Species Composition, and Diversity of Mataram University Green Open Space, West Nusa Tenggara

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Abstract. Mataram university green open space (GOS) is one of the partial green open spaces (GOS) approaches that can be used to conserve endemic germplasm as well to fulfill the proportion and distribution of urban forests. This research aims to describe the species composition, and diversity including the authenticity of Flora Malesiana in this area. We used a census method (100% measurement) to identify the species and measured the diameter and height of all tree species with the diameter of more than 2 cm. The results showed that the 99 species belonged to 85 Genera, 39 families with a composition of 61 species (61.62%) including the flora Malesiana and 38 species (38.38%) including exotic species. Based on IVI analysis showed that Ptychosperma macarthurii dominated at the sapling level while Swietenia mahagoni dominated at the pole and tree levels. The H’ of diversity is in the medium category with the sapling level has the highest value (3.42).

1. Introduction
Indonesia is part of Flora Malesiana distribution with the characteristic of very high level of biodiversity, which made Indonesia as the distribution center of commercial plants genetic diversity in the world[1]. However, this high biodiversity is also directly proportional to the threat of extinction of endemic or native (indigenous) species in Indonesia. Based on IUCN data (www.iucnredlist.org), the number of endangered plants in Indonesia is increasing annually. In 2018 there were 437 species [2], 519 species in 2019 [2] and 619 species in 2020 [3]. This condition is very worrying for the existence of Indonesian plants because these plants will be increasingly threatened or become extinct if in the near future there is no meaningful protection and rescue. Latifah et al. [4] mentioned one of the partial attempts to maintain biodiversity in Indonesia is by setting the allocation of green open space (GOS) as part of the existing conservation.

Based on the above view, one of the partial approaches to green open space (GOS) that can be used as conservation of endemic germplasm as well as to widen the proportion and distribution of urban forests is to utilize green open spaces (GOS) in the campus. Considering that the concept of sustainable campus has been widely adopted and accepted, where the university is committed to creating sustainable green campus [5] that has been conceptualized into the architecture of academic masterpieces, building design and administration [6] as a city agents [7] by keeping an eye on ecological integrity and connectivity [8] and must be implemented into the Tri Dharma Higher Education [9].

Green open space (GOS) in campus is a form of a vegetation association that naturally or culturally grows in cities [10] that can improve urban air quality [11][12][13], contribute to climate change mitigation through CO₂ absorption [14][13], maintain the balance of soil elements and prevent flood...
damage [15]. In addition, the presence of this vegetation can play a role in harmonizing the urban space system [16], extending the state of the urban environment (aesthetics) [17][18], improving the quality of human mental health [19][20][21]. Ultimately, urban vegetation can be made as a means of education, recreation, and heritage of historical and cultural values [22][23]. Therefore, to optimize the benefits of GOS, statistically accurate data on urban forest structure (number of species, species composition, species size, species health and species location) is required to provide accurate basic information in appropriate urban forest planning to improve environmental quality and health and human well-being in urban areas.

Beninde et al. [24][25] emphasized that the limitations of vegetation corridors in urban areas greatly affect biodiversity and can be used to protect threatened endemic species and natural ecosystems, including maintaining population genetic processes for the benefit of genetic flows and genetic basis in nature [26]. The influence of invasive alien species on an urban forest ecosystem is very large, dangerous, and intensively. These species can damage native species and ecosystems on a global scale, causing habitat degradation and loss. In addition, the differences between native plant species and invasive species in term resource acquisition and consumption can lead to changes in soil structure, decomposition, and nutrient content on the soil. Thus, invasive species are a serious obstacle to species conservation efforts in urban forests with their resulting impacts [4].

Therefore, it is important to obtain the primary data of the composition and diversity of Mataram University GOS as part of Mataram City Urban Forest including endendicity of Flora Malesiana in order to optimize GOS functions in line with the management and development of the Mataram University area.

2. Research Methods

2.1. Research Location

This research was conducted from December 2020 to March 2021 in Mataram University GOS, Province of West Nusa Tenggara with an area of ± 40.19 ha. The research location can be seen in Figure 1 below:

![Research location map](image)

**Figure 1. Research location map**

2.2. Materials and Tools

The material used in this study is tree stands with 3 growth phases, which are Trees, Poles, and Sapling. Other habitus in the research location are also measured. The tools used in this study are 30-meter
measuring tape, Phiband meter, Haga-hypsometer, GPS, tally sheet, stationery, digital camera, and Microsoft Office software.

