



05 APR, 2026

DaMal rainforest landscape safeguards Borneon orangutan

Borneo Post (KK), Malaysia



Page 1 of 4

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KOTA KINABALU: Totally protected forest areas in Sabah, namely the Danum Valley, Maliau Basin and Imbak Canyon Conservation areas, play a decisive role in safeguarding one of Borneo's most iconic species, the Borneon orangutan.

These interconnected conservation landscapes, often referred to as DaMaI rainforest landscape, form a critical stronghold, providing vast, undisturbed habitats essential for the species' survival.

Danum Valley alone is known to support close to 500 orangutans, while Maliau Basin and Imbak Canyon continue to sustain viable populations within their protected boundaries.

Nur Syamimi Makbul, a post graduate student at Universiti Malaysia Sabah (UMS) said DaMaI landscape is very important as it functions as a connected forest system rather than as three isolated conservation areas.

"Danum Valley, Maliau Basin and Imbak Canyon form one core conservation blocks within a much larger forested landscape that also includes surrounding buffer and production forests.

"That matters because orangutans do not rely on a single forest type alone," she said adding that different parts of the landscape provide different

resources.

"Also, conditions over time, including feeding areas, refuge, resting habitat, and movement routes.

"Even regenerating forests provide critical food resources such as pioneer tree species," explains Syamimi, in an interview.

Syamimi said connectivity across this wider landscape helps maintain gene flow, reduces the risks associated with isolation, and gives orangutans more ecological options when fruit availability shifts.

"In this sense, DaMaI safeguards orangutans not only by protecting primary forest, but by retaining a functioning landscape mosaic large enough to support long-term population viability," she emphasized.

Syamimi conducted a preliminary survey on orangutan in August 2023. After that she visited the Danum Valley Conservation Area five times between January 2024 and February 2025.

During these visits, she participated in field surveys with the collaboration of the Japan Orangutan Research Center (JORC) to collect data on orangutan for her PhD research.

JORC in its mid-year annual report 2025, reported that populations of orangutan in the

Danum Valley Conservation Area (DVCA) is currently estimated to be fewer than 500 individuals.

JORC's research site is located in the DVCA, while its research activities are based at the Kuala Sungai Danum Research Station (KSDRS), which was constructed by Yayasan Sabah in 2011.

In 2011, a Memorandum of Agreement (MoU) was signed between Yayasan Sabah Group and the Wildlife Research Center of Kyoto University.

In the same year, a research station named Kuala Sungai Danum Research Station (KSDRS) was established within the grounds of the Borneo Rainforest Lodge (BRL), serving as a base for JORC's fieldwork.

The Center focuses on Borneo orangutan (*Pongo pygmaeus morio*) – identifying wild orangutans and conduct long-term monitoring of their behaviour and ecology.

According to the Orangutan Action Plan for Sabah 2020-2029, the first orangutan comprehensive surveys in Sabah were conducted by Junaidi Payne in the late 1980's, which showed that all major population were concentrated in the eastern side of Sabah.

However, two substantial population were also found in



05 APR, 2026

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Borneo Post (KK), Malaysia



Page 2 of 4

western Sabah, in the Crocker Range and Kinabalu National Parks.

The Plan stated that presently the largest orangutan population in Sabah are either in Totally Protected Areas (TPAs) or in Commercial Forest Reserves (CFRs) exploited for timber, following sustainable forestry practices.

The baseline data collected by HUTAN and Sabah Wildlife Department in the early 2000's recognized 16 major orangutan population and confirmed that most orangutan population were located in the eastern side of the State.

Aerial nests survey conducted in 2014-2017 by WWF in eight of the 16 major orangutan recognized in the 2000s, and the findings estimated a total population of 11,000 – a drop of 35% in the past 20 years based on a 1988 World Wildlife Federation report.

The findings underscores the state's global importance as a refuge for the subspecies *Pongo pygmaeus morio*, and highlighting the indispensable role these conservation areas in enduring its long-term survival.

In addition the survey's findings highlighted that orangutan were patchily distributed throughout their range in Sabah, occurring mainly in the eastern and central parts of Sabah.

The study recorded 2,708 orangutan nests during ground surveys involving 225km of line transects and 300 km of recce walk and 6,936 nests from helicopter (1,963 km of aerial lines).

Danum Valley, Maliau Basin and Imbak Canyon Conservation Areas, with a combined total area of 130,000 ha, are Totally Protected Areas - Class 1 () Protection Forest Reserve.

In Malaysia, the orangutan is a totally protected species since 1958, and in Sabah, the species is totally protected under Schedule 1 of the Sabah Wildlife Conservation Enactment 1997.

Meaning that orangutans cannot be hunted or shot under any circumstances. Killing an orangutan or possessing orangutan products (skull, skin, bones etc) is an offence under section 25 of the enactment.

The orangutan is also banned from international trade by being listed on Appendix 1 of CITES (Convention of International Trade in Endangered Species of Flora and Fauna).

Borneon orangutans — categorized as “Critically Endangered” under the IUCN (World Conservation Union) Red List — are the largest arboreal mammals in the world, although they walk significant distances on the ground.

JORC through its official website, has stated that finding orangutan in the forest can be very difficult – they travel alone and rarely make sounds (such as voices and rustling trees).

When searching for orangutans, researchers walk slowly through the forest, looking for the smell of their feces or urine on the ground.

