

## **Dr. SRIPATHI KANDULA**

### **Professor & Head**

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### **RESEARCH AREAS:**

1. Molecular biology and bioinformatics techniques for phylogenetic analyses.
2. Detection, recording of ultrasounds using bat detector and relevant softwares.
3. Bat Population dynamics and demographical studies.
4. Radiotelemetry as a tool to study home range and juvenile dispersal.
5. Training bats for experiments under controlled conditions

### **HONORS AND AWARDS:**

1. IUCN SSC CBSG member
2. Chair of the Chiroptera Action Plan for South Asia

### **CONTACT DETAILS:**

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### **RESEARCH INTERESTS:**

My group has standardized a non lethal method of sampling minimal volume of blood from bats and DNA extraction. DNA thus obtained has successfully been used as template to amplify and sequence mitochondrial cytochrome b gene. Protocols have also been standardized to extract amplifiable DNA from wing biopsy samples. Molecular taxonomical studies are underway to understand the intraspecific phylogeny of various isolated and morphologically distinct populations of the fruit bat *Cynopterus sphinx*. Microsatellites are used for this work and preliminary results are being interpreted. We have been using various bioinformatics tools for sequence analysis and to study molecular evolution.

Work is in progress to develop reference acoustic library of various microbats present in southern India. We are in a process of recording echolocation calls from various species to isolate and identify call components that contains species specific signatures and can be used for identification of various species without capturing them. Besides, work is in progress to study intraspecific phylogeny using echolocation calls. Such a phylogeny is coupled with morphological and molecular studies for comparison with morphological and genetic species concept. We have already acquired data from populations across India and are in a process of analyzing them.

My lab has been working on echolocation of bats for past few decades and has enormous experience and expertise in studying them. As part of our effort to assess demography and dynamics of local populations of bats we have been doing capture mark

recapture studies regularly. Survivability, dispersal patterns, immigration, emigration of these populations has been charted out to a certain detail.

For past one decade we have been using radiotelemetry studies with considerable success to assess foraging area, home range and juvenile dispersal of the fruit bat *Cynopterus sphinx*. Information obtained from such studies have helped us design further proposals to study the social structure and mating system of this fruit bat. Based on information acquired from radiotelemetry and capture mark recapture studies we have initiated a study on behavioural genetics of this bat.

Training bats is an important component for studying them under controlled captive condition. We have been using captive bats for various studies for past few decades, the most recent been the study on psychoacoustic of a microbat *Megaderma lyra* under habituation dehabituation paradigm.

