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Inventory of Large Mammals in Ujung Kulon National Park, Banten Province

Inventarisasi Mamalia Besar di Taman Nasional Ujung Kulon

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ABSTRACT

The National Park has a diverse ecosystem for the preservation of flora and fauna, making Ujung Kulon National Park a habitat for endemic and protected fauna. Large mammals are one of the many animals found in TNUK, especially those with protected status. This study aims to determine the diversity of large mammal species in Ujung Kulon National Park. The research was conducted on September 27–29, 2022, in Ujung Kulon National Park, which is located at the western tip of Java Island, precisely in Sumur and Cimanggu Districts, Pandeglang Regency, Banten Province. The method used was the cruising method using exploratory descriptive data analysis. The results showed that there were two types of large mammals, namely ungulate mammals and primate mammals. The number obtained was 10 types of mammal species belonging to 7 different families. Large mammals found include *Rhinoceros sondaicus, Muntiacus muntjak, Cervus timorensis, Hylobates moloch, Presbytis comata, Trachypitecus auratus, Macaca fascicularis, Sus scrofa, Tragulus javanicus,* and *Bubalus bubalis*. Most of the large mammals found are endemic mammals with protected status. Of the large mammals found, the most common were hoofed mammals. With this study, the public has an awareness of the importance of maintaining the diversity of fauna and flora in Ujung Kulon National Park.

Keywords: Diversity, Large Mammals, *Rhinoceros soundaicus*, Ujung Kulon National Park

ABSTRAK

Taman Nasional memiliki ekosistem yang beragam untuk kelestarian flora dan fauna, sehingga menjadikan Taman Nasional Ujung Kulon sebagai habitat fauna endemik dan dilindungi. Mamalia besar menjadi salah satu satwa yang banyak terdapat di TNUK terutama dengan status dilindungi. Penelitian ini bertujuan untuk mengetahui keanekaragaman jenis mamalia besar di Taman Nasional Ujung Kulon. Penelitian dilakukan pada tanggal 27-29 September 2022 di Taman Nasional Ujung Kulon yang terletak di ujung barat Pulau Jawa, tepatnya di Kecamatan Sumur dan Cimanggu, Kabupaten Pandeglang, Provinsi Banten. Metode yang digunakan adalah metode jelajah dengan menggunakan analisis data deskriptif eksploratif. Hasil penelitian menunjukkan terdapat 2 jenis mamalia besar yaitu mamalia ungulata dan mamalia primata. Jumlah yang diperoleh yakni 10 jenis spesies mamalia yang tergolong dalam7 famili berbeda. Mamalia besar yang ditemukan seperti *Rhinoceros sondaicus, Muntiacus muntjak, Cervus timorensis, Hylobates moloch, Presbytis comata, Trachypitecus auratus, Macaca fascicularis, Sus scrofa, Tragulus javanicus,* dan *Bubalus bubalis*. Mamalia besar yang ditemukan sebagian besar termasuk mamalia endemik dengan status dilindungi. Dari mamalia besar yang ditemukan, mamalia yang paling umum adalah mamalia ungulata. Dengan adanya penelitian ini, masyarakat publisitas mempunyai kesadaran akan pentingnya menjaga keanekaragaman fauna dan flora di Taman Nasional Ujung Kulon.

Kata Kunci: Badak Jawa, Mamalia Besar, Keanekaragaman, Taman Nasional Ujung Kulon

INTRODUCTION

Indonesia is a country that has many regions and is rich in biodiversity. Biodiversity can be defined as the biodiversity that exists on Earth with different variations in form, number, and characteristics that exist at the genetic, species, and community levels (Rohman et al., 2021). This statement proves that Indonesia has a high percentage of flora and fauna species compared to other countries (Elizabeth et al., 2014). Due to the large amount of biodiversity, the number of national parks in Indonesia is increasing, in 2018 there are 54 national

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parks, of which 24 national parks have the potential for protected flora and fauna biodiversity (Ministry of Environment and Forestry, 2018; Rohman et al., 2021).

