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A Classified list of Megachiroptera in South-East Asia.

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Abstract: The present study explores Megachiroptera fauna of south-east Asian region with a view to highlight their conservation. It assumes significance as south-east Asia is the region of demographic pressure and new economic growth as a result of which there is anthropogenic pressure. The present classified list gives 78 Megachiroptera species . In view of ecological relationship between Megachiroptera and fruits and flowers, habitat conservation becomes of vital importance.

INTRODUCTION

The present study aims to list Megachiroptera fauna of south-east Asia in relation to their status as per IUCN and CITES. South-east Asia is the new economic engine of growth and development and also there is exponential human population growth in this region. This has implications for biodiversity of the region. Megachiroptera are mostly frugivorous and have a restricted distribution as compared to Microchiroptera who have a worldwide distribution. Excellent taxonomic work has been carried out by Wilson and Reeder (1993) and Corbett and Hill (1992). Some earlier studies on megachiroptera in south-east Asia include those of Yoon and Uchida (1989) , Francis (1990) and Hodgkinson *et al.* (2004).

METHOD

For the present study, CITES database was consulted for information on CITES while IUCN Redlist (www.iucnredlist.org) was accessed for IUCN status.

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RESULTS

The results have been shown in Table 1. The results show that there are over half a dozen spp of megachiroptera in south-east Asia . However, 4 species (0.18 %) are in the CITES. While their conservation status shows that majority of them (15) are least concerned, none are endangered , 2 near threatened, 3 species not assessed and 2 species are vulnerable (Table 1). Population trend of majority of them (8) are not available, for 5 population is decreasing and 3 are stable , increase in population is shown by one species ,while taxon information is not available for 5 species. Two species *Pteropus vampyrus* and *Dyacopterus spadiceus* are Near Threatened.

Table 1. A classified list of the Fruit Bats of South-east Asia

		APPENDIX	**IUCN status**	**Population trend (IUCN)**
	Family Pteropodidae			
	Sub Family Pteropodidae			
1	*Acerodon celebensis* (Sulawesi Fruit Bat)	II	Least Concern ver 3.1	unknown
2	*Acerodon humilis* (Talaud Fruit Bat)	II	Endangered B1ab(iii,v) ver 3.1	decreasing
3	*Acerodon jubatus* (Golden-capped Fruit Bat)	I	Endangered A2cd ver 3.1	decreasing
4	*Acerodon leucotis* (Palawan Flying Fox)	II	Vulnerable A4cd ver 3.1	decreasing
5	*Acerodon lucifer*	II	Extinct; probably extinct	
6	*Acerodon mackloti* (Sunda Fruit Bat)	II	Vulnerable A3cd ver 3.1	decreasing
7	*Aethalops aequalis* (Borneo Fruit Bat)		Least Concern ver 3.1	unknown
8	*Alionycteris paucidentata* (Mindanao Pygmy Fruit Bat)		Least Concern ver 3.1	stable
9	*Balionycteris maculata* (Spotted-winged Fruit Bat)		Least Concern ver 3.1	unknown
10	*Boneia bidens* (IUCN : Rousettus bidens (Manado Rousette)		Vulnerable A3cd ver 3.1	decreasing

		APPENDIX	IUCN status	Population trend (IUCN)
	Family Pteropodidae			
	Sub Family Pteropodidae			
11	*Chironax melanocephalus* (Black-capped Fruit Bat)		Least Concern ver 3.1	unknown
12	*Cynopterus brachyotis* (Lesser Dog-faced Fruit Bat)		Least Concern ver 3.1	unknown
13	*Cynopterus horsfieldii* (Horsfield's Fruit Bat)		Least Concern ver 3.1	unknown
14	*Cynopterus nusatenggara* (Nusatenggara Short-nosed Fruit Bat)		Least Concern ver 3.1	stable
15	*Cynopterus sphinx* (Greater Shortnosed Fruit Bat)		Least Concern ver 3.1	increasing
16	*Cynopterus titthaecheilus* (Indonesian Short-nosed Fruit Bat)		Least Concern ver 3.1	stable
17	*Dobsonia beauforti* (Beaufort's Bare-backed Fruit Bat)		Least Concern ver 3.1	unknown
18	*Dobsonia chapmani* (Philippine Bare-backed Fruit Bat)		Critically Endangered A2cd ver 3.1	decreasing
19	*Dobsonia exoleta* (Sulawesi Naked-backed Fruit Bat)		Least Concern ver 3.1	unknown
20	*Dobsonia minor* (Lesser Bare-backed Fruit Bat)		Least Concern ver 3.1	unknown
21	*Dobsonia moluccensis* (Moluccan Naked-backed Fruit Bat)		Least Concern ver 3.1	stable
22	*Dobsonia peronii* (Western Naked-backed Fruit Bat)		Least Concern ver 3.1	stable
23	*Dobsonia viridis* (Greenish Naked-backed Fruit Bat)		Least Concern ver 3.1	stable
24	*Dyacopterus spadiceus* (Dayak Fruit Bat)		Near Threatened ver 3.1	decreasing
25	*Harpyionycteris celebensis* (Sulawesi Harpy Fruit Bat)		Vulnerable A2d ver 3.1	decreasing
26	*Harpyionycteris whiteheadi* (Harpy Fruit Bat)		Least Concern ver 3.1	stable

