Biospectra : Vol. 8(2), September, 2013, Spl. issue. pp 23-26 An International Biannual Refereed Journal of Life Sciences

Animal Sciences Abst. No.- MBC 78



Pattern of changes in the roosting population of a fruit bat, *Pteropus giganteus.*

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Received 30th June, 2013; Revised 25th July, 2013

Abstract : This article deals with the pattern of changes in the roosting population of *P. giganteus* a fruit bat. It was found that the population under study is declining by 10.2% and the rate of gain is only 0.9%. The prospect of recovery of this colony is very weak as average increase is only 0.9% per year, therefore the conservation of this species needs immediate intervention.

Key words: Population change, Roosting colony, P.giganteus.

INTRODUCTION

Environment is our life support system and is highly dependent on the ecosystem which in turn is dependent on the biodiversity. Each species is important while certain of these hold key to the existence of an ecosystem ¹⁻⁹. Bats are generally social animals and gather together in roosts. Bats can roost in colonies of several hundred to tens of millions. The number of bats in a roost depends upon the type of bat. Bats as a group are crepuscular and while roosting, they generally hang upside down by their claws¹⁰. The bats prey on insects, pollinate, and disperse seed of agro-economical and wild plants ¹¹⁻¹⁶. Pteropus giganteus is largest Indian fruit bat commonly called flying fox. This bat is found roosting on certain species of trees in the vicinity of water bodies. The mortality rate and total population of this species is yet unknown but it has been listed as 'Least Concern' by IUCN 17-18. The Indian wild life protection act defines it as vermin and is placed in Schedule V. Ironically; the damage caused by birds to the

*Correspondent author : Phone : +919835340149 E-mail : astha.bat@gmail.com fruits in orchards is double to that caused by bats. There have been several reports on the roosting population count of this species in different colonies but a year wise population count of a particular colony is wanting. This study was thus framed to find the changes in population over a decade from 2002 to 2013.

MATERIALS AND METHOD

The roosting site of *P. giganteus* used for this study is located at a private mango orchard in the Tamukpal village of Ghatsila sub division in Jharkhand. The coordinates of this town is 22.6000° N, 86.4833° E. This colony is spread across several species of trees in between a pond and a perennial stream. Population estimates were done by either counting the roosting bats or by branching method for four consecutive days in February from 2002 to 2013¹⁹⁻²⁰.

RESULTS AND DISCUSSION

Highest population count i.e. 5256 was recorded in the year 2002 after which there has been decline in the total number of bats in the colony and hit the lowest of 1113 bats in 2011 as shown in Fig 1. From the results it is clear that the population is declining, the highest decline

Biospectra : Vol. 8(2), September, 2013, Special issue.

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was in the year 2007-2008 (57.4 %) followed by 19.1% in 2002-2003, 13.9% in 2004-2005, 12.4% in 2010-2011, 11.5% in 2005 -2006, 7.1% in 2003-2004 and 1.5% in 2008-2009. The population has shown some signs of recovery, most remarkably in 2012 when the population increased by 6.8% (Table 1). The rate of decline in population is very high (15.1%) in comparison to the rate

of increase of population which was found to be 2.2% in an average (Table 2). The chances of total recovery are very low as this species is a slow breeder¹⁰. From the roosting population account of this colony it may be inferred that the particular roosting colony is declining and the reasons behind it need to be found and addressed properly to conserve this species and brighten our future.

	2002-	2003-	2004-	2005-	2006-	2007-	2008-	2009-	2010-	2011-	2012-	2013-
Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
% change in												
population	-19.1	-7.1	-13.9	-11.5	0.1	-57.4	-1.5	0.3	-12.4	1.3	6.8	2.3

Table 1: Year	wise changes i	n population of .	P. giganteus	from 2002-2013	3.
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Table 2:	Average	rate of	recoverv	and	decline	in the	e roosting	population	of Pgiganteus.
			1000.01	****				population	

Average Rate of increase in population	Average Rate of decline in population	Rate of Increase in population per year	Rate of Declinee in population per year	
2.2%	-15.1%	0.9%	10.2%	



Fig 1: Year wise Roosting Population count from 2002 to 2013

ACKNOWLEDGEMENT

The authors are thankful to Mr. Arun Kumar Singh for allowing us to carry out our research work in his mango orchard.

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Biospectra : Vol. 8(2), September, 2013, Special issue.

An International Biannual Refereed Journal of Life Sciences