One of the national parks in Indonesia, Ujung Kulon National Park, is located in Banten Province, precisely in Sumur and Cimanggu Districts, Pandeglang Regency, Banten. The Ujung Kulon area was designated as a national park in 1992 through Minister of Forestry Decree No. 284/kpts-II/1992 dated 26 February 1992. This national park covers an area of approximately 120,551 ha consisting of 76,214 ha of land and 44,337 hectares of sea. Ujung Kulon National Park (TNUK) is astronomically located at 102°02'32"-105°37'37" East Longitude and 06°30'43"-06°52'17" South Latitude (Ujung Kulon National Park Centre, 2005; UNEP, 1997)

Ujung Kulon National Park has 4 areas, consisting of Ujung Kulon Peninsula, Peucang Island, Panaitan Island, and Honje Mountain (Milto and Lukin, 2020). The diversity of flora and fauna is also found in Ujung Kulon National Park, especially the Merbau Timber, Rattan, Bungur, Cerlang Ki Hujan, and several types of Orchids which are endemic and protected plants. As well as rare protected fauna such as primates such as surili (*Presbytis comata*), Javan gibbon (*Hylobates moloch*), and Javan langur (*Trachypithecus auratus*). Large mammals include the Javan bull (*Boss javanicus*), deer (*Cervus timorensis*), wild boar (*Sus verrucosus*), and buffalo (*Bubalus bubalis*). The carnivore species are leopard (*Panthera pardus*), ajag (*Cuonalpinus javanicus*), and rock cat (*Prionailirus bengalensis*) (Biroisda Province Banten, 2017)

The main endemic animal in Ujung Kulon National Park is the Javan rhino (*Rhinoceros sondaicus*). The Javan rhino is given top priority as a protected animal because it is the rarest of the five rhino species in the world and is therefore categorized as endangered or threatened (Rahmat et al., 2008). Besides the Javan rhino, other mammals are also protected in this national park. Mammals are divided into two groups, namely, large and small. Small mammals are types of mammals that have an adult weight below 5 kg (Derajat et al., 2022; Nasir et al., 2017). While large mammals are the exception of small mammals. This study examines the types of large mammals in Ujung Kulon National Park. It is necessary to research because it affects the availability of large mammal inventory data in Ujung Kulon National Park.

MATERIALS AND METHOD

Method

This research is descriptive research with observation techniques because it uses data collection methods through direct observation or careful and direct observation at the research location. The descriptive method was chosen to reveal the facts of the subject without manipulating the variables. The method of collecting data on mammal diversity in Ujung Kulon National Park itself was carried out using cruise methods.

Place and time

This research was conducted on September 27-29, 2022 in Ujung Kulon National Park, Pandeglang Regency, Banten Province with the exact location in Sumur and Cimanggu Subdistricts (Figure 1).

Figure 1. Research exploration path

Tools and materials

The tools and materials used in this study are binoculars to help see objects at a distance so that they appear closer and clearer, cameras to document the process and results of the observation, rulers to help measure

the footprints of animals found, mammal identification books to make it easier to recognize large mammals found, stationery and tally sheets to record large mammals found.

Procedure

Data collection was carried out by exploring the areas of Cilintang, Selokan Dulung, Ciprepet, Karang Ranjang, and Legon Pakis, which started at 09:00 WIB. The total distance from Cilintang to Legon Pakis was 9.7 km. The research method used was roaming. Beginning with determining the position/distribution and direction of the sample path, then determining the starting point of the road, then the researcher walks on the sampling path records all animals seen and observed, and documents all species found during the study.

RESULT AND DISCUSSION

Based on observations in Ujung Kulon National Park, 10 species belonging to 7 families were obtained, as can be seen in Table 1.

Tabel 1. Large mammals in Ujung Kulon National Park

Family	Scientific Name	Local Name
Rhinoceratidae	*Rhinoceros sondaicus*	Javan rhinoceros
Cervidae	*Muntiacus muntjak*	Deer
Cervidae	*Cervus timorensis*	Timor deer
Hyolobatidae	*Hylobates moloch*	Javan gibbon
Cercopithesidae	*Presbytis comate*	Surili
Cercopithesidae	*Trachypitecus auratus*	Javan langur
Cercopithesidae	*Macaca fascicularis*	Long tailed monkey
Sutidae	*Sus scrofa*	Wild boar
Tragulidae	*Tragulus javanicus*	Mouse deer
Bovidae	*Bubalus bubalis*	Buffalo

Javan Rhinoceros (*Rhinoceros sondaicus*)

The Javan rhinoceros is a mammal large in size with a weight between 1000 to 3000 kg. The Javan rhinoceros is included in the Order Perissodactyla with the family Rhinocerotidae (Mujib et al., 2016). The Javan rhinoceros is an endemic Javanese animal that is protected because it is included in the critically endangered category (Ellis and Talukdar, 2020). Many factors have caused the Javan Rhino to experience a very significant decline in population numbers to date, starting from factors natural (climate anomalies, reduced forest area, disturbed habitat) and human factors such as hunting and taking the horns of slaves (Mujib et al., 2016)

Javan rhinos in TNUK are dominated by the 0-1000 m class from the coast which found as many as 108 encounter points, 44 encounter points in the 1000-2000 m class, and 28 encounter points in the >2000 m class (Ananda, 2016). The number of encounters is thought to be due to the Javan rhino's need for mineral salts, in addition to abundant food and wallowing needs in flat to sloping areas. Herbivorous animals need mineral salts for ion balance in the body. Herbivorous animals, including the Javan rhinoceros, require mineral salts, especially sodium (Na) for food digestion. Mineral salts in coastal habitats and surrounding areas have a high availability (Ananda, 2016). Javan Rhinoceros can be seen in Figure 2.