2.3. Method of Collecting Data
This research was carried out through field surveys, dividing into 10 zones as plot base, and using a comprehensive tree census method (IS=100%). The data for saplings, poles and trees were taken by the species names, the number of individuals, and the measured diameter at breast height (DBH), the crown diameter (longest and shortest), the free height of the branches, and the total height of the trees. The growth variable refers to [27][4]. The limitations of the growth in this study are:
- a. Saplings are rejuvenation with a diameter of 2-9.9 cm and height of >1.5 meters.
- b. Poles are a young tree with a diameter of 10-19.9 cm, and
- c. Trees are a mature tree with a diameter of ≥20 cm.

2.4. Data Analysis
2.4.1. Identify the originally species. This analysis focuses on all plant species found in the research location by identifying the Latin names and families, as well as their origins as documented in the literature. References used in the species identification are [28][29][30][31][32][33][34]. The analysis focuses on an indigenous tree species, Flora Malesiana.
2.4.2. Diversity index. Data recapitulation of all stands of Mataram University GOS was tabulated to determine the level of dominance of the species by using a formula that refers to [5]:

$$IVI_i = \left( \frac{n_i}{A} \right) \times 100\% + \left( \frac{P_i}{P} \right) \times 100\% + \left( \frac{BA_i}{BA} \right) \times 100\%$$

The diversity shown by the list of plant species cannot give an accurate picture of the plant community because the relative abundance and importance of each plant species can be different [40][35]. For this reason, the diversity value is seen through the Diversity Index which is calculated using the Shannon-Wiener formula [41][36] as follows:

$$H' = -\sum \left[ \frac{n_i}{N} \ln \left( \frac{n_i}{N} \right) \right]$$

3. Results and Discussion
3.1. Composition of plant species
The result shows that there are 3,7426 stands found in Mataram university GOS, which are consisted of 39 families, 85 genera and 99 plant species (Table 1). Table 1 describe that beside trees, 7 species of palm tree species were also found in the Arecaceae family and 1 shrub each in Apocynaceae, Magnoliaceae, Muntingiaceae, Oleaceae, Rosaceae, Rutaceae. This shows composition variations growth of the GOS ecosystem at the Mataram university and describes the presence of a group of composition vegetation that can grow and develop well in the environmental conditions of the area [37].

Overall, out of a total of 3726 stands (Table 1), there are 5 species categorised as high density class, namely *Swietenia mahagony* at 595 individuals/ha (15.91%), *Terminalia catappa* at 283 individu/ha (7.57%), *Roystonea regia* at 263 individu/ha (7.01%) *Mangifera indica* at 191 individu/ha (5.09%) and *Ptychosperma macarthurii* at 186 individu/ha (4.96%). The high number of *Swietenia mahagony* species is because this species has a very important ecological properties, namely its ability to flourish and grow throughout the year [38] and its adaptability to climatic conditions of low rainfall or even dry land [20].
Table 1. Recapitulation the originality of Mataram University GOS vegetation

