

= Geoffroy 's spider monkey =

Geoffroy 's spider monkey (*Ateles geoffroyi*) , also known as the black @-@ handed spider monkey , is a species of spider monkey , a type of New World monkey , from Central America , parts of Mexico and possibly a small portion of Colombia . There are at least five subspecies . Some primatologists classify the black @-@ headed spider monkey (*A. fusciceps*) , found in Panama , Colombia , and Ecuador as the same species as Geoffroy 's spider monkey .

It is one of the largest New World monkeys , often weighing as much as 9 kg (20 lb) . Its arms are significantly longer than its legs , and its prehensile tail can support the entire weight of the monkey and is used as an extra limb . Its hands have only a vestigial thumb , but long , strong , hook @-@ like fingers . These adaptations allow the monkey to move by swinging by its arms beneath the tree branches .

Geoffroy 's spider monkey lives in fission ? fusion societies that contain between 20 and 42 members . Its diet consists primarily of ripe fruit and it requires large tracts of forest to survive . As a result of habitat loss , hunting and capture for the pet trade , it is considered to be endangered by the IUCN .

= = Taxonomy = =

Geoffroy 's spider monkey belongs to the New World monkey family Atelidae , which contains the spider monkeys , woolly monkeys , muriquis and howler monkeys . It is a member of the subfamily Atelinae , which includes the spider monkeys , woolly monkeys and muriquis , and of the genus *Ateles* , which contains all the spider monkeys . The genus name *Ateles* means " imperfect " , a reference to the vestigial thumb . The species name *geoffroyi* is in honor of French naturalist Étienne Geoffroy Saint @-@ Hilaire .

Agreement over the number of spider monkey species is not universal . Kellogg and Goldman (1944) based their classification on fur color , and Groves (1989) based his on fur color and geographic distribution . Kellogg and Goldman differentiated Geoffroy 's spider monkey from other species by its dark black head , hands and wrists . Recent studies use mitochondrial DNA to help differentiate species . Such studies by Collins and Daubach (2000 , 2001 , 2006) indicate the Geoffroy 's spider monkey is more closely related to the white @-@ fronted spider monkey , *A. belzebuth* , and the brown spider monkey , *A. hybridus* , than it is to the red @-@ faced spider monkey , *A. paniscus* . According to these studies , *A. paniscus* branched off from the other spider monkeys approximately 3 @.@ 27 million years ago and the spider monkeys branched off from the woolly monkeys and muriquis 3 @.@ 59 million years ago . Older studies by Porter , et al. indicate the howler monkeys are believed to have branched off from the other Atelides over 10 million years ago .

= = Subspecies = =

At least five subspecies of this monkey are recognized :

Nicaraguan spider monkey , *Ateles geoffroyi geoffroyi*

Hooded spider monkey , *A. g. grisescens*

Ornate spider monkey , *A. g. ornatus*

Mexican spider monkey , *A. g. vellerosus*

Yucatan spider monkey , *A. g. yucatanensis*

Some authorities also recognize *A. g. azuerensis* and *A. g. frontatus* as valid subspecies . The black @-@ headed spider monkey , *Ateles fusciceps* , is considered by authorities such as Groves (1989) and Rylands et al . (2006) to be a separate species from Geoffroy 's spider monkey . Other authorities , including Froelich (1991) , Collins and Dubach (2001) and Nieves (2005) , consider *A. fusciceps* to be synonymous with *A. geoffroyi* . Under this treatment , the two subspecies of the black @-@ headed spider monkey represent additional subspecies of Geoffroy 's spider monkey , *A. g. fusciceps* and *A. g. rufiventris* .

= = Distribution and habitat = =

The range of this species extends over much of Central America , encompassing Panama , Costa Rica , Nicaragua , Guatemala , Honduras , El Salvador , Belize and the south and much of the eastern portion of Mexico . Observations by local people indicate the southernmost subspecies , the hooded spider monkey , *A. g. grisescens* , may also occur in the portion of Colombia near the Panama border . In western Colombia and northeast Panama , it is replaced by the black @-@ headed spider monkey , *A. fusciceps* , which is considered by some primatologists to be a subspecies of Geoffroy 's spider monkey .

