

TAIL CARRIAGE IN THE HANUMAN LANGUR, *PRESBYTIS ENTELLUS*, IN SOUTHERN RAJASTHAN, INDIA

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INTRODUCTION

Tail carriage in primates has behavioural and evolutionary significance and also shows a considerable degree of geographical and subspecific variation (Roonwal 1984). The Hanuman langur, *Presbytis entellus* (Dufresne) (Cercopithecidae : Colobinae) is found all over south Asia (Pakistan, India, Nepal, Bangladesh and Sri Lanka), and has several subspecies. Its tail is long and rope-like, with a tassel of hair at the tip, it is usually a little longer than head-and-body together. Its mode of carriage has been studied in considerable detail by Roonwal (1979-1984), Roonwal and Makwana (1981), Roonwal and Pirta (misspelled Pirta) (1984), and Roonwal, Pirta and Saha (1984). Two main styles of tail carriage occur (Roonwal 1979a, 1981), viz., a northern (Type I, tail looped forward above the body) and a southern (Type II, tail away from the body). Two styles are geographically separated by a diagonal line (NW to SE) running approximately from 21°-22° N latitudes in the west (somewhere between Vadodara and Surat in Gujarat) to about 16°43' N latitude in the east (Roonwal 1984a, b ; Roonwal, Pirta and Saha 1984).

In the northern style again, two types occur, viz., (i) the tail tip reaching the back or even going well below the belly and forming a complete closed loop (Type IA) ; and (ii) the tail tip remaining well above the back (Type IB) in which case no closed loop is formed. Type IA is widespread, occurring all over the plains of northern India and Pakistan, while Type IB is mainly confined to Himalayan and sub-Himalayan regions but also found in Vadodara (Baroda) in Gujarat.

The object of the present paper is to determine the nature of the style in the districts of southern Rajasthan which lie only a little north of Vadodara. Further north, in Jodhpur and Ajmer Type IA prevails.

MATERIAL AND METHODS

The four southern districts of Rajasthan, viz, Banswara, Dungarpur, Udaipur and Sirohi (latitudes 23°-26° N) were surveyed during May-June, 1987. A total of 46 groups of *Presbytis entellus entellus* were observed (for details of group-size, composition etc., see Tak, 1989). Field observations were made on individuals:

lateral photographs of tail carriage were utilised for calculating the loop index, position of tail tip, etc.

RESULTS AND DISCUSSION

(Table 1, Figure 1 and Plates 1,2)

Tail carriage :

Adults and subadults carry the tail in different situations as follows :— (i) In the relaxed state (standing or slow walk) the tail is looped forward (Type IA). (ii) Under stress (fast running or fighting), the tail loop partly or wholly unwounds and the tail acquires a bow shape and (iii) During rest (sitting on a tree branch or on the ground) either the tail hangs down limp or lies on the ground without any pattern.

Position of tail tip :

Out of 31 individuals (6 males, 25 females) observed in the relaxed state, in 65% of the cases the tail tip trails along the body-sides, either to the left or right, in 19% it remains above the back and in remaining 16% it reaches below the belly. Sex-wise, in majority of the males (66.6%) the tail-tip reaches below the belly, while in majority of females (72%) it remains on the belly.

Tail loop shape and index :

In the majority of the cases (94%), the loop shape observed is of the normal upright, forwardly directed, 'open' type (i.e. the tail does not cross at any point, as elucidates by Roonwal and Makawana, 1961) (Plate 2, Figs. 1&4). Only in two individuals (6%), a 'crossed' loop is recorded (Plate 2, Figs. 3). In the 31 cases analysed from photographs, the Loop Index (width/height of inside the loop) varies from 0.43-1.15, the majority (90%) being between 0.6 and 0.9 ; the loop thus tends to be rounded oval. In males, the mean loop index (0.71) is slightly higher than in females (0.63) (Table 1).