| Family            | Species                                      | Habitus | Total Found | Percentage | Originality |
|-------------------|----------------------------------------------|---------|-------------|------------|-------------|
| Anacardiaceae     | Anacardium occidentale L.                     | Tree    | 20          | 0.53       | 20, 21, 27,55 |
|                   | Dracunculus dao (Blanco) Merr. & Rolfe.      | Tree    | 15          | 0.40       | 31, 35, 40, 46 |
|                   | Lanrea coromandelica (Hout.) Merr.           | Tree    | 1           | 0.03       | 22, 33, 35, 46 |
|                   | Mangifera indica L.                          | Tree    | 191         | 5.09       | 31, 50      |
|                   | Spondias dulcis L.                           | Tree    | 6           | 0.16       | 46, 56      |
| Annonaceae        | Annona muricata L.                           | Tree    | 5           | 0.13       | 2, 31, 39   |
|                   | Annona squamosa L.                           | Tree    | 3           | 0.08       | 51          |
|                   | Cananga odorata (Lam.) Hook. f. & Thomson    | Tree    | 1           | 0.03       | 13, 46      |
|                   | Melaleuca cajupiuli Pavl.                    | Tree    | 55          | 1.47       | 9, 46       |
|                   | Polyalthia longifolia (Sonn.) Thwaites       | Tree    | 113         | 3.01       | 32, 60      |
|                   | Stelechocarpus burahol (Blume) Hook. f. & Thomson | Tree  | 3           | 0.08       | 46          |
| Apocynaceae       | Alstonia scholaris (L.) R. Br.               | Tree    | 21          | 0.56       | 13, 23, 33, 46 |
|                   | Cerbera manghas L.                           | Tree    | 5           | 0.13       | 9, 46, 56   |
|                   | Plumeria rubra L.                            | Perdu   | 14          | 0.37       | 2, 41, 48, 61 |
| Areaceae          | Areca catechu L.                             | Tree    | 13          | 0.35       | 57          |
|                   | Cocos nucifera L.                            | Palm    | 1           | 0.03       | 46          |
|                   | Livistona saribus (Lour.) Merr. ex. A. Chev. | Palm    | 9           | 0.24       | 35, 46      |
|                   | Ptychosperma macarthurii (H. Wendl. ex H.J. Veitch) H. Wendl. ex Hook.f. | Palm    | 186         | 4.96       | 11, 54      |
|                   | Roystonea regia (Kunth) O. F. Cook           | Tree    | 263         | 7.01       | 28, 39, 48  |
|                   | Veitchia merrillii (Becc.) H.E. Moore        | Palm    | 70          | 1.87       | 46, 86      |
|                   | Wodyetia bifurcata A.K. Irvine               | Palm    | 46          | 1.25       | 13          |
| Bignoniaceae      | Handroanthus chrysotrichus (Mart. ex DC.)    | Tree    | 14          | 0.37       | 4, 21       |
|                   | Mattos                                        |         |             |            |             |
| Burseraceae       | Canarium ovatum Engl.                        | Tree    | 63          | 1.68       | 46          |
| Calophyllaceae    | Calophyllum inophyllum L.                     | Tree    | 13          | 0.35       | 1, 46, 56   |
| Cannabaceae       | Trema orientalis (L.) Blume                   | Tree    | 4           | 0.11       | 1, 8, 9, 22, 44, 46, 59 |
| Casuarinaceae     | Casuarina equisetifolia L.                    | Tree    | 36          | 0.88       | 9, 46       |
|                   | Casuarina junghuhiniana Miq.                 | Tree    | 69          | 1.92       | 46          |
| Clusiaceae        | Garcinia mangostana L.                       | Tree    | 48          | 1.28       | 46          |
| Combretaceae      | Terminalia catappa L.                        | Tree    | 283         | 7.57       | 7, 38, 46   |
|                   | Terminalia mantaly H. Perrier                | Tree    | 74          | 1.97       | 44          |
| Cycadaceae        | Cycas rumphii Miq.                           | Tree    | 1           | 0.03       | 12, 46      |
| Ebenaceae         | Diospyros macrophylla Blume                  | Tree    | 31          | 0.83       | 46          |
| Euphorbiaceae     | Aleurites moluccanus (L.) Willd.             | Tree    | 5           | 0.13       | 46          |
| Fabaceae          | Acacia auriculiformis A. Cunn. ex Benth.     | Tree    | 31          | 0.83       | 46          |
|                   | Adenanthera pavonina L.                      | Tree    | 3           | 0.08       | 21, 28, 42, 61, 63, 64, 65, 66 |
|                   | Albizia chinensis (Osbeck.) Merr.            | Tree    | 31          | 0.83       | 46          |
|                   | Bauhinia purpurea L.                         | Tree    | 5           | 0.13       | 16, 19, 31, 45, 50, 52, 53, 60 |
|                   | Cassia fistula L.                            | Tree    | 36          | 0.96       | 46          |
|                   | Cassia grandis L.f.                          | Tree    | 26          | 0.69       | 51          |
|                   | Dalbergia latifolia Roxb.                    | Tree    | 21          | 0.56       | 34          |
|                   | Delonix regia (Boj. ex Hook.) Raf.           | Tree    | 58          | 1.55       | 44          |
|                   | Hymenaea courbaril L.                        | Tree    | 3           | 0.08       | 2, 3, 39    |
|                   | Leucaena leucocephala (Lam.) de Witt.        | Tree    | 7           | 0.19       | 18, 29, 49  |
|                   | Pongamia pinata (L.) Pierre                  | Tree    | 17          | 0.45       | 33, 46      |
|                   | Pterocarpus indicus Wild.                    | Tree    | 134         | 3.60       | 46          |
|                   | Samanea saman (Jacq.) Merr.                  | Tree    | 31          | 0.83       | 21, 41, 48, 61, 63, 67, 68, 69 |
|                   | Sesbania glandiflora (L.) Poiret             | Tree    | 1           | 0.03       | 10, 46      |
|                   | Tamarindus indica L.                         | Tree    | 4           | 0.11       | 1, 44       |
| Family            | Species                             | Life form | Local names                                                                 | Habitat                                                                          |
|-------------------|-------------------------------------|-----------|-------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Gnetaceae         | Gnetum gnemon L.                    | Tree      |                                                                               |                                                                                  |
| Juglandaceae      | Juglans regia L.                    | Tree      |                                                                               |                                                                                  |
| Lamiaceae         | Gmelina arborea Roxb.               | Tree      |                                                                               |                                                                                  |
| Lauraceae         | Persea americana Mill.              | Tree      |                                                                               |                                                                                  |
| Lecythidaceae     | Barringtonia racemosa (L.) Spreng.  | Tree      |                                                                               |                                                                                  |
| Lythraceae        | Duabanga mohicanna Blume            | Tree      |                                                                               |                                                                                  |
| Magnoliaceae      | Michelia alba DC                   | Shrub     |                                                                               |                                                                                  |
| Malvaceae         | Durio zibethinus L.                 | Tree      |                                                                               |                                                                                  |
| Meliaceae         | Dysoxylum cauliflorum Hiern        | Tree      |                                                                               |                                                                                  |
| Moringaceae       | Moringa oleifera Lam.               | Tree      |                                                                               |                                                                                  |
| Muntingiaceae     | Muntingia calabara L.               | Shrub     |                                                                               |                                                                                  |
| Myrtaceae         | Psidium guajava L.                  | Tree      |                                                                               |                                                                                  |
| Oleaceae          | Ligustrum sinense Lour.             | Shrub     |                                                                               |                                                                                  |
| Phyllanthaceae    | Antidesma bunius (L.) Spreng.       | Tree      |                                                                               |                                                                                  |
| Rosaceae          | Eriobotrya japonica (Thunb.) Lindl. | Shrub     |                                                                               |                                                                                  |
| Rutaceae          | Citrus x aurantifolia (Christm.) Swingle | Shrub |                                                                               |                                                                                  |
| Santalaceae       | Santalum album L.                   | Tree      |                                                                               |                                                                                  |
| Sapindaceae       | Dimocarpus longan Lour.             | Tree      |                                                                               |                                                                                  |
| Sterculiaceae     | Pterospermum javanicum Jungh.       | Tree      |                                                                               |                                                                                  |
| Thymelaceae       | Aquilaria malaccensis Lam.          | Tree      |                                                                               |                                                                                  |

