

= Vervet monkey =

The vervet monkey ( *Chlorocebus pygerythrus* ), or simply vervet , is an Old World monkey of the family Cercopithecidae native to Africa . The term " vervet " is also used to refer to all the members of the genus *Chlorocebus* . The five distinct subspecies can be found mostly throughout Southern Africa , as well as some of the eastern countries . Vervets were introduced to Florida , Texas , Alabama , Louisiana , Arizona , California , Ascension Island , Cape Verde , Barbados , Saint Kitts , Bermuda , Bahamas , Cuba , Jamaica , Haiti , Dominican Republic , and Nevis . These mostly herbivorous monkeys have black faces and grey body hair color , ranging in length from about 50 centimetres ( 20 in ) for males to about 40 centimetres ( 16 in ) for females .

In addition to very interesting behavioral research on natural populations , vervet monkeys serve as a nonhuman primate model for understanding genetic and social behaviors of humans . They have been noted for having human @-@ like characteristics , such as hypertension , anxiety , and social and dependent alcohol use . Vervets live in social groups ranging from 10 to 70 individuals , with males changing groups at the time of sexual maturity . The most significant studies done on vervet monkeys involve their communication and alarm calls , specifically in regard to kin and group recognition and particular predator sightings .

= = Taxonomy = =

The vervet monkey was previously classified as *Cercopithecus aethiops* . The vervet and malbrouck have often been considered conspecific , or as subspecies of the widespread grivet .

The five subspecies of vervet monkey are :

*Chlorocebus pygerythrus excubitor*

*C. p. hilgerti* from southern Kenya

*C. p. nesiotes*

*C. p. pygerythrus* from South Africa , Botswana , Lesotho , and Swaziland

*C. p. rufoviridis* from Mozambique and Uganda has a distinctly reddish @-@ coloured back , which is darker towards the base of the tail .

= = = Synonymy = = =

*C. p. pygerythrus* , as *Cercopithecus aethiops* , was also formerly divided into four subspecies :

*C. a. pygerythrus* , from South Africa ( Western Cape , Eastern Cape , Northern Cape and southern KwaZulu @-@ Natal ) , and Lesotho ; is said to have pale @-@ coloured limbs and white hands and feet ( though the hands are also said to be black with a scattering of greyish hairs ) , and a greyish body colour with an olive sheen .

*C. a. cloetei* , from northern KwaZulu @-@ Natal , Swaziland and northern South Africa ; is darker , with greyish @-@ brown speckles and dark feet .

*C. a. marjoriae* , from southern Botswana and the North West Province of South Africa ; is pale in colour ( light ash @-@ grey ) .

*C. a. ngamiensis* , from north @-@ eastern Botswana and the Okavango ; has pale feet and a yellowish back and the tail is darker ( especially towards the tip ) than in other southern vervets .

These subspecies are no longer recognised and are synonymous with *C. p. pygerythrus* .

= = Physical description = =

The vervet monkey has a black face with a white fringe of hair , while the overall hair color is mostly grizzled @-@ grey . The species exhibits sexual dimorphism ; the males are larger in weight and body length . Adult males weigh between 3 @. @ 9 and 8 @. @ 0 kg ( 8 @. @ 6 and 17 @. @ 6 lb ) , averaging 5 @. @ 5 kg ( 12 lb ) , and have a body length between 420 and 600 mm ( 17 and 24 in ) , averaging 490 mm ( 19 in ) from the top of the head to the base of the tail . Adult females weigh between 3 @. @ 4 and 5 @. @ 3 kg ( 7 @. @ 5 and 11 @. @ 7 lb ) and average 4 @. @ 1 kg ( 9 @. @

0 lb ) , and measure between 300 and 495 mm ( 11 @. @ 8 and 19 @. @ 5 in ) , averaging 426 mm ( 16 @. @ 8 in ) .

