INTRODUCTION

Male takeovers (acknowledged as "Most potential male replacements") happen when an extra-group male(s) ousts the alpha male of a group. They have been recognized in a wide range of animal species (Birds: Ridley, 2012; Carnivores: Packer & Pusey, 1983a; Rodents: Hackloander and Arnold, 1999; Ungulates: Feh & Munkhtuya, 2008; Rubenstein and Nunez, 2009; Primates: Butynski, 1982; Clarke, 1983; Clarke et al., 1994; Fedigan, 2003; Harris & Monfort, 2003; Reena & Ram, 1992; Ross, 1993; Kappeler, 2000; Onderdonk, 2000; Sterck and van Hooff, 2000; Wolfe & Fleagle, 1977). Male takeovers reduce the tenure of resident males (Primates: Steenbeek et al., 2000; Beehner et al., 2009; Wich et al., 2007; Ungulates: Rubenstein & Nunez, 2009) and infanticide by new males often occurs (Hrdy, 1974; Packer & Pusey, 1983b; van Schaik and Janson, 2000; Fedigan, 2003; Teichroeb& Sicotte, 2008), which decreases the reproductive success of both mothers and fathers (Palombit, 2012; Sicotte et al., 2015).

Some studies have right compared the achievement of bachelor and alpha tactics in long-lived mammals (Robertsand Cords, 2015; Sommer & Rajpurohit, 1989). Male takeovers mark male tenure, female mate choice, and eventually, specific reproductive success in group-living non-human primates. In social systems with female philopatry and high male reproductive angle, male takeovers regulate female mate choice, although, in species with female dispersal, females have the selection of discarding a new male (Sicotte et al., 2015).

Females with babyslook at a higher risk of infanticide by new males for the length of takeovers, whether they take an action to disperse or not (van Schaik & Janson, 2000; Sicotte et al., 2015; Teichroeb & Sicotte, 2008, Ram, C. et al. 2015). Group splitting, when a subdivision of females left with the prior alpha male, maybe the best resolution in the quick-term if it means continued safety from the side of the females’ newborns (Sterck & Korstjens, 2000; Hrdy, 1974; Zhao et al., 2011), but this also contains dangers, as the alpha male’s failure to avoid the takeover submits that he may be waning in strength (Steenbeek, 1999). Group separation may also comprise costs related to launching and defending a new home range (Sicotte et al. 2015; Isbell & Van Vuren, 1996).

And more studies of alpha male replacement in a unimale bisexual troop (Rajpurohit, et. al, 2003), (Alpha male change and infanticide in free-ranging society (Rajpurohit & Chhangani, 2003; Sharma et al. 2010; Rajpurohit, et. al. 2006; Meena et. al., 2015).
OBSERVATION AND RESULTS

The present study covers the Study of Alpha Male Change and Tenureship in uni-male-multimale Bisexual Troops of Hanuman Langur (Semnopithecus entellus entellus) around Jodhpur. The study groups are already familiar with human observers. Data on study calculated male tenure attained by ad libitum, scan, and focal animal sampling (Altman, 1974).

For every case of an acquisition, the number of females, their age-class, and their parity were also noted. It was also determined whether females had needy progeny at the onset of the takeover. Infanticide occurred when males were directing aggression towards infants or mother-infant pairs that led to the infant being wounded and subsequently dying. Some of the cases were classified as suspected infanticide when outwardly fit infants moved out at the same time as a male takeover. The study also supports cases of female dispersal during the takeover.

The present study analyzed whether the number of observation months with and without takeovers differed between uni-male and multi-male groups. The takeovers by single invader males or multi-male invaders changed in: a) the male composition (single or multiple males) of a targeted troop, b) the time they took to be completed in a takeover, or c) occurrence of female dispersal after the acquisition. It was also studied whether quick or slow takeovers varied in the degree that they were: a) related to infanticide, and b) followed by female dispersal.

There was one permanent multi-male group (Kailana canal) B-18. And in some groups, the position of a multi-male group or short period. This is the process of a slow takeover and takes three months to 12 months. The number of observation months with membership change in uni-male (13tenureship change during the study) and multi-male groups (3 takeovers or membership change). Takeovers were achieved by single males or by the union of males. Two cases were performed membership by one bachelor male. And in remaining cases, there was an association between the number of males in the targeted group (one vs. several) and the number of males involved in a takeover. But after the takeover, only the most potent male stay in a group. The resident males generally stay for a month that exceeded for a month.

