.), Nymphalidae (72sps.), Peridae (17sps.), Lycaenidae (19sps,) and Hesperidae (11sps.).

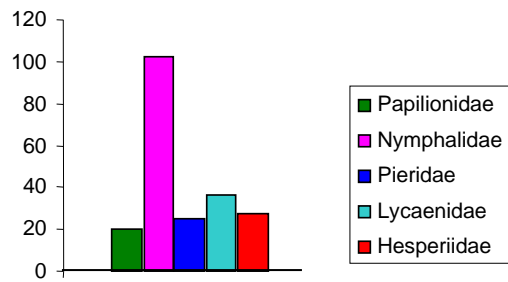


Fig: Graphical representation of total butterfly species in surveyed areas.

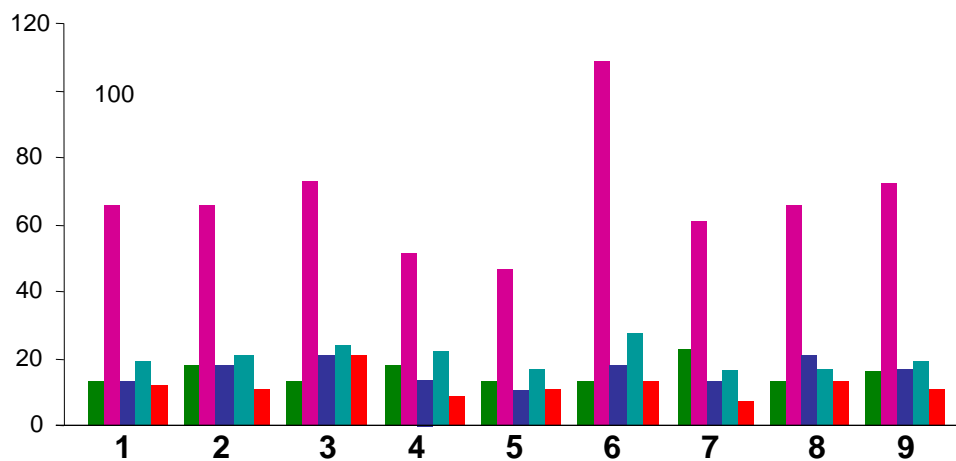


Fig: Distribution of butterflies in (1) Nameri TRF, (2) Panbari RF, (3) Nambar RF, (4) Bharjan WLS, (5) Barjan WLS, (6) Joypur RF, (7) Dili RF, (8) Jakai RF & (9) Gibbon WLS.

**Poster:**

Poster presented in the National Symposium on Biodiversity Status and Conservation Strategies with special reference to North East India to be held on 17&18th March, 2011 organized by Department of Life Science Manipur University, Canchipur.

**STUDY ON BUTTERFLY DIVERSITY & IT'S HABITAT: SPECIAL REFERENCE TO EASTERN ASSAM**

Sanjay Talukdar, Taz Akther and Mann Barua  
 North east butterfly, Kaziranga, Wild Grass, Assam  
 E-mail: sanjayshreet@yahoo.co.in

## **Abstract**

Assam is a province of North East India and one of the biodiversity hotspots in the world enriched with different forest types. The habitat of forest in eastern Assam made up of tropical evergreen, Semi-evergreen, Assam valley wet evergreen forest, moist deciduous forests etc. with cane and bamboo brakes and strips of open grassland which is suitable habitat for butterflies. The state harbors variety of faunal population many of which are endemic and endangered. Butterflies are one of the most diverse organisms prevailed in various climatic zone/ habitat. Butterflies are widely recognized as potentially valuable ecological indicator and flagship species in Conservation Biology. In present investigation 1<sup>st</sup> line pilot survey has done in 3 Reserve Forest namely Nambar RF, Joypur RF and Dilli RF; Including 2 Wildlife Sanctuary namely Gibbon WS, Bharajan Bharjan Padumoni WS and One National Park namely Nameri National Park from May to November 2010. During this survey 210 butterfly's species in 5 families namely Papilionidae (20sp.); Nymphalidae (102sp.); Pieridae (25sp.); Lycaenidae (36sp.) and Hesperidae (27sp.) have been identified and few identifications yet to be done. In this time of investigation 11 rare species have been identified- Banded lineblue, Archduke, Dark archduke, Great evening brown, Chinese bushbrown, Peal's plamfly, Unbroken Sergeant, Studded sergeant, Perak lascar, Sullied sailer, Grey count. Peal's palmfly and Plain bushbrown are endemic in Assam, observed in Panbari RF near Kaziranga NPK.

## **Training program**

Training program on identification of butterfly and its role in ecology organized in Gibbon Wildlife Sanctuary and Panbari Reserve Forest.