JPPIPA 11(7) (2025)

Jurnal Penelitian Pendidikan IPA

http://jppipa.unram.ac.id/index.php/jppipa/index

Daily Behavior of Reintroduction Candidate Orangutans (*Pongo pygmaeus*) at Jerora Forest School, Sintang Orangutan Center, West Kalimantan

Nauhal Nazri Halim [1*], Luthfiralda Sjahfirdi[1], Tatang Mitra Setia[2]

[1] Department of Biology, Faculty of Mathematics and Natural Sciences, Universitas Indonesia, 16424, Depok, West Java, Indonesia
[2] Faculty of Biology and Agriculture, Universitas Nasional, 12520 Pasar Minggu, Jakarta, Indonesia.

Received: April 30, 2025
Revised: May 26, 2025
Accepted: July 25, 2025
Published: July 31, 2025

Corresponding Author:
Nauhal Nazri Halim
Nauhal.nazri@ui.ac.id

DOI: 10.29303/jppipa.v11i7.11454

Abstract: Bornean orangutans (*Pongo pygmaeus*) in captivity require time to be released in order to survive in their natural habitat. This study aims to analyze the daily behavior of orangutans awaiting release at the Jerora Forest School, Sintang Orangutan Center, West Kalimantan. The study was conducted using a focused animal observation method with 5-minute intervals without breaks and without time restrictions. Observations were made on two female orangutans, Jamilah (24 years old) and Penai (21 years old). The results of the data analysis showed that Jamilah's feeding behavior occurred in the enclosure (41.89%) and cage (38.49%), while Penai's feeding behavior occurred in the enclosure (31.41%) and cage (41.22%). The least frequent behavior was playing, with Jamilah playing in the enclosure (4.87%) and cage (3.95%) and Penai playing in the enclosure (4.02%) and cage (3.84%). Jamilah's arboreal movement behavior was 62% and Penai's was 82%. The observation results indicate that Jamilah is more ready for release than Penai based on the orangutan release readiness criteria cited from the Orangutan Conservation and Reintroduction Workshop in 2002.

Keywords: Adult female; Bornean orangutan; Daily behavior; Feeding; SOC.

Introduction

Orangutans are members of the Pongidae family, which includes three other species of great apes: bonobos (Pan panicus), chimpanzees (Pan troglodytes), and gorillas (Gorilla gorilla). Orangutans are the only great apes found outside of Africa and are the largest arboreal mammals on Earth. These primates are only found on two islands, Sumatra and Borneo, and are divided between two countries, Indonesia and Malaysia (Parida et al., 2024). Bornean orangutans are classified as critically endangered by the IUCN Red List of Threatened Species (Ancrenaz et al., 2016).

The Conservation on International Trade in Endangered Species (CITES) also places orangutans in the Appendix I category, as animals that are prohibited from being traded. Orangutans are also protected by the Government of Indonesia in Regulation of the Minister of Environment and Forestry of the Republic of Indonesia No. 17/2024 on the rescue of animal species, making orangutans a primate conservation priority (Ancrenaz et al., 2016). Habitat degradation, loss of natural habitat, and poaching remain major factors in the loss of 86% of the orangutan population (Ancrenaz et al., 2016). Habitat loss due to forest conversion to plantations and habitat fragmentation has narrowed the space for orangutans to move (Hutabarat et al., 2018).

Sintang Orangutan Center (SOC) is a Non-Government Organization (NGO) engaged in conservation, especially orangutans. SOC is located in

How to Cite:
Halim, N. N., Sjahfirdi, L., & Setia, T. M. (2025). Daily Behavior of Reintroduction Candidate Orangutans (Pongo pygmaeus) at Jerora Forest School, Sintang Orangutan Center, West Kalimantan. *Jurnal Penelitian Pendidikan IPA*, *11*(7), 443–449. https://doi.org/10.29303/jppipa.v11i7.11454

Sintang, West Kalimantan. One of the goals of ex-situ orangutan conservation efforts, such as those at the Sintang Orangutan Center (SOC), is to restore the natural behavior of orangutans before they are released into the wild. SOC focuses on orangutan rescue, rehabilitation, and release into the wild. SOC rescues orangutans that have been kept as pets by local communities and illegally traded. Pet orangutans are surrendered, either voluntarily by the owner or through legal confiscation procedures by the BKSDA. Rescued orangutans will be rehabilitated and prepared to return to the wild (SOC 2024).

