



## Social rejection and AMB formation in *Semnopithecus entellus* in and around Jodhpur Raj. (India)

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**Abstract:** Present finding in Hanuman langur supports Social rejection behaviour. Observation suggests that the *entellus* Juveniles male, social refusal from Unimale bisexual troop. After gain certain age mother is careless for juveniles and residential male aggressive against Juveniles. So those force regulate the social rejection and All Male Band formation in entellus. Field observation on emotional behaviour suggest that the, Focal troop B-01 total, three individuals leave a natal troop, In troop B-04a total two individuals and In troop B-06 total of nine individuals (juvenile and sub-adult) leave a natal troop during 2017-18. Out of 9 (total individuals), six is juvenile, and three is sub-adults leave the natal troop during 2017-18.

**Keywords:** Hanuman langur, Social rejection, troop, AMB, Bisexual troops

### I. INTRODUCTION

Social rejection happened when an individual is purposefully omitted from a social relationship or social interaction. Rejection includes interpersonal rejection, familial rejection. An individual can be rejected by a person or an entire group of people. Furthermore, rejection can be either active (remove by force, fight and by the help of aggressiveness), passive (ignoring an individual).

The Hanuman langur (*Semnopithecus entellus*) is the best studied and most adaptable south Asian Colobine. (Roonwal and Mohnot, 1977). The species has a greatly adaptable social organization. The two basic types of common units are Unimale bisexual troops and AMB. The Polygyny troops are matrilineal group of adult females and offspring with either one adult male or more than one adult males. The unimale bisexual troops are major around Jodhpur where as well temporary multimale situation during Adult male invasion, most of social units are one -male bisexual troops (polygyny) or harems (Mohnot, 1974; Rajpurohit, 1987; Sommer and Rajpurohit, 1989, Rajpurohit et al., 2006).

### II. MATERIAL AND METHODS

The study was carried out near Daijar and Beriganga site near Jodhpur city. In Jodhpur, langur live within the radius within 100km. 2017-2018 demographic data show that the number of Jodhpur langur crossed 2861 individuals composed in 54 groups of Unimale Bisexual troop and AMB (Singh and Rajpurohit, 2020).

Data for Social rejection and AMB formation collected through at libitum and scan sampling (Altman, 1974). Mainly focal animal sampling as well as scan sampling techniques use for field observation. Different individuals identify through scar mark, fur colour, natural mark etc. All observation done during day time as well as in natural situation.

### III. OBSERVATION AND RESULTS

#### 3.1 Social rejection

##### 3.1.1 Bisexual troops as sources of AMB Formation

In langur mainly two types of social units are a present uni-male bisexual troop and all male band. Uni-male bisexual troop where alpha male and other female are presents in the troop. AMB where all male of different age categories is present. After gain, a juvenile (♂) stage males emigrate from their natal troop and join AMB.

### 3.1.2 The social rejection of male juveniles from uni-male bisexual troops

After gain certain age mother is careless for juveniles. Mother of a child known that they are self-dependent and they are capable of fulfilling our need. After completely weaned juvenile more dependent on solid food and capable of searching for food. Like the sub-adults and adults, the juveniles are peaceful and sitting quietly near the alpha male. However, in contrast to adults and sub-adults, they participate actively in a variety of play sequences involving 2 to 6 juveniles. The adult male does not play with juveniles. Alpha male tolerates the presence of male juveniles around and allows them free access. However, adult male (alpha male) under aggression may threaten the juveniles, chase them, and sometimes bite them mildly.

When adult males of the band are engaged in agonistic encounters with a dominant male of the uni-male bisexual group, the juvenile continues their peer play. However, when the dominant male chases the invader's males, the juveniles follow the adults and sub-adults of their AMB group as they too are also threatened and not allowed to stay in the bisexual troop.

### 3.1.3 The weaned male juveniles: maker of bands

All male band in langur are mainly from due to social rejection of juvenile categories male. After juvenile rejection male from bisexual troop join AMB where they live and perform their activity. The social organisation of all-male band, including an adult male, sub-adult male and Juvenile (I, II). Where juvenile join from Uni-male bisexual troop after rejecting from the troop. On the above observation, we say that the weaned male juveniles are the maker of bands.

