

*Short Communication*

## OBSERVATION ON ELECTROCUTION OF FLYING FOX (*PTEROPUS GIGANTEUS*) IN ANDAMAN ISLANDS AND THEIR CONSERVATION STRATEGIES

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Bats are key components of biodiversity throughout the world, especially in tropical and arid areas where they contribute to ecosystem structure and function (Hutson, A.M. 2002). In India, fruit bats are listed in scheduled-V of the Wildlife (Protection) Act, 1972 because of its wide distribution. *Pteropus giganteus* (Brunnich, 1782) is widely distributed in India as well as throughout the Andaman Islands (Aul, B. 2002; Bates, P.P.J. & Harrison, D.L. 1997). Generally the species listed as least concern in the IUCN redlist categories, but locally this species considered as threatened because of its habitat destruction like cutting roosting trees for road expansion and other purposes (Molur, S *et al.*, 2008). Common threats that affect mammal populations are habitat loss and human influence (Molur S *et al.*, 1998). The species is also hunted in several locations for meat and for medicinal purposes reported by

(Molur, S *et al.*, 2008). Agricultural development, industrial development and other pressures from increased human populations generally are common threats for fruit bats throughout the world (Hutson, A.M. 2002). Not only the habitat destruction and hunting are the major threats; electrocution is the serious additional threats for this species. Electrocution in giant fruit bat was reported in Madikeri, Coorg district by (Molur, S *et al.*, 2007) and it was estimated that about 15 to 30 fruit bats are electrocuted every year. The present paper alarm for this species decline in Andaman Island by electrocution accidents whereas, no published information is available on the electrocution accidents in Andaman Islands. The electrocution accident depends on their body size and perching or roosting behaviour seems to have harmful effect among these animals.

**Table 1:** Electrocution Flying fox (*Pteropus giganteus*) observed in Middle and North Andaman Islands

Place and Forest Division	Co-ordinates	Date of Observation	No. of deaths
Kalipur, Diglipur, North Andaman	13° 13.097' N 093°02.230' E	5 <sup>th</sup> March 2012	2
Saddle peak road, Kalipur, North Andaman	13° 12.279' N 093°02.174' E	6 <sup>th</sup> March 2012	2
Laxmanpur, Neil Island, Middle Andaman	11° 50.611' N 093° 01.005' E	22 <sup>nd</sup> May 2012	3
Durgapur, Diglipur, North Andaman	13° 16.079' N 093° 02.425' E	08 <sup>th</sup> August 2012	1
Khalighat, Middle & North Andaman	13° 06.873' N 092° 57.473' E	12 <sup>th</sup> August 2012	1
Diglipur Market-Shyam Nagar road North Andaman	13° 14.515' N 093° 58.219' E	27 <sup>th</sup> April 2013	2

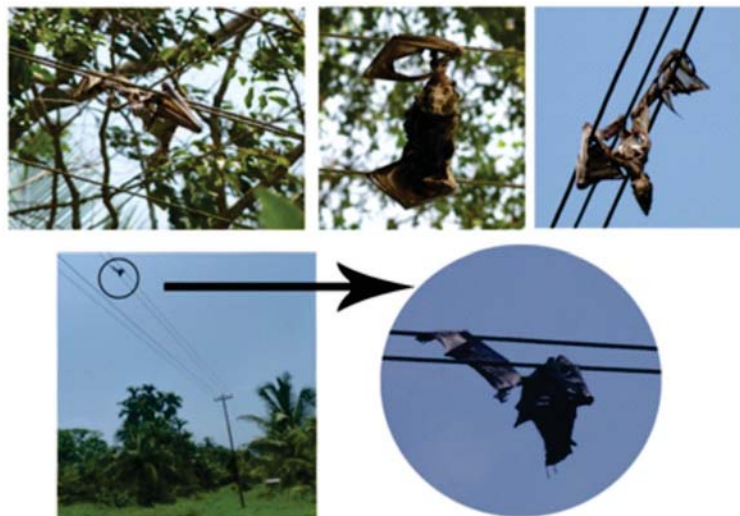
During our regular faunistic surveys conducted Andaman and Nicobar Islands from 2012 to 2013, eleven individuals of Flying foxes were found electrocuted in power lines in various places of Middle and North Andaman (Table 1). Most of the electrocuted bats were observed near fruit trees and agriculture cropland where electric power lines passes through. One dead specimen of *Pteropus*

*giganteus* (Brunnich, 1782) was collected from Kalipur village in Diglipur, North Andaman and was registered (Reg. No. T-2884) and preserved at Zoological survey of India (ANRC), Port Blair. Morphometrics of the collected specimen is given in Table 2. It was found that most of the electrocuted bats, the dorsal and ventral fur was partially burnt.