Referring to the 2002 workshop standards, individuals eligible for release must be able to (1) build nests, (2) have experience with as many forest foods as possible and recognize at least 25 local food species, with at least half of them being permanent food sources, (3) be arboreal and able to climb well, (4) prefer contact with orangutans rather than humans, (5) have undergone at least one molting and non-molting cycle in a release preparation environment with minimal human contact and maintained normal body weight during this period, and (6) have established post-release monitoring in place prior to final release. In addition to the orangutans to be released, the release must also meet standards that ensure the overall health of the ecosystem. These standards include not endangering native wild individuals in the ecosystem with disease, hybridization, social disruption, or excessive competition, not endangering other local taxa and the ecological integrity of the area, and prioritizing the conservation of taxa and wild individuals over the welfare of the individuals to be released (Sherman et al., 2020).

The daily behavior of orangutans is an activity carried out by orangutans starting in the morning at around 05.20, when orangutans start to wake up until orangutans go back to sleep in the afternoon at around 17.40 (Maulana et al., 2017). In a previous study by Saputra et al., (2023), several daily behaviors of orangutans consisted of eating, moving, resting, and social behaviors. The ability of an orangutan to recognize its food source when it is no longer in captivity is one of the most important points in its readiness for release, considering that the ability to recognize food is usually taught by the orangutan's mother and this guidance is not obtained by release candidates. This is evident because one of the steps that orangutans go through before they can be released is to recognize forest food and release at feeding sites. Keeping orangutans in cages for too long will affect their daily behavior patterns, as they are usually placed in relatively narrow cages with no trees to climb (Saputra et al., 2023).

This study was conducted to evaluate the daily behavior patterns consisting of eating, moving, resting, and playing behaviors of two release candidates, Jamilah (24 years old) and Penai (21 years old). The collection of daily behavioral data on the two release candidates aims to assess their readiness for the release program managed by the Sintang Orangutan Center Foundation.

Method

Time and place of research

This research will be conducted at the Sintang Orangutan Center (SOC) Jerora Forest School, West Kalimantan (3GG4+R6H, Tj. Puri, Kec. Sintang, Sintang Regency, West Kalimantan 78614). Observations on daily orangutan behavior will be conducted from November 2024 - February 2025.

The study subjects were release candidate orangutans Jamilah (24 years old) and Penai (21 years old). During the study, both Jamilah and Penai were in adjacent cages. The profiles of these two adult female release candidates can be seen in Table 1.

Tabel 1. Profile Orangutan [Source: Sintang Orangutan Center]

Name	Age	Life history
Jamilah	24 Years (Adult)	Originally from Ngabang, Landak Regency, West Kalimantan. Started attending jerora forest school since March 2024.
Penai	21 Years (Adult)	Originally from Kapuas Hulu district, West Kalimantan. Started to enter jerora forest school since April 2024.

Forest School consists of a forest enclosure, which is a 2-hectare area of pristine native forest, surrounded by an electric fence, where orangutans can practice all of their forest survival skills as can be seen on the facility map (Figure 1). The ideal location for a forest enclosure is a natural forest with vegetation similar to their actual 'home', the forest. Forest schools are the final step in the rehabilitation process before release (SOC, 2022b). According to (Saputra et al., 2023), there are 5 metal enclosed cages for housing and care connected to the enclosure area at Jerora Forest School. Release candidates Jamilah and Penai are located in 3×3m cages with a cage height of 2.8m. Jamilah and Penai are located next to each other in enclosure 1.

Figure 1. Jerora Forest School Facility Map [Source: Google Earth]

The enclosure area is dominated by lowland forest vegetation from the *Dipterocarpaceae* family, which resembles the orangutan's native habitat. Forest school is indispensable for displaced immature orangutans as it teaches them how to build nests. In addition, the immature group will be taught how to climb trees by providing fruit that will be given to the immature orangutans tied to the end of a stick or pole and placed in the tree (Fauzi et al., 2020).