Notes: 1 (Afrika Timur), 2 (Amerika Tengah), 3 (Amerika Selatan), 4 (Argentina Timur Laut), 5 (Asia Selatan), 6 (Asia Tengah), 7 (Asia Tenggara), 8 (Asia Timur), 9 (Australia), 10 (Australia Utara), 11 (Australia; Northern Territory dan Queensland), 12 (Australia; Pulau Christmas), 13 (Australia; Queensland), 14 (Australia; Queensland Utara), 15 (Bahama), 16 (Bangladesh), 17 (Barbados), 18 (Belize), 19 (Bhutan), 20 (Bolivia), 21 (Brazil), 22 (Cina), 23 (Cina Selatan), 24 (Cina Tengah), 25 (Cina Tenggara), 26 (Cina Timur), 27 (Ekuador), 28 (Florida Selatan), 29 (Guatemala), 30 (Haiti), 31 (India), 32 (India Selatan), 33 (India Sub-koninsidental), 34 (India Tenggara), 35 (Indocina), 36 (Jamaika), 37 (Jepang), 38 (Kepulauan Andaman), 39 (Kepulauan Karibia), 40 (Kepulauan Solomon), 41 (Kolumbia), 42 (Kuba), 43 (Kuba), 44 (Kuba), 45 (Kuba), 46 (Kuba), 47 (Kuba), 48 (Kuba), 49 (Kuba), 50 (Kuba), 51 (Kuba), 52 (Kuba), 53 (Kuba), 54 (Kuba), 55 (Kuba), 56 (Kuba), 57 (Kuba), 58 (Kuba), 59 (Kuba), 60 (Kuba), 61 (Kuba), 62 (Kuba), 63 (Kuba), 64 (Kuba), 65 (Kuba), 66 (Kuba), 67 (Kuba), 68 (Kuba), 69 (Kuba), 70 (Kuba), 71 (Kuba), 72 (Kuba), 73 (Kuba), 74 (Kuba), 75 (Kuba), 76 (Kuba), 77 (Kuba), 78 (Kuba), 79 (Kuba), 80 (Kuba), 81 (Kuba), 82 (Kuba), 83 (Kuba), 84 (Kuba), 85 (Kuba), 86 (Kuba), 87 (Kuba), 88 (Kuba), 89 (Kuba), 90 (Kuba), 91 (Kuba), 92 (Kuba), 93 (Kuba), 94 (Kuba), 95 (Kuba), 96 (Kuba), 97 (Kuba), 98 (Kuba), 99 (Kuba), 100 (Kuba).
The result of the observations and vegetation analysis of Mataram university GOS found that dominant species being Fabaceae family (14 species), followed by Areccaceae (7 species), Anacardiaceae, Annonaceae, Meliaceae (5 species), Apocynaceae, Moraceae, Sapindaceae, Sapotaceae (3 species) and Lamiaceae, Lythraceae, Malvaceae, Myrtaceae, Rubiaceae dan Rutaceae (2 species). However, based on the recapitulation of all species by family (Figure 2), it shows that the Arecaceae family dominates the Mataram University GOS at 622 ind/ha (16.57%), Meliaceae at 608 ind/ha (16.20%) and Fabaceae at 409 ind/ha (10.90%). The Arecaceae family was found in large numbers indicating that in addition to human intervention in planting due to its attractive stem and leaf structure [39], this tribe is able to adapt to its environment when viewed in terms of its vegetation composition [40]. Witono [41] stated that the Arecaceae family can grow well on sandy, peat, calcareous, and rocky soil types. In addition, the Meliaceae family also dominated Mataram university GOS because one of the widespread plants in tropical countries including Indonesia has about 700 species in 51 genera [42] whereas the Fabaceae family dominated by the form of its seeds in shells so that it was easy to spread with the help of animals and humans and was the third largest florist taxon in the world after the species Asteraceae (Compositae) and Orchidaceae, consisting of 770 genera and more than 19,500 species [43][44][44][45].