**Table 2: Morphometric measurements of electrocuted *Pteropus giganteus* collected from Kalipur village (North Andaman)**

Morphological characters	Measurements
Forearm length (FA)	162 mm
Head Body length (HB)	277mm
Hind Foot length (HF)	68 mm
Ear length (E)	25 mm
Tibia length (TIB)	77 mm
Thumb (Including Claw)	61 mm
3 <sup>rd</sup> Metacarpal	86 mm
1 <sup>st</sup> Phalange	21 mm
2 <sup>nd</sup> Phalange	69 mm
Wing span (WSP)	643 mm
Right wing	318 mm
Weight	125 g

Fig.1 Electrocutted Flying fox *Pteropus giganteus* found in North and Middle Andaman



Rayner (1988) applied principal component analysis to wing morphology and derived statistically independent measures of size and wing proportions in birds. Likewise

Flying foxes (Megachiropterans) have a large wingspan that can be easily electrocuted on power lines. As the distance between power lines is about one meter, so the

other bats of Microchiropterans having wingspan less than one meter were not affected. The Flying foxes are excellent climbers, after reaching on the fruit trees they usually start climbing and moving across branches. Most of the observation revealed that the occurrence of electrocution accidents was higher wherever electric power lines passes near the fruit bearing trees. If wingspan length and the distance between power lines are of same which makes them a good conductor in case they touch these wires. It causes serious injuries which sometimes lead to death. When the fruit bat roost on a single power line they are not affected by electric power. According to Kjetil Bevanger, (1997) electrocution is a simpler problem than collision; it may take place when a bird touches two phase conductors or one conductor and an earthed device simultaneously, especially when the feathers are wet. Hence, body size and behaviour, such as perching and roosting on poles or wires, are the keys to understand why and how birds become electrocuted. Regulation of electric wires may reduce the mortality among the fruit bat and other fauna. The present study suggested that, increasing the gap between electric power lines, introduction of well insulated power lines, consideration of alternative routing, earth cabling etc are the possible measures which may reduce the adverse effects in wildlife.

#### ACKNOWLEDGEMENTS

Authors are grateful to the Ministry of Environment and Forest and Government of India for financial support.

#### REFERENCES

- Aul, B. (2002). The Status and distribution of bats in the Andaman & Little Andaman Islands, Andaman & Nicobar Islands. *ANET Technical report*.
- Bates, P.P.J. & Harrison, D.L. (1997). *Bats of the Indian Subcontinent*. Harrison Zoological Museum, Sevenoaks. pp. 258.
- Hutson, A.M. (2002). A feasibility study on additional bats Agreements under CMS. Submitted to the 11<sup>th</sup> Meeting of the CMS Scientific Council (UNEP/ScC11/Doc.7)
- Kjetil, Bevanger (1998). Biological and conservation aspects of bird mortality caused by electricity power lines: a review. *Biological Conservation*, 86: 67-76
- Molur, S., Molur, P. & Ravichandran, B. (2007). Electrocuted Flying foxes in Madikeri, Coorge. *Bat Net Newsletter*, 8 (1-2):44
- Molur, S., Nameer, P.O. & Sally, Walker (Eds.) (1998). Report of the Workshop "Conservation Assessment and Management Plan for Mammals of India" (BCPP Endangered Species Project), *Zoo Outreach Organisation*, Conservation Breeding Specialist Group, India, Coimbatore, India. p.176
- Molur, S., Srinivasulu, C., Bates, P. & Francis, C. (2008). *Pteropus giganteus*. In: IUCN 2012. *IUCN Red List of Threatened Species*.
- Rayner, J.M.V. (1988). Form and function in avian flight. In: Johnston, R.F. (Ed.), *Current Ornithology*, Vol. 5. Plenum, New York, pp. 1-66.

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