Tools and materials

The tools used in this research are observation clothes, masks, boots, stopwatches, stationery, observation sheets, timepieces (watches), binoculars, and cell phone cameras.

Research methods

This study will be conducted by observing two orangutans in the Jerora Forest School of the Sintang Orangutan Center (SOC), West Kalimantan. Observations were conducted every 4 days (on Tuesday, Wednesday, Friday, and Saturday) in one week alternately in the enclosure and cage starting with Jamilah one week first and then Penai.

Data analysis

Data collection was observational without giving any treatment to the release candidates. The methods used are focal animal sampling and ad libitum. The focal animal sampling observation method is a method of observing one individual (or dyad, litter, or other unit) during a specified time and recording all its behavior, while ad libitum sampling is recording whatever is seen and appears relevant at that time. The method of focal animal sampling at 5-minute intervals without pause and ad libitum sampling was carried out by contineous sampling, intf tfanpa jda, namely observation sessions or recording behavior is carried out continuously. Observations were made starting from 9:00 am to 3:30 pm. The determination of the schedule is based on the activities of the SOC and follows the assistance or keeper of the SOC so that data related to behavior is obtained within a certain time duration.

Based on workshop standards, one of the requirements for orangutan release is that individuals are able to forage independently by recognizing at least 25 species of local food sources with at least half being permanent food sources, are arboreal and able to climb well, build proper nests, conduct social activities by preferring contact with fellow orangutans rather than humans. Data from these parameters indicate that they are ready for release.

Data on social interaction and daily behavior that has been collected is then calculated using Microsoft Office Excel 2016 so that data is obtained in the form of percentages, frequencies, and graphs. Data obtained from direct observations were recorded on the observation sheet, then entered into tabulation and analyzed, quantitative data were processed by calculating the time presentation of each activity and entered into a proportion diagram that provides a comparative picture of the daily behavior and social activities of the two target individuals, namely Jamilah and Penai. Calculation of the frequency of daily behavior and social interaction with human individuals Jamilah and Penai.

$$\text{Presentase activity} = \frac{Frekuensi\ activity\ day}{total\ of\ all\ activities\ day} \times 100\% \quad (1)$$

The analysis is done descriptively, by describing how daily behavior is. Descriptive method is a research method used to solve research problems through a systematic description of a condition of the subject or object under study based on data that appears from phenomena in the field factually and accurately, and studied in detail.

Result and Discussion

Orangutan daily activities

Orangutans perform daily activities from waking up to going back to sleep (Hutabarat et al., 2018). Observations were conducted in two locations, namely in cages and enclosures for 90 days at the Jerora Forest School in Sintang, West Kalimantan. The two individuals Jamilah and Penai lived in a closed cage made of iron connected to the enclosure area. The enclosure area was dominated by lowland forest vegetation of the *Dipterocarpace* family, and the area was pristine and resembled native orangutan habitat.

The pristine habitat conditions support orangutans to quickly adapt and improve their life skills. This location is also far from crowds and has minimal visitors. The daily activities of orangutans are activities carried out by orangutans starting in the morning, when orangutans start to wake up until the afternoon when orangutans sleep again (Saputra et al., 2023). The total number of observation days conducted in this study was 48 days. 12 days each in two locations (cage and enclosure). Data related to daily behavior can be seen in Figure 1 and Figure 2.

