

Bonnet Macaque *Macaca radiata*

Taxonomy

Kingdom: Animalia

Phylum: Chordata

Class: Mammalia

Order: Primates

Family: Cercopithecidae

Scientific name: *Macaca radiata*

Species Authority: E. Geoffroy, 1812

Common Name(s): Bonnet Macaque

Subspecies: *M. radiata radiata*, *M. r. diluta*.

Geographic Range

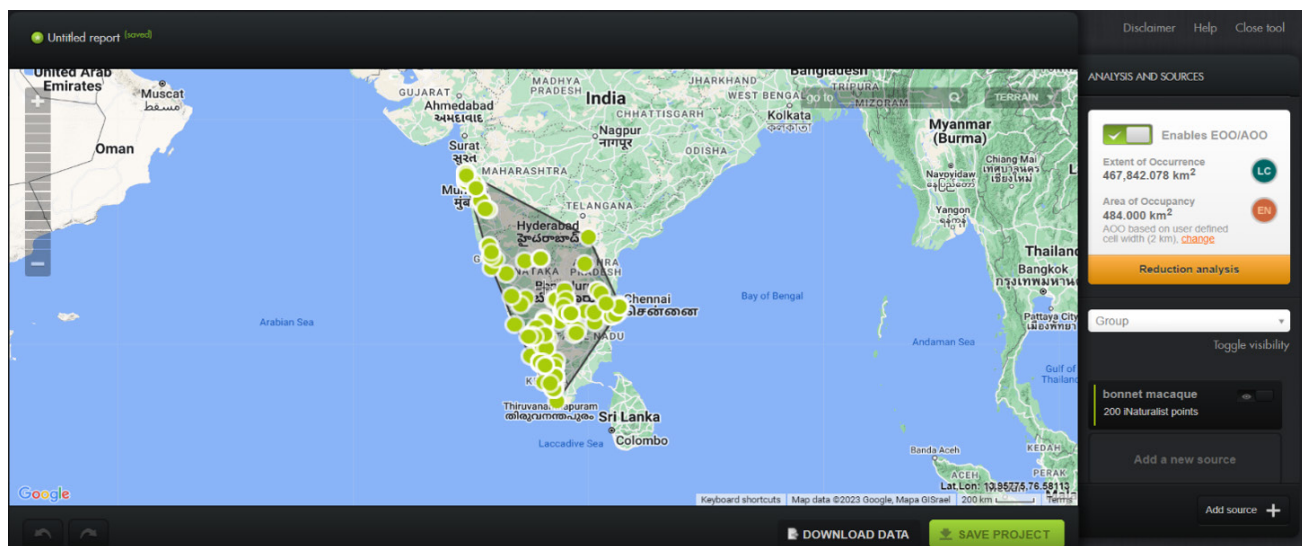
Bonnet Macaque is a common and widely distributed but endemic primate of peninsular India. The northward distribution range is believed to be up to the rivers Godavari in the east and Tapti in the west (Foode et al. 1989). Kumara et al. (2010) showed the northward distribution till the end of the Western Ghats specifically up to the town of Surat, Gujarat in the west and the town of Guntur, Andhra Pradesh in the east. *M. radiata radiata*, occurs north of Kambam valley in the southern

Western Ghats to the northern tip of hill ranges, *M. r. diluta* is restricted to south of the Kambam valley (Ali 1981).

Geographical distribution of *Macaca radiata*

Population According to Kumara et al.

(2010, 2011): 205 Bonnet Macaque groups encountered during the road survey in different districts of Karnataka; 158 groups encountered in different protected areas and reserve forests of Karnataka. Kumara et al. (2010) estimated the population density in rural and urban areas of southern India to be about 0.34 individual/km², with the largest population in Karnataka. These macaques live in multimale and multifemale groups. The group size ranges from 5 to 75 individuals (Kumara et al. 2010); 140 Bonnet Macaque troops were recorded in Maharashtra, Goa, Andhra Pradesh, Gujarat and Karnataka (Kumara et al. 2011).



