Updates And Photographs - From April 2005 To March 2006

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Title of the Project

“Conservation status of bats in the Agasthiyar Hill Range in the Western Ghats, India, with particular reference to Salim Ali’s fruit bat (Latidens salimalii).

Study Site and the work update

Agasthiyar Hill Range of Southern Parts of Western Ghats bordering the hills of Kerala state in the west and the plains of Tirunelveli District in the east (between 08° 20' N, 77° 31' E and 09° 30' N, 77° 08' E) Map 1. It is domicile for multi-species and multi-aged trees as dominant community. These forests endow with imperative resources of both ecological and economical value. Being a hotspot they provide habitat for Wildlife, prevent drought, provide womb for river Thamirabarani and maintains purity of atmosphere. Recent human interference, indiscriminate felling of trees and misused estate management cause damage to this ecosystem. Restoration is the only step for the reconstruction of various tropical forest types. The available bat diversity in this ecosystem is importance in restoration by controlling insect pests, dispersing seeds and pollinating flowers. The lack of knowledge about these key stone species availability and their distribution created the most imperative need for the study of bats in this
part of the world. Without knowing these incredible partners conservation measures cannot be taken.

The unexplored bat survey in this part of the country encouraged the applicant (Dr. Juliet Vanitharani) to formulate a request to the Rufford Maurice Laing Foundation for financial assistance through the Rufford small grant to work under the title “Conservation status of bats in the Agasthiyar Hill Range in the Western Ghats, India, with particular reference to Salim Ali’s fruit bat (Latidens salimalii)”. The work has received the grant support from 2002 onwards (for consecutive 3 years).

Now documented, the Agasthiar Biosphere Reserve parts of southern Western Ghats are an abode for a wide variety of bat species. The seven research sites (suggested under the methodology) incorporated eleven forest types; bat species distribution varies in accordance to the elevation and the forest types. Surveys reports were the first record for bats in this area and resulted in a collection of 33 bat species belonging to 8 families. This signifies the first published bat data for this area. (Plate 1 and 2) Out of available 33 bat species two Microchiropteran bats Rhinolophus beddomei, and Kerivoula lenis reached the NT (Near Threatened) state. The collection of K. lenis was the first record of the taxon since its original description from Calcutta in 1916 and represents a range extension for the species of over 1950 km. The four representatives of endemic bat species of South Asia Magachiropteran, Latidens salimalii (Endangered) and the 3 Microchiropterans, Rhinolophus beddomei (Near Threatened), Hipposideros speoris (Least Concerned) and Pipistrellus dormeri (Least Concerned) are the valuable representatives.

Activities Accomplished


1a) Ongoing Survey and Identification of caves, cavities, crevices, trees and anthropogenic structures exploited by bats as roosts. The assessed conservation possibilities are given in (Plate A,B,C).
1b) The bat team under the leadership of Dr. Juliet Vaitharani has documented 33 bat species and their distribution (Plate 1.1a).

1c) Conservation status assessment made with particularly reference to Salim Ali’s fruit bat (*Latidens salimalii*).

The fruit bat *Latidens salimalii* is **Endemic** to South India especially to the **southern Western Ghats** of Tamilnadu. Augmented data about the roosting sites, distribution and foraging behaviour of *L. salimalii* (The Endangered bat).

The bat research team documented the first Record of 7 locations of *Latidens salimalii*’s diurnal roost and 10 night roosts in the Aguthiyarhill Range. *(Table 1, Plate 2)*

