

Monitoring the Biodiversity Campus - IPB Dramaga Bogor Campus in 2020

Brief Description of Activities

Campus monitoring activities are biodiversity inventory activities (e.g., mammalian taxa, birds, herpetofauna, butterflies, and flora). This activity is a routine program for members of the Forest Resources Conservation and Ecotourism Student Association (HIMAKOVA) of the Faculty of Forestry and Environment, IPB.

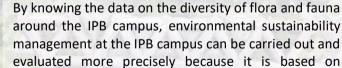
Campus monitoring activities were carried out from January to November 2020 at various locations on the Darmaga Campus of IPB. The purpose of campus monitoring activities is to take an inventory of existing biodiversity and publish the results of campus monitoring activities in infographics to the general public. The following is an infographic of the results of

educational programs for the community and the academic community at the Dramaga IPB Campus, including opportunities for developing educational

Implementation Period

Biodiversity Campus monitoring activities are carried out from January to November 2020. Activities are carried out on weekends according to a predetermined monitoring schedule, taking into account lecture or practicum activities.

INSTITUT PERTANIAN BOGOR KAMPUS BIODIVERSITAS monitoring activities on the Darmaga campus of IPB. Benefits of programs/activities implementation The data produced regularly and continuously will be very useful for assessing flora and fauna biodiversity trends in the area of IPB Darmaga Campus. In addition, monitoring activities can be used to develop



complete data that is obtained periodically.

SDGs Goals

tourism.







Constraints & challenges in programs/activities implementation

In March 2020, the Indonesian government announced a pandemic, so there were technical obstacles in implementing monitoring the diversity of flora and fauna at the Dramaga Campus of IPB. This also has an impact on decreasing the chance of encountering wild animals on the Dramaga IPB campus.

Activities Outcome

Campus monitoring data for 2020:

- Estimation of the population of long-tailed monkeys
 (*Macaca fascicularis*) before and after the
 Admission Restrictions on IPB Dramaga Campus
- Monitoring 50 bird species from 29 families. 2 species have the status of near threatened and vulnerable according to the IUCN.
- An inventory of 104 herpetofauna individuals at the Dramaga IPB campus.
- The study of butterfly diversity shows that 61 species from 5 families are spread across the Dramaga campus of IPB.
- 5. Inventory of 143 plant species from 49 families.

Activities Documentation

Activities published on:

https://himakova.lk.ipb.ac.id/hasil-kegiatan-monitoring-kampus-ipb-tahun-2020/



Campus Forest Park 2020



Implementation Period

The Campus, Forest Park Arboretum, was established by the Chancellor of IPB in 1995. The construction was carried out by planting trees. Construction activities began again in 2018, and by 2028 it is targeted to have all of them built.

Brief Description of Activities

The establishment of a Forest Park on the Dramaga Campus of IPB was marked by the issuance of the Rector's (i.e., Chancellor Professor Aman Wirakartakusumah) Decree No. 086/Um/1995. It mandated its management to the Faculty of Forestry. The area designated by the decree is 12 hectares, and at that time, Mahogany (Swietenia sp) and Pinus (Pinus sp) have been planted as currently seen in the Cikabayan block area.

Since then, the development process has stalled, and there has been no further development in the end. Twenty-three years later, development activities began to be carried out again, precisely in 2018, marked by a joint signing between the Chancellor, the Dean of the Faculty of Forestry, the Forestry Alumni Association, and planting seeds of rare fruits and flora. The master plan of the campus forest park development consists of three blocks, namely the education block, the ecotourism block, and the conservation gallery block. It is currently still focusing on the education block.

Benefits of programs/activities implementat

The development of the Campus Forest Park is expected to be beneficial not only for students or researchers but also for the community in general to direct learning about conservation and how environmental services management can develop and benefit starting from the campus environment.