Figure 2. Javan Rhinoceros (*Rhinoceros sondaicus*)
Source : Abidien (2015)

Deer (*Muntiacus muntjak*)

Deer (*Muntiacus muntjak*) is a mammal native to Southeast Asia. Deer belongs to the family Cevridae, order Artiodactyla, and class Mammalia (Rahmadia et al., 2023). The type of deer found in TNUK is the muntjak deer. Deer are animals that eat plants (herbivores), including young leaves, grass shrubs, seeds, and fruits that fall in the Peucang Island area of TNUK There are types of plants that support the survival of deer.

Deer can also be used as agents to spread seeds, helping to increase the carrying capacity of their habitat (Nurjanah et al., 2018). Muncak has long and smooth fur and a body height of around 60–70 cm. Male peaks have two short horns and canines shaped like dog teeth. Its preferred habitat is the outer edge of the forest fringe, where the vegetation is short.

Until now, the antelope has had a global conservation status classified as Least Concern (LC), with a population trend that continues to decline (IUCN, 2015). Antelope conservation efforts can be carried out through the provision of suitable habitat. One of them is by providing a habitat that can supply food for deer, because food is the most important habitat component for wildlife (Rahmadia et al., 2023). Deer can be seen in Figure 3

Figure 3. Deer (*Muntiacus muntjak*)
Source: Olegrozko (2023)

Timor Deer (*Cervus timorensis*)

The type of deer found in Ujung Kulon National Park is the Timor deer. Timor deer are herbivorous animals that eat plants such as young leaves, grasses, seeds, and fallen fruits. The existence of Timor deer in Ujung Kulon National Park can be found in certain areas, such as Peucang Island, Handeuleum Island, and Panaitan Island. The existence of deer is useful as a seed dispersal agent that helps the carrying capacity of the place where they live (Nurjanah et al, 2018). Timor deer are animals that can live in a variety of habitats. They can live in lowland forests consisting of primary forests, secondary forests, mangrove forests with relatively non-muddy soils, and transitional forests between mangroves and savannas that are not affected by tides, grasslands, and swamps (Saputra et al., 2021).

The Timor deer is one of the large mammals whose existence has decreased. According to the IUCN (2015), Timor deer are included in the vulnerable category. The conservation status can be interpreted if the Timor deer is one type of animal that is vulnerable to extinction. This conservation status is because the total original population of Timor deer in its natural distribution area has decreased due to habitat loss, habitat degradation, and hunting (Nurhayati et al., 2020). Therefore, the existence of Timor deer requires special attention, and conservation efforts are needed. Timor deer can be seen in Figure 4.

Figure 4. Timor Deer (*Cervus timorensis*)
Source: Utari et al. (2022)

Javan Gibbon (*Hylobates moloch*)

Javan gibbon (*Hylobates moloch*) is one of the endemic primate species of Java Island that lives arboreally or in trees, so it requires forests with dense canopy cover, horizontal tree branching forms, and dense character to support movement in hanging (brachiation) (Putra et al., 2018). The natural habitat of the Javan gibbon includes Ujung Kulon National Park, Mount Gede Pangrango National Park, Mount Halimun, Mount Simpang Nature Reserve, Leuweung Sancang Nature Reserve, Mount Slamet, and the Dieng Mountains

(Supriatna and Wahyono, 2000). One of the areas where Javan gibbons are currently distributed is Mount Honje Ujung Kulon (Hidayatullah et al., 2021).

The conservation status of the Javan gibbon is currently classified as endangered as a result of the decline in the quality of tropical forest function due to illegal logging. In addition, the decline of the Javan gibbon population is caused by increased hunting for trade or as pets. These uneducated and irresponsible human activities indirectly impact the indirect impact on increased stress character of the Javan gibbon, so the breeding success rate is quite low (Prasetyo and Amelia, 2013).