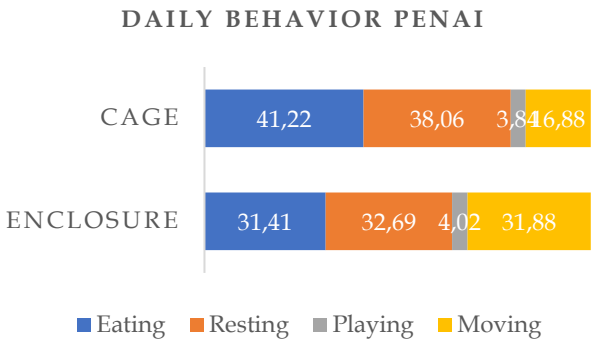

Figure 1. Daily Behavior Penai

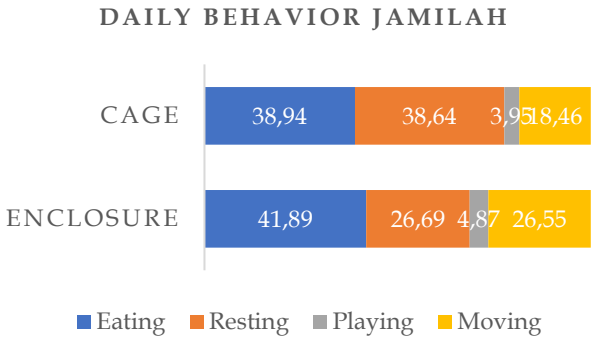

Figure 2. Daily Behavior Jamilah

Based on Figure 1 and Figure 2, it can be seen that in general, the two orangutans observed spent the most time eating in both the cage and enclosure. Feeding activities include orangutan movements while eating, drinking and the length of time it takes orangutans to finish their food. Orangutans are animals that like to consume leaves, forests and fruits or *frugivores* (Saputra et al., 2023). Penai's individual feeding activity in the enclosure amounted to 31.41% while in the cage amounted to 41.22%. Penai is less good at finding food, based on observations of penai only eating young leaves on trees and food from keepers placed on the feeding platform. During the observation, Penai was still very dependent on the feeding platform in the enclosure. During the observation, the penai was never far from the feeding platform.

Feeding behavior

Based on individual observations, Penai only recognized 17 types of food (Table 2) both available in the enclosure and provided in the cage. Jamilah's feeding activity in the enclosure was 41.89% and 38.49% in the cage. Jamilah was more active when in the enclosure. Jamilah is very skillful in finding food when in the enclosure ranging from fruit, leaves, to tubers. Based on observations there are 30 types (Table 2) of food eaten by Jamilah both available in cages, feeding platforms and those obtained in the forest directly.

The ability of orangutans to recognize their food sources is one of the most important factors in their readiness for release. According to (Yantoko et al., 2022) one of the factors contributing to the success of reintroduction is the role it plays in the feeding activities and feeding adaptation abilities of orangutans in the reintroduction area through monitoring of their daily activities. Based on the criteria for orangutan release readiness cited from the Orangutan Conservation and Reintroduction Workshop in 2002, orangutans to be released must be able to recognize at least 25 local food sources, with at least half of them being permanent food sources.

Based on individual observations, Jamilah is more ready for release when assessed by feeding activity. Jamilah has recognized 30 types of food (Table 2) both available at the feeding ground and available in the forest. Jamilah was also active in searching for food in the forest school so it was sometimes difficult to find Jamilah to observe when in the enclosure in contrast to Penai who was less good at finding food. Penai only recognized 17 types of food (Table 2) and was still very dependent on the feeding ground, during observations penai was never far from the feeding ground when in the enclosure penai was less active in exploring the forest school for food so it was easy to find penai in the same forest area.

Table 2. Jamilah and Penai Feed List

Local name	Latin name	parts to eat	Jamilah	Penai
Ara	*Ficus sp.*	Fruit	√	√
Bait	*Santiria laevigata*	Fruit, Leaf	√	√
Bambang	*Toona Sureni*	Leaf	√	×
Buah pai	*Baccaurea sp.*	Fruit	√	√
Cempedak	*Artocarpus integer*	Fruit	√	×
Tungkad	*Pterospermum javanicum.*	Leaf	√	×
Gagur	*Dialium indum*	Fruit, Leaf	√	√
Gernis	*Ageratum conyzoides*	Leaf	√	×

