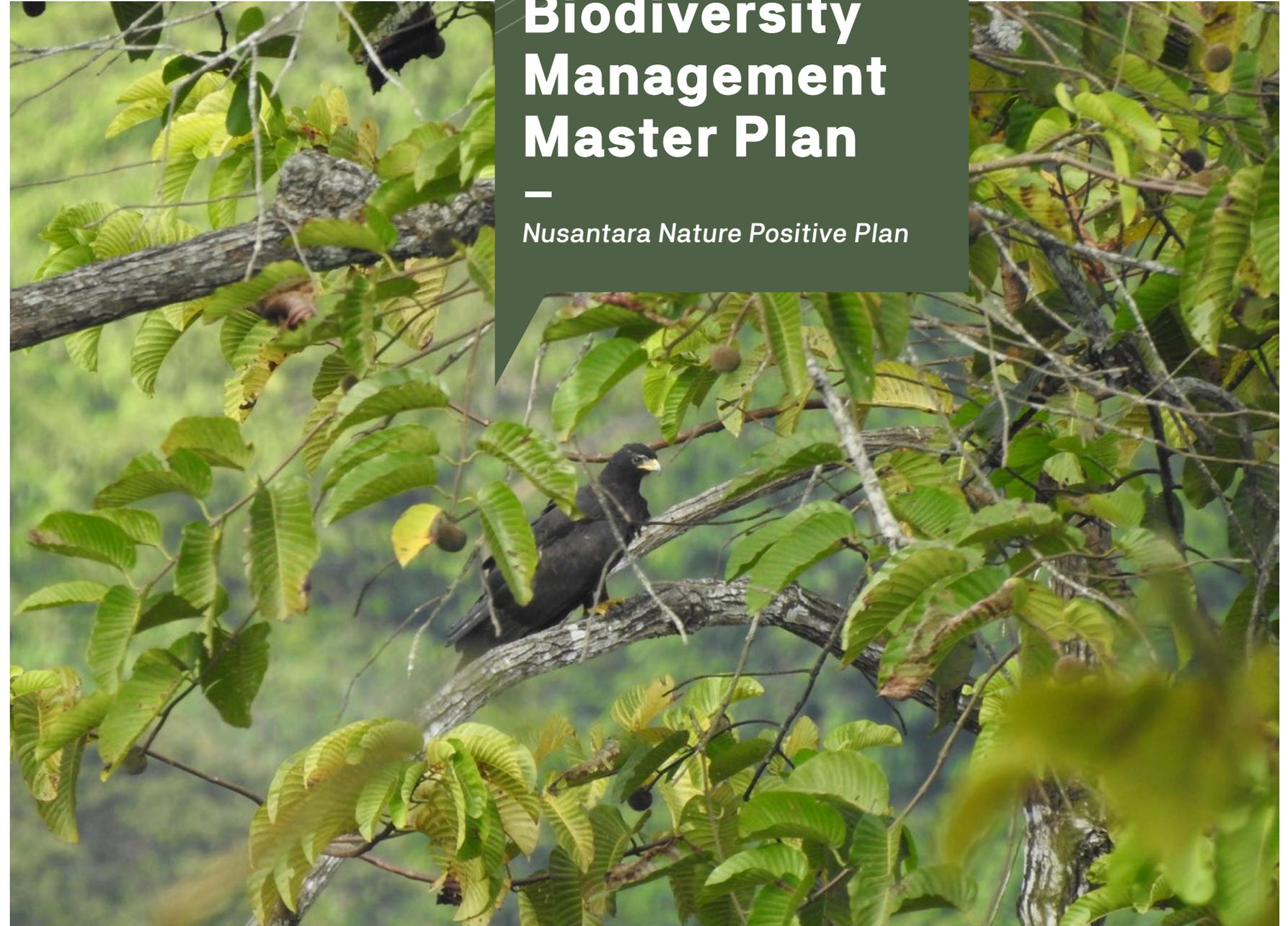


Nusantara Biodiversity Management Master Plan

—
Nusantara Nature Positive Plan



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The Nusantara Capital Authority, with the support of the Asian Development Bank (ADB) and the Australian Department of Foreign Affairs and Trade (DFAT), has prepared a Biodiversity Management Master Plan, which serves as the Nusantara Nature Positive Plan.

The publication of the Master Plan marks another important achievement for the monumental journey of Nusantara after publishing the Nusantara Net Zero Strategy and the Nusantara Sustainable Development Goals Voluntary Local Review Baseline (VLR Baseline).

The Nusantara Biodiversity Management Master Plan is a comprehensive strategy designed to maintain and increase biodiversity in ecosystems in Nusantara. The measures to be implemented are ecosystem conservation, species protection, restoration efforts, and community engagement to promote sustainable management practices. The plan aims to address threats to biodiversity, mitigate impacts, and strengthen ecosystem resilience, with the ultimate goal of ensuring long-term environmental health and sustainability.

The Master Plan was prepared by an inclusive and participatory process, through rigorous discussions with experts, academicians, local and national non-governmental organizations, as well as international institutions to ensure that the plan is comprehensive and can be implemented. In addition, a survey has also been carried out to complement the latest data.

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Foreword



The Nusantara Capital Authority is committed to supporting the government's agenda in three global campaigns, i.e. biodiversity, climate change, and achieving sustainable development goals. After launching the Nusantara Net Zero Strategy at the 2023 United Nations Conference of the Parties (COP) and preparing the Voluntary Local Review Sustainable Development Goals, we gratefully announce that the Nusantara Biodiversity Management Master Plan has been successfully finalized.

