

Notes on a polyspecific association of Rhesus Macaque and Pig-tailed Macaque in the Banshkhali Ecopark of Bangladesh

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A group of polyspecific non-human primates comprising the Rhesus Macaque (*Macaca mulatta*) and Pig-tailed Macaque (*Macaca leonina*) was found in the Banshkhali Ecopark of Bangladesh in April, 2012. The group consists of four individuals: one adult male of Pig-tailed Macaque, one adult male and one adult female with an infant of the Rhesus macaques (Fig. 1). Although a number of polyspecific associations among non-human primates and birds were recorded in many parts of the world, no such polyspecific associations of non-human primates were reported yet from any forest or urban primate habitats of Bangladesh.

Association between members of different species is a widespread phenomenon in fish, birds and mammals (Whitesides, 1989). Polyspecific associations among primates were reported from the tropical forests of Africa (Struhsaker, 1981; Whitesides, 1989; Cords, 1990a, 1990b) and South America (Terborgh, 1983; Heymann, 1990; Peres, 1992a; 1992b). A number of different types of associations have been described, ranging from chance encounters and temporary assemblies of two or more species to permanent bi-specific groups. Examples of the latter have been found for several combinations of tamarins (*Saguinus* spp.) in South America (Terborgh, 1983; Garber, 1988; Peres, 1992a), between two guenon species (Gautier & Gautier-Hion, 1974; Gautier-Hion *et al.*, 1983), and between a guenon and a colobus (Oates & Whitesides, 1990) in Africa. Polyspecific associations are not unique to primates, but occur throughout the animal kingdom. An especially rich variety of polyspecific associations has been described for birds (Terborgh, 1990).

The polyspecific group of nonhuman primates recorded in this study lived in a human-modified forest habitat which is an ecopark located in the Chittagong district of Bangladesh. The ecopark is located (21°59'26"N; 91°58'58"E) in Banskhali Thana of Chittagong District which is about 60 km away from Chittagong town. The ecopark, an area of about 1200 hectares and established in 2003, was the part in the western



Fig. 1. Polyspecific group of Pig-tailed Macaque and Rhesus Macaque in Banshkhali Ecopark of Bangladesh

edge of the Chunati Wildlife Sanctuary established in 1996. Earlier, there were tropical semi-evergreen trees but now the areas are dominated by sun grass and few other planted species of trees. Original fruit-yielding tree species were the different species of *Ficus*, *Artocarpus*, *Syzygium*, *Gmelina*, etc. Consequently, the areas supported diverse groups of wildlife fauna including a number of non-human primate species, such as the Western Hoolock Gibbon (*Hoolock hoolock*), Pig-tailed Macaque (*Macaca leonina*), Capped Langur (*Trachypithecus pileatus*) and Rhesus Macaque (*Macaca mulatta*). At present, however, only few troops of the Rhesus Macaque and Pig-tailed Macaque survive in the park and adjacent sanctuary. Like the Chunati Wildlife Sanctuary, the ecopark is characterised by extensive streams and low lands between moderate hills throughout the ecopark areas. However, the ecopark contains few larger lakes that were created due to the establishment of dams at the down of the ecopark.

During this study, primate order-hierarchy was observed among the group members as typical in

conspecific social groups of non-human primates. Social behaviour among polyspecific members indicated more cohesiveness between the female of Rhesus Macaque and Pig-tailed Macaque. Several hours observations in two days suggested that the Pig-tailed Macaque taken the leadership of the whole group. The Pig-tailed Macaque clearly established the despotic hierarchy, with all submissive in the group. High-ranking behaviour of Pig-tailed Macaque ranges from chasing to getting access to food from the sources, close proximity with the female or toward itself. During such events, Pig-tailed Macaque intimidated and forced the Rhesus male to retreat from the food sources or from the close proximity of the female. The Pig-tailed Macaque showed a range of threat displays for intimidation through attempts of biting, vocalization or other forms of facial gesture. It was found that the Pig-tailed Macaque frequently chased the male Rhesus Macaque particularly during feeding at close proximity or often provisioning by local people or visitors. During such conflicts, the Rhesus male often avoided conflicts by retreating himself from the situations through climbing the nearest trees, running away or

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Fig. 2. Pig-tailed Macaque chasing the male of Rhesus Macaque (on tree)

leaving the group for shortly (Fig. 2). The only adult female that had infant received supportive care, without having any visible chasing behaviour from the Pig-tailed Macaque.