		APPENDIX	IUCN status	Population trend (IUCN)
	Family Pteropodidae			
	Sub Family Pteropodidae			
27	*Megaerops ecaudatus* (Temminck's Tailless Fruit Bat)		Least Concern ver 3.1	unknown
28	*Megaerops kusnotoi* (Javan Tailless Fruit Bat)		Vulnerable A3c ver 3.1	decreasing
29	*Megaerops niphanae* (Ratanaworabhan's Fruit Bat)		Least Concern ver 3.1	unknown
30	*Megaerops wetmorei* (White-collared Fruit Bat)		Vulnerable A4c ver 3.1	decreasing
31	*Neopteryx frosti* (Small-toothed Fruit Bat)		Endangered B1ab(iii,v) ver 3.1	decreasing
32	*Nyctimene albiventer* (Common Tube-nosed Bat)		Least Concern ver 3.1	stable
33	*Nyctimene cephalotes* (Pallas's Tube-nosed Bat)		Least Concern ver 3.1	unknown
34	*Nyctimene cyclotis* (Round-eared Tube-nosed Bat)		Data Deficient ver 3.1	unknown
35	*Nyctimene draconilla* (Lesser Tube-nosed Bat)		Data Deficient ver 3.1	unknown
36	*Nyctimene minutus* (Lesser Tube-nosed Fruit Bat)		Vulnerable B2ab(ii,iii) ver 3.1	decreasing
37	*Nyctimene rabori* (Philippine Tube-nosed Fruit Bat)		Endangered C2a(i) ver 3.1	decreasing
38	*Otopteropus cartilagonodus* (Luzon Pygmy Fruit Bat)		Least Concern ver 3.1	decreasing
39	*Penthetor lucasi* (Lucas's Short-nosed Fruit Bat)		Least Concern ver 3.1	decreasing
40	*Ptenochirus jagori* (Greater Musky Fruit Bat)		Least Concern ver 3.1	stable
41	*Ptenochirus minor* (Lesser Musky Fruit Bat)		Least Concern ver 3.1	stable
42	*Pteropus alecto* (Black Flying Fox)	II	Least Concern ver 3.1	stable
43	*Pteropus argentatus* (Ambon Flying Fox)	II	Data Deficient ver 3.1	unknown
44	*Pteropus caniceps* (North Moluccan Flying Fox)	II	Near Threatened ver 3.1	decreasing

		APPENDIX	IUCN status	Population trend (IUCN)
	Family Pteropodidae			
	Sub Family Pteropodidae			
45	*Pteropus chrysoproctus* (Moluccan Flying Fox)	II	Near Threatened ver 3.1	decreasing
46	*Pteropus giganteus* (Indian Flying Fox)	II	Least Concern ver 3.1	decreasing
47	*Pteropus griseus* (Gray Flying Fox)	II	Data Deficient ver 3.1	unknown
48	*Pteropus howensis* (Ontong Java Flying Fox)	II	Data Deficient ver 3.1	unknown
49	*Pteropus hypomelanus* (Island Flying Fox)	II	Least Concern ver 3.1	decreasing
50	*Pteropus leucopterus* (Mottle-winged Flying Fox)	II	Least Concern ver 3.1	decreasing
51	*Pteropus lombocensis* (Lombok Flying Fox)	II	Data Deficient ver 3.1	unknown
52	*Pteropus lylei* (Lyle's Flying Fox)	II	Vulnerable A4cd ver 3.1	decreasing
53	*Pteropus macrotis* (Large-eared Flying Fox)	II	Least Concern ver 3.1	stable
54	*Pteropus mariannus* (Marianas Flying Fox)	I	Endangered B1ab(iii,v) ver 3.1	decreasing
55	*Pteropus speciosus* (Philippine Gray Flying Fox)	II	Data Deficient ver 3.1	unknown
56	*Pteropus melanopogon* (Black-bearded Flying Fox)	II	Endangered A3cd ver 3.1	decreasing
57	*Pteropus melanotus* (Blyth's Flying Fox)	II	Vulnerable A2cde ver 3.1	decreasing
58	*Pteropus ocularis* (Seram Flying Fox)	II	Vulnerable B1ab(iii,v) ver 3.1	decreasing
59	*Pteropus personatus* (Moluccan Masked Flying Fox)	II	Least Concern ver 3.1	stable
60	*Pteropus pilosus* (Large Palau Flying Fox)	I	Extinct ver 3.1	
61	*Pteropus pohlei* (Geelvink Bay Flying Fox)	II	Endangered B1ab(v) ver 3.1	decreasing