The Nusantara Biodiversity Management Master Plan is a manifestation of our commitment to building Nusantara as a sustainable forest city, including strategies for protecting and managing biodiversity. As a government institution, which will later become a special regional government, the Nusantara Capital Authority makes serious efforts to implement the Presidential Instruction concerning mainstreaming biodiversity conservation in sustainable development. In addition, the Nusantara Biodiversity Management Master Plan also symbolizes our effort to contribute to the target of protecting global biodiversity, which the Kunming-Montreal Global Biodiversity Framework (GBF) 2022 strives to achieve.

The Master Plan sets the direction for policies, programs, and targets to protect biodiversity in Nusantara over the next five years (2024–2029). This is a crucial momentum that will determine the fundamentals of Nusantara Forest City as it enters the third stage of development and is crucial for achieving the 2030 Kunming-Montreal GBF target. We hope the biodiversity in Nusantara can be enriched by 2030 through programs to protect remaining ecosystems, habitats, and species, as well as restore damaged and degraded ecosystems. By doing so, hopefully, we can achieve a Nature Positive condition. Adequate institutional, technological, and funding preparation as well as support from all parties, including communities with protected local wisdom, will be required.

The Master Plan was prepared through literature reviews, field surveys, and a series of discussions with experts and representatives of government agencies and local governments. We also conducted a multi-party public consultation to collect feedback regarding this plan.

On behalf of the Nusantara Capital Authority, I would like to thank all of the parties who have supported the preparation of the Nusantara Biodiversity Management Master Plan.

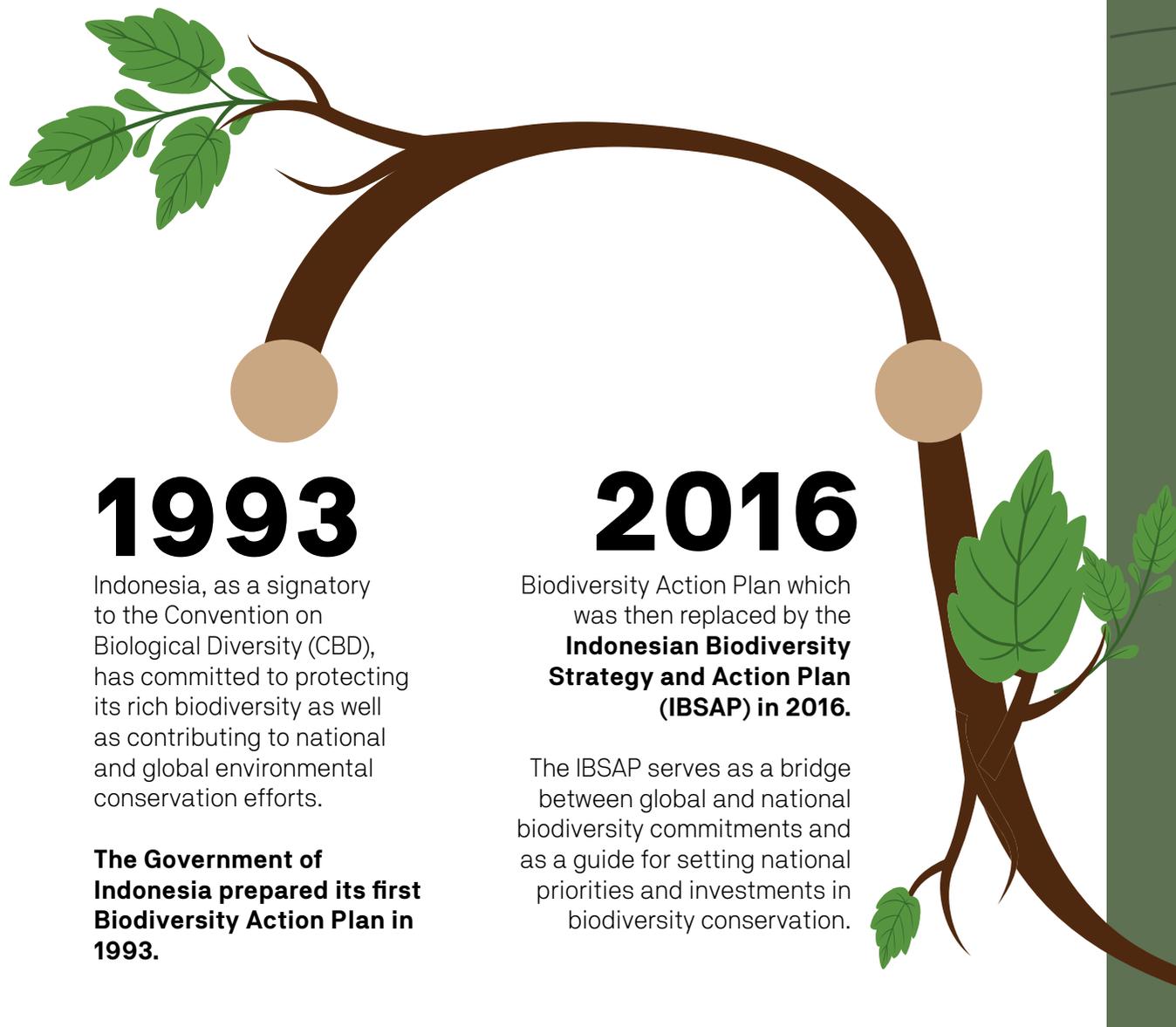
In particular, we would also like to express our gratitude to the Asian Development Bank and the Australian Government for their full support in the study and preparation of the Master Plan.