Several explanations might be attributed to the present polyspecific association of Pig-tailed and Rhesus macaques in the study areas. Firstly, widespread habitat loss and degradation forced most of the nonhuman primate groups from the Chunati Wildlife Sanctuary and Ecopark to extinction. For instance, there were seven groups of Western hoolock gibbons comprising 19 individuals in Chunati Wildlife Sanctuary in the early nineties (Ahsan, 1984; Feeroz & Islam, 1992), but that local population had become extinct by 2003 (Molur *et al.*, 2005). This suggests that the population of Pig-tailed Macaque and other primates in these areas may face

similar fate in the immediate future if current trend of habitat loss continues. In lack of fruit trees, on which gibbons and other primates depended, this individual of Pig-tailed Macaque might take the opportunity of extreme adaptive behaviour of Rhesus Macaque so that it can survive with them even in human dominated landscapes. Another possible explanation may be that this alpha-male might lose the leadership of natal group or group members that might disappear from the study areas. Forest department staff and local people told that they noted this unusual association of two species of primates together since long. They also said that local people regularly provisioned this group of monkeys. This study noted that this Pig-tailed Macaque is at good of age, gender, body size and aggressiveness to lead the polyspecific group (Fig. 2).

Holenweg *et al.* (1996) concluded that two species do not associate by chance, or at commonly used resources like food patches (Wachter *et al.*, 1997) or places relatively safe from predation (Bshary, 1995). While others suggest that a primate species can improve its food acquisition with the help of another primate species have been suggested in the case of species with larger ranges follow species with smaller ranges, because the latter would have better knowledge of momentarily rewarding feeding sites (Struhsaker, 1981; Terborgh, 1983; Cords, 1987; 1990a). A food source becomes available in the presence of the partner species which would otherwise not have been accessible, or at a considerably higher cost (Struhsaker, 1981; Terborgh, 1983), or a larger species supplants food competitors of a smaller species (Struhsaker, 1981). It is widely assumed, especially in the case of primates, that protection from predation is the ultimate cause of interspecific associations (Oates & Whitesides, 1990; Terborgh, 1990; Isbell, 1994). However, majority of studies dealt with only a few aspects of the possible foraging and predation advantages, and were therefore not conclusive regarding which advantages cause the association versus other secondary benefits (Bshary & Noe, 1996).

Long-term social behaviour study on this heterogeneous group of monkeys may provide in-depth understanding about this unique polyspecific association between two species of nonhuman primates.

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Candidates with the required qualifications for the position indicated below may attend a **walk-in interview on 03-06-2013 at 9.30 am for the position of Project Assistant** under SERB-DST sponsored research project at Institute of Wood Science and Technology, Bangalore. The candidates should submit their biodata with passport size photograph along with copies of certificates/documents and the originals for verification. The post is purely on temporary basis and is co-terminus with the project period (up to 31-03-2015). No TA/DA will be provided for attending the interview.

Project	Principal Investigator	Position available	Qualifications required	Emoluments per month
"Bionomics and management of <i>Purpuricenus sanguinolentus</i> Oliver (Cerambycidae: Coleoptera) the stem borer of Sandal (<i>Santalum album</i> L.) in Karnataka"	Dr. R. Sundararaj	Project Assistant	B.Sc - I Class in any branch of Life Science Age limit 28 years as on 03-06-2013 with relaxation as per GOI rules.	Rs.8000/- Consolidated