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	Family Pteropodidae			
	Sub Family Pteropodidae			
62	*Pteropus faunulus* (Nicobar Flying Fox)	II	Vulnerable B1ab(i,ii,iii,iv,v) +2ab(i,ii,iii,iv,v) ver 3.1	decreasing
63	*Pteropus pumilus* (Little Golden-mantled Flying Fox)	II	Near Threatened ver 3.1	decreasing
64	*Pteropus temmincki*(IUCN : Pteropus capistratus (Bismarck Flying Fox)	II	Near Threatened ver 3.1	decreasing
65	*Pteropus tokudae* (Guam Flying Fox)	II	Extinct ver 3.1	
66	*Pteropus vampyrus* (Large Flying-fox)	II	Near Threatened ver 3.1	decreasing
67	*Rousettus amplexicaudatus* (Geoffroy's Rousette)		Least Concern ver 3.1	unknown
68	*Rousettus celebensis* (Sulawesi Rousette)		Least Concern ver 3.1	decreasing
69	*Rousettus leschenaultii* (Leschenault's Rousette)		Least Concern ver 3.1	stable
70	*Rousettus spinalatus* (Bare-backed Rousette)		Vulnerable A2c+3c ver 3.1	decreasing
71	*Sphaerias blanfordi* (Blandford's Fruit Bat)		Least Concern ver 3.1	unknown
72	*Styloctenium wallacei* (Stripe-faced Fruit Bat)		Near Threatened ver 3.1	decreasing
73	*Thoopterus nigrescens* (Swift Fruit Bat)		Least Concern ver 3.1	unknown
	Sub Family Macroglossinae			
74	*Eonycteris major* (Greater Dawn Bat)		Data Deficient ver 3.1	unknown
75	*Eonycteris spelaea* (Dawn Bat)		Least Concern ver 3.1	unknown
76	*Macroglossus minimus* (Dagger-toothed Long-nosed Fruit Bat)		Least Concern ver 3.1	stable

		APPENDIX	IUCN status	Population trend (IUCN)
	Family Pteropodidae			
	Sub Family Macroglossinae			
77	*Macroglossus sobrinus* (Hill Long-tongued Fruit Bat)		Least Concern ver 3.1	stable
78	*Syconycteris carolinae* (Halmaheran Blossom Bat)		Vulnerable B1ab(iii) ver 3.1	decreasing

DISCUSSION

Megachiroptera in south-east Asia have drawn the attention of taxonomists e.g. Yoon and Uchida (1989) who studied Pteropodidae (5 spp.) and Macroglossinae (3 spp.) based on the humeral characters and their adaptation to flight. In a study on temporal variation in relative abundance of fruit bats (Megachiroptera : Pteropodidae) only 3 fruit bat species were found locally resident within the forest for the entire duration of study period (Hodgkinson *et al.*, 2004) who also found that at least two species that were non-resident within the study area (*D. spadiceus*) and (*M. ecaudates*) appeared to be strongly associated with old-growth and low land and montane rainforest. Thus, these species are particularly vulnerable to local extinction due to destruction of habitat and degradation of forest. Other interesting study include that of Francis (1990) who studied vertical stratification of fruitbat (Pteropodidae) in a Malaysian forest. Not only this ,as fruit bats are dependent on plants, so flowering phenology in south-east Asia has also drawn attention (Appanah,1985; Gentry,1974) while Marshall (1983) studied evolutionary aspects of bats, flowers and fruits in the old world.

Therefore, conservation measures based on the ecology and evolutionary aspects need to be taken up to reverse the declining population trend of many of the species found in this region of fast economic growth. Some of the Megachiroptera found in south-east Asian region are also found in India and therefore regional cooperation in their area of zoogeographic distribution within south-east Asia as well as outside can be insightful for their conservation and taxonomy. In view of ecological significance of Megachiroptera, the species that have not been studied/inadequately studied may be explored further.

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REFERENCES

Appanah, S., 1985. General flowering in the climax rain forests of South-East Asia. *J. Trop. Ecol.* 1: 225-240.

Francis,C.M.1990. Vertical stratification of fruit bats (Pteropodidae) in a lowland dipterocarp rain forest in Malaysia. *J. Trop. Ecol.* 10: 523-530.

Gentry, A. H. 1974. Flowering phenology and diversity in tropical Bignoniaceae. *Biotropica* 6: 64-68.

Hodgkinson, R.; Balding, .T.; Zubaid, A. & Kunz, T.H. 2004. Temporal variation in the relative abundance of fruit bats (Megachiroptera:Pteropodinae) in relation to the availability of food in a lowland Malaysian rain forest. *Biotropica* 36(4):522-533.

Marshall , G. 1983. Bats, flowers and fruit: Evolutionary relationships in the Old World. *Biol. J. Linn. Soc.* 20 (1): 15—135.

Pradhan, M.S. & Talmale, S.S. 2008. Checklist of Indian mammals. *Zoos' Print.* XXIII (8)

Wilson, D.E. & Reeder, D.M.1993. *Mammal species of the world.* Second edition. Smithsonian Institution, USA.