Geoffroy 's spider monkey lives in various types of forest , including rains , semideciduous and mangrove forests . Higher densities of Geoffroy 's spider monkeys are generally found in areas containing evergreen forest .

= = Physical description = =

Geoffroy 's spider monkey is one of the largest New World monkeys . Its length measures between 30 and 63 cm (12 and 25 in) and it weighs between 6 and 9 kg (13 and 20 lb) . The tail is longer than the body at between 63 and 85 cm (25 and 33 in) . Males and females are approximately the same size .

Its body color varies by subspecies and population , and can be buff , reddish , rust , brown or black . The hands and feet are dark or black . The face usually has a pale mask and bare skin around the eyes and muzzle .

Its arms and legs are long and slim . The arms are about 25 % longer than the legs . The thumb is only vestigial , but the fingers are long and strong , making the hands hook @-@ like . The long arms and hook @-@ like hands allow Geoffroy 's spider monkey to brachiate , that is , swing by its arms beneath the tree branches .

The prehensile tail is very strong and has a palm @-@ like pad at the end . The tail acts as an extra limb , and is used for locomotion , as well as to pick fruits and to scoop water from holes in trees . Geoffroy 's spider monkey can support its weight suspended by its tail and often does so when feeding .

The clitoris of female Geoffroy 's spider monkeys is large and protrudes , looking like a penis . This organ , called a pendulous clitoris because of the way it dangles externally , is actually larger than the male flaccid penis . As a result , females are sometimes mistaken for males by human observers . The enlarged clitoris is believed to aid males in determining sexual receptiveness , allowing them to touch the clitoris and smell their fingers to pick up chemical or olfactory cues to the female 's reproductive status .

= = Behavior = =

Geoffroy 's spider monkey is arboreal and diurnal , and mostly inhabits the upper portion of the forest . However , it comes to the ground more frequently than other spider monkey species . It lives in fission ? fusion societies , large groups with a typical 20 to 42 members , which split into smaller subgroups to forage during the day . Subgroups typically number two to six members , and sometimes the subgroups remain separate from the main group even through the night .

Geoffroy 's spider monkey forages over large tracts of forest in search of food . Home ranges for groups can exceed 900 hectares (2 @, @ 200 acres) . Monkeys can range about 2 @, @ 000 metres (6 @, @ 600 ft) each day . Males tend to cover a larger day range than females , and dominant individuals tend to have larger day ranges . Geoffroy 's spider monkey sometimes rubs a mixture of saliva and ground lime tree *Citrus aurantifolia* leaves on its fur . This is believed to act as an insect repellent . In some locations , Geoffroy 's spider monkey interacts with the white @-@ headed capuchin . These interactions can include mutual grooming .

In addition to walking or running on four limbs and climbing , Geoffroy 's spider monkey uses

several forms of suspensory locomotion . Brachiation , or swinging from the arms with assistance from the prehensile tail , is the most common form of suspensory locomotion . Less common forms include swinging while suspended by the tail , and walking on four limbs under a branch . Studies have indicated the Geoffroy 's spider monkey uses suspensory locomotion less frequently than other spider monkey species .

The most common method used by spider monkeys to cross between trees is " bridging " , in which the monkey grasps for a branch from the new tree and pulls it towards itself so it can climb onto it . Airborne leaps are used when necessary , and certain populations of Geoffroy 's spider monkey , especially in Panama , are known to leap between trees more frequently than other populations .

When not moving , Geoffroy 's spider monkey uses not only supported postures , such as sitting or standing , but also suspended postures in which it hangs from a branch . Suspended postures always include support from the tail , and sometimes the monkey hangs by its tail alone . Other times it hangs by the tail and by one or more limbs simultaneously . Studies have indicated at least some Geoffroy 's spider monkey populations use suspended postures less frequently when feeding than other spider monkey species .

= = = Communication and intelligence = = =

Sounds produced by Geoffroy 's spider monkey include barks , whinnies , squeals , squeaks and screams . Barks are typically alarm calls . Whinnies and screams can be used as distress calls , and are also made at dawn and at dusk . Each monkey makes a unique sound , which may allow monkeys to recognize each other through vocal communication alone . Several researchers have investigated the use of whinnies , which consist of between two and 12 quick increases and decreases in pitch , in more detail . This research has indicated one additional purpose of whinnies is to call other group members to a food source . Other purposes of whinnies suggested by this research have included maintaining vocal contact with other group members while traveling and distinguishing between group members and members of other groups .