“Experienced research assistants can find orangutans within a half a day or a day. However, if the orangutans’ favorite fruit cannot be found in the forest, they may not be found even after a week or searching.

“Because of the chances of encountering the orangutans are limited and the efficiency of data collection is very poor, many primate researchers avoid studying orangutan,” stated JORC.

Taxonomically, two species of orangutans are found in Sumatra (*Pongo abelii* and *Pongo tapanuliensis*), while another species (*Pongo pygmaeus*) is found in Borneo.

According to the Orangutan Action Plan for Sabah, over the past 15 years, the major orangutan populations found in the interior forests of Sabah (either totally protected or sustainably exploited) have

maintained their size.

This encouraging result is primarily due to the decrease of forest conversion rate (legal or illegal) within the PTE of Sabah, and to the relatively low hunting pressure in the Central Forest of the state.

The plan emphasised that protecting the central forests of Sabah that are home to the largest orangutan population in Malaysia is a necessary and efficient conservation strategy for the species.

It also highlighted that the worst decline of orangutans occurred in highly fragmented population, such as the Lower Kinabatangan, over the last 15 years.

The major losses affected small subpopulations that were located in forest patches isolated within agricultural landscapes or that had taken refuge in suboptimal habitat, such as mangrove forests.

Major threats behind the drastic decline of orangutans in Borneo is a result of forest loss and fragmentation due to the conversion of their forest habitat to other types of land uses, as well as hunting due to conflicts and for bushmeat.

The Plan stated that people have traditionally hunted orangutans to mitigate conflicts or for meat consumption.

Given their exceptionally slow reproductive rate (van Noordwijk et al., 2018) the mortality rate due to hunting can easily exceed the natural breeding rate and drive populations to extinction, even before these losses can be documented.

According to Syamimi, Sabah has many essentials ingredients for successful orangutan conservation.

This include dedicated government agencies, experienced Non-Governmental-Organization (NGO's), committed researchers, and one of the most important remaining forest landscapes in Borneo.

“We now also have stronger evidence that orangutans can



05 APR, 2026

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Borneo Post (KK), Malaysia



Page 3 of 4

persist not only in strictly protected forests but also in well-managed forest landscape, which provides conservation with a broader more realistic foundation.

“What concerns me most is whether we can sustain this effort over the long term. Orangutan conservation requires

continuous monitoring, trained field personnel, reliable funding, and strong protection of habitat connectivity.

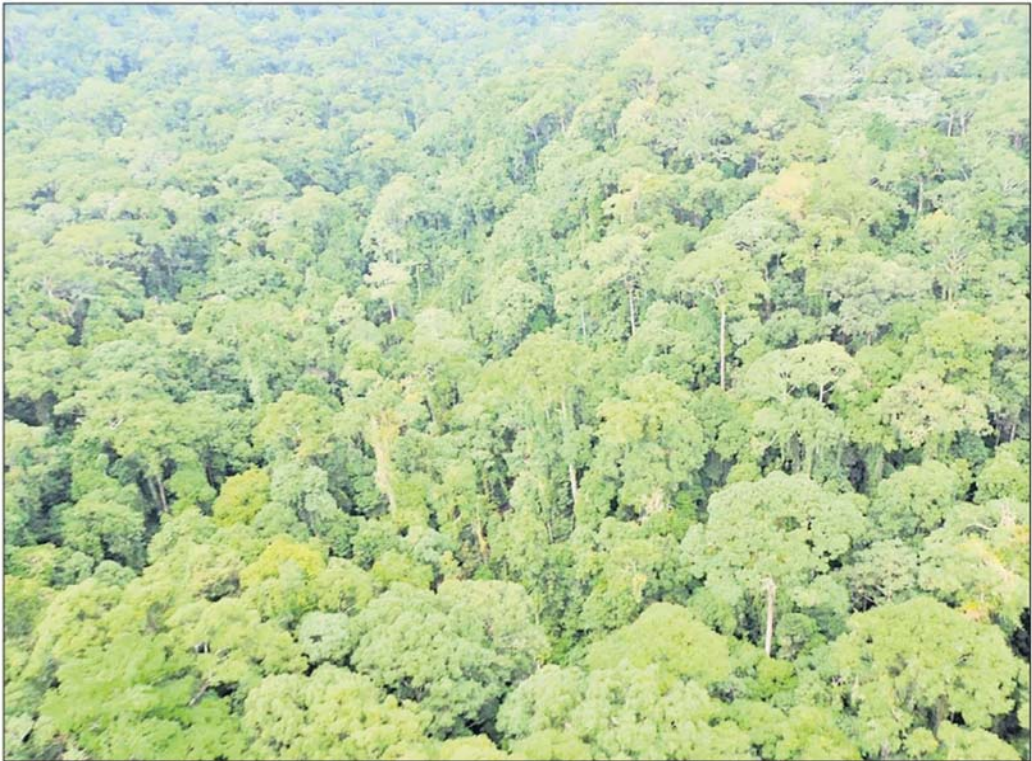
“Because orangutans reproduces so slowly, conservation delays can take decades to reverse.

“The future of orangutans in Sabah will depend on whether

we continue investing in long-term science, long-term forest protection, and the next generation of conservation practitioners,” she emphasised.



The iconic Borneon orangutan. — Photo by Auddrey Ambrose



Aerial view of the dense untouched rainforest in Sabah’s premier conservation area.



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SUMMARIES

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