Jakarta, 21 March 2024

BAMBANG SUSANTONO

Chairman of Nusantara Capital Authority

1 Commitment to protect the biodiversity of Nusantara towards global environmental conservation efforts



1993

Indonesia, as a signatory to the Convention on Biological Diversity (CBD), has committed to protecting its rich biodiversity as well as contributing to national and global environmental conservation efforts.

The Government of Indonesia prepared its first Biodiversity Action Plan in 1993.

2016

Biodiversity Action Plan which was then replaced by the **Indonesian Biodiversity Strategy and Action Plan (IBSAP) in 2016.**

The IBSAP serves as a bridge between global and national biodiversity commitments and as a guide for setting national priorities and investments in biodiversity conservation.

2023

Indonesia has also ratified the **Kunming-Montreal Global Biodiversity Framework**, a pact that focuses on achieving the common goal of conservation and sustainable use of biodiversity.

The Indonesian Government has issued **Presidential Instruction Number 1 of 2023 concerning “Mainstreaming Biodiversity Conservation in Sustainable Development”.**

The Presidential Instruction mandates all Ministries, Government Institutions, and local governments to prepare Biodiversity Management Master Plans.

2024

Following the Government of Indonesia’s commitment towards global environmental conservation efforts, the Nusantara Capital Authority has prepared a Biodiversity Management Master Plan to contribute to global and national goals and targets for the protection and management of biodiversity.

Nusantara’s targets are beyond the global target, where 65% of the area will be designated as protected areas.

2 Nusantara is one of Indonesia's biodiversity hotspots with a high level of endemism

Nusantara inherited natural resources from Indonesia and Kalimantan Island

Nusantara is located on the island of Kalimantan, which is part of the biogeographic zone of the Sunda region. Kalimantan is also one of the richest biodiversity hotspots in the world with high diversity and endemism.

Kalimantan home to more than 25 species found nowhere else, such as the Bornean Orangutan and the Proboscis Monkey. The island also has diverse and abundant flora, both in terms of species richness and population size.

10,000-15,000
species of flowering plants

>3,000
species of trees

>2,000
species of orchids

>1,000
species of ferns

Many of these species are endemic plants and some can still be found in Nusantara.

3,889 species were found within a 50-kilometer radius of Nusantara

- 168 mammals
- 454 birds
- 206 herpetofauna
- 1,369 fish
- 1 fungi
- > 3,000 insects
- 826 marine invertebrates
- 735 plants
- 5 arachnids

440 Species are on the IUCN¹ red list

11.8% of the total identified species

Critically Endangered 0.9%

considered to be critically endangered

34 species

- 2 mammals
- 3 birds
- 3 turtle
- 1 crocodile
- 3 fish
- 3 plants

CR

Endangered 2.8%

considered to be endangered

105 species

- 13 mammals
- 11 birds
- 2 herpetofauna
- 13 marine invertebrates
- 3 fish
- 3 plants
- 13 fungi

EN

Vulnerable 8.1%

considered to be vulnerable

301 species

- 21 mammals
- 26 birds
- 6 herpetofauna
- 167 marine invertebrates
- 43 fish
- 36 plants
- 2 insects