![Figure 2. The number of Mataram university GOS species in each family](image-url)

Table 1 also shows that there are some potentially invasive exotic species that should be considered and managed more carefully in the future, considering that the University of Mataram in Mataram city is located within the bio-ecoregion of the Lesser Sunda islands and the transitional flora of Wallacea which high biodiversity endemic [1][4][46][40]. Kusmana and Suwandi [47] explained that invasive alien species (IAS) are species originating from outside which also invade natural areas, then widely affecting habitat they invade.
The result also shows that, out of 99 species, 61 species identified as Flora Malesiana species (61.62%) and 38 species (38.38%) are exotic can be invasive species (Figure 3). Then, based on identification results using Global Invasive Species Database [56][48] and the BIOTROP List of Indonesian Invasive Alien Species (IAS) and CABI [31][32]. The results of the IAS identification in the research area are presented in Table 2.

![Figure 3. Percentage of plant species based on endemicity](image)

| Species                                                                 | Habitus |
|-------------------------------------------------------------------------|---------|
| Adenanthera pavonina L.                                                 | Tree    |
| Anacardium occidentale L.                                               | Tree    |
| Annona muricata L.                                                      | Tree    |
| Annona squamosa L.                                                      | Tree    |
| Bauhinia purpurea L.                                                    | Tree    |
| Delonix regia (Boj. ex Hook.) Raf.                                      | Tree    |
| Eriobotrya japonica (Thunb.) Lindl.                                     | Tree    |
| Juglas regia L.                                                         | Tree    |
| Leucaena leucocephala (Lam.) de Witt.                                   | Tree    |
| Ligustrum sinense Lour.                                                 | Shrub   |
| Mangifera indica L.                                                     | Tree    |
| Morus alba L.                                                           | Tree    |
| Persea americana                                                        | Tree    |
| Plumeria rubra L.                                                       | Shrub   |
| Polyalthia longifolia (Sonn.) Thwaites                                  | Tree    |
| Psidium guajava L.                                                      | Tree    |
| Psychosperma macarthurii (H. Wendl. ex H.J. Veitch) H. Wendl. ex Hook.f.| Palm Tree|
| Roystonea regia (Kunth) O. F. Cook                                      | Palm Tree|
| Samanea saman (Jacq.) Merr.                                             | Tree    |
| Swietenia mahagoni (L.) Jacq.                                            | Tree    |
| Syzgium cumini (L.) Skeels.                                             | Tree    |
| Terminalia mantaly H. Perrier                                           | Tree    |