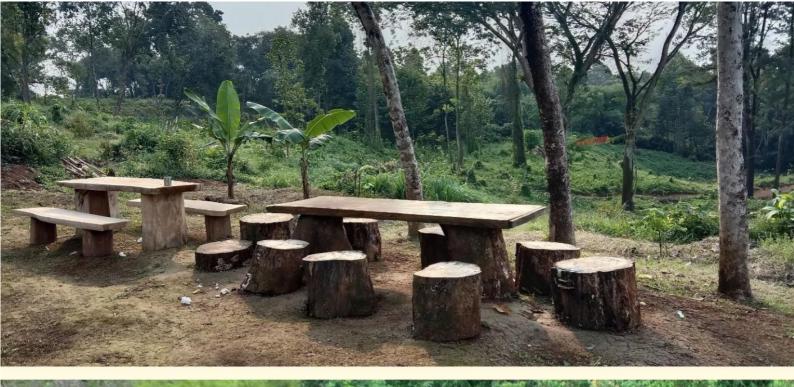


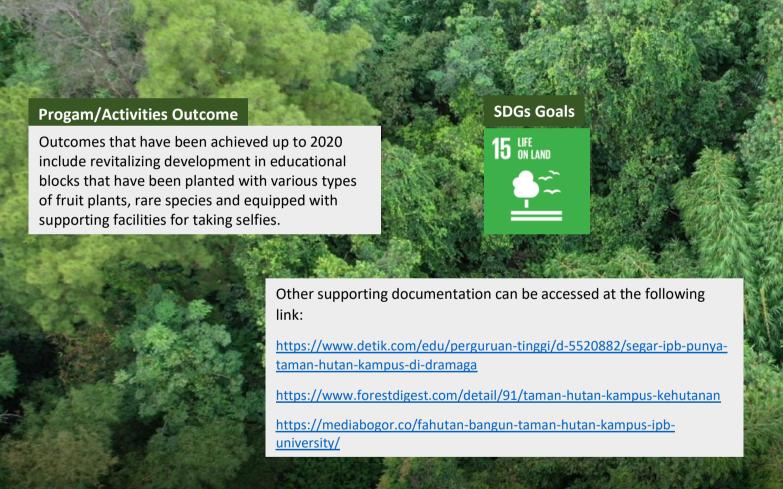
Constraints & challenges in programs/activities implementation

The obstacles faced in developing a campus forest park include:

- 1. Limited budget and financing schemes due to insufficient support from stakeholders
- 2. The rhythm of development is still not maintained so that it is still far from the sustainable development concept because it still relies on certain ceremonial moments.
- 3. The technical obstacle in the field is that the maintenance of the planted species has not been carried out optimally due to inadequate financial support.













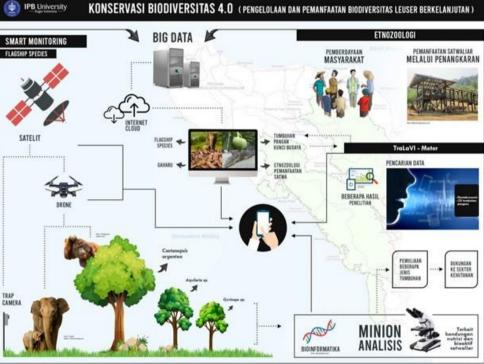
Leuser Biodiversity Research Focus and Locus 4.0

Implementation Period

The Leuser Biodiversity Research 4.0 is a research at the institutional level (IPB) involving IPB researchers carried out for three years from 2020 to 2022 at the Leuser Ecosystem Area Locus with a Funding Scheme for Higher Education Primary Research.