= = Behavior = =

= = = Social behavior = = =

When males reach sexual maturity , they move to a neighboring group . Often , males will move with a brother or peer , presumably for protection against aggression by males and females of the resident group . Groups that had previously transferred males show significantly less aggression upon the arrival of another male . In almost every case , males migrate to adjacent groups . This obviously increases benefits in regard to distance traveled , but also reduces the amount of genetic variance , increasing the likelihood of inbreeding .

Females remain in their groups throughout life . Separate dominance hierarchies are found for each sex . Male hierarchies are determined by age , tenure in the group , fighting abilities , and allies , while female hierarchies are dependent on maternal social status . A large proportion of interactions occur between individuals which are similarly ranked and closely related . Between unrelated individuals , there is female competition for grooming members of high @-@ ranking families , presumably to gain more access to resources . These observations suggest individual recognition is possible and enables discrimination of genetic relatedness and social status . Interactions between different groups are variable , ranging from highly aggressive to friendly . Furthermore , individuals seem to be able to recognize cross @-@ group vocalizations , and identify from and to which monkey each call is intended , even if the call is made by a subadult male which is likely to transfer groups . This suggests the members within a group are actively monitoring the activity of other groups , including the movement of individuals within a group .

Within groups , aggression is directed primarily at individuals that are lower on the hierarchy . Once an individual is three years or older , it is considerably more likely to be involved in conflict . Conflict often arises when one group member shows aggression toward a close relative of another . Further , both males and females may redirect aggression towards individuals in which both had close relatives that were previously involved in a conflict . This suggests complex recognition not only of individuals , but also of associations between individuals . This does not suggest recognition of other 's individual kinship bonds is possible , but rather that discrimination of social relationships does occur .

= = = Alarm calls and offspring recognition = = =

Vervet monkeys have four confirmed predators : leopards , eagles , pythons , and baboons . The sighting of each predator elicits an acoustically distinct alarm call . In experimentation with unreliable signalers , individuals became habituated to incorrect calls from a specific individual . Though the response was lessened for a specific predator , if an unreliable individual gives an alarm call for a different predator , group members respond as if the alarm caller is , in fact , reliable . This suggests vervet monkeys are able to recognize and to respond to not only the individual calling , but also to the semantics of what the individual is communicating . It is believed that vervet monkeys have up to 30 different alarm calls . In the wild vervet monkeys have been seen giving a different call when seeing a human being approaching , leading to researchers believing that vervet monkeys may have a way of distinguishing between different land and flight predators .

Mothers can recognize their offspring by a scream alone . A juvenile scream will elicit a reaction from all mothers , yet the juvenile 's own mother had a shorter latency in looking in the direction of the scream , as well as an increased duration in her look . Further , mothers have been observed to help their offspring in conflict , yet rarely aided other juveniles . Other mothers evidently can determine to which mother the offspring belongs . Individuals have been observed to look towards the mother whose offspring is creating the scream .

### == Kin relationships ==

Siblings likely provide the prevailing social relationships during development . Within social groups , mother @-@ offspring and sibling interactive units are distinct groups . The sibling interaction are heavily supportive and friendly , but do have some competition . Contests primarily involve postweaning resource allocation by the common mother . For example , siblings have conflict over grooming time allocated by their mother . Offspring are usually not born in extremely close proximity due to the interbirth period of the mother . This time can be reduced by use of an allomother . The clarity of the familial and sibships within a group may act as a form of alliance , which would come at relatively low cost in regards to grooming . Other alliances are shown through conflict with aggressive individuals that have acted against a closely related sibling .

Allomothering is the process when another individual besides the mother cares for an infant . In groups of vervet monkeys , infants are the source of a tremendous amount of attention . Days after an infant is born , every member of the group will inspect the infant at least once by touching or sniffing . While all group members participate in infant caretaking , juvenile females which cannot yet menstruate are responsible for the majority of allomothering . The benefit is mutual for the mother and allomother . Mothers that use allomothers are able to shorten their interbirth periods , the time between successive births . At the same time , allomothers gain experience in rearing infants , and had more success in raising their own offspring . Juvenile females discriminate in preference for the infant they choose to allomother , and will usually choose siblings or infants of high @-@ ranking individuals . When a mother allows her juvenile daughter to become an allomother for a newborn sibling , the mother decreases her own investment in the infant , while increasing the chances of successful rearing of her immature daughter .

