

BIO 45 – Lect., 3 – 11- PRIMATE SOCIAL SYSTEMS

I. The Great Apes (general background):

♂ = male ♀ = female

From: C.E. Grahm (ed.) 1981. Reproductive Biology of the Great Apes. Academic Press (QL 737 P96 R45). and McGrew, et. al. (eds) 1996. Great Ape Societies. Cambridge U. Press & F. de Waal article.

	<u>ORANGUTAN</u>	<u>GORILLA</u>	<u>CHIMP (Pan troglodytes)</u>	<u>BONOBO (p. paniscus)</u>
Habitat	Rain Forest	Mountain Forest	Lowland Forest	Lowland Forest
Social Unit	♀ + young	adult ♂ + ♀♀ + yng	Brothers -- ♂♂ pair w/ estrous ♀♀	♂ relatives + non-related ♀♀ bonded w/ each other
Social structure	roving ♂♂ - solitary ♀♀	single ♂ - multi-♀	multi-♂ - multi-♀	multi-♂ - multi-♀
Social Complexity			Fission - Fusion	Fission - Fusion
Dispersal -	both sexes disperse, ♂♂ perhaps further	both sexes - ♀♀ join group, ♂♂ wander	♂♂ stay, ♀♀ disperse to feeding territories	♂♂ stay, ♀♀ disperse to feeding territories
Territories	large feeding ranges	abundant food in shared territory	♂♂ share territories, ♀♀ have individual territories	?? not as strongly developed as chimps
Matings	rare - 10+min M with 2+ ♀♀	occasional - 1.5min with all ♀♀	frequent - 10-15sec all ♂♂ w/ all ♀♀	very frequent - long receptive period
• ♂-♂ competition	• occasional:	• strong w/ non-group ♂♂:	• strong between ♂ groups:	• less among ♂♂. Dominant ♂♂ = sons of dominant ♀♀
• ♂-♀ bond	• short term consorts with ♀	• stronger bonds w/ ♂ than among ♀♀	• subtle within group for assoc. with estrus ♀	• subtle - ♀♀ bonding stronger than in chimps and among non-relatives!
♀-♀ bond	• none		• females relatives	
Reproductive Competition	♂ dominance ♀ choice of mates	♂ dominance ♀ chooses group + ♂ infanticide	sperm competition + ♀ choice (?) infanticide	low among ♂♂ - rank reflects mother's status -- ♀♀ receptive longer each cycle than chimps
Alternative ♂ Tactics	opportunistic associations w/ ♀♀ occasional forced copulations	stay in natal group as follower ♂ - or - leave and acquire own group	opportunistic matings within group --- or --- consortships away from group	??

II. Shifting views of males and females – [...] = shift

1. Dominance leads to reproductive success only for males [→ also for females]
 - A. Correlation for males -- not all that clear -- alternative tactics (e.g., friendships)
 - B. Strong correlation for females -- daughters inherit mother's rank in some species - may even lead to biased sex ratios (high ranking females prefer daughters, low prefer sons)
2. Aggressive males - passive females [→ strong reproductive competition among females]
 - A. Female hierarchies were predicted in 1968 and discovered soon afterwards!
 - But, they are not like male dominance hierarchies:
 - Stable over longer periods than male's are
 - Female rank often passed on to her daughters (sometimes to her sons)
 - High ranking females (baboons) tend to have more daughters! Low ranking females tend to have more sons!
3. Female choice of mate key to success [→ care during first few months is the key]

over →

III. Emerging Views of Primate Behavior

"Aggressive and affiliative behaviors of male and female primates vary depending on the species, the social context, and the individual. In species in which females remain in their natal groups, female-female bonds are more prominent than male-male bonds, but male-male bonds are more prominent in female-transfer species. Among primates as a whole, females show aggressive behavior as often as do males, but males generally wound one another more often than do females. These sex differences are best understood in terms of sex-specific reproductive strategies rather than as reflections of intrinsic temperamental differences between the sexes. In most nonhuman primates, males dominate females individually, but in several species females dominate males, sometimes individually and sometimes as the result of female-female coalitions. Females use coalitions with other females to gain protection against male aggression and to influence male group membership. For both females and males, control of benefits that cannot be taken by force, such as affiliative behaviors, represents a source of leverage in interactions with others." **Smuts, Barbara. 1987. Sexual competition and mate choice. Ch. 31 in, Smuts, et.al., Primate Societies. U. Chicago Press**

"Just imagine that we had never heard of chimpanzees or baboons and had known bonobos first. We would at present most likely believe that early hominids lived in female-centered societies, in which sex served important social functions and in which warfare was rare or absent. In the end, perhaps the most successful reconstruction of our past will be based not on chimpanzees or even on bonobos but on a three-way comparison of chimpanzees, bonobos and humans." **de Waal, Franz 1995. Bonobo sex and society. Scientific American 272:82-88**

EXAMPLES OF PRIMATE SOCIAL SYSTEMS