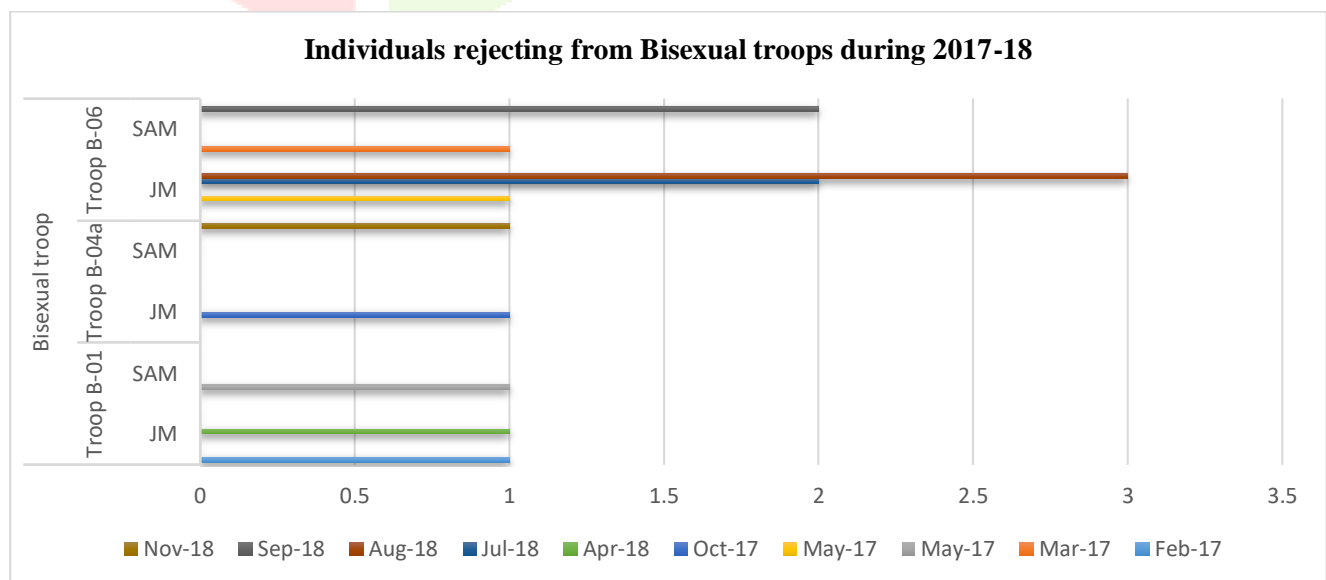
### 3.1.4 Number of Juveniles: rejection from Bisexual troop

During focal group (troop B-01, B-04a and B-06) population study, I observed individual who leaves the bisexual troop and join AMB during 2017-18. The overall proportion who leave the bisexual troop is higher for males juvenile. Sometime alpha male of the particular troop is less aggressive toward male juvenile, so juvenile live in their natal troop. However, later stage (sub-adult stage), they finally join an AMB.

In the present study, data were collected from three focal groups and two AMB to study social rejection. In troop B-01 total, three individuals leave a natal troop during 2017-18. Out of 3 (total individuals), two is juvenile, and one is sub adults male leave the natal troop during 2017-18. In troop B-04a total two individuals (1 juvenile and one sub-adult) leave a natal troop during 2017-18.

**Table 1: Individuals rejecting from Bisexual troops during 2017-18**

Dates	Bisexual troops			Name of AMB which is joined by rejecting individuals
	Troop B-01	Troop B-04a	Troop B-06	
February 2017	1 JM	----	----	AMB-01
March 2017	----	----	1 SAM	AMB-04
May 2017	1 SAM	----	----	AMB-01
May 2017	----	----	1 JM	Unknown
October 2017	----	1 JM	----	AMB-01
April 2018	1 JM	----	----	AMB-01
July 2018	----	----	2 JM	AMB-04
August 2018	----	----	3 JM	Unknown
September 2018	----	----	2 SAM	Unknown
November 2018	----	1 SAM	----	AMB-01



**Figure 1: Individuals rejecting from Bisexual troops during 2017-18**

In troop B-06 total of nine individuals (juvenile and sub-adult) leave a natal troop during 2017-18. Out of 9 (total individuals), six is juvenile, and three is sub adults leave the natal troop during 2017-18 (Table and figure 1).

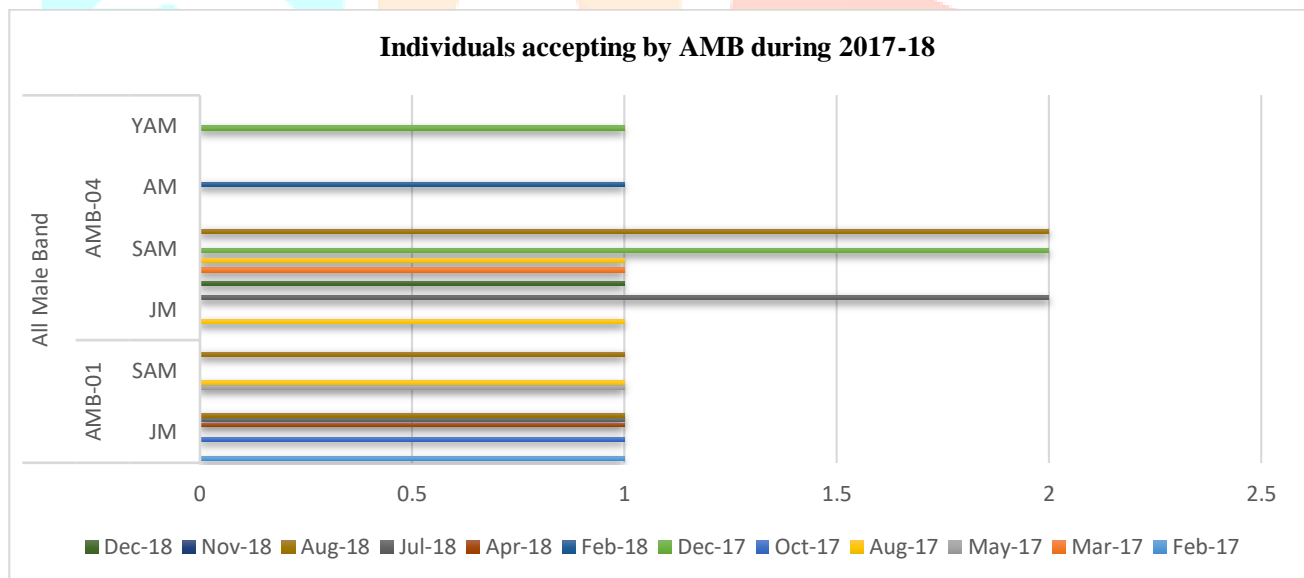
### 3.1.5 Number of Juveniles: acceptance by AMB