Grandmothers and grandchildren share one @-@ quarter of their genes , so they should be more likely to form affiliative relationships than unrelated members in a group . Not only do infants approach their grandmothers more often than unrelated members , but they also prefer their grandmothers compared to other adult female kin , not including their own mothers . Additional research has shown grandmothers show no preference over the sex of their grandchild . Interest in the grandchild spurred from the rank of the grandmother within a group . Higher @-@ ranking grandmothers showed more interest in caring for their grandchildren when compared to low @-@ ranking grandmothers . The presence of grandmothers has been associated with a decrease in mortality of infants .

### == Spite ==

Spiteful actions are extremely rare in the animal kingdom . Often , there is an indirect benefit to the individual acting ' spiteful ' or to a close relative of that individual . Vervet monkeys have been observed to destroy a competitor 's food source rather than consume or steal it themselves . While energy is being lost on destroying the food , a competitive advantage is given to the individual due to an increase in competitive gain . This would be pertinent for a male which could be displaced within his group to immigrating males .

### == Reproduction ==

Female vervets do not have external signs indicating a menstruation period , thus there are not elaborate social behaviors involving reproduction . Typically , a female gives birth once a year , between September to February , after a gestation period of about 165 days . Usually only one infant is born at a time , though twins can occur rarely . A normal infant weighs 300 ? 400 g .

### == Ecology ==

### == Diet ==

The vervet monkey eats a primarily herbivorous diet , living mostly on wild fruits , flowers , leaves , seeds , and seed pods . In agricultural areas , vervets become problem animals , as they will raid bean crops , peas , young tobacco plants , vegetables , fruit , and various grain crops . Carnivorous aspects of their diet include grasshoppers and termites . Raids of cattle egrets and weaver bird nests have been observed where the vervets will eat the eggs and chicks .

A list of some natural food plants and part of the plant eaten , in South Africa :

### == Distribution and habitat ==

The vervet monkey ranges throughout much of Southern and East Africa , being found from Ethiopia , Somalia and extreme southern South Sudan , to South Africa . It is not found west of the East African Rift or the Luangwa River , where it is replaced by the closely related malbrouck ( *C. cynosuros* ) . The vervet monkey inhabits savanna , riverine woodland , coastal forest and mountains up to 4000 m ( 13 @, @ 100 ft ) . They are adaptable and able to persist in secondary and / or highly fragmented vegetation , including cultivated areas , and sometimes are found living in both rural and urban environments . Annual home range size has been observed to be as high as 176 ha with an average population density of 54 @. @ 68 animals / km <sup>2</sup> .

Introduced vervet monkeys are naturalized in Ascension Island , Cape Verde , Bermuda , Barbados , Bahamas , Cuba , Jamaica , Haiti , Dominican Republic , and Saint Kitts and Nevis . Dania Beach , Florida is home to about 20 introduced vervets .

### == Relationship with humans ==

In spite of low predator populations in many areas , human development has encroached on wild territories , and this species is killed by electricity pylons , vehicles , dogs , pellet guns , poison , and bullets , and is trapped for traditional medicine , bush meat , and for biomedical research . The vervet monkey has a complex and fragile social system , and persecution of the monkeys is thought to have affected troop structures and diminishing numbers . Many people living in close proximity to vervet monkey colonies see them as pests as they steal their food . There are heavy fines in some cities to discourage the killing of vervet monkeys .

Its status according to the IUCN is " least concern " .

This species was known in ancient Egypt including the Red Sea Mountains and the Nile Valley . From fresco artworks found in Akrotiri on the Mediterranean island of Santorini there is evidence that the vervet monkey was known to the inhabitants of this settlement around 2000 BC ; this fact is most noted for evidence of early contact between Egypt and Akrotiri .

### == Gallery ==