The important aspect of study the bisexual troops of wild animal Hanuman langurs around Jodhpur have been thoroughly studied for over the last 45 years, but on the resident male replacement and the tenure of residency, limited work has been done in India. The study would provide some new findings to understand the way of monkey management. Through such research, we will attempt to answer the question of Resident male change of bisexual troops and the factors responsible for male change and tenure of residency in uni-male bisexual troops. This study on langur tells us more about the sociobiology of Hanuman langurs with particular reference to resident male change process and the tenure of residency in uni-male bisexual troops.

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Table 1 Tenureship/ Membership change in Bisexual troop around Jodhpur

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Gr. No.</th>
<th>Location</th>
<th>Resident/ Alpha male</th>
<th>Month (When tenureship change)</th>
<th>Month (When tenureship change)</th>
<th>Tenureship</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>B1*</td>
<td>Daijar Temple</td>
<td>A1</td>
<td>April-15</td>
<td>Jun-17</td>
<td>27 Months</td>
</tr>
<tr>
<td>2</td>
<td>B3</td>
<td>Beriganga</td>
<td>A3</td>
<td>Dec-16</td>
<td>Nov-18</td>
<td>24 Months</td>
</tr>
<tr>
<td>3</td>
<td>B6</td>
<td>Mandor Devel</td>
<td>A6</td>
<td>Aug-16</td>
<td>Feb-17</td>
<td>22 Months</td>
</tr>
<tr>
<td>4</td>
<td>B7a</td>
<td>Mandor</td>
<td>A7a</td>
<td>Feb-16</td>
<td>Feb-18</td>
<td>24 Months</td>
</tr>
<tr>
<td>5</td>
<td>B7</td>
<td>Mandor Fort</td>
<td>A7</td>
<td>Feb-16</td>
<td>Nov-16</td>
<td>22 Months</td>
</tr>
<tr>
<td>6</td>
<td>B8</td>
<td>Mandor Temple</td>
<td>A8</td>
<td>May-17</td>
<td>Jan-19</td>
<td>21 Months</td>
</tr>
<tr>
<td>7</td>
<td>B9</td>
<td>Mandor Ns.</td>
<td>A9</td>
<td>Nov-17</td>
<td>July-19</td>
<td>21 Months</td>
</tr>
<tr>
<td>8</td>
<td>B11*</td>
<td>Kaga North</td>
<td>A11</td>
<td>Apr-16</td>
<td>Aug-19</td>
<td>28 Months</td>
</tr>
<tr>
<td>9</td>
<td>B12</td>
<td>Kaga South</td>
<td>A12</td>
<td>Feb-16</td>
<td>May-18</td>
<td>28 Months</td>
</tr>
<tr>
<td>10</td>
<td>B18*</td>
<td>Kailana Canal</td>
<td>A18</td>
<td>July-16</td>
<td>Jan-19</td>
<td>30 Months</td>
</tr>
<tr>
<td>11</td>
<td>B19</td>
<td>Kailana I</td>
<td>A19</td>
<td>Feb-16</td>
<td>Jan-19</td>
<td>34 Months</td>
</tr>
<tr>
<td>12</td>
<td>B20</td>
<td>Kailana II/AS</td>
<td>A20</td>
<td>Jun-16</td>
<td>Dec-18</td>
<td>30 Months</td>
</tr>
<tr>
<td>13</td>
<td>B21</td>
<td>Bijolai</td>
<td>A21</td>
<td>Mar-16</td>
<td>Sep-18</td>
<td>31 Months</td>
</tr>
<tr>
<td>14</td>
<td>B22</td>
<td>Bheembhakar</td>
<td>A22</td>
<td>Jan-16</td>
<td>Nov-17</td>
<td>22 Months</td>
</tr>
<tr>
<td>15</td>
<td>B26*</td>
<td>Kadamkandi E</td>
<td>A26</td>
<td>Dec-15</td>
<td>Aug-18</td>
<td>33Months</td>
</tr>
</tbody>
</table>

*Multimale Bisexual troop for Short/long period

![Tenureship / Membership change in Bisexual troop around Jodhpur](image)

Process of Alpha male change or membership change

Information from current studies indicates that in some cases, troop male membership change occurs through rapid and total adult male replacement with attendant infant mortality. Records from other investigations of langurs heresuggest a different pattern of troop male membership change with no infant mortality. The phenomena of infant killing and rapid male replacement are evaluated based on a review of data from other langurs studies. While these and my research indicate that...
four days. Most takeovers come about in uni-male bisexual troop and other in multi-male groups, where outer male stay for long. In the current study remark that slow/time-consuming takeovers took a mean of 3.5 months.