Local name	Latin name	parts to eat	Jamilah	Penai
Jerenang	*Daemonorops sp.*	Fruit, Umbut	√	×
Kempilik	*Lithocarpus sericobalanos*	Fruit, Leaf	√	√
Keladan	*Dipterocarpus gracilis*	Leaf,Fruit	√	√
Kelansau babi	*Dryobalanops sp.*	Leaf	×	√
Kubal	*Willughbeia angustifolia*	Fruit, Leaf	√	×
Kumpang	*Horsfieldia carnosa*	Leaf, Fruit	√	√
Medang	*Litsea sp.*	Fruit	√	√
Melinjo	*Gnetum gnemon*	Fruit, Leaf	√	√
Mentagor	*Calophyllum sp.*	Fruit Leaf	√	×
Menyatuk	*Laportea interrupta*	Daun	√	×
Palem	*Licuala petiolulata*	Fruit, Flowers, Umbut	√	√
Paku	*Stenochlaena polustris*	Leaf	×	√
Penyau	*Licuala spinosa*	Leaf	√	×
Puduk	*Ficus fistulosa*	Leaf, Fruit	√	×
Remundang	*Smilax hypoglauca*	Umbut, Young stem, Leaf	√	√
Rengas	*Gluta renghas*	Fruit, Leaf	√	√
Resam	*Dicranopteris linearis*	Umbut, Young stem	√	√
Rotan	*Calamus diepenhorstii*	Fruit, Umbut Leaf	√	√
Semut	*Famili Formicidae*		×	√
Simpur	*Dillenia sp.*	Leaf	√	√
Tekalung	*Artocarpus elasticus*	Leaf, stem	√	×
Ubah	*Syzigium leptostemon*	Leaf	√	×

Based on observations, orangutan resting behavior was carried out in trees, at the base of branches and on the ground. Based on observations, the resting position carried out varies, such as sleeping, lying down, sitting, and hanging. During the resting period, orangutans did not perform any activities. Based on Figure 1, Penai's resting activity was higher in the cage (38.06%) compared to the enclosure (32.69%). This result is not much different from Jamilah, who rested more in the cage (38.64%) compared to the enclosure (26.69%). Based on observations, Jamilah and Penai did more resting activities in the cage due to limited space for movement. Penai's resting activity when in the enclosure is more compared to Jamilah, this is evidenced during the observation of individual Jamilah more actively exploring compared to Penai.

Movement activity

Observations showed that orangutan mobile activities include location shifting behavior. Orangutans were seen moving on the ground by walking on the ground. Orangutans move from one tree to another through the tree canopy, flexing pole-level plants towards the destination tree and swinging from one branch to another. The ways of movement carried out by orangutans such as quadrupedal, climbing, brachiation, moving trees and bipedal (Saputra et al., 2023).

Based on Figure 1 and Figure 2, it can be seen that the percentage of moving activities in each individual is not much different. Based on observations of the largest moving activity shown by Penai individuals as much as 31.88%, this is because Penai individuals are very dependent on the feeding platform. Penai individuals always make repeated movements to check the feeding platform and play around the feeding platform in contrast to Jamilah who has a percentage of moving activity in the enclosure of 26.55%, this is because Jamilah individuals are always active in exploring for food so that Jamilah's moving activity is accompanied by high eating activity. Jamilah moves by swinging between tree branches, swinging on hanging roots, and walking in trees while holding tree branches and sometimes moving arboreally on the ground for a short duration usually to look for fruit, rattan, or food provided by the keeper. Jamilah and Penai's movement activities were not much different when they were in the cage. The percentage of Penai's moving activity was 16.88% and Jamilah's was 18.46%. This is because when in individual cages Jamilah and Penai do more resting and eating activities.

Play activity is the activity with the smallest percentage when compared to feeding activity, resting activity, and eating activity. Based on Figure 1 and Figure 2, the playing activities of Jamilah and Penai are not much different both in the cage and enclosure. The percentage of Penai's playing activity in the cage was 3.84% and 4.02% when in the enclosure. Based on observations, Penai's play activities were shown by playing with tree branches, playing with leaves and rubbing them against trees and throwing dry wood to the ground. In addition, Penai also likes to play water puddles with her hands. Based on the results of individual observations Jamilah plays with dry

branches, swinging tree roots, throwing dry branches and hitting the ground or trees with branches. Jamilah also often pulls grass and digs in the ground and leaves it alone. Jamilah often plays arboreally due to the absence of predators in forest schools.