Total eight individuals are new add-in AMB -01 during 2.0 year study period. Out of total individuals two individuals from troop B-04a (1 juvenile and one sub-adult), three individuals are from troop B-01 (2 juveniles and one sub-adult), and three members add from other troop or AMB.

Twelve individuals are new add-in AMB -04 during 2.0 year study period. Out of total individuals, three individuals from troop B-06 (2 juveniles and one sub-adult) and nine members add from other troop or AMB (Table and Figure 2).

**Table 2: Individuals accepting by AMB during 2017-18**

Dates	AMB		Source where the individual appears
	AMB -01	AMB-04	
February 2017	1 JM	----	From troop B-01
March 2017	----	1 SAM	From troop B-06
May 2017	1 SAM	----	From troop B-01
August 2017	1 SAM	1 AM, 1SAM	Unknown, Unknown
October 2017	1 JM	----	From troop B-04a
December 2017	----	1 YAM, 2 SAM	Unknown
February 2018	----	1 AM	Unknown
April 2018	1 JM	----	From troop B-01
July 2018	1 JM	2 JM	Unknown, From troop B-06
August 2018	----	2 SAM	Unknown
November 2018	1 SAM, 1 AM	----	From troop B-04a, Unknown
December 2018	----	1 JM	Unknown
<b>Total</b>	<b>8</b>	<b>12</b>	



**Figure 2: Individuals accepting by AMB during 2017-18**

## IV. DISCUSSION AND CONCLUSION

There is a certain kind of association or structured living among males and this relationship known as 'band'. Present data suggest that the after gain certain age juveniles and sub adult's male join AMB. According to some workers, males' bands are separate social units (Bogges, 1980; Hrady, 1977; Laws and Laws, 1984 and Rajpurohit, 1987).

Present finding suggest that the troop B-01 total, three individuals leave a natal troop during 2017-18. Out of 3 (total individuals), two is juvenile, and one is sub-adults male leave the natal troop during 2017-18. In troop B-04a total two individuals (1 juvenile and one sub-adult) leave a natal troop during 2017-18. In troop B-06 total of nine individuals (juvenile and sub-adult) leave a natal troop during 2017-18. Out of 9 (total individuals), six is juvenile, and three is sub-adults leave the natal troop during 2017-18.

The composition of all-male band in *Semnopithecus entellus* varies from group to group and perhaps from area to area. The average composition of Jodhpur AMB during 2017 is: Juveniles 38.86 %, Sub adults 18.66% and Adult male 44.47% of the total percentage. During 2018 the band composition is: Juveniles 37.27%, Sub adults 18.97% and Adult male 43.75% of the total population. Sugiyama (1964) found 75% of adults and 25% sub-adults and juveniles.

Earlier stages of primate research on baboons and macaques, and mainly on the exposed males of some species, produced a early and over-simplified picture of behaviour (Bernstein, 1970, 1976). The social structure was conceptualised as rather uniform and to a large extent dependent upon social hierarchies, which in turn promote the fitness of only the highest-ranking individual (Rowell, 1972).

Sugiyama et al. (1965) explained the lack of firm organization in male groups. Moore (1982, 1985) support kin relation as the basis of male group organisation and believe that the AMB stability depends on the kin relation and in the nonappearance of that males may change their band. The male band organisation was first reported in 1836, in the Bengal Magazine, as reported by Blyth (1843).

The formation of assemblage by juveniles or by juveniles and sub-adults is probably subjective by factors such as lack of interest in bisexual troops, or fear by an Adult alpha male, or both. Vogel (1971) and Rajpurohit (1987) also observed subgroups formation and grouping formation by juveniles and sub adults in *Semnopithecus entellus*.

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