The characteristics of the Javan gibbon are silver to gray hair that covers the entire body and on the chin surrounded by white hair (Ilham et al., 2019). The Javan gibbons are monogamous animals, which mean that once the male matures and adult females are paired, the pair bond will be maintained. The pair bond will last a lifetime and end if one of the partners dies (Nuraisah, 2015). Javan Gibbon can be seen in Figure 5.

Figure 5. Javan gibbon (*Hylobates moloch*)
Source: Burangrang (2021)

Surili (*Presbytis comata*)

The surili is an endemic species with an estimated population decline mainly due to habitat destruction (Latifiana and Handayani, 2019). The Javanese Surili is cared for in Ujung Kulon National Park. Surili has been listed as a protected animal since 1979 through the Decree of the Minister of Agriculture. Surili was once the mascot of the National Sports Week (PON) in 2016. It is known by the foreign name silvered leaf monkey and comes from the family Cercopithecidae. This animal likes primary forests and tree dwellers (arboreal). According to the International Union for Conservation of Nature (IUCN), suruli has a conservation status classified as endangered, which means it is threatened with extinction (IUCN, 2020).

Surili has a grey color, a long tail, and a tuft on its head. Surili occupies three types of ecosystems as its habitat, namely lowland habitat, sub-mountain forest, and forest. However, the reduction in the area of lowland forests has led to the remaining population being mostly distributed in mountain forests, which are protected areas (Supartono and Kosasih, 2022). Surili can be seen in Figure 6.

Figure 6. Surili (*Presbytis comata)*
Source: Subhan (2021)

Javan Langur (*Tragulus javanicus*)

Javan langur is one of the endemic primates of Java. Javan langur is a type of primate that eats leaves and usually lives on trees (Andarini et al., 2021). The Javan langur has a conservation status that is classified as vulnerable, which means that the Javan langur is vulnerable to extinction (IUCN, 2021). With this category, the Javan langur is one of the animals protected by law This conservation status is because the population of the Javan langur tends to continue to decline as a result of hunting and habitat degradation (Rahmawati and Hidayat, 2017).

Javan langurs have characteristics such as shyness and sensitivity to human presence (Astriani et al., 2016). Javan langurs will leave quickly if they hear human footsteps or other human activities (Rahmawati and Hidayat, 2017). This makes the Javan langur very difficult to find. The Javan langur has a dorsal body with jet-

black hair while the ventral part (chest and abdomen) is lighter in color with a tuft on the head. Javan langurs are folivorous (leaf-eating) and graminivorous (grain-eating) animals (Amalia et al., 2023). Although the Javan langur is a folivorous and seed-eating animal, it also eats a small portion of fruits and flowers (Nugroho and Sugiyarto, 2015). One example of the type of langur food found in Ujung Kulon National Park is the malapari tree (*Milletia pinnata*) found in the duyung ditch area.

Javan langurs can live in several habitat types ranging from primary forests, secondary forests, coastal forests, mangrove forests, and tropical rainforests, to highland forests with altitudes reaching 3.500 meters above sea level (Sari et al., 2020). Langurs like areas close to water to find food this is because areas close to water sources can be more fertile, especially for branch and crown growth (Astriani et al, 2015). Javan langur can be seen in Figure 7.

Figure 7. Javan Langur (*Trachypithecus auratus*)
Source: Adimaja (2022)

Long Tailed Monkey (*Macaca fascicularii)*

Long-tailed monkeys are forest-dwelling animals that play an important role in nature. The conservation status of the long-tailed monkey is currently classified as Endangered, which means it is threatened with extinction (IUCN, 2022). This conservation status is due to the declining population numbers. Human activities such as hunting, trade, and habitat destruction are the reasons for the decline in the long-tailed monkey population (Khairiah et al., 2022). This condition requires special attention so that the long-tailed monkey does not become extinct.

Long-tailed monkeys can be found in a variety of environments with the greatest abundance in swamp forests and secondary forests. Long-tailed monkeys can live in habitats such as tropical rainforests, monsoon forests, and mangrove swamp forests (Nugroho and Sugiyarto, 2015). Long-tailed monkeys favor areas near water in the lowlands, as these areas have warmer temperatures. Long-tailed monkeys are more active in the morning between 7:00 a.m. and 10:00 a.m. The rest of the day is spent resting. Daily activities generally consist of foraging, moving, resting, and grooming (Purbatrapsila et al., 2012). Long-tailed monkeys can be seen in Figure 8.