Source: [31][32][48]

Based on table 2, there are 21 species of IAS in total. Some research results explain, several conditions which affect the speed of a species invasion are: (1) the ability to reproduce asexually and sexually; (2) fast-growing; (3) high reproductivity; (4) high spreading ability; (5) elastic phenotype, capable of changing shape depending on the latest conditions around it; (6) tolerance to various environmental conditions; (7) relationship with humans; and (8) other invasions that have been successfully carried out. The invasion of those IAS is still in the early stage, this is indicated by the number of native species grow in the area so that it can still be immediately controlled.
3.2. Diversity index
Vegetation analysis results are used to calculate the Important Value Index (IVI) of each species found at each growth stage. The five dominant species based on the Important Value Index (IVI) presented in Table 3. Based on Table 3, species dominant at a growth stage do not always dominate at the next growth stage, there are some species of plants that are only found at a certain growth stage. This is consistent with Dendang and Handayani [57][49], which states that not all species of vegetation found at every stage of growth. The disturbance could affect the regeneration process, causing changes in the composition of species that occupy at each growth stage. Beside [4][44][45][46][49][50][51][52][53][54][55][56][40], states that a species can be said to play an essential role in a forest community if the tree and pole level reach an IVI value > 15% and the sapling and seedling levels an IVI value > 10%

The stability of species diversity of an area would determine the regeneration for the future. The level of community stability and dominant species is studied by calculating the importance value index, dominance index and diversity index. The value of diversity index lower than 1.50 (3.5) means the diversity index is high.

| Growth Stage | Dominant species | IVI (%) | H' |
|--------------|------------------|---------|----|
| Sapling      | Ptychosperma macarthurii (H. Wendl. ex H.J. Veitch) H. Wendl. ex Hook.f. | 29.83   | 3.37 |
|              | Swietenia mahagoni (L.) Jacq. | 23.25   | |
|              | Terminalia mantaly H. Perrier | 21.72   | |
|              | Garcinia mangostana L. | 18.87   | |
|              | Veitchia merrillii (Becc.) H.E. Moore | 17.42   | |
| Poles        | Swietenia mahagoni (L.) Jacq. | 35.26   | 3.42 |
|              | Roystonea regia (Kunth) O. F. Cook | 24.98   | |
|              | Ptychosperma macarthurii (H. Wendl. ex H.J. Veitch) H. Wendl. ex Hook.f. | 20.81   | |
|              | Terminalia catappa L. | 15.16   | |
|              | Minusops elengi L. | 11.94   | |
| Trees        | Swietenia mahagoni (L.) Jacq. | 36.37   | 3.36 |
|              | Terminalia catappa L. | 21.04   | |
|              | Pterocarpus indicus Willd. | 19.11   | |
|              | Mangifera indica L. | 18.13   | |
|              | Roystonea regia (Kunth) O. F. Cook | 12.34   | |

4. Conclusion
The research results show that the species composition in Mataram university GOS consists of 3,726 trees, composing of 39 families, 85 genera and 99 species. Among all species, 61 species (61.62%) including the flora Malesiana and 38 species (38.38%) including exotic species. Based on IVI analysis showed that Ptychosperma macarthurii dominated at the sapling level while Swietenia mahagoni dominated at the pole and tree levels. The H' of diversity is in the medium category with the sapling level has the highest value (3.42). There are 21 species categorized as Invasive Alien Species (IAS) dominated by Ptychosperma macarthurii and Swietenia mahagoni at each growth level. The dominance of invasive species can affect the changes in the composition and diversity of stands in the Mataram university GOS. Therefore, it is important to regenerate and replanting with priority of NTB native species, which are both ecologically and aesthetically pleasing or species that have geographical proximity to the province of NTB to maintain the composition and diversity of ecosystem types in NTB in a stable condition, considering that NTB is a small island ecoregion that is vulnerable to disturbances and disasters

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