VU

¹IUCN: The International Union for Conservation of Nature

A

Sungai Wain Protected Forest

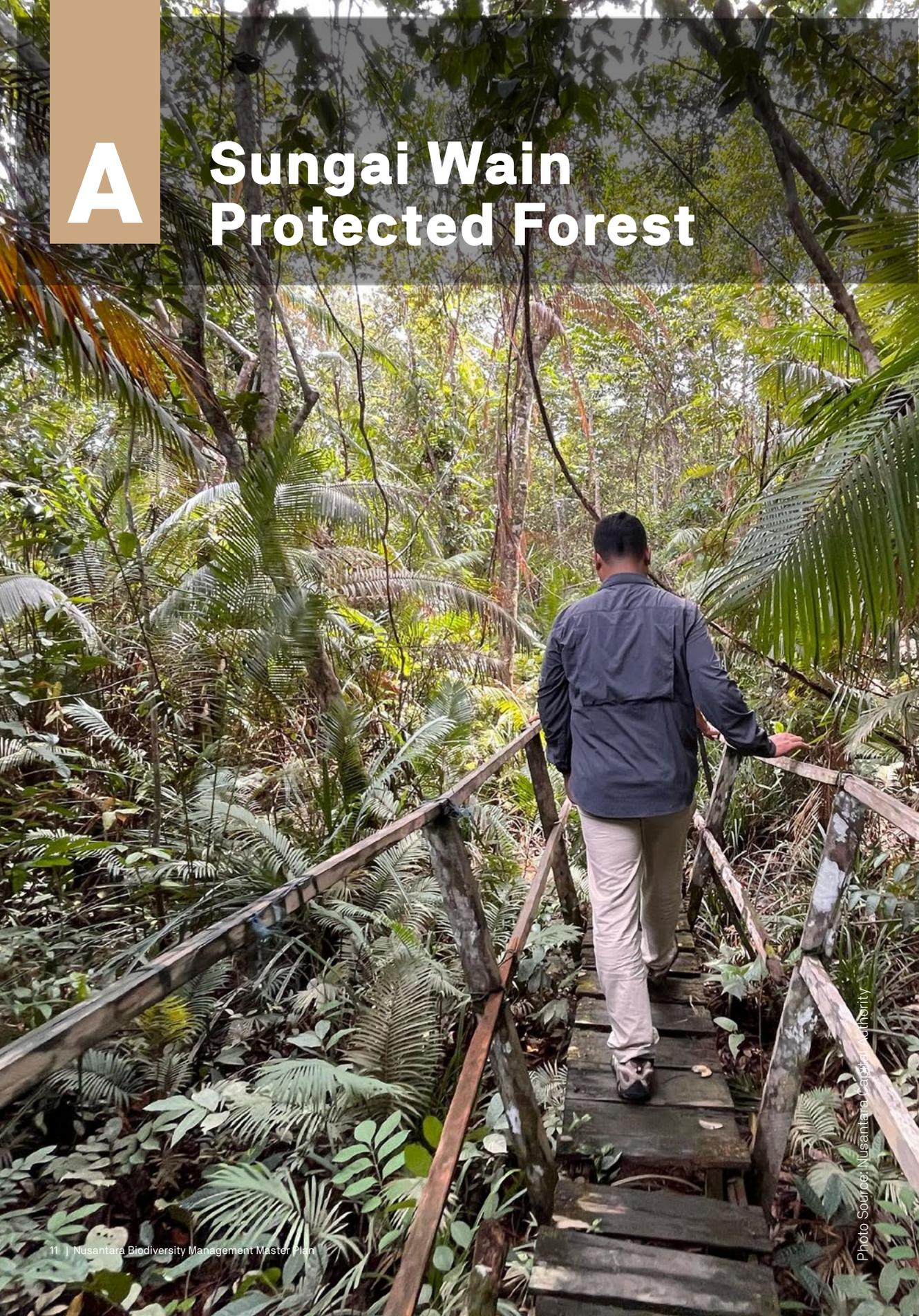
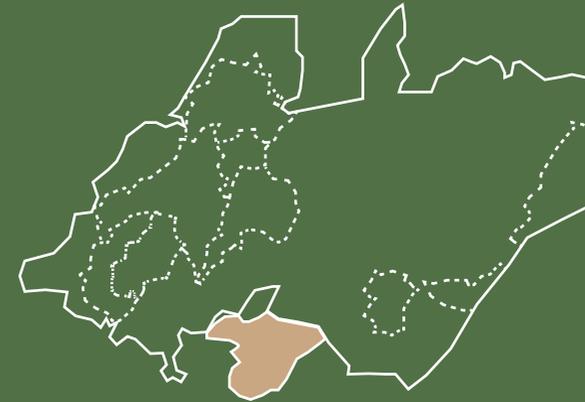


Photo Source: Nusantara Capital Authority



This area comprises a lowland forest with an area of ± 10,000 hectares within the administrative area of Balikpapan City and Nusantara. Sungai Wain Protected Forest consists of primary forest and is surrounded by forests that have been slightly degraded due to past forest fires.

Flora

A total of 53 species of flora were found. Some are classified as endemic species:

- Keruing Tree**
Dipterocarpus tempehes
- Narrow-leaved Aglaia**
Aglaia angustifolia
- Laban Abang**
Aglaia havilandii
- Medang**
Alseodaphne elmeri

Fauna

The following species of fauna were found in Sungai Wain Protected Forest in 2016-2022:

-  **42 species**
Mammals
-  **21 species**
Birds
-  **4 species**
Reptile

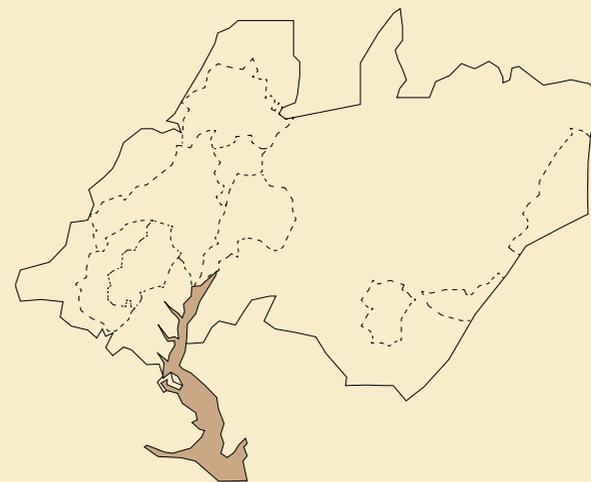
-  **Bornean Peacock-pheasant**
Polyplectron
-  **Bornean Ground Cuckoo**
Carpococcyx radiceus
-  **Gray-breasted Babbler**
Malacopteron albogulare
-  **Blue-headed Pitta**
Hydrornis baudii
-  **Black Hornbill**
Anthracoceros malayanus
-  **Great Argus**
Argusianus argus
-  **Western Hooded Pitta**
Pitta sordida
-  **Red Cat**
Pardofelis badia
-  **Sun Bears**
Helarctos malayanus
-  **Proboscis Monkeys**
Nasalis larvatus
-  **Bornean River Turtle**
Orlitia borneensis

B

Balikpapan Bay



Photo Source: Nusantara Capital Authority



Balikpapan Bay has a water surface of approximately 120 km², with a maximum width of 7 kilometers and a coastline that is mostly covered with mangroves.