Geoffroy 's spider monkey uses several forms of nonvocal communication . A curled tail or arched back can be used as a threat display towards other spider monkeys . A head shake is used either as a threat or an invitation to play . Shaking branches or swaying arms is used as a warning of danger to the group .

Although they do not use tools , spider monkeys , including Geoffroy 's spider monkey , are regarded as intelligent primates . A study performed in 2007 concluded they were the third most intelligent nonhuman primate , behind only orangutans and chimpanzees , and ahead of gorillas and all other monkeys . This mental capacity may be an adaptation to spider monkeys ' frugivorous diets , which require them to be able to identify and memorize many different types of foods and their locations .

= = = Diet = = =

Geoffroy 's spider monkey eats mostly fruit ? preferably ripe and fleshy ? and spends 70 % to 80 % of its feeding time eating fruit . Leaves make up most of the rest of its diet . Young leaves are especially important to provide the protein that can be lacking in fruit . Other elements of its diet include flowers , bark , insects , honey , seeds and buds .

In addition to providing much of the monkey 's nutritional needs , fruit and leaves provide much of its water requirements . Like other spider monkeys , Geoffroy 's spider monkey drinks water from tree holes and bromeliads in trees , but unlike other spider monkeys , it also drinks from terrestrial water sources .

= = = Predators = = =

Large cats ? jaguars and pumas ? appear to be the only significant adult spider monkey predators , other than humans . Eagles and large snakes are also potential predators . However , predation of

Geoffroy 's spider monkey has not been observed by researchers .

= = = Reproduction = = =

Females bear young every two to four years . Among males , mating is not restricted to only dominant individuals . In one study at Barro Colorado Island , all males in the group were observed mating at least once over a one @-@ year period . However , dominant males appear to mate more often than low @-@ ranking males . It is unknown whether male dominance is correlated with greater success in fathering offspring .

Geoffroy 's spider monkeys mate in a sitting position , both facing the same direction , with the male seated behind the female and his arms wrapped around her chest and legs wrapped around her waist . This embrace can last between 8 and 22 minutes . Prior to mating , the male and female both separate themselves from the rest of the group , so they are alone except for any of the female 's juvenile offspring .

The gestational period is about 7 @.@ 5 months , after which a single young is typically born , although twins sometimes occur . The young are dark in color until they begin taking on the adult coloration at the age of five months . They are carried on their mothers ' chests for the first month and a half to two months , at which point they can ride on their backs . They nurse until they are about one year old , but begin eating solid foods and moving independently at about three months . Even when they move independently , they cannot always cross gaps in the canopy that adults can manage . To help them , an adult will stretch across the gap , forming a bridge over which the young can cross .

Females become sexually mature at about four years , and males at about five years . Upon reaching sexual maturity , females leave their natal group , but males do not . As a result , the males in the groups are typically related , while the females are not . This may help explain why male Geoffroy 's spider monkeys form strong bonds . Maximum life span in the wild is unknown . In captivity , Geoffroy 's spider monkey can live at least 33 years .

= = Conservation status = =

Geoffroy 's spider monkey is listed as " Endangered " by the IUCN , mostly due to habitat loss . It requires large tracts of primary forest to survive , so it is vulnerable to deforestation and is sometimes hunted by humans and captured for the pet trade . Because of its low reproductive turnover , it cannot quickly replenish its numbers when affected by these events . As a result , Geoffroy 's spider monkey has disappeared from some areas where it was once common . Three subspecies are critically endangered .

Geoffroy 's spider monkey was extirpated on Barro Colorado Island in Panama . Hunting had eliminated the native population there by 1912 . However , between 1959 and 1966 , an effort was made to reintroduce the species to Barro Colorado . At least 18 monkeys were reintroduced , but only five , one male and four females , survived the reintroduction . This small group has thrived , and the island population had grown to 28 monkeys by 2003 .