Play activity is the activity with the smallest percentage when compared to feeding activity, resting activity, and eating activity. Based on Figure 1 and Figure 2, the playing activities of Jamilah and Penai are not much different both in the cage and enclosure. The percentage of Penai's playing activity in the cage was 3.84% and 4.02% when in the enclosure. Based on observations, Penai's play activities were shown by playing with tree branches, playing with leaves and rubbing them against trees and throwing dry wood to the ground. In addition, Penai also likes to play water puddles with her hands. Based on the results of individual observations Jamilah plays with dry branches, swinging tree roots, throwing dry branches and hitting the ground or trees with branches. Jamilah also often pulls grass and digs in the ground and leaves it alone. Jamilah often plays arboreally due to the absence of predators in forest schools.

Based on Figure 1 and Figure 2, it can be seen that orangutans generally spend the most time on eating activities and the least time on playing activities. The results of this study show that the three main activities are similar to the research of Maulana et al., (2017) at the Sintang Orangutan Center rehabilitation center in Tembak Forest. Orangutan activities are eating, moving, and resting because the treatment given to orangutans in the Jerora Forest is the same as orangutans in the Tembak Forest. The same orangutan living conditions have enclosure areas that are similar to natural habitats, allowing released orangutans to explore to find food on their own in addition to being provided with food (Saputra et al., 2023). In accordance with the research of Sopiansah et al., (2018) which shows that the most dominant activities carried out are eating, moving and resting because they are in the Gunung Tarak Protected Forest, orangutans in Gunung Tarak look for their own food in nature. This is different from the results of research by Hermawan et al., (2017) at the Protect Our Borneo Sei Gohong Rehabilitation Center, Palangka Raya. Orangutans in the Bali safari park predominantly rest, move, and eat. Orangutans have more resting activities followed by moving and eating because orangutans are in an artificial habitat with limited space for movement and lack of food availability so that individual orangutans choose to spend their time resting and food needs have been provided so that orangutans only wait for feeding time by keepers.

Based on observations, Jamilah is more ready for release based on the criteria for orangutan release readiness quoted from the Orangutan Conservation and Reintroduction Workshop in 2002. Jamilah is able to build a nest well, can recognize 30 types of food available both in the enclosure and in the cage, is arboreal and able to climb well, and has more contact with orangutans than humans, in contrast to Penai who still needs time to be released. Penai individuals are less active in finding food and are very dependent on feeding sites, during observations Penai individuals only recognized 17 types of food, still lacking 8 more types to meet release standards. Penai individuals have more contact with humans than orangutans.

Conclusion

The main daily activities of individuals Jamilah and Penai include eating, resting, moving, and playing. Eating activity is the highest (38.25%), while playing activity is the lowest (4.17%). Based on daily activity observations, it is clear that Jamilah is more prepared for release than Penai, according to the orangutan release readiness criteria quoted from the 2002 Orangutan Conservation and Reintroduction Workshop. Further research and a longer duration are required to ensure the overall health of the release site ecosystem.

Acknowledgments
Big thanks Department of Biology in Faculty of Mathematics and Natural Sciences, Universitas Indonesia that facilitated us to do this study. We thanks West Kalimantan Natural Resources Conservation Agency (BKSDA Kalimantan Barat). We also thank Sintang Orangutan Center (SOC) especially Drs. Dudung Hasudungan, drh Vicktor Vernandez, animal Keepers and staffs.

Author Contributions
Conceptualization, NNH and LS.; methodology, NNH and LS.; validation, LS and TMS.; formal analysis, NNH.; data curation, NNH and LS.; writing—original draft preparation, NNH; writing—review and editing, LS and TMS.; supervision, LS and TMS.; project administration, NNH.; funding acquisition, NNH. All authors have read and agreed to the published version of the manuscript.

Funding
Receive no external funding.

Conflicts of Interest
The authors declare no conflict of interest.