Brief Description of Actitivies

Responding to industry 4.0, in 2019, IPB offered Institutional Research leading to industry 4.0, which was called Agro-Maritime Institutional Research 4.0 (PI-AMar4.0) IPB. The implementation of IPB's PI-AMar4.0 aims to assist and facilitate research activities carried out by IPB lecturers/researchers as an effort to make a real contribution to solving the nation's problems, especially in the fields of food, energy, environment, biomedical, and poverty by utilizing advances in communication technology and information (ICT)



One of the loci and focuses of PI-AMar 4.0 research is Leuser biodiversity. By creating Fishbone research, the Leuser Biodiversity Research Group mapped the research carried out within the framework of biodiversity conservation 4.0. The research framework is carried out to seek solutions to unsustainable use of biodiversity, the threat of flagship animals, ecological damage, weak institutions, limited funding, community behavior, and social and economic conflicts that threaten the sustainability of the Leuser ecosystem.



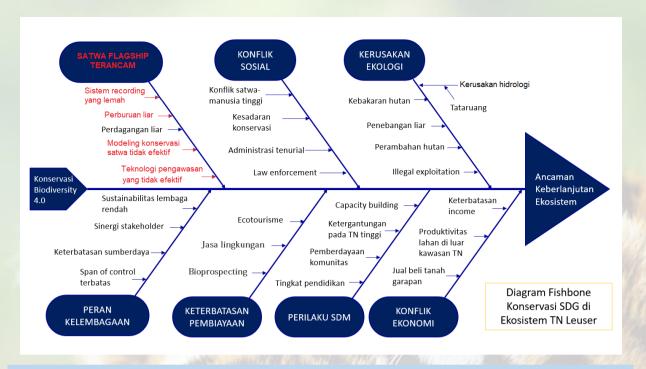
SDGs Goals

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE









The Leuser Biodiversity research group consists of 12 lecturers divided into four research teams.

- 1. Dr. Dede Aulia Rahman (Leuser 4.0 Biodiversity Locus Coordinator), Dr. Yudi Setiawan, and Arif Wijayanto, M. Si researched monitoring TNGL flagship animals with unmanned aerial vehicle (UAV) technology and camera traps.
- 2. Dr. Arzyana Sunkar, Dr. Syafitri Hidayati, and Dr. Adisti Permatasari Putri Hartoyo conducted a study on the relationship between Gayo language and culture on the loss of biodiversity (biocultural diversity) in Gunung Leuser National Park (TNGL) using a TraLaVi meter based on MV-ASPR (Medium Vocabulary Automatic Speech Recognition System).
- 3. Prof. Ani Mardiastuti, Ir. Lin Nuriah Ginoga, Dr. Burhanuddin Masy'ud, and Sutopo, M.Si researched the ethnozoology and wisdom of local communities around GLNP and looked for bioprospecting opportunities of animals by the community.
- 4. Prof. Iskandar Z. Siregar, Dr. Deden Degrees Matra, and Dr. Rahadian Pratama conducted a genomic analysis on endemic species of agarwood in GLNP using "Long Read Sequencing" technology with the Oxford Nanopore MinION device.

Benefits of progam/activities implementation

Research with the Locus and Focus of Leuser Biodiversity 4.0 was carried out to fill the solution spaces for the problems identified in the "bones" and "spines" of the Leuser Biodiversity 4.0 research fishbone. This research is expected to overcome the main problem, namely the threat to the sustainability of the Leuser ecosystem. In carrying out the Leuser Biodiversity 4.0 research, collaboration is carried out with various parties, including Gunung Leuser National Park Center as a Research Locus and other parties such as Regional Governments, Local Universities, Non-Governmental Organizations, Community Groups around the GLNP Area and association of Acehnese and Gayo diaspora communities living in Jabodetabek. These studies are expected to provide solutions to problems that include the use of biodiversity, the threat of flagship species, social conflicts, ecological damage, institutions, human resources, and economic conflicts. Funding support from various parties as facilities for conducting research and development is necessary to create the sustainability of the Leuser ecosystem. The presence of research groups that collaborate and synergize is expected to realize the sustainability of the Leuser ecosystem and encourage welfare for the surrounding community.

