
Time Does Not Constrain Kin Selection in *Macaca fuscata*

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Kin selection favours the preferential deployment of altruistic behaviours to the closest available kin. Only after satisfying the needs of the closest kin should an animal direct its altruistic behaviours to progressively more distant kin, and then to non-kin. If time or energy limits the amount of altruism that an animal can distribute among its group mates, then only the closest kin should receive altruistic behaviours. If this hypothesis is correct, then animals living together with a large number of kin are expected to direct their altruism only to the closest kin (i.e., they are expected to show a strong kin bias). If time and energy do not limit altruism, then the degree of kin bias should be independent of the number of available kin. We evaluated this hypothesis in a captive group of Japanese macaques (*Macaca fuscata*) testing three different altruistic behaviours: allogrooming, aggressor support during agonistic interactions, and victim support during agonistic interactions. All three altruistic behaviours were directed preferentially to kin, but the degree of kin bias was not influenced by matriline size (i.e., by the number of available kin). These results do not support the hypothesis that time or energy can constrain kin selection in Japanese macaques.

New Perspectives on Mating Patterns and Sexual Swellings in Wild White-Handed Gibbons (*Hylobates lar*)

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Although extra-pair copulations have been reported, in most gibbon populations individuals are still considered to conform to a monogamous life style. At Khao Yai National Park, Thailand, however, 42% of twelve white-handed gibbon research groups were found to have two adult males that were unrelated to the group female. How this affects mating patterns and sex-specific reproductive strategies is unclear. We studied sexual behaviour of females living in pairs ($n = 7$) or multimale groups ($n = 5$) and related these data to each female's reproductive stage, as assessed by faecal progesterone analysis, and to the changes in size of their sexual swelling. Even though gibbons exhibit much smaller sexual swellings than some other primate species, their characteristics suggest that they serve functions similar to those of the bigger swellings of Old World primates, i. e. indicating the probability of ovulation, without allowing males to pinpoint its exact time. Our results on sexual behaviour showed that copulation frequency of cycling females was elevated during the peri-ovulatory periods, but did not differ between fertile and non-fertile phases of the menstrual cycles, and mating activity was extended well into gestation. Sexual swelling size had a direct impact on copulation frequency, in that copulation rates were higher during periods when females were maximally swollen, both during the

cycle and during pregnancy. Due to the association between copulation rate and sexual swelling size, it appears that gibbon females have evolved visual signals that enable them to manipulate male mating behaviour.

A Case of Prolonged 'Infant Handling' and Carrying by a Pregnant Group-Living Tonkean Macaque Female (*Macaca tonkeana*)

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Throughout the Primate order, females of different ages and parity status show a considerable interest in other females' infants. The complex of positive (infant care), negative (infant harassment and food deprivation) and neutral interactions (neither beneficial nor harmful to the infant) between non-mother females and infants are known as 'infant handling'. As a particular form of infant handling, 'kidnapping' is characterised by a prolonged separation of the infant from its own mother. In order to evaluate the risks to infant survival associated with such allomaternal interactions, in order to reasonably label such episodes as 'kidnapping', the following factors should be concurrently taken into consideration: (1) patterns of infant handling (e.g., negative versus positive patterns); (2) mother's reaction to infant handling (e.g., stress response); (3) infant developmental stage (e.g., lactating/dependent infant); (4) infant reaction (e.g., it tries to escape/protest); (5) reproductive status of the female handler (e.g. lactating); (6) kinship between handler and infant. We present filmed images of a pregnant, nulliparous Tonkean macaque female who repeatedly removed 2 infants (a male, 1 to 3 months old, and the alpha female's daughter, 2 to 4 months old). Episodes lasted from minutes to several hours, and were distributed over a 3 month time span. Behavioural and hormonal data were collected from the three females (i.e., kidnapper and both victims' mothers). The kidnapper alternated maternal and abusive behaviour. Only one of the two mothers, the alpha female, reacted aggressively toward the kidnapper a few times. Stress response in all three females was investigated by analysing faecal cortisol levels and displacement activities throughout the study.

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The Provenance of the Malagasy Primates: An Unsolved Enigma

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The timing of the connections among Madagascar and the other Gondwanan continental landmasses is still debated, but most authorities argue that the definitive terrestrial isolation took place at the end of Cretaceous. However, one author ventures to suggest a link between Asia and Madagascar via India and the Seychelles Plateau enabling a faunal exchange during