Figure 8. Long Tailed Monkey (*Macaca fasciculari*)
(Source: Personal documentation)

Wild Boar (Sus scrofa)

The wild boar is medium-sized, with a total body length of about 120-220 cm and a body weight of up to 150 kg. The body appears to be covered with long but sparse hairs. The skin is blackish brown or dark black, and the head appears large, disproportionate to its body size. The nostrils face forward like a funnel bordered by thick skin. The fangs appear to protrude towards the sides and there are protrusions on the underside of the ears. The wild boar has a conservation status of least concern, meaning it is at low risk (IUCN, 2019).

Wild boars are capable of living in a wide variety of habitats and can also survive in conditions of food shortage. These animals are often found living in groups of between 20-30 individuals. When searching for food, wild boars are found in the afternoon and evening, and when pressed, they will not hesitate to hunt and fight

other animals that disturb them. Uniquely, this animal does not run easily while turning its body. For wild boars, puddle areas are used as a place to find food, drink, and a place to defecate. Wild boar burrows are generally shallow, muddy, and watery. These conditions attract mammals to visit the graveyards (Insani et al., 2017). Wild boar footprints can be seen in Figure 9 and Figure 10.

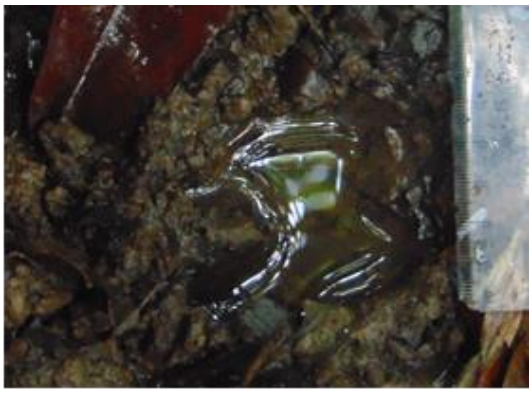

Figure 9. Wild Boar (*Sus scrofa*)
Source: Personal documentation

Figure 10. Wild Boar (*Sus scrofa*)
Source: Utari et al. (2022)

Mouse Deer (Tragulus javanicus)

The mouse deer is one of the wild animals native to Indonesia (Rosyidi et al., 2008). The mouse deer has characteristics such as having a brown body with three white lines on the underside of the chin, the middle of the body is faded brown, and the underbelly is white. Mouse deer also have a brown muzzle towards the front, have fangs in the mouth, small round ears, round eyes, a small round tail, and are very short Mouse deer are nocturnal animals, generally live solitary (independently), and usually rest in cool places such as under wide leaves (Yunizarrakha and Mahrudin, 2016).

Mouse deer can live in primary and secondary forests that are quite dense and not far from the river Mouse deer inhabit lush areas where dry leaves fall, which can be assumed to be their bedding (Yunizarrakha and Mahrudin, 2016). This animal likes areas with dry soil and is close to water sources (Farida et al., 2003). Mouse deer tracks were found in the observation area in Ujung Kulon National Park, precisely in the Cilintang area. Mouse deer footprints are very small, with a length of about 3 cm and a width of about 2 cm. The mouse deer footprints can be seen in Figure 11.

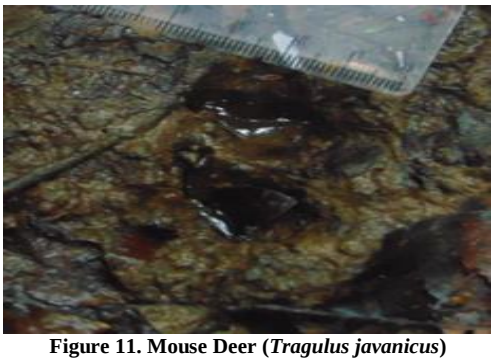

Figure 11. Mouse Deer (*Tragulus javanicus*)
Source: Personal documentation

Buffalo (*Bubalus bubalis*)

Buffalo is a livestock animal native to hot and humid areas, especially in the northern hemisphere of the tropics (Setiawan, 2022). Buffalo is one type of ruminant livestock that has a special ability to digest low-quality food to survive (Asriany, 2014). The world's buffalo population is around 158 million, and 97% of buffaloes in the world are found in Asia (Primandhita et al., 2014). Buffalo has a blackish-gray skin color and an average body length of 129 cm in adult male buffalo, while in adult female buffalo the average body length is 123 cm. Buffaloes have horns that are generally curved upwards, straight to the side, and curved downwards (Setiawan, 2022). Buffaloes have the privilege of being able to adapt to different environmental conditions, such as highlands, lowlands, tropical forests, and locations with low feed quality (Widiyana et al., 2023). Buffalo can be seen in Figure 12.

