



## DISTRIBUSI DAN ESTIMASI POPULASI SURILI (*Presbytis comata*) DI KAMOJANG KABUPATEN GARUT JAWA BARAT

### DISTRIBUTION AND POPULATION ESTIMATES OF SURILI (*Presbytis comata*) IN KAMOJANG GARUT REGENCY WEST JAVA

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#### Abstrak

Surili (*Presbytis comata*) merupakan primata endemik Jawa dengan status konservasi *Endangered* (terancam punah). Perubahan yang terjadi pada habitat surili seperti konversi lahan meningkatkan keterancaman terhadap populasi dan persebaran surili di habitatnya. Penelitian ini bertujuan untuk melihat area persebaran dan estimasi populasi surili di kawasan Kamojang, Kabupaten Garut sebagai salah satu habitat surili yang cukup besar. Survey persebaran surili dilakukan dengan cara eksplorasi yaitu menyusuri lokasi keberadaan surili berdasarkan informasi petugas BKSDA dan masyarakat sekitar. Titik koordinat tempat perjumpaan dengan surili diambil dengan menggunakan GPS dan diaplikasikan ke dalam Peta Kawasan Kamojang dengan menggunakan Software Quantum GIS Wien 2.8.3. Estimasi/ perkiraan jumlah surili dilakukan dengan Metode *Direct census*, yaitu menghitung langsung jumlah surili yang ditemui. Hasil penelitian memperlihatkan terdapat satu titik perjumpaan dengan surili berjumlah empat individu di CA Blok Ciharus. Di TWA Blok Kawah Kamojang, surili ditemukan di tujuh titik dengan jumlah total 21 individu, dan di TWA Blok Cibeureum yang ditemukan di tiga titik dengan total tujuh individu. Surili masih banyak ditemukan dan tersebar di kawasan yang tingkat gangguan manusianya masih rendah sehingga untuk dapat mempertahankan populasi maupun persebaran surili di suatu kawasan perlu ditingkatkan pengaturan aktivitas manusia di dalamnya.

**Kata kunci:** Kamojang; Persebaran; Populasi; Surili

#### Abstract

Surili (*Presbytis comata*) is the Javan endemic primate with conservation state of *Endangered*. Habitat changes of surili due to land conversion was increased the threatening the distribution and population of surili in their habitat. This study aimed to know the distribution area and population estimates of surili at Region Kamojang, Garut. Survey the distribution of surili conducted by exploration method and took the coordinates of surili found by GPS and applied to the region map of Kamojang using Software Quantum GIS Wien 2.8.3. Estimation the number of surili, conducted by the direct census method by counting the number of surili directly. The study showed that there was a point area of surili consists of four individuals in Block Ciharus, Kamojang Nature Reserve. At Block Kawah Kamojang Nature Park, surili were found at seven points area by the total number of 21 individuals and at Block Cibeureum found at three points with a total of nine individuals. Surili is still widely found and spread in areas where the level of human disturbance is still low so as to be able to maintain the population and distribution of surili in an area, it is necessary to increase the regulation of human activities in it.

**Keywords:** Distribution; Kamojang; Population; Surili

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## INTRODUCTION

Primate is one species of forest dwellers who holds ecologically important function, such as to help the regeneration of tropical forest. Some primates eat fruits and seeds so that they play an important role in seed dispersal, the balance of nature, and preservation of forest ecosystems (Fachrul, 2012). As a mega biodiversity country, Indonesia is the country with the most rich diversity of primate in the world. Approximately there were 195 species of primate, 40 species were found in Indonesia, and 24 species of them are endemic species that can only be found in Indonesia. Endemic primates found in Java, which is the most densely populated residential islands in Indonesia. Java Island has the highest potential for the reduction of their habitat than the other islands in Indonesia. This time there are some primates conserved, they are Javan gibbon (*Hylobates moloch*), Javan surili (*Presbytis comata*), Rekrekan (*Presbytis fredericae*) and the Javan slow loris (*Nycticebus javanicus*) (Supriatna & Wahyono, 2000).