Flora

The following species of flora were found:

Indian Mangrove
Ceriops tagal



Cannonball Mangrove
Xylocarpus granatum



Tall-stilt Mangrove
Rhizophora apiculata



Yamstick Mangrove
Scyphiphora hydrophyllacea



Fauna

The following species of fauna were found in Balikpapan Bay:



Irrawaddy Dolphin
Orcaella brevirostris



Finless Porpoise
Neophocaena phocaenoides



Indo-Pacific Bottlenose Dolphin
Tursiops aduncus



Dugong
Dugong dugon



Saltwater Crocodile
Crocodylus porosus



Smooth-Coated Otter
Lutrogale perspicillata



Proboscis Monkey
Nasalis larvatus



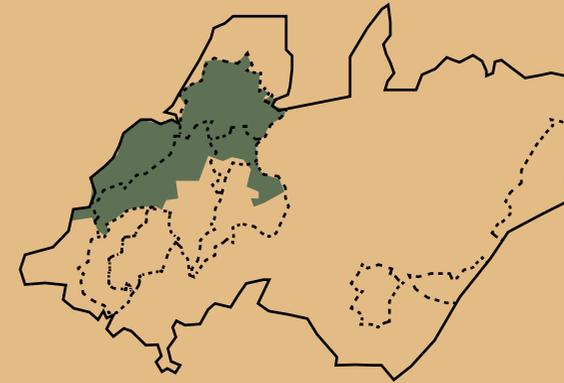
Green Sea Turtle
Chelonia mydas

C

Mount Parung



Photo Source: Nusantara Capital Authority



Mount Parung, which is located in the western part of Nusantara, is part of the forest area that stretches from the production forest concession area to the Meratus Mountains.

Flora

A total of **259 species** of flora are found. Some of the protected species are:

- Satin Pothos**
Scindapsus pictus 
- Saurauja**
Saurauia glabra 
- Melanochyla castaneifolia* 
- African nutmeg**
Monocarpia euneura 
- Cauliflorous tree**
Polyalthia cauliflora 

Fauna

-  **28 species** mammals
-  **108 species** birds
-  **29 species** herpetofauna

Some of the protected species found are as follows:

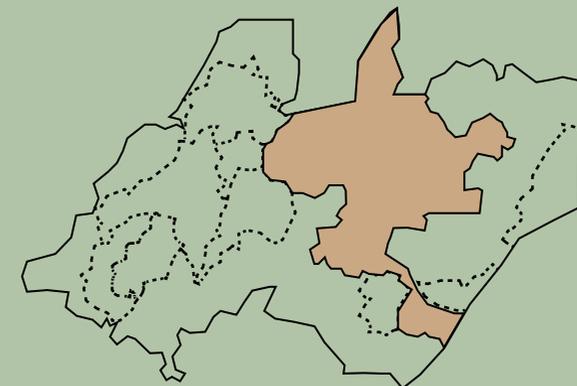
-  **Maroon Leaf Monkey**
Presbytis rubicunda
-  **Müller's Gibbon**
Hylobates muelleri
-  **Proboscis Monkey**
Nasalis larvatus
-  **Japanese Sparrowhawk**
Accipiter gularis
-  **Brahminy Kite**
Haliastur indus
-  **Changeable Hawk-Eagle**
Nisaetus cirrhatus
-  **Purple Heron**
Ardea purpurea
-  **Saltwater Crocodile**
Crocodylus porosus

D

Bukit Soeharto Forest Park



Photo Source: Pertamina NRE/Nusantara Capital Authority



Bukit Soeharto Forest Park (Tahura Bukit Soeharto) has an area of ±64,000 hectares and is a conservation area in Nusantara. **The land cover currently consists of ±57% forested area and the remainder of the area is used for illegal land use activities, such as plantations, mining, buildings, rice fields, and others.**

Flora

The following species of flora were found:

48 species endemic tree and **1 protected species**

Borneo Giant Fan Palm
Borassodendron borneense



Fauna



33 species
Mammals



92 species
Bird



28 species
Herpetofauna

Some of the protected species are:



Müller's Gibbon
Hylobates muelleri



Sunda Clouded Leopard
Neofelis diardi



Rhinoceros Hornbill
Buceros rhinoceros



Saltwater Crocodile
Crocodylus porosus



Silvered Leaf Monkey
Trachypithecus cristatus



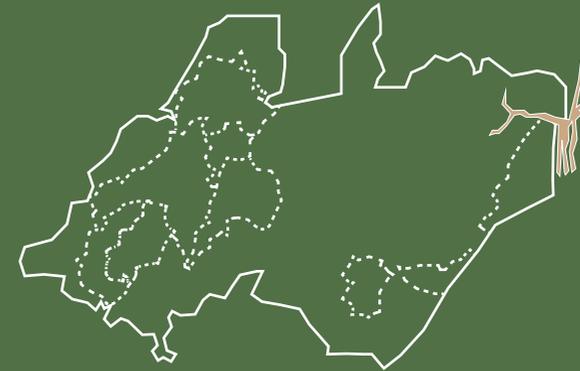
Bornean Bearded Pig
Sus barbatus

E

Muara Jawa



Photo Source: Nusantara Capital Authority



Muara Jawa is part of the Mahakam Delta Region and used to have a lot of mangrove ecosystems. The Muara Jawa Mangrove Forest can support numerous flora and fauna, such as mangrove crabs, shrimp, fish, primates, crocodiles, and others.