Leuser Biodiversity Conservation 4.0

Constraints & challenges in programs/activities implementation

Some of the difficulties or obstacles faced:

- 1. Contracts and delayed disbursement of research funds due to the pandemic caused the timing of research implementation to be delayed and had implications for delays in the data collection process and limited time in output preparation.
- 2. Large-scale social restrictions (PSBB) resulting from pandemic conditions and the difficulty of access to the main research location, namely GLNP, which is located in Aceh Province and North Sumatra Province, caused changes to the location plan and research implementation targets.

Activities Outcome

Some of the Leuser Biodiversity Research activities 4.0 outputs include scientific works in articles published in international journals/proceedings, books, knowledge transfer through webinars, WebGIS, and other outcomes related to the Leuser Ecosystem Area conservation program. In general, the outcomes for each research group are described as follows:

- The research group "The use of camera traps and drones for ecological studies and conservation of Sumatran elephants (*Elephas maximus sumatranus*) and Sumatran orangutans (*Pongo abelii*)"

 The research outputs are: (1) technical design of trap cameras and drones (quadcopter) with application systems that are effective, efficient, and in line with animal monitoring regulations and ethics, (2) provision of new basic data on the ecology and conservation of Sumatran elephants and Sumatran orangutans in the area. Gunung Leuser National. This output is published in three (3) international journals/proceedings
- The research group "TRALAVI METER: Rapid measurement based on MV-ASPR (Medium Vocabulary Automatic Speech Recognition System) in estimating biodiversity loss in Gunung Leuser National Park."

 The initial step of this study was to use the free-listing method of 25 food plants. The TraLaVi index consists of four phases, namely: 1) Phase I (Basic Data Collection); Phase II (Determination of Control Population); Phase III (Implementation of the Index); and Phase IV (Development of a Voice Recognition System). This study is very important for respondents to clearly state the local name/ethnotaxonomy of the food plants that they think are important. The recordings are then built into a system called MV-ASPR (Medium Vocabulary Automatic Speech Recognition System.

Leuser Biodiversity Conservation 4.0

- The research group, "Ethnozoology and local community wisdom around Gunung Leuser National Park," has resulted a database of traditional uses of animals that have the potential to be developed as medicinal ingredients.
- The research group "Genomic Analysis on endemic species of agarwood in Gunung Leuser National Park, Aceh using the latest technology "Long Read Sequencing" with the Oxford Nanopore MinION device."

 This study aims to provide complete genome sequence data from two protected and high economic potential (bioprospecting) plant species in Indonesia, namely saninten (Castanopsis argentea) and gaharu-producing species (Aquilaria spp, Gyrinops spp). The output of the 1st year was the optimization of total DNA and RNA extraction from samples of saninten tree leaves and gaharu species, as well as DNA and RNA sequencing using the MinION portable sequencer. Meanwhile, in the second year, bioinformatics analysis was carried out to compile and optimize the draft genome sequence from the sequencing results using MinION and identify the genetic and functional genes of the genome sequence. These outcomes are published in international journals indexed by Scopus. Research results are disseminated, and a reference genome sequence database for saninten and gaharu trees that Indonesian researchers can widely access.

Activities Documentation

- a. https://today.line.me/id/v2/article/9wZE2R
- b. https://kurio.id/app/articles/6025f695d52d66f113 1d4855
- c. https://www.youtube.com/watch?v=0CZW2g-rdIg
- d. https://lisat.ipb.ac.id/leuser/
- e. https://www.instagram.com/leuser4.0/
- f. https://twitter.com/leuser4ipb
- g. https://aceh.tribunnews.com/2020/08/20/ipbteliti-keanekaragaman-hayati-gayo-untukkonservasi-dan-pelestarian-bahasa-lokal
- h. https://baranewsaceh.co/institut-pertanian-bogor-ipb-mulai-meneliti-keaneragaman-hayati-yang-ada-dalam-masyarakat-gayo/