Surili (*Presbytis comata*) is one of fauna in Indonesia and endemic primate in Java. Based on its morphological characteristics, the body of surili is similar to a long-tailed monkey (*Macaca fascicularis*), but the head of surili is round, pugular nose and large abdomen. The hair is pointed and the eyebrows bristle rigidly toward the front (Hidayat, 2013). Similar species to surili (*P. comata*) are *P. hosei* and *T. auratus* (Maryanto *et al.*, 2008). This primate is already established as one of the protected species by decree ministerial Agriculture No. 247/Kpts/Um/4/1979 April 5, 1979, Ministry of Forestry Decree No. 301/Kpt-II/1991 dated June 10, 1991, and Law No. 5 of 1990 (Supriatna & Wahyono, 2000). The habitats of surili were spread over Ujung Kulon, Ranca Danau, Mount of Halimun, Mount of Gede Pangrango, and Mount of Tilu (Alikodra, 2010). These primates are very sensitive to their surroundings. Surili is very sensitive to the presence of organisms that are considered threatening themselves. They will quickly run away and hide when they heard a suspicious voice. They will also moved into the remaining habitat when land changes occur in their natural habitat.

Currently surili experiencing a high threaten of extinction because of poaching in nature and habitat destruction. According to Supriatna and Wahyono (2000), surili habitat had shrunk about 96% of the initial area from 43.273 km<sup>2</sup> being 1.608 km<sup>2</sup>. According to Nursahid (2000), some primates require the wilderness, away from distractions so that the animal will not survive in the destructed forest. The shrinking habitat will have an impact on the distribution changes which would affect to its ability to survive. In addition, depreciation and habitat conversion can also affect the availability of feed.

Research on the ecological aspect of surili need to be considered. So far, surili received little attention from conservationists though these primates have been classified as highly threatened species (Endangered) (IUCN, 2008). The reference to the research surili is still very little. Habitat in its distribution range has also been threatened by habitat utilization as happened in Region Kamojang located in Garut, West Java, which is also one of surili habitat (Oktadiyani, 2006). In this area, it is still visible habitat destruction activities, such as logging, habitat conversion into farming and hunting areas that could threaten the existence of surili.

Research on the distribution and population estimates was not available enough. In addition, it was also very necessary the provision of geographic information-based on management of forest resources. The use of spatial technologies such as the Global Information System (GIS) could provide convenience in the management area which is home range of surili to obtained information of surili distribution area in Kamojang Region. To give a clear figure about the ecological aspects of this species, so needed the research on the distribution area and population estimates of surili in Region of Kamojang. Occured of shrinking habitat would affected to distribution area changes, as well as the availability of feed that will affect the ability to survive.

## MATERIALS AND METHODS

### Study Area

Research conducted at Kamojang area (8.286 Ha) with area of observation of 1.200

Ha devided into three locations in the area of Kamojang (2 Nature Reserve and 1 Nature Park) Garut regency, West Java (Figure 1), including:

1. Nature Park (NP) - Block Kawah Kamojang
2. Nature Reserve (NR) - Block Ciharus
3. Nature Park (NP) - Block Cibereum



(a)



(b)



(c)

**Figure 1.** The area of observation. (a) block Kawah Kamojang, (b) block Ciharus, (c) block Cibereum

### Materials

Regional map study area, GPS (*Global Positioning System*), Binocular, digital camera of SLR, compass, and Software Quantum GISWien 2.8.3.

### Distribution Area of Surili

Survey of surili distribution conducted by exploration by foot to find the presenrce of surili based on the information from the officer of BKSDA or the community surrounding the area who often saw or heard the distinctive sound of surili when they crossed these area. Data recorded in the form of the coordinates of the place surili seen using GPS.

### Population Estimates of Surili

Estimation/approximate number of surili used to saw the early population of surili in this area. This study conducted by the Direct Census Method is to calculate directly the number of surili encountered. To avoid double-counting against a group, territory area and roaming area (home range) of each group are generally numbered 5–12 individual, need to be estimated. We can also estimate a different group than the other groups from surili group structure which generally consists of one adult male (one male troop) who acts as the leader of the group, several adult females, adolescents, children, or infants (Ruhyat, 1983). If there are members of other groups entering the territory or home range area, then the adult male as a leader would throw them out.