References

Ancrenaz, M., M, Cumal, A. J. Marshall, E. Meijaard, S. A. Wich, & S. Husson. (2016). *Pongo pygmaeus*: The IUCN Red List of Threatened Species 2016. 16 hlm. http://dx.doi.org/10.2305/IUCN.UK.2016-1.RLTS.T17975A17966347.en

Fauzi, F., Suemarno, Afandhi, A., & Leksono, A. S. (2020). Nesting behavior of Bornean immature orangutan (*Pongo pygmaeus Wurmbii*) in Nyaru Menteng Arboretum School, Palangka Raya, Central Kalimantan, Indonesia. *Biodiversitas*, 21(5), 2172–2179. http://dx.doi.org/10.13057/biodiv/d210545

Hermawan, N., Y. Silvianingsih, & T. Pribadi. (2018). Perilaku Harian Anak Orangutan (*Pongo Pygmaeus*) di Pusat Rehabilitasi Protect Our Borneo Sei Gohong Palangka Raya. *Seminar Nasional Tahunan dan Konggres Komunitas Manajemen Hutan Indonesia*, 3(4), 82-86. https://doi.org/10.31219/osf.io/x6kz3

Hutabarat, C. E. M., A. Sjarmidi, & D. Rosleine. (2018). Aktivitas Harian Orangutan Kalimantan (*Pongo pygmaeus*) Pasca Pelepasliaran di Hutan Lindung Gunung Tarak, Kalimantan Barat. *Zoo Indonesia*, 27(2), 91-98. http://dx.doi.org/10.52508/zi.v27i2.4044

Maulana, S. Rifanjani, & S. Siahaan. (2017). Studi Perilaku Harian Orangutan (*Pongo pygmaeus*) di Pusat Rehabilitasi Sintang Orangutan Center Hutan Tembak Kabupaten Sintang Kalimantan Barat. *Jurnal Hutan Lestari*, 5(1), 135-146. https://doi.org/10.26418/jhl.v5i1.18782

Parida, I., Santosa, Y., & Jaya, I. N. S. (2024). The Relationship Between Bornean Orangutans (Pongo pygmaeus) Population And Land Cover Change In West Kalimantan, Indonesia. Biodiversitas, 25(4), 1831-1837. https://doi.org/10.13057/biodiv/d250453

Saputra, A.E., H. Prayogo, & H. Ardian. (2023). Aktivitas Harian Anak Orangutan (*Pongo pygmaeus*) di Pusat Rehabilitasi Sintang Orangutan Center Kalimantan Barat. *Jurnal Hutan Lestari*. 11(1), 88-98. https://doi.org/10.26418/jhl.v11i1.58663

Sherman, J., Ancrenaz, M., & Meijaard, E. (2020). Shifting apes: Conservation and Welfare Outcomes Of Bornean Orangutan Rescue and Release in Kalimantan, Indonesia. *Journal For Nature Conservation*, 55. https://doi.org/10.1016/j.jnc.2020.125807

Sintang Orangutan Center (SOC). (2019). Laporan Penyelamatan Orangutan (Awin). SOC, Sintang. + 6 hlm. https://soc.or.id/

Sintang Orangutan Center (SOC). (2020). Laporan Penyelamatan Orangutan (Kingkong). SOC, Sintang. + 1 hlm. https://soc.or.id/

Sintang Orangutan Center (SOC). (2024). Sintang Orangutan Center (Yayasan Penyelamatan Orangutan Sintang). SOC, Sintang + 1hlm. https://soc.or.id/

Sopiansah, Y. E., H. Prayogo, & S. Rifanjani. (2018). Perilaku Harian Orangutan (*Pongo pygmaeus*) Setelah Dilepasliarkan di Hutan Lindung Gunung Tarak Kabupaten Ketapang Kalimantan Barat. *Jurnal Hutan Lestari*, 6(3), 456-463. https://doi.org/10.26418/jhl.v6i3.26675

Yantoko, M. Y., Sunariyati, S., & Gunawan, Y. E. (2022). Aktivitas Makan Orangutan Kalimantan (*Pongo pygmaeus wurmbii*)) di Taman Nasional Tanjung Putting Wilayah Camp Leakey Kab. Kotawaringin Barat Sebagai Penunjang Materi Konservasi. *Jurnal Ilmu Pertanian*, 16(2), 115-125. https://doi.org/10.36873/aev.v16i2.7148