Flora

14 species flora

were found, namely:

Api Api Putih
Avicennia alba



Holy Mangrove
Sarcolobus globosus



Schott
Aglaodorum griffithii



Fauna

4 species
Mammals

47 species
Bird

4 species
Amphibi

3 species
Reptile

The following species of fauna were found:



Maroon Leaf Monkey
Presbytis rubicunda



Proboscis Monkey
Nasalis larvatus



Lesser Short-nosed Fruit Bat
Cynopterus brachyotis



Plantain Squirrel
Callosciurus prevostii



Brahminy Kite
Haliastur indus



Purple Heron
Ardea purpurea



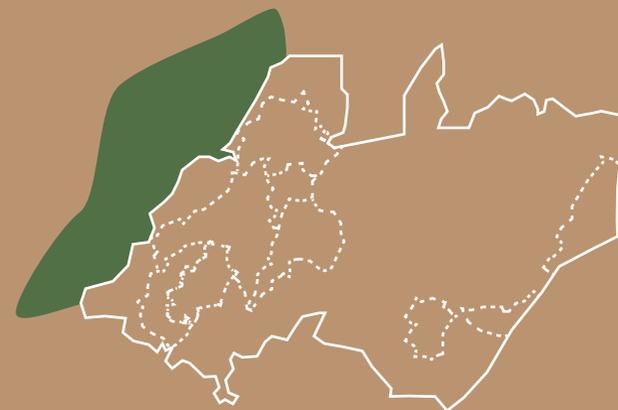
Collared Kingfisher
Todiramphus chloris

F

Mount Beratus Landscape



Photo Source: Willie Smits



Mount Beratus is classified as a Protected Forest based on Minister of Agriculture Decree No. 24/Kpts/UM/1/1983 and has been stipulated by the Minister of Forestry Decree No. 321/Kpts-II/1992. The Mount Beratus Protected Forest has an area of 28,261 hectares according to the data from the West Kutai District Government in 2005.

Flora

65 species of flora were found

Pickerelweed
Monochoria vaginalis



Wrinkled Marsh Weed
Limnophila rugosa



Small-flowered Vandellia
Vandellia micrantha



Fauna

From the IUCN list, there are 46 species, namely:



23 species
Mammals



5 species
Bird



6 species
Reptile



12 species
Amphibi

Some of the protected species found are as follows.



Bornean River Turtle
Orlitia borneensis



Proboscis Monkey
Nasalis larvatus



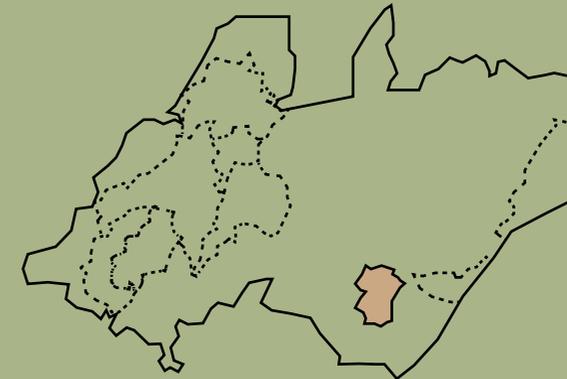
Sunda Pangolin
Manis javanica



Storm's Stork
Ciconia stormi



Photo Source: Pertamina NRE/Nusantara Capital Authority



Samboja Lestari has an area of ± 1,852 hectares and is managed by the Borneo Orang Utan Survival Foundation (BOSF). Samboja Lestari is a rehabilitation center for several species, such as orangutans, sun bears, birds, and others.

Flora

63 species of flora

Some of those identified are as follows:

Arrow Head
Limnophyton obtusifolium



Water Trumpete
Cryptocoryne cordata



Magnolia Tree
Magnolia borneensis



Fauna

The indicated fauna is 39 species, divided into four classes, namely:

- 

21 species
mammals
- 

7 species
bird
- 

7 species
amphibi
- 

5 species
reptile

Some of these fauna are:



Harlequin Tree Frog
Rhacophorus pardalis



Bornean River Turtle
Orlitia borneensis



Müller's Gibbon
Hylobates muelleri



Maroon Leaf Monkey
Presbytis rubicunda



Eastern Curlew
Numenius madagascariensis



Storm's Stork
Ciconia stormi

3 Threats to Biodiversity Conservation in Nusantara

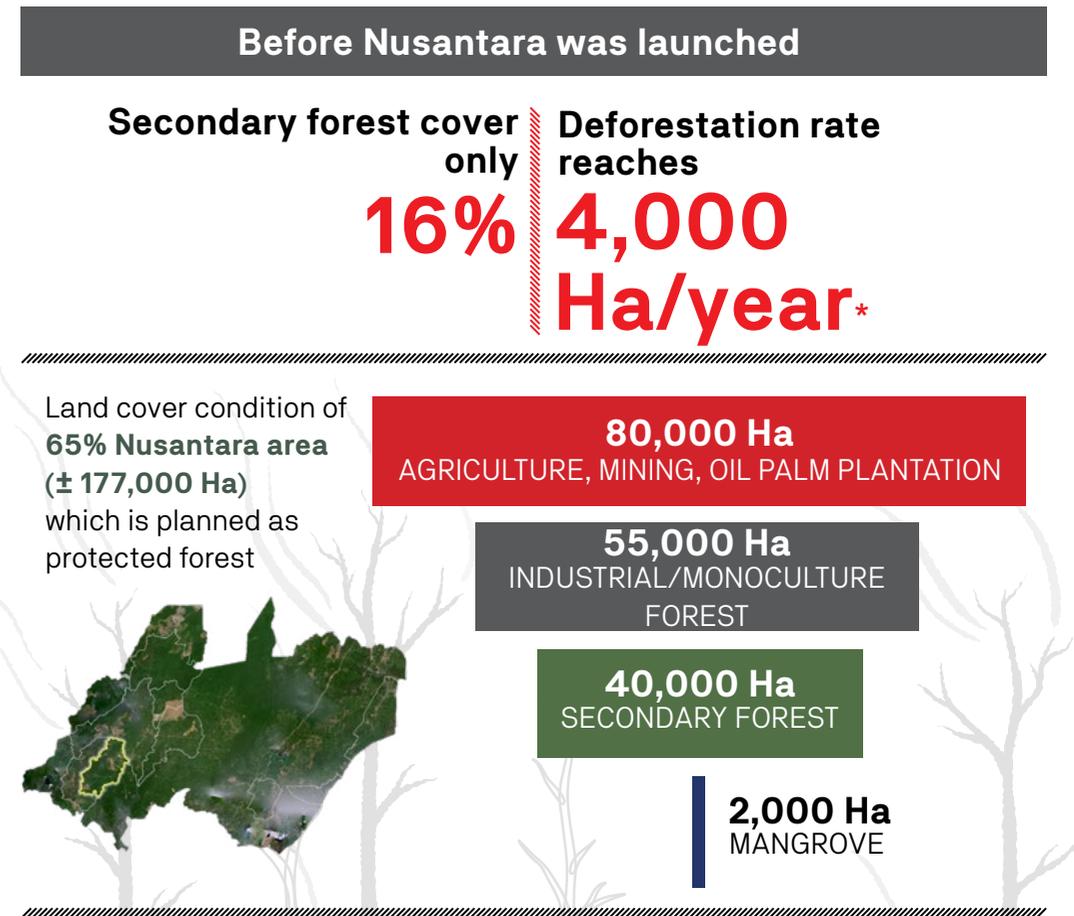
Currently, most of the land cover in Nusantara is classified as non-forest area, consisting of smallholder farming, smallholder and large-scale oil palm plantations, coal mining concessions, monoculture plantation forests, former Industrial Plantation Forests (HTI), shrubs and grasslands regenerated after forest fires (including subsurface coal fires).

Forested areas that have high biodiversity value are only located in protected areas that are not interconnected. A number of invasive species have been identified in Nusantara, i.e. Cogon Grass (*Imperata cylindrica*), an invasive pyrophytic species that is often found in areas that have experienced forest fires, and *Acacia mangium*, which is also common in Nusantara.



Nusantara has also recently experienced rapid land cover changes due to logging, coal mining, and forest fires, especially during the drought caused by El Niño in 1982-1983 and 1997-1998, as well as industrial plantation forest, oil palm plantations, and smallholder farming activities.

Land cover changes can have a significant impact on the biodiversity of an area as this can result in ecosystem fragmentation.



A holistic and strategic planning is needed to increase forest coverage in Nusantara. Planning needs to be a collaborative effort involving various stakeholders, combining strategies and programs aimed at conserving and restoring biodiversity while promoting sustainable use and increase interconnectivity between ecosystems.

* Processed from various sources 2009-2019

4 | Nusantara Biodiversity Management Master Plan

Nusantara has a vision to become a

WORLD CLASS CITY FOR ALL

with the following objectives:



Become a sustainable city in the world;



As a driver of the Indonesian economy in the future; and



Become a symbol of national identity that represents the diversity of Indonesia

Nusantara is envisioned as a **Forest City** emphasizing environmental conservation by:



Optimizing science and technology,



Developing community participation, and



Strengthening cooperation with other parties.



Nusantara forest city has a **target** to protect, manage, and restore

65%
of Nusantara as a protected area.



The tropical rainforest currently only covers approximately

16%
of Nusantara



Therefore, reforestation for at least

120,000 hectares
will be needed until 2045.

Nusantara Biodiversity Management Master Plan as an effort to achieve sustainable development.

Vision

Implement sustainable forest city development that contributes to the achievement of the national and global biodiversity conservation goals. To achieve this vision, the following missions must be carried out:

- Maintain remaining forest and wetland ecosystems.
- Rehabilitate, restore, and/or reclaim damaged ecosystems.
- Optimize the performance of parties in conserving and utilizing biodiversity.
- Increase the capacity and awareness of indigenous and local communities in managing biodiversity.
- Supervise and enforce laws and regulations for managing biodiversity.

Period

The Master Plan shall be applicable for five years (2024 - 2029). This will be a fundamental period as development of Nusantara is expected to ramp up in this period and is in line with the targets of the Kunming-Montreal Global Biodiversity Framework 2030.

Substance Framework

The Biodiversity Management Master Plan consists of programs and performance indicators as well as detailed evaluation criteria which are used as the basis for protecting, conserving, and utilizing biodiversity in accordance with the status and priorities for biodiversity management in Nusantara, and in accordance with national and international conservation priorities.

Participatory and Scientifically Based Process

The document was developed through a multi-stakeholder and consultative process, involving academia, government ministries and agencies, civil society, national and international researchers, and local communities.

Purpose of Preparation

It provides directives and strategies for managing biodiversity in a structured, systematic, and measurable way so it can be implemented smoothly and efficiently. The preparation was done by conducting a baseline survey to complement previous studies in Nusantara.

5 Nusantara Biodiversity Management Goals and Targets

The biodiversity management carried out in Nusantara has goals and targets to contribute to the achievement Global Biodiversity Framework and Indonesian Biodiversity Strategy and Action Plan (IBSAP) goals and targets. The goals of biodiversity management at Nusantara are as follows:



Goal 1

Developing science, technology, biodiversity databases, and information systems.