- i. https://agaaranews.com/institut-pertanian-bogor-ipb-mulai-meneliti-keaneragaman-hayati-yang-ada-dalam-masyarakat-gavo/
- j. https://teropongbarat.com/2020/08/21/ipb-mulai-meneliti-keaneragaman-hayati-yang-ada-dalam-masyarakat-gayo/
- k. https://analisisnews.com/2020/08/21/ipb-jabar-teliti-keanekaragaman-hayati-gayo
- l. https://dialeksis.com/aceh/ipb-teliti-keanekaragaman-hayati-gayo/
- m. http://suaragayo.com/ipb-akan-teliti-tumbuhan-dan-tanaman-pangan-masyarakat-gayo/

4 Land Use Change Monitoring System Development (WebGIS Ecosystem and INA Alert Android Application)



Implementation Period

The research collaboration for developing the Land Use Change Monitoring System, a collaboration between the ALGM Division and UNDP, was carried out for three years, from 2018 to 2021. In addition, several ceremonial activities have been held, including:

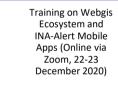
Launching of Ecosystem and INA-Alert Mobile Apps (Online via Zoom, 21-23 September 2020)

Public Consultation & Trial on INA-Alert (Pelalawan, Riau, 28-29 December 2020)

Brief Description of Activities

Ecosystem and INA-Alert Mobile Apps are webGIS and mobile applications as a product of collaborative research activities between the ALGM Division and UNDP. WebGIS Ecosystem was developed as a medium for monitoring changes in forest land cover and its relation to Indonesia's strategic superior commodities. At the same time, the INA-Alert mobile application was developed as a verification tool for the results of the classification model. The IPB team was led by Dr. Yudi Setiawan, M.Sc, and Dr. Rahmat Pramulya, involving researchers and students in the ALGM (Environmental Analysis and Geospatial Modeling) Division. This activity continues with the WebGIS Ecosystem Public Consultation and a series of training on using the App that has been built.

This activity is a collaboration between IPB through the Division of Environmental Analysis and Geospatial Modeling (ALGM) and the United Nations Development Program through the Good Growth Partnership (GGP) program. In developing the algorithm, IPB collaborated with LAPAN. Meanwhile, the Ministry of Environment and Forestry (KLHK) acts as the beneficiary agency.

















NEAR-WEEKL

EcoSystem also can detect

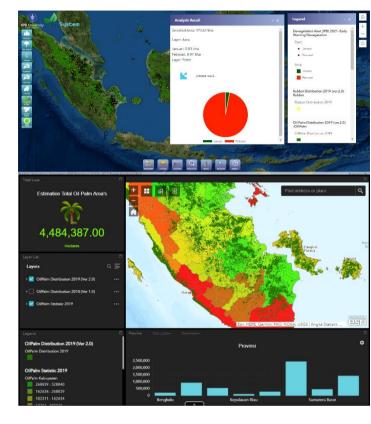
COMMODITY DISTRIBUTIONS MAJOR AGRICULTURAL

Benefits of implementing programs/activities

WebGIS Ecosystem has a spatial information display (map) and tabulation (dashboard). The system developed includes some spatial data and information related to changes in land cover and commodities for oil palm, rice, cocoa, coffee, and rubber over a certain period. In addition, the system can display the results of early detection of land cover changes with the analysis of vegetation (Alert Warning System). This early detection system is generated from the interpretation of satellite imagery that will detect changes in vegetation cover throughout Indonesia every eight days.

In addition, the WebGIS Ecosystem has also been able to display a map of the distribution of palm oil, rice, cocoa, coffee, and rubber commodities nationally over a certain period. It could also provide services to users to perform simple statistical calculations or analyses, both based on administrative boundaries (sub-district, district, and province) and other desired boundaries.

WebGIS Ecosystem can be accessed through https://lulcc.ipb.ac.id



The WebGIS-based monitoring system is also supported by the INA-Alert android application to validate land cover changes generated by the early warning system. With the INA-Alert android application, it is hoped that the public can participate directly in the land monitoring system in Indonesia by providing accurate information from the field. The INA-Alert application can be installed on Android devices by downloading the installer via the link: https://lulcc.ipb.ac.id/ina-alert/apk/.