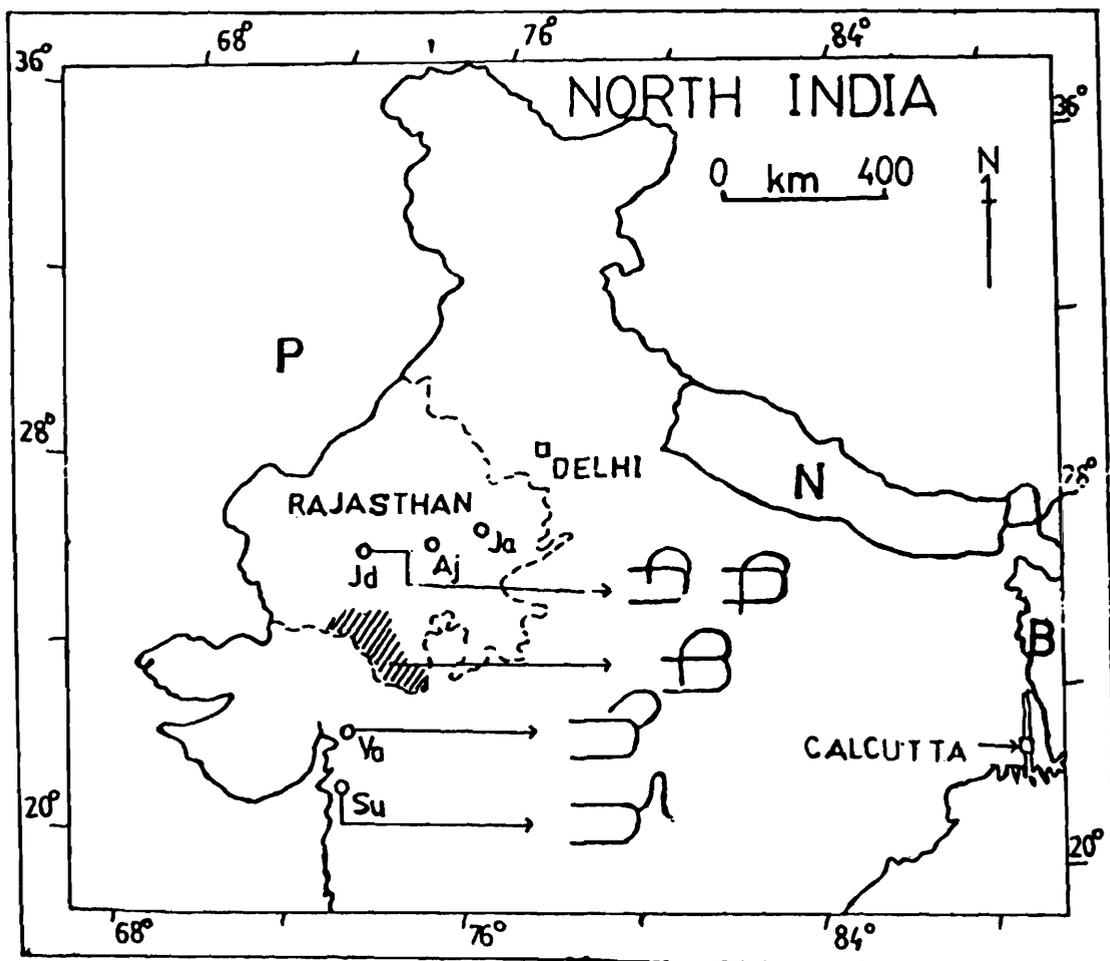
Handedness in tail loop :

In the 31 individuals studied from lateral photographs, the position regarding handedness of the tail loop is as follows :— In males, the tail is right-handed in 66.6%, and the remaining left-handed ; in none the tip lies in the middle. In females, the stance is more evenly distributed (right-handed 36%, left-handed 36% and middle stance 28%).

Handedness in Jodhpur and Peninsular Indian populations (of the places such as : *Orissa* : 1. Chandikhole. 2. Chandaka. 3. Khandagiri. 4. Bhubaneswar. 5. Tikapada. 6. Baida. 7. Senkarkhole. 8. Phringis. 9. Narayane. 10. Nirmaljar. 11. Bagra. *Maharashtra* : 12. Near Arni (5 km SE). 13. Same (15 km SE). 14. Hewari. *Andhra Pradesh* : 15. Rajahmundry. 16. Eluru), is nearly similar in males with a slight preference for the left, but in southern Rajasthan (present study) it is the reverse, where preference is for the right (66.6%). The situation is different in females. Overwhelmingly left stance (90.4%) is found in Jodhpur and a largely right stance (67.3%) in Peninsular Indian forms (Roonwal and Pirta 1984). But in southern Rajasthan it is more evenly distributed, as stated above.

Table 1. *Presbytis entellus entellus*, southern Rajasthan. Frequency (%) in individuals, of tail handedness, position of tail tip, and loop index.

Individuals	Tail Handedness			Position of tail tip in relation to belly			Loop index	
	LEFT	RIGHT	MIDDLE	ABOVE	ON	BELOW	RANGE	MEAN
Males (n=6)	33.3	66.6	Nil	Nil	33.3	66.6	0.43-1.07	0.71
Females (n=25)	36.0	36.0	28.0	24.0	72.0	4.0	0.45-1.15	0.63
Total (n=31)	35.0	42.0	23.0	19.0	65.0	16.0	0.43-1.15	0.65



Text figure 1. — Map of North India showing mode of the tail carriage in southern Rajasthan and Gujarat in *Presbytis entellus*. Shaded area : Four districts of southern Rajasthan (Banswara, Dungarpur, Udaipur and Sirohi). Aj, Ajmer ; B, Bangladesh ; Ja, Jaipur ; Jd, Jodhpur ; N, Nepal ; P, Pakistan ; Su, Surat ; Va, Vadodara.

SUMMARY

The mode of tail carriage was studied, by field observations and with the aid of lateral photographs, in adults and subadults of *Presbytis entellus entellus* (Dufresne) (Cercopithecidae : Colobinae) in four southern districts of Rajasthan, viz., Banswara, Dungarpur, Udaipur, and Sirohi. Several aspects were examined, viz., left, right-handedness of tail loop (directed forwardly), the position of tail tip in relation to the body, the loop index (width/height) and sexual dimorphism.

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