Target 1. Establishing an information system for biodiversity in Nusantara.

Target 2. Supporting biodiversity research.



Goal 2

Improving biodiversity conservation by managing the ecosystem of one/several species of flora/fauna on land, coasts, and the sea (in-situ and ex-situ conservation).

Target 1. Improving the quality of in-situ conservation.

Target 2. Protecting genetic resources.

Target 3. Increasing the quantity and quality of ex-situ conservation (Botanical Gardens, Collection Gardens, Biodiversity Parks, Safari Parks, etc.).



Goal 3

Slowing, reducing, and/or controlling biodiversity loss, degradation, or extinction.

Target 1. Maintaining the condition and quality of existing forests.

Target 2. Controlling the rate of extinction of protected, rare, and endangered populations.

Target 3. Controlling threats to exotic species populations.



Goal 4

Rehabilitating and/or restoring moderately and severely damaged ecosystems.

Target 1. Increasing the quantity of forest-covered areas by rehabilitating or restoring damaged and degraded ecosystems.

Target 2. Developing models for rehabilitating or restoring damaged and degraded ecosystems.



Goal 5

Increasing sustainable use of biodiversity.

Target 1. Developing the utilization of genetic resources (genetic banks, bioprospecting, etc.).

Target 2. Developing a local wisdom-based model for utilizing natural resources.

Target 3. Utilizing environmental services-based natural resources and non-timber forest products.



Goal 6

Increasing institutional capacity, policy institutions, and law enforcement for biodiversity.

Target 1. Building facilities and infrastructure to support the sustainable management of biodiversity, such as human resource capacity, organization, funding, and management equipment.

Sasaran 2. Establishing strong policies for protecting and managing biodiversity.

Sasaran 3. Supervision and law enforcement for protecting and managing biodiversity.



Goal 7

Resolving biodiversity conflicts.

Target 1. Community engagement in preventing human-wildlife conflict.

Target 2. Building a wildlife rescue center.

Target 3. Building or protecting wildlife corridors.

6 Biodiversity Management and Mitigation

Biodiversity mitigation and management actions in Nusantara are crucial for flora, fauna, and ecosystems that have high conservation value.

Biodiversity mitigation in Nusantara symbolizes an effort to (1) achieve sustainable development to protect, restore, and increase sustainable use of land and marine ecosystems; and (2) avoid adverse impacts on endemic, priority, and critical biodiversity to minimize environmental losses from development activities.

The mitigation hierarchy comprises 4 actions to be implemented:



Avoidance

Measures are taken to avoid creating impacts from the outset, such as careful spatial or temporal placement of elements of infrastructure, in order to completely avoid impacts on certain components of biodiversity.



Minimalize

Measures taken to reduce the duration, intensity, and/or extent of impacts (direct, indirect, and cumulative impacts) that cannot be completely avoided, as far as is practically feasible.



Restore

Measures taken to rehabilitate degraded, damaged, or destroyed ecosystems and biodiversity.



Compensation

Calculation and measurement of conservation measures taken and resulting from actions designed to compensate for residual impacts on biodiversity arising from project activities as well as avoidance, minimization, and restoration actions.

The biodiversity mitigation and management actions in the Nusantara area are as follows:

- Engaging environmental experts
- Mapping critical ecosystems and species
- Mitigation for critical ecosystems and species
- Identifying sensitive habitats prior to land clearance for development
- Training and capacity building
- Wildlife-sensitive development
- Preventing the land clearing/ logging during critical fauna breeding season
- Analyzing habitat suitability for the flora/fauna to be translocated
- Conserving trees
- Marking the location of wildlife trails
- Monitoring and management
- Providing ecosystems for birds and wildlife
- Reforestation and ecosystem restoration
- Transportation with low-emission vehicles
- Preventing the spread of invasive species
- Preventing erosion
- Mapping of aquatic ecosystems (lakes, swamps, water bodies, etc.) before construction

Mitigation and management measures need to be considered and implemented by every business actor or activity that will carry out development activities in Nusantara. Each party shall not only be responsible for project implementation but also for the biodiversity in Nusantara.

7 Monitoring and Evaluation

The conservation of natural resources and biodiversity of Nusantara needs to be monitored and evaluated to

- ✓ Determine the level of success in implementing biodiversity management in Nusantara.
- ✓ Ensure that the action plans/work programs that have been prepared can be well implemented.
- ✓ Measure how action plans contribute to achieving the objectives of the Nusantara Biodiversity Management Master Plan.
- ✓ Identify the reasons why the action plan was successful or failed to be implemented.
- ✓ As input for the planning process and improving the quality of the Nusantara Biodiversity Management Master Plan in the future.



Monitoring and evaluation shall be carried out regularly, at least **annually**.



The implementation of biodiversity management plans is monitored to fulfill the monitoring and reporting obligations required by **national policies and international conservation agreements**.



The Nusantara Capital Authority, through the **Deputy for Environment and Natural Resources**, monitors and evaluates the achievement of targets for each program and coordinates with partner Ministries/Institutions and local governments around Nusantara about the monitoring and evaluation process and results.



Independently, academics, non-governmental organizations, people in charge of businesses or activities, and other parties can take the initiative to carry out:

- Monitoring and evaluation and submit the results to the Deputy for Environment and Natural Resources to complement
- Provide feedback on the monitoring and evaluation process carried out by the Nusantara Capital Authority



NUSANTARA



Digital booklet can be
downloaded via QR code
above