INA-Alert Android application were developed using the ESRI platform's license grant program by ESRI Indonesia. Esri Indonesia offers its software and extensions for use by students, lecturers, researchers, and other academics at colleges and universities that are part of the Esri Education website license and under the MoU of Esri Indonesia's education program with Esri Indonesia.

Thus, WebGIS Ecosystem and INA-Alert are expected to provide data and information that describes the dynamics of land cover change in Indonesia, especially those caused by agricultural extensification, with scientifically justifiable accuracy for a shorter period.



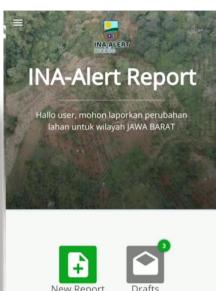
EcoSystem also can detect

COMMODITY DISTRIBUTIONS MAJOR AGRICULTURAL

Constraints & challenges in implementing programs/activities

There is still no person/officer who focuses on updating and monitoring the system regularly.











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Activities Outcome

This monitoring system is an effort of IPB University to contribute to forestry, plantations, and other land-based sectors. This activity has a significant impact in providing actual and real-time data for various sectors. Furthermore, through various training in WebGIS and Apps prepared for stakeholders and users, it can produce wider benefits.



SDGs Goals







Activity Documentation

Documentation of activities and scientific publications published through the website https://lulcc.ipb.ac.id and YouTube channel https://www.youtube.com/channel/UCmkMwU ArinB2L9SUIUP24Rg

This activity has been published in the national mass media:

https://edukasi.sindonews.com/read/171870/21 1/ipb-university-luncurkan-sistem-monitoringlahan-digital-1600690152

https://republika.co.id/berita/qh0g9d374/fahuta n-ipb-luncurkan-sistem-monitoring-lahan-digital

https://www.id.undp.org/content/indonesia/en/home/presscenter/articles/2020/UNDP-supports-Indonesia.html

https://antaranews.com/berita/1921752/ipb-dan-lapan-uji-sistem-pendukung-pemantauan-tutupan-lahan

https://republika.co.id/berita/qm5jc5374/ipb-lapan-dan-undp-uji-webgis-ecosystem-dan-inaalert

https://riaupos.jawapos.com/pendidikan/29/12/2020/243814/ipb-dan-lapan-gelar-konsultasi-publik-sistem-pemantauan-tutupan-lahan.html



Departmen of Forest Management Faculty of Forestry and Environment



JUNE 2021

WEBINAR FORESTRY MULTI-BUSINESS OPPORTUNITIES AND CHALLENGES IN SUSTAINABLE FOREST MANAGEMENT

Forestry multi-business is the application of several businesses by the management unit in the area of forest management rights, forest utilization business permits (areas, forest products, and environmental services), forest product collection permits, social forestry such as community forests, community plantation forests,



village forest, as well as partnership as an effort to optimize the productivity of forest areas, especially in production forests. The purpose of the webinar was to socialize the concept of multi-business forestry and formulate implementation strategies in the field by looking at it from the perspective of various parties and comprehensive knowledge.





The webinar has been held on July 24, 2020 with the following speakers:

1. Dr. Ir. Bambang Hendroyono, MM (General Secretary & Plt General Director of PHPL, MoEF)

2.Prof. Dr. Ir. Dwisuryo Indroyono Soesilo (Head of APHI)

3.Prof. Dr. Dudung Darusman, MA (Professor, DMNH-IPB)

Wrap Up by Prof. Dr. Ir. Dodik Ridho Nurrochmat, MSc.F.Trop (Vice Rector and Professor of IPB). The participants of the webinar were practitioners, academics, students, government, NGOs, and observers of forest governance in Indonesia totaling more than 500 people.