**Table 1: Latidens salimalii distribution.**

<table>
<thead>
<tr>
<th>Name of the Bat</th>
<th>Location Details in Agasthiyamalai Biosphere Reserve</th>
<th>Located habitat</th>
<th>Earlier Reports in Tamilnadu</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Latidens salimalii</em> fruit bat</td>
<td>Karuthali pudavu (Pothigai hills) Ele: 1200 ft, N: 8°42.60', E: 77°35.39'</td>
<td>Rare fruit bat of rain forest area above 1000m elevation</td>
<td></td>
</tr>
<tr>
<td><em>Endemic to South India</em></td>
<td>Ambalampudavu (Pothigai hills) Ele: 1460 ft, N: 8°36.42', E: 77°18.38'</td>
<td>While Forage in the 1A/C3 Southern Hilltop Evergreen Forests and 11A/C1 Southern Montane Wet Temperate Forests.</td>
<td></td>
</tr>
<tr>
<td><strong>Endangered (EN)</strong></td>
<td>Udumbukal (Servalaru hills) Ele: 1800 ft, N: 8°43.93', E: 77°16.55'</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ingikuli (Pothigai hills) Ele: 1960 ft, N: 8°37.24', E: 77°16.78'</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Therkumalai (Courallam hills) Ele: 2412 ft, N: 8°53.83', E: 77°15.24'</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Sengaltheri (Kalakad hills) Ele: 2814 ft, N: 8°32.03', E: 77°26.87'</td>
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</tr>
<tr>
<td></td>
<td>Kudiravetti (Kothiar hills) Ele: 3343 ft, N: 8°41.28', E: 77°31.09'</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Nagapothigai (Pothigai hills) Ele: 3476 ft, N: 8°35.87', E: 77°16.55'</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Poongulam (Pothigai hills) Ele: 3712 ft, N: 8°36.46', E: 77°15.24'</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A special record about the role of *Latidens* in seed dispersal and pollination created *(Plate 3)* remarkable attraction among the international Chiropterologists (Published several papers in both National and International journals and Conferences).
Documented *L. salimalii*'s role of forest restoration in the tropical evergreen forests of Agasthiya hill range (Plate 4).

2) Malcolm Pearch from Harrison Institute, Centre for Systematics and Biodiversity Research, UK visited the study site and the Bat Research team for technical supervision and specialist training (09.05.2004 to 22.05.2004). Both Dr. Juliet and her student researchers of the Bat Research Laboratory got training and technical assistant both in the laboratory as well as in some of the field stations. The discussion was helpful in preparing and publishing research papers on conservation of bats (Plate 5).

3) **Public awareness** is a crucial component action that must be implemented as a holistic conservation action plan for bats in India. Promoted the concept of bat conservation both locally and nationally through bat awareness programmes and academic workshops (Plates 6 a,b,c and d).

- Awareness has been achieved by supplying **education materials for schools** and **graduate students** (Plate 5) Ministry both Central and State, Forest and Environment Officials

- **Drafted** special reading materials about bat's beneficial role in the ecosystem **for policy makers** (Village and Panchayat Officials) (Plate 6)

4) **Radio telemetry studies are ongoing and the bat survey in the Agasthiyamalai Biosphere Reserve**, is continuing. The team is augmenting data on distribution, roosting sites, population status, reproduction, and foraging behaviour through the radio telemetry studies.

5) Disseminated data to the international scientific community by means of the publication of papers in peer-reviewed journals (List of publications attached herewith Dr. Juliet Vanitharani attended 3 international conferences (At 13th International Bat research Conference, organized by Polish Academy of Sciences and Museum and
Institute of Zoology Mikołajki, Poland, At Workshop on Seed Dispersal and Frugivory in Asia, organized by Xishuangbanna Tropical Botanical Garden and the Chinese Academy of Sciences, Xishuangbanna, Yunnan, China, At 4th International Symposium/Workshop on frugivores and Seed dispersal, organized by Griffith University, Brisbane, Australia)and submitted the research findings to create awareness about these important keystone species of ecosystem.

Publications of the year 2005-2006

Juliet Vanitharani 2005

Juliet Vanitharani, Malathi USU and Arul Sundari .A 2005

Juliet Vanitharani\textsuperscript{1} and Chelladurai, V\textsuperscript{2}. 2005
Food Selection And Foraging Behaviour Of Latidens salimalii In Agasthiyar Hill Range Of Kalakad Mundanthurai Tiger Reserve, Tamil Nadu. Proceedings of 29\textsuperscript{th} Conf. Ethol. Soc. India

Rajkumar, S\textsuperscript{1}. , Addline Esther Pushparani, D\textsuperscript{2}. , Vanitharani, J\textsuperscript{2}. and Sundararaj, T\textsuperscript{1}. 2005.
Do Feeding Habits Influences The Normal Micro flora Of The Bat's Intestine?. Proceedings of 29\textsuperscript{th} Conf. Ethol. Soc. India

D. Lily and Juliet Vanitharani. 2005

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Latidens salimalii (Salim Ali’s fruit bat) A Reliable Seed Disperser Of Southern Western Ghats; India. Proceedings of 4\textsuperscript{th} International Symposium/Workshop on frugivores and Seed dispersal at Australia.

Juliet Vanitharani 2005
Vanitharani, J, Addline Esther Pushparani, and D. M. Vijaya, 2005

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Role Of Fruit Bats In Forest Management Of Agasthiyamalai Biosphere Reserve. Proceedings of State Level Conference on The Changing Environment. T. Kallikulam, Tirunelveli District


Juliet Vanitharani. 2006