### **PUBLICATIONS:**

1. **K. Sripathi**, S. Ajmal Khan and R. Natarajan: Shell selection by the land hermit crab *Coenobita cavipes* Stimpson. Ind. J. Mar. Sci. 6: 163-165 (1977)
2. M.K. Chandrashekar, R. Subbaraj and **K. Sripathi**: Circadian rhythms in a few tropical bats. Ind. J. Physiol. Pharmacol. 25: 219-228 (By invitation) (1981)
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4. G. Neuweiler, Satpal Singh and **K. Sripathi**: Audiograms of south Indian bat community. J. Comp. Physiol. 154: 133-142 (1984)
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6. M.K. Chandrashekar, G. Marimuthu, R. Subbaraj, P. Kumarasamy, M.S. Ramkumar and **K. Sripathi**: Direct correlation between the circadian sleep/wakefulness rhythm and time estimation in humans under social isolation. J. Biosci. 16: 97-101 (1991)
7. G. Jones, **K. Sripathi**, D. A. Waters and G. Marimuthu: Individual variation in the echolocation calls of three sympatric Indian hipposiderid bats and an experimental attempt to jam bat echolocation. Folia Zoologica. 43(4): 347-362 (By invitation) (1994)
8. N. Gopukumar Nair, V. Elangovan, **K. Sripathi**, G. Marimuthu and R. Subbaraj: Foraging Behaviour of the Indian short-nosed fruit bat *Cynopterus sphinx*. Int. J. mammal. Biol. (Z. Saeugetierkunde). 64: 187-191 (1999)
9. G. Schuller and **K. Sripathi**. (1999) Audio-motor control in horseshoe bats. In: Advances in Ethology (Supplement to Ethology) (S. Sridhara, ed). 34: 62 Blackwell Science Berlin, Wien (1999)
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11. G. Schuller and **K. Sripathi**: Role of Paralemniscal Area (PLA) and Ncl. of the Brachium of the Inferior Colliculus (NBIC) on Dopplershift compensation in the Horseshoe bat. In: From Molecular Neurobiology to Clinical Neuroscience (Elsner, N. and Eysel, U., eds.) Göttingen Neurobiology Report. (Thieme Verlag, Stuttgart) (1999)
12. G. Marimuthu, K. Emmanuvel Rajan, **K. Sripathi**, S. Parsons and G. Jones: Effects of different surfaces on the perception of prey-generated noise by the by Indian false vampire bat *Megaderma lyra*. *Acta Chiropter.* 4: 25-32 (2002)
13. Dörrie M., Schmidt S., Suba M., **Sripathi K.**: Contact calls of the bat, *Megaderma lyra*: a comparison between an Indian and Sri Lankan population (2001). *Zoology.* 104, Suppl. IV (Abstracts 94.1): 5 (2003)
14. **K. Sripathi**, H. Raghuram, R. Rajasekar, T. Karuppudurai and Suba Gnana Abraham: Population estimation in the Indian false vampire bat *Megaderma lyra*: mark-recapture analysis using Jolly-Seber method. *Acta Chiropterologica.* 6: 145-154 (2004)
15. Alwin Prem Anand and **K. Sripathi**: Digestion of cellulose and Xylan by symbiotic bacteria in the intestine of Indian flying fox for *Pteropus giganteus*. *Comp. Biochem. Physiol.* 139: 65-69 (2004)
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17. Raman Rajasekar, Balaji Chattopadhyay and **Kandula Sripathi**: Depositing masticated plant materials inside tent roosts in *Cynopterus sphinx* (Chiroptera: Pteropodidae) in Southern India. *Acta Chiropterologica.* 8 (1): 269 - 274 (2006)
18. H. Raghuram, Balaji Chattopadhyay, P. Thiruchenthil Nathan and **K. Sripathi**: Sex ratio, population structure and roost fidelity in a free-ranging colony of Indian false vampire bat *Megaderma lyra*. *Current Science.* 91 (7): 965 - 968 (2006)
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20. T. Karuppudurai, N. Gopukumar and **K. Sripathi**: Solitary or non-territorial adult males in bats: Are "Making the best of a bad job"? *Bat Net Newsletter.* 7 (1-2): 30 - 33 (2006)
21. Hanumanthan Raghuraman, Nagappan Gopukumar and **Sripathi Kandula**: Presence of single as well as double clicks in the echolocation signals of a fruit bat *Rousettus leschenaulti* (Chiroptera: Pteropodidae). *Folia Zool.* 56(1): (2007)
22. T. Karuppudurai and **K. Sripathi**, N Gopukumar, V. Elangovan and G. Marimuthu : Genetic diversity within and among populations of the Indian short-nosed fruit bat *Cynopterus sphinx* assessed through RAPD analysis. *Current Science.* 93(7): 942 - 950 (2007).
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25. P. Rajendran, E. Jayakumar, **Sripathi Kandula** and P. Gunasekaran: Vermiculture and Vermicomposting Biotechnology for Organic Farming and Rural Economic Development. ECO Services International. Feb. (2008).
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27. Rajasekar Raman and **Sripathi Kandula**: Zoopharmacognosy. Self-Medication in Wild Animals. *Resonance*. March 227 – 235 (2008).
28. H. Raghuram, C. Thangadurai, N. Gopukumar, K. Nathar and **K. Sripathi**: The role of olfaction and vision in the foraging behaviour of an echolocating megachiropteran fruit bat, *Rousettus leschenaulti* (Pteropodidae). *Mammalian Biology*. (In Press) (2008).