Single adult males/invader was very rare to involve in slow takeovers, and they act upon most quick takeovers. Slow acquisitions always meant more than one male immigrating into the group as an all-male band. The Kailana canal troop was an excellent example of a gradual takeover. It takes four-month in membership change during the study period. There was a significant difference between the frequency of quick and slow acquisitions by single and multiple males cases with information on the category of takeover.

Infant beat up, and infanticide by males may have occurred in up to 13 of 15 takeovers when infants were present. Infanticide was observed in five cases, Infant attacks and infanticide happen only in case of quick takeovers. The nature of takeover (rapid or slow) was associated with the presence or absence of infanticide (including assumed infanticide) and infant attacks. Because of quick take over invader males represent itself more aggressive and hostile. Female dispersal never occurred during the five quick takeovers in the present study, while it happened in slow takeovers. The troop takeover is generally concentrated in the mating season, although migration can occur in any period increases the probability of future matings. Resident males, including former alpha males, often shield infants from intruder males, especially when they are likely to be their offspring.

Troop takeovers usually involve such mature intruder males and troops with nonpotential resident males, whereas young males tend to move into troops with many tenant males. Existing alpha males and other troop males often effort to expel intruders from the troop, and this can be an outcome in serious injury to both parties.

**DISCUSSION**

Sugiyama's (1965) study case of adult male replacement in Dharwar, the usurping male, drove the resident adult and juvenile males from the group and killed infants still dependent on their mothers. Mohnot, (1971) and Hrdy, (1977) observed similar replacement accompanied by infanticide case among Hanuman langurs at Jodhpur and Mt. Abu.

Infanticidal studies frequently occur soon after group takeovers or the death of the alpha male (van Schaik & Janson, 2000). Zhao et al. (2011) also detail that six infants disappeared after five group takeovers in white-headed langurs.

The social disturbance associated with single male takeovers was shorter than that observed in multi-male takeovers because there was no struggle for alpha position once the society was completed. Acquisitions achieved by several males took longer to complete, partly because males in the takeover coalition jointly attempted to evict the resident male who occasionally refuses to accept for a long time. Somewhat because members of the coalition often tried to expel one another over a period of several months before dominance ranks were settled (Teichroeb et al., 2011; Poirier, 1969; Sterck & van Hooff, 2000; Ridley, 2012). Slow takeovers involved prolonged male aggression, and they may have led to more extended periods of elevated stress levels and lowered female reproductive output even in the absence of infanticide (Dunbar, 1987; Sterck & van Hooff, 2000; Steenbeek et al., 2000).

The number of males involved in the takeover and the length of the takeover may also relate to the quality of the invading males. The ability of males to acquire and retain a group of females in langur species is probably related to power/dominance, size, no of supporting male and stamina (Mc Elligott & Hayden 2000; Mc Elligott et al., 2001). Various studies illustration that in numerous times, adult alpha male replacements in bisexual troops of langurs maybe go with infanticides. Vogel (1979) and Boggess (1979) described many occurrences of baby killings by newly recognized resident males exposed that the entire procedure of killing has only been observed three times by Mohnot (1971).

Fluctuations in group structure in answer to ecological restrictions have often been observed in different animal societies. Although most of these species generally have on the evolutionarily selected basic outline of social organization, intraspecific variations do stand up in answer to fluctuations in the local environment. One system of such modification involves short-term behavioral variations that may agree individuals overcome rigid constraints obligatory by the prevailing social structure, and thus, effectively compete with each other under changing circumstances of resource availability. The provisioning of wild non-human primate groups generally leads to variations in behavioral strategies, both at the level of individual action and that of social interactions.

A study of the factors influencing the reproductive success of infanticidal alpha males in populations of langur monkeys has presented. Male residency, manifest as an adult male's interval of residency in a one-male bisexual group, is established to be a significant factor in any reproductive benefit accruing to infanticidal males. The time at which adult male replacement happens relative to the start of any such range, and whether or not the succeeding replacement male is also infanticidal (Sommar & Mohnot, 1985; Sharma et al. 2011).

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