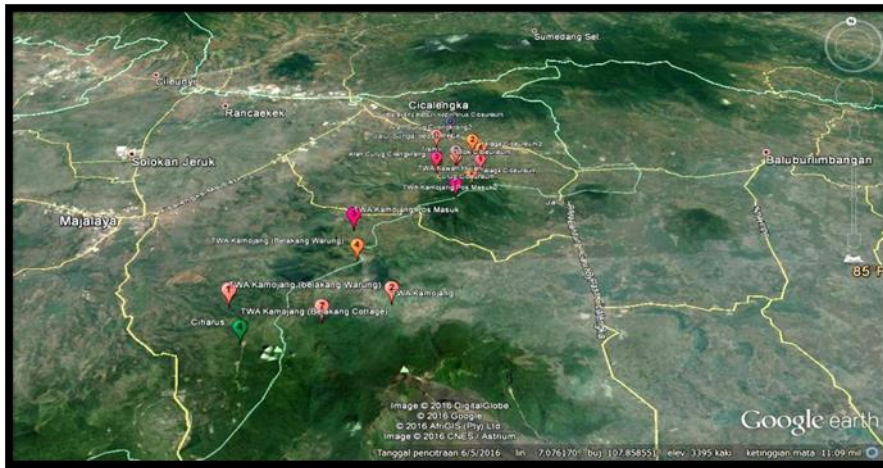
Data obtained from the observations, then analyzed descriptively and by graphs.

1. Descriptive analysis: the decomposition and explanation of the observed parameters.
2. Analysis of computing: presenting parameters observed by the method of graphs, and process data such as coordinate points of encounter with surili area, into a map of the area using software Quantum GIS 2.8.3 Wien and its interpretation.

## RESULTS

### Distribution

For approximately three months of the study in the nature reserve and the nature park of Kamojang area, has conducted surveys in several locations during the study of which Nature Reserve (NR) Block Ciharus (S 07°09'496" E 107°45'488") with a height of 1659 mdpl, Nature Park (NP) Block Kawah Kamojang (S 07°09'479" E 107°48'046") with a height of 1659 mdpl, and Nature Park (NP) Block Cibereum (S 07°09'515" E 107°48'459") with a height of 1415 mdpl. With a tropical rain forest habitat characteristics typical of the mountains. This study found 34 individuals of surili in 13 times of observation. Distribution of surili in the NR and NP are presented in Map 4.1. Groups of surili were found in some points in Kamojang which has been used as a place of observation.

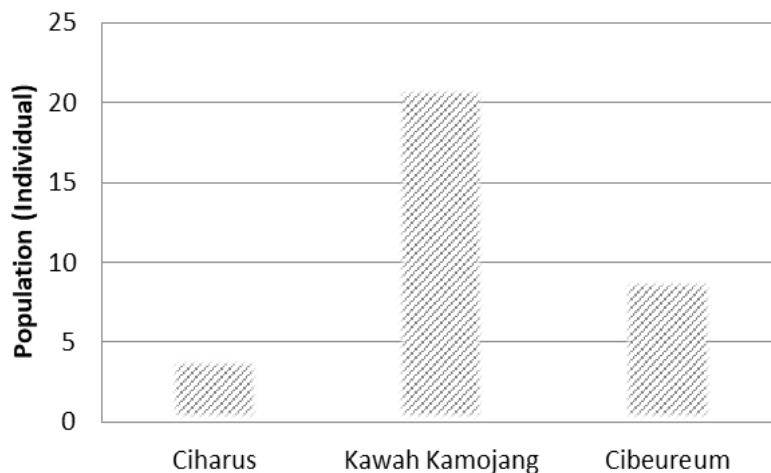


**Figure 2.** Distribution of surili in Kamojang Area

The distribution of an animal can be affected by several factors, geographic primates highly dependent on ecological adaptation to the habitat, such as the state's population density, wide area of their home range at each group, food availability, predators and others. Suitable habitats are habitats that provide all the habitat requirements for a species for a particular season or year. The habitat requirements consist of feed, crown cover, and other factors needed by survivors to survive and for the success of the reproductive process (Bailey, 1984 *in* Sari, 2010). That applies also to the group surili contained in the NR and NP of Kamojang, with the discovery of the spread surili at some point in the region.

