

ABSTRACT

The behavioural ecology of the vervet monkey Cercopithecus aethiops in Barbados is investigated. Vervets were brought to Barbados and St. Kitts from Africa about three hundred years ago. The founding population was predominantly Cercopithecus aethiops sabaeus. Only minor differences presently exist between the St. Kitts and Barbados populations.

Male and female vervets grow similarly up to one and a half years of age, after which males grow faster. Females reach a maximum weight of 4.5 kgs when 5 years old; males a weight of 6.2 kgs when 6 years old. Females reach sexual maturity when about 3.3 kgs and 31 months old; males when 5.3 kgs and 60 months old.

Seventy-three percent of births occur between April and July; the drier months of the year. Mean birth rate is 1.2 infants per year. Mortality is highest in the first two years of life; 50% of all infants dying by three years of age. Man is the principal predator of vervets in Barbados.

There are between 5000 and 12000 vervets in Barbados. They are more abundant in agricultural parishes and parishes with lower human population density. The principal factor affecting their distribution on agricultural land is availability of cover. The island-wide mean troop size is 15.3. Troop size is smallest in parishes of highest human density.

Crops are a more important component of the diet of vervets than non-cultivated food. The vervets are primarily frugivorous, and their diet preference reflects a tendency to simultaneously maximise energy and protein intake whilst foraging.

The social organisation of vervets is characterised by a matrilineal hierarchy in which offspring acquire a social rank immediately below that of their mother's. Aggression by mothers, and the threat of maternal intervention, are primarily responsible for controlling the acquisition and maintenance of offspring rank. The patterns of aggression and intervention by lineage members reflect those of their mothers. Members of high ranking lineages initiate more aggression and intervene more frequently on behalf of kin than members of low ranking

lineages. Sons are more likely to initiate and intervene in up rank encounters than daughters, and daughters are more likely to initiate and intervene in down rank interactions than sons.

Support of kin is more common than support of non-kin. The amount of support that an individual receives from non-kin is correlated with the amount of support that the individual gives to non-kin, suggesting that reciprocation is the basis of support patterns between non-kin.

Mothers always support their younger over their older daughters, and hence dependent rank reversal of daughters occurs from birth of the younger. This is inconsistent with the reproductive value hypothesis for rank reversal of daughters in Old World monkeys. Rank reversal should best be perceived as a maternal strategy that lowers the probability of daughter/daughter coalition which could enable daughters to surpass their mothers in rank.

Mothers who are less harrassed by troop members have higher birth rates than more harrassed mothers. Offspring survivorship was not rank-dependent in the study troops. Growth rate is higher, and hence age at sexual maturity lower, for daughters in higher ranking matriline. This may be the major factor contributing to the higher fitness of high ranking lineages. More harrassed mothers produce relatively more sons than less harrassed mothers. This may be adaptive if low ranking mothers are more frequently harrassed, since sons leave natal troops and may be freed of their mother's rank. Moreover, age at sexual maturity of sons is less affected by low social rank than that of daughters.

Adult males who have fathered offspring in the troop are more aggressive towards high ranking than low ranking matriline, and typically intervene on behalf of individuals who rank lower than their opponents. This may reduce the disadvantages of low rank which befall their offspring born into low ranking matriline. Immigrant males who have not yet fathered offspring in the troop are more aggressive towards lower ranking than higher ranking matriline, and typically intervene on behalf of individuals who rank higher than their opponents. This support of the existing female hierarchy may increase the chances of immigrant males being accepted by the troop.