Figure 12. Buffalo (*Bubalus bubalis*)
Source: Personal documentation

CONCLUSION

Based on the results of the research that has been obtained, large mammals found include ungulate mammals and primate mammals, as well as as many as seven families consisting of Rhinoceratidae, Cervidae, Hyolobatidae, Cercopithesidae, Sutidae, Tragulidae, Bovidae, and Cercopithesidae. The total number of species found was 10 species. Among large mammals, ungulate mammals were the most common, with 7 species, namely *Rhinoceros sondaicus*, *Muntiacus muntjak*, *Cervus timorensis*, *Hyolobates moloch*, *Presbytis comata*, *Trachypitecus auratus*, *Macaca fascicularis*, *Sus scrofa*, *Tragulus javanicus*, and *Bubalus bubalis*. Most of the large mammals found are ungulate mammals, and most are protected species.

REFERENCES

[IUCN] International Union for Conservation of Nature and Natural Reserves)., 2022. *Macaca fascicularis.* The Redlist of Natural Reserves.

_____., 2021. *Trachypithecus auratus.* The Redlist of Natural Reserves.

_____., 2020. *Presbytis aygula*. The Redlist of Natural Reserves.

_____., 2019. *Sus scrofa*. The Redlist of Natural Reserves.

_____., 2015. *Cervus timorensis.* The Redlist of Natural Reserves.

_____., 2015. *Muntiacus muntjak.* The Redlist of Natural Reserves.

Abidien, Z., 2015. Populasi Badak Jawa di Ujung Kulon terancam punah. Tempo.co.id

Adimaja, M., 2022. Warisan dunia di Ujung Barat Jawa. Antara Foto.

Amalia, F.Q., Santoso, H., Zayadi, H., 2023. Perilaku makan Lutung Jawa (*Trachypithecus auratus*) di Pusat Rehabilitasi Lutung Jawa (JLC) Coban Talun Kota Batu. *J. Ilm. Biosaintropis*, 8: 142–155. https://doi.org/10.33474/e-jbst.v8i2.408

Ananda, I., 2016. *Pemodelan spasial kesesuaian habitat badak Jawa (Rhinoceros sondaicus Desmarest 1822) di Suaka Margasatwa Cikepuh*. Institut Pertanian Bogor. Bogor.

Andarini, F.., Meylia, S.., Widiani, E., Perdana, R., Ardiansyah, R.., Zahra, N.., Wildan, B., Aziz, M.., Rahman, R., Muhammad, F., Mustari, A.H., 2021. Populasi dan potensi pakan lutung Jawa (*Trachypithecus Auratus*) di Resort Cibodas Taman Nasional Gunung Gede Pangrango, Jawa Barat, in: *Seminar Nasional Konservasi untuk Kesejahteraan Masyarakat II*. pp. 98–109.

Asriany, A., 2014. Local wisdom in buffalo breeding system Desa Randan Batu Kabupaten Tana Toraja. *Jurnal Buletin Nutrisi dan Makanan Ternak*, 12: 64–72.

Astriani, W.I., Arief, H., Prasetyo, L.B., 2016. Populasi dan habitat lutung Jawa (*Trcyphitecus auratus* E. Geoffrey 1812) di Resort Balanan, Taman Nasional Baluran. *Media Konserv*., 20: 226–234.

Biroisda Provience Banten (Biro Bina Infrastruktur dan Sumber Daya Alam)., 2017. *Ujung Kulon, Taman Nasional dengan Keanekaragaman Geologi*. Provinsi Banten.

Burangrang., 2021. Fauna yang terdapat di dalam Kawasan Taman Nasional Ujung Kulon.

Derajat, N.B., Mahrawi., Usman., 2022. Keanekaragaman mamalia kecil di Taman Nasional Ujung Kulon. *J.Inov. Pendidik. dan Sains*, 3: 18–23.

Elizabeth, A., Rahayuningsih, Y., Rahajoe, J.., Ubaidillah, R., Maryanto, Walujo, E.., Semiadi, S., 2014. *Kekinian keanekaragaman hayati Indonesia*. Lembaga Ilmu Pengetahuan Indonesia (LIPI). Jakarta.

Ellis, S., Talukdar, B., 2020. *Rhinoceros sondaicus*, The IUCN Red List of Threatened Species.

Farida, R.W., Setyorini, E.., Sumaatmadja, G., 2003. Habitat dan keragaman tumbuhan pakan Kancil (*Tragulus javanicus*) dan kijang (*Muntiacus muntjak*) di Cagar Alam Nusakambangan Barat dan Timur. *J.Biodiversitas*, 4: 97–102.

