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Vegetation Diversity and Conservation Status in the Green Space of the Faculty of Medicine, University of Indonesia

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ABSTRACT

Green space enhances environmental quality and maintains ecosystem balance in urban areas. This study examines the vegetation in the green space at the Salemba and Cikini campuses and assesses species diversity and conservation status based on the IUCN Red List. A total of 514 individual plants, representing 107 species from 38 families, were recorded, with dominant species including *Monoon longifolium*, *Terminalia neotaliala*, and *Thyrsostachys siamensis*. Species diversity analysis revealed a Shannon-Wiener index (H') of 4.07, Simpson's index (D) of 0.97, and evenness (E) of 0.87, indicating high diversity and a well-distributed plant community. Among the species identified, 61 individuals from 6 species were classified as threatened, including 2 Critically Endangered, 24 Endangered, and 35 Vulnerable individuals. These findings highlight the urgency for enhanced conservation efforts to prevent the extinction of these species. Sustainable management strategies should integrate both ecological and social factors, emphasizing biodiversity-focused interventions, public participation, and strategic conservation planning. This study underscores the need for comprehensive vegetation management and increased public awareness to preserve urban biodiversity and support broader sustainability initiatives.

Keyword: Conservation, Public Area, Risk, Species Diversity, Urban Ecosystem

1. Introduction

Green spaces (known as *Ruang Terbuka Hijau*) are crucial in enhancing environmental quality and maintaining ecosystem balance in urban areas. According to Indonesian Law No. 26 of 2007, green space refers to areas dominated by natural or cultivated vegetation for ecological, social, and educational purposes. However, rapid urbanization has increasingly threatened green