

## MISCELLANEOUS NOTES

### 1. SOCIAL CHANGES IN THE HANUMAN LANGUR, *PRESBYTIS ENTELLUS* AROUND JODHPUR

Social changes is a usual phenomenon in mammals and it is a natural process of maintaining a species specific character like group size and structure in relation to their environment. The movement of individuals between groups have been recorded in a wide variety of primate species (Itani 1972). Drickamer and Vessey (1973) suggest that age, mating season, sex ratios of adults in the social groups and geographical barriers, all affect the group change behaviour. This paper reports the various types of social changes that occurred in langur groups, *Presbytis entellus* Dufresne in a period of two years (From August, 1975 to July, 1977) at Jodhpur (26°19'N lat. and 73°8'E long.), which lies at the eastern fringe of the Great Indian Desert (see Mohnot 1971 for details of habitat).

Social changes can be grouped in two main headings: *gradual* and *drastic changes*. The former includes births, deaths, leadership change and movement of weaned male juveniles. The latter includes epidemics, fission and fusion of two groups and replacement of dominant male preceded and followed by infant killings. Thus groups are constantly being rearranged in a variety of ways and there are considerably social changes in this respect. The following five types of changes described here are as follows:

(i) *Change of leadership* (Table 1): It is the most common process in bisexual groups and resulted by attack from neighbouring all-male bands. A total 10 such cases were recorded in 8 groups out of 15 (twice in two groups), while there was no change of leadership in 7 groups. In two groups, Kaga A

and Kaga B, a second change was noted during the two year period. Of these only one change was followed by infanticides (Makwana 1979).

(ii) *Fission of group*: Only one such case was noted in 'Ficus' group during February to July 1977. Originally it was a bisexual unimale group of about 30 individuals in February 1977. During April 4 and 5, an all-male band of 6 (5 adults and 1 subadult) attacked this group and absorbed 6-8 adult and one subadult females and their young. The resident male was observed about 50 m away with remaining members (females and their young).

On July 14, a new male was observed with 8 adult and 1 subadult females, 2 juvenile females, one older infant female and one black coated baby. The resident male and its group was seen no longer (supposed to have shifted elsewhere).

(iii) *Fusion of two groups*: The two neighbouring unimale bisexual groups, SC and SH fused into one, and the following events occurred in this process:

(a) During first observation period (August-December 1975) these were two independent, unimale bisexual groups. The group SH was smaller in size and subordinate to the SC group (See Table 2 for composition).

(b) In February 1977, during second observation period, the leader of SH group (H1) was no more and the leader of SC group (C1) was visiting both the groups. One more adult male (H2) was noted twice with SC group, but it was subordinate to male C1 and fear grimaced and retreated at his approach.



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TABLE 1

SOCIAL CHANGES IN LANGUR, *P. entellus* AT JODHPUR (1975 TO 1977)

S.No.	Group	Leader male in			Remarks
		1975 (Aug.-Dec.)	1976	1977 (Feb.-July)	
1.	Bijolai	.. M-1	?	M-2	Leader changed in February, 1977.
2.	Kailana	.. M-1	M-1	M-1	No change of leader
3.	Chopar	.. M-1		M-1	-do-
4.	Sursagar H	.. M-1	?	M-2	Leader changed in February 77, and disappeared by the end of February.
5.	Sursagar C	.. M-1		M-1	Sursagar H group fused with this group in last week of April, 77.
				M-2	Male 1 changed on 30 May, 77 (See Text)
6.	Kaga-S	.. M-1	?	M-2	Leader changed in March, 77.
				M-3	Male 2 also changed on 5th May, 77 and followed by infanticides.
7.	Kaga-N	.. M-1	?	M-2	Leader changed in March, 77.
				M-3	Male 2 also changed on 5th March, 77.
8.	Nagadari	.. M-1	?	M-2	Leader changed in May, 77.
9.	Nagadari A	.. M-1		M-1	No change of leadership.
10.	Rest House	.. M-1		M-1	-do-
11.	Rest House A	.. M-1	?	M-2	Leader changed in May, 77.
12.	Vidyasal-A	.. M-1	?	M-1	Became unimale from multimale and roosting site changed.
		(Multimale group)		(Unimale group)	
13.	Vidyasal-B	.. M-1		M-1	No change of leadership. Roosting site changed.
14.	Kadamkandi-A	.. ..	..	M-1	Leader changed in June, 77.
				M-2	
15.	Ficus	.. ..	..	M-1	Original male left the area during last week of February with some females and their young ones. (Fission of a group, see Text).
				M-2	

During last week of February there was only C1 male and the other new male was supposed to have left the group.

(c) During March and last week of April, both the groups foraged together under leadership of C1 male but roosted differently at their original roosting sites. The male C1, roosted with SC group and SH group roosted without adult male.

Two adult females and one juvenile male disappeared from the SH group. Of

these one adult female and juvenile male were observed in a neighbouring unimale bisexual group.

(d) During last week of April, both the groups not only foraged but also roosted together, under the leadership of male C1. Thus, the process of fusion of two neighbouring bisexual groups was completed (Table 2). The fused group was headed by male C1 for about two months (May and June 1977).



TABLE 2

*P. entellus*, COMPOSITION OF SC AND SH GROUPS DURING 1975 AND 1977

Period	Group SC					Group SH				
	Total	Ad. ♂	Ad. ♀♀	Ju.	Inf.	Total	Ad. ♂	Ad. ♀♀	Ju.	Inf.
October, '75	26	C1	12	5	8	11	H1	8	1	1
February, '77	24	C1	14	1	8	14	..	8	2	4
April, '77	20	C1	10	4	5	19	..	9	2	8
May, '77	33	C1	17	6	9	..	..	..	..	..
July, '77	33	C2	17	7	8	..	..	..	..	..

(e) In last week of June, the male C1 was replaced by a new male C2 from a neighbouring all-male group. There might have been some fight between male C1 and C2, as the latter had a fresh injury at his right eye. A band of 5 adult males were also observed around the group after the take-over.

Both the groups were still mixed and roosted together with the new male. Thus the fusion of two groups, and then change in leadership occurred.

(iv) *Formation of unimale bisexual from multimale bisexual type*: Group Vidyasal-A, whose size was about 45 and comprised of a number of adult females, juveniles, infants, 3 adult and 2 sub-adult males during October

1975. There was linear dominance hierarchy among the males. In February 1977, the group remained unimale bisexual type with only 22 individuals (Adult male 1, adult females 15 and young ones 6).

(v) *Change of groups*: Mostly males in juvenile stage change or leave their original group due to high pressure or hostility of leader male. Occasionally adult females also leave their group, mainly when they are not sexually satisfied by their own leader. Two adult females in two different groups were noted to change their group in a neighbouring bisexual group. Juvenile males mostly join all-male bands or occasionally also a neighbouring bisexual group.

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