Hidayatullah, A., Widiana, A., Kusumorini, A., 2021. Arsitektur pohon beraktivitas owa Jawa (*Hylobates moloch*) hasil rehabilitasi di Kawasan Cagar Alam Gunung Tilu Blok Gamboeng Ciwidey Bandung – Jawa Barat. *BIOLINK (Jurnal Biol. Lingkung. Ind. Kesehatan)*, 6: 78–80.

Ilham, M., Farajallah, D.P., Iskandar, E., 2019. Activity and behavior of the Javan gibbon pairs (*Hylobates moloch*) in Javan Gibbon Centre. *J. Ilmu Pertan. Indones.*, 24: 273–279. https://doi.org/10.18343/jipi.24.3.273

Insani, N., Novarino, W., Rizaldi., 2017. Jenis-jenis mamalia yang mengunjungi kubangan Babi Hutan di Kawasan Hutan Konservasi PT Tidar Kerinci Agung dan PT Kencana Sawit Indonesia, Solok Selatan, West Sumatra. *J. Metamorf.*, 4: 13–21.

Khairiah, A., Haidar, T.Z., Sondari, K., Wahyuni, A.I., Tamala, A.R., Basyuri, A., Fadilah, A., Nisaa, N.K., Prasetio, L.H., Ramada, H.F., Haribowo, D.R., Gantina, P., 2022. Populasi dan sebaran monyet ekor panjang (*Macaca fascicularis*) di Kawasan Resort Pengelolaan Taman Nasional Tapos, Taman Nasional Gunung Gede Pangrango. *BIO Educ. (The Journal Science Biology Education*, 7: 49–60. https://doi.org/10.31949/be.v7i2.4179

Latifiana and Handayani., 2019. Prediksi kesesuaian habitat surili Jawa (Presbytis comata) di Taman Nasional Gunung Merbabu. *J. Primatol. Indones*. 16: 16–23.

Milto, K., Lukin, Y., 2020. A revised herpetofauna of Ujung Kulon National Park, West Java, Indonesia. *Russ. J. Herpetol*., 27: 353–368.

Ministry of Environment and Forestry., 2018. Statistik Direktorat Jenderal Konservasi Sumber Daya Alam dan Ekosistem. Jakarta.

Mujib, M.., I, T.R.., Hartono, D., Murjainah., 2016. Persebaran badak Jawa, badak Sumatera, dan badak India Pada masa miosen hingga holosen. *J. Swarnabhumi*, 1: 55–63.

Nasir, M., Amira, Y., Mahmud, H., 2017. Keanekaragaman Jenis mamalia kecil (famili muridae) pada tiga habitat yang berbeda di Lhokseumawe Provinsi Aceh. *J. Bioleuser*, 1: 1–6.

Nugroho, A.A., Sugiyarto., 2015. Kajian perilaku kera ekor panjang (*Macaca fascicularis*) dan lutung (*Trachypithecus auratus*) di Coban Rondo, Kabupaten Malang. Biog. *J. Ilm. Biol*., 3: 33–38. https://doi.org/10.24252/bio.v3i1.564

Nuraisah, G.S., 2015. Daily behavior observation of silvery gibbon (*Hylobates moloch*) at the Primate Research Center Breeding Facility, Bogor Agricultural University. *J. Primatol. Indones*. 12: 19–29.

Nurhayati, I., Partaya, Priyono, B., 2020. Aktivitas harian monyet ekor panjang (*Macaca fascicularis*) di Kawasan Taman Wisata Alam (TWA) Pantai Panjang, Kota Bengkulu. *Life Sci*., 9: 52–61.

Nurjanah, A., Firdaus., Bambang, I., Anggraeni, D., Fauzia., Teti, R., 2018. Populasi mamalia besar di Pulau Peucang Taman Nasional Ujung Kulon, in: *Prosiding Seminar Nasional Simbiosis III*. pp. 196–301.

Olegrozko., 2023. Deer (*Muntiacus muntjak*). inaturalist.org. URL https://www.inaturalist.org/observations/184574916 (accessed 10.15.BC).

Prasetyo, B., Amelia, S., 2013. Description of behavior Javan gibbon (*Hylobates moloch* Audebert) in the Quarantine Ragunan Zoological Park. *J. Sainsmat.*, 2: 93–106.

Primandhita, G.A.C., Suatha, I.K., Wandia, I., 2014. Variasi panjang kaki kerbau lumpur (*Bubalus bubalis*) di Kabupaten Jembrana Bali : Panjang Humerus - Metacarpus dan Femur - Metatarsus. *J. Indones. Med. Veterinus*, 3 328–335.