Population trend

In 1989, 54 troops and 1,207 individuals were recorded (D'Souza et al. 1992). In 1998, 55 troops and 1,022 animals were recorded (Sharma 1998). In 2003, 47 troops and 950 animals were recorded (Singh & Rao 2004). In 2009, 31 troops and 697 individuals were recorded (Singh et al. 2011) in Chamundi Hill, Mysuru. The four surveys show that during a 20-year period, the population of Bonnet Macaques has consistently decreased 57.74%, with the exception of the scrub forest habitat of Chamundi Hill, Mysuru. Additionally, the findings demonstrated a consistent decrease in the groups' adult-immature ratio, which dropped from 1:0.94 in 1989 to just 1:0.58 in 2009 (Singh et al. 2011).

Habitat and Ecology

Bonnet Macaques live in a wide variety of habitat types, including montane evergreen forests, deciduous forests, scrub forests, agriculture fields and human habitats. They feed on the leaves, petioles, stems, pith, tendrils, roots, flowers, fruits, seeds, and even the leaf-galls of various herbs, climbers, shrubs, trees, and grasses. They also consume vegetative, floral, and fruit buds. In a dry deciduous forest, 86 plant species have been found to provide food for this primate, while in a tropical evergreen forest, 39 plant species have been reported. Macaques also been seen consuming spiders and bird eggs, as well as insects such as termites, grasshoppers, cicadas, crickets, and insect pupae. However, fruits are typically the most significant food item, followed by foliage and invertebrates. Every now and again, tourists along the highway that passes through the sanctuaries give high-calorie human food to

some of the troops. Females spend their entire lives in their natal group, and linear, matrilineal dominance hierarchies as adults, with daughters ranking slightly lower than their mothers. In the dominance hierarchy, females typically form tight affiliative connections with high amounts of allogrooming exchanged between unrelated individuals and genetic relatives.

Male cercopithecines, both juvenile and adult, typically leave their birthplace troops; however, male Bonnet Macaques seem to be an exception to this rule, with some even choosing to remain and rise to the position of dominance within their natal troops. Unlike their female counterparts, adult Bonnet Macaque males create unstable hierarchies of dominance through coalitions and direct aggression. They often hold low ranks when they are very young or old but hold relatively high positions when they are mature. Among cercopithecine species, males are also distinct in that they exhibit high degrees of allogrooming and other affiliative conduct towards one another, behaviour that is both equal in quality and quantity to that displayed by females (Sinha et al. 2005; Sinha & Mukhopadhyay 2012)

Reproduction

Bonnet Macaques are typically promiscuous with ample mating opportunities for both males and females. Adult males appear to follow different sexual strategies, with some males forming consort ships of varying periods of time while others simply copulate opportunistically with the available females. Subadult or juvenile males are also not denied access to oestrus females. Finally, although Bonnet Macaque females appear to

be remarkably indiscriminating, mating freely with males of all ages and ranks. Females also clearly prefer to sexually solicit new immigrant males over resident males, even if the latter are much more dominant. Females attain sexual maturity at 3–3.5 years and males at 5 years (Rao et al. 1998; Sinha et al. 2005).

Generation length

10–12 years (from IUCN Red List).

Use and Trade

Research purpose, keeping as pet, consumed for meat.

Major threats

The habitat of Bonnet Macaques in India has significantly decreased over time as a result of increased agricultural production, urbanisation, and road construction. Simultaneously, the likelihood of dying from causes like car crashes and electrocution has grown. These human-caused variables have been linked to a sharp fall in the number of Bonnet Macaques in recent years (Małgorzata et al. 2021).

Rhesus Macaques have extended the boundaries of their geographical range in southeastern India due to construction of dam in Krishna River basin in Andhra Pradesh. Rhesus Macaque is very aggressive and they are crossing over the bridge and competing with Bonnet Macaque for geographical area this is leading to habitat loss of Bonnet Macaque. Human interaction and aggressive behaviour of Rhesus Macaque (Kumar et al. 2011)

Conservation Measure

Schedule II, Indian Wildlife (protection) Act, 1972.

Assessment

EN A2abcde / **CR A3bcde**. as it mentioned in IUCN Red List criteria, selecting the highest level of assessment, the Bonnet Macaque is assessed as Critically Endangered, due to increase in various threats such as habitat loss, loss of fruiting trees, more human-macaque interactions, and overlapping of home range by Rhesus Macaque in the next 30–36 years (3 generations). Since Bonnets are endemic to southern India and the population has already declined by about 60%, the prediction is more precarious for the species.

Actions Needed

Educating people (tourist and farmers) about species and its important in ecosystem.

Research Needed

Adapting abilities, stress level and current home range status of Bonnet Macaque.

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