**Population Estimates**

A total of 34 individuals have been observed in the study of surili in the Nature Reserve and Nature Park of Kamojang, Garut, West Java (1200Ha). The groups of surili spread from several points of observation locations. One group of surili found in NR Block Ciharus with number of 4 individuals, seven groups in NP Kawah Kamojang with total 21 individuals, and three groups in the region NP Block Cibereum with total individuals of 9 individuals (Figure 3). Information on the number of surili found in each location of the observations can be seen in Figure 2.



**Figure 3.** Population estimates of surili

**DISCUSSION**

**Distribution**

From the map of its range, it can be seen that the Nature Reserve area Block Ciharus is the area that has the most low dispersion of

surili compared with NP Block Cibereum, and NP Kawah Kamojang. This is presumably because of the many distractions that exist across the region. Several times the observers met with the motor trail users with quite a lot



number, which is often across the region although the region is included into the regional nature reserve area. Observers have also met with some wild hunters with their hunting dogs entering this area. The hunting activity of primates likes Surili needs to be watched as happened to the much-hunted Javan Lutung in Kareumbi area for trading purposes (Sontono *et al.*, 2016). This allows surili contained in the region always moving due to the influence of noise sporting activity of motor trail, so researchers difficult to find the presence of surili and only once found a group of surili in this area.

Areas that have quite a lot of food supplies but the circumstances do not allow surili to survive, then it can estimated its range will be low. Conditions that do not allow surili sustain life, such as hunting, illegal logging, activities of persons who deliberately enter the nature reserve without permission from the authorities, will affect to the distribution of existing surili at region itself. Although the forests in the area of Block Ciharus still very dense and also an abundance of food for surili quite adequate but because this area is smaller than NP Kawah Kamojang region and Block Cibereum, so the presence of surili also rare.

### Population Estimates

From Figure 2 shows that in CA Block Ciharus fewest in number of surili (4 individuals) compared with the number of surili at NP Block Kawah Kamojang (21 individuals) and NP Block Cibereum (9 individuals). So the total surili found in these area were 34 individuals/1200Ha or 1-2 individuals/Ha as already known, although Block Ciharus included in a nature reserve area, but this area is often used as a motor sports track trail. It is thought to cause surili often move to a place that disturbances less, making it difficult observed. Condition at Block Ciharus Nature Reserve, which is still used as a motor trail sports track, needs to get serious responses and actions of the authorities. It needs a strict rule set in the nature reserve should be used as a refuge for organisms, both flora and fauna in it.

Total surili at NP Block Kawah Kamojang quite a lot. This is presumably due to the disruption of habitats surili not too high

in addition to the tourists who walk in the path that has been provided. According to Ruhyat (1983), surili known as primates are quite sensitive to human presence. But based on the observation, some groups of surili seen already adapted to human presence. But it is not too dangerous condition for surili because although it was not disturbed by the presence of humans but this species did not try to approach visitors and remain in their daily activities.

The existence of surili in NP Block Cibereum (4 individuals) also experienced the threat of a motor trail activity disorder that sometimes pass in those areas and researcher also met the wild boar hunters who entered the region with the hounds. In this area, the existence of surili looked pretty far away from the track of motor trail so it is still quite easy to find an encounter with a group of surili. The habitat of surili has require fairly serious handling of the authorities because of the existence of surili, the longer it will be increasingly threatened by human activity, especially when they do not meet the rules of the ecology of the use of an area. There should be clear rules on the environment, both in NR Block Ciharus, NP Block Kawah Kamojang, as well as in the NP Block Cibereuem, so surili habitat preservation will be maintained, and could give impact on the sustainability of surili in those areas.

### CONCLUSION

The study showed there were total 34 individuals found in area observation of Kamojang or about 1-2 individuals/Ha. There was one point area with surili consists of four individuals in Block Ciharus, Kamojang Nature Reserve. At Block Kawah Kamojang Nature Park, surili found at seven point encountered by the total number of 21 individuals and at Block Cibereum found at three points with a total of nine individuals.

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