Purbatrapsila, A., Iskandar, E., Pamungkas, J., 2012. Pola aktivitas dan stratifikasi vertikal oleh monyet ekor panjang (*Macaca fascicularis* Raffles, 1821) di fasilitas penangkaran semi alami Pulau Tinjil, Provinsi Banten. *Zoo Indones*., 21: 39–47.

Putra, M.F.., Baskoro, K., Hadi, M., 2018. Studi populasi dan habitat owa Jawa (*Hylobates moloch* Audebert 1797) di Kawasan. *J. Bioma*, 20: 154–164.

Rahmadia, D., Suhandoyo, Nurvanto, S., 2023. Species distribution of deer feeds (*Muntiacus muntjak* Zimmermann, 1780) and its community composition in Sermo Wildlife Reserve Area, Daerah Istimewa Yogyakarta. *J. Sains Dasar*, 12: 50–61.

Rahmat, U.M., Santosa, Y., Kartono, A.P., 2008. Analisis preferensi habitat badak Jawa (*Rhinoceros sondaicus*, Desmarest 1822) di Taman Nasional Ujung Kulon. *J. Manaj. Hutan Trop*., 14: 115–124.

Rahmawati, E., Hidayat, J.W., 2017. Kepadatan populasi lutung Jawa (*Trachypithecus auratus*) di Cagar Alam Kecubung Ulolanang Kabupaten Batang, *Proceeding Biology Education Conference*. pp. 64–69.

Rohman, N.A., Qohar, I.A., Puspita, N.T., Sugeng, P., Winarno, G.D., Dewi, B.S., 2021. Analisis keanekaragaman fauna study kasus pada 24 (dua puluh empat) Taman Nasional di Indonesia. *J. People, For. Environ.*, 1: 1–10.

Rosyidi, D., Gurnadi, E., Priyanto, R., Suryahadi., 2008. Kualitas daging kancil (*Tragulus javanicus*). *Media Peternak*. 33: 95–102.

Saputra, Y.M., Defri, Y., Sribudiani, E., 2021. Karakteristik dan Kesesuaian Habitat Rusa Timor (Cervus timorensis) di Universitas Riau. *J. Ilmu-ilmu Kehutan*. 5, 27–36.

Sari, I., Baskoro, K., Hadi, M., 2020. Estimasi populasi dan vegetasi habitat lutung Jawa (*Trachypithecus auratus* E. Geoffrey 1812) di Gunung Ungaran, Jawa Tengah. *J. Biol. Trop.*, 3: 47–56.

Setiawan, B.D., 2022. Identifikasi sifat karakteristik ternak kerbau (*Bubalus bubalis*) yang dipelihara di Kecamatan Talang Empat. *J. Ilmu Pertan. Kelingi*, 2: 158–165. https://doi.org/10.58328/jipk.v2i1.66

Subhan, A., 2021. Population of Javan surili (*Presbytis comata*) in the Wanayasa Block in Gunung Burangrang Natural Reserve. *Wanamukti*, 24: 1–11.

Supartono, T., Kosasih, D., 2022. Identifikasi penyebab ketidakhadiran surili (*Presbytis comata*) pada sebuah ekosistem kebun campuran di Kabupaten Kuningan, Jawa Barat. *J. Penelit. Hutan dan Konserv. Alam*, 19: 69–83.

Supriatna, J., Wahyono, E., 2000. *Panduan lapangan primata Indonesi*a. Yayasan Obor Indonesia, Jakarta.

Ujung Kulon National Park Centre., 2005. Taman Nasional Ujung Kulon. Banten.

UNEP., 1997. Protected areas and world heritage. United Nations Environment Programme. World Conservation Monitoring Centre.

Utari, E., Wahyuni, I., Fadhilah, R.., 2022. Diversity of large mammals in Ujung Kulon National Park. *Indones. J. Biol. Educ*., 5: 19–31.

Widiyana, R., Purwokusumaning, T., Safitri, A., 2023. Identifikasi jenis tanaman pakan ternak kerbau di Pulau Lanting Kabupaten Kutai Barat. *J. Pertan. Terpadu*, 11: 59–72.

Yunizarrakha, M.E., Mahrudin, K., 2016. Kerapatan dan pola distribusi kancil (*Tragulus javanicus*) di Kawasan Air Terjun Rampah Menjangan, Loksaso, Kabupaten Hulu Sungai Selatan, in: *Prosiding Seminar Nasional Lahan Basah*. pp. 86–88