The activity of the webinar was presented on IPB Today Volume 413 the Year 2020 and YouTube: ipb.link/youtubemadsaz.





IMPLIKASI UU CIPTA KERJA TERHADAP KEHUTANAN

HARSADI KARTODIHARDIO

BOGOR, 15 OKTOBER 2020





WEBINAR IMPLICATIONS OF OMNIBUS LAW TO THE FUTURE OF FORESTRY AND THE ENVIRONMENT

Law No. 41 of 1999 and No. 18 of 2013 on Forestry, two were blended in the Job Creation Law (Omnibus Law). In addition to the issue of changing the regulatory text, there is also the governance aspect because changing the rules doesn't just change the facts. Besides, there are also institutional problems at the central and regional levels. The purpose of the webinar was to discuss the implications of the Job Creation Law on forestry management in Indonesia in terms of various aspects.











"NEST (NATIONAL ENVIRONOMIC AND SOCIAL TALK)"

NEST is in the form of a national seminar, essay and videography competition which is participated by students from various universities in Indonesia. NEST is an annual routine activity of the Forest Management Student Club (FMSC), a student organization in DMNH.

The purpose of NEST 2020 was to find out the opportunities and challenges in the development of forestry businesses during the New Habits Adaptation Period, to know various perspectives on forestry business development in the New Habits Adaptation Period, and to know the role of forestry business in efforts to stabilize food and the community's economy in the New Habits Adaptation Period.

The NEST activity was held on 6-7 November 2020. The NEST National Seminar with the theme Forestry Business Opportunities and Challenges in the New Habit Adaptation Period was attended by 671 people, all of whom were students from various universities throughout Indonesia.

https://youtu.be/CatGe8G4VJI http://ipb.ac.id/media/document/pdf/IPB-Today-Edisi-475.pdf

http://ipb.ac.id/media/document/pdf/IPB-Today-Edisi-475.pdf







FMSC FORESTRY VISIT 2020

FMSC Forestry Visit (FFV) 2020 is a work program frim the Division of Oranizing and Networking of the FMSC. FFV 2020 consisted of 3 series of discussion activities with institutions or agencies enganged in the forestry sector. The FFV 2020 series was carried out synchronously throught a zoom cloud meeting which was attended by active students of DMNH IPB.

Total Of Commite 12 Orang Total Of Participants 192 Student

Theme: Forester of the present

https://www.instagram.com/p/CFJF3QuDsSH/? utm_medium=copy_link https://www.instagram.com/p/CFzMTeSDZOV/? utm_medium=copy_link









WEBINAR
INTEGRATION OF NATURAL FORESTS WITH
PLANTATIONS
IN THE ERA OF FORESTRY AND FORESTRY ACTIVITIES





The role of natural forests and plantations is vital in Indonesian forestry. In the function of providing wood, especially for pulp, paper, and furniture, the role of natural forests has long been replaced. Meanwhile, natural forests play a major role in biodiversity conservation and ecosystem support.

The purpose of the webinar was to present the concept of integrating natural forest with plantation forest in the context of forestry and forestry activities, as well as to ignite dialectic in discussing scientific matters to provide a new direction for forest management in Indonesia.

The webinar was held on September 29, 2020 with the resource person was Prof. Dr. Ir Endang Suhendang, MS (Professor-DMNH IPB), with the discussion: Dr. Boen Purnama (Senior Forestry Practitioner), Dr. Agus Justianto (Head of Research and Development and Innovation Agency, MoEF), and Wrap-up by Prof. Dr. Ir. Dudung Darusman, MA (Professor-DMNH IPB).

Participants consisted of 300 students, academics, practitioners, government, NGOs and environmentalists from all over Indonesia. This webinar can be viewed on YouTube: ipb.link/youtubefahutantalks6



DEPARTEMEN MANAJEMEN http://manhut.fahutan.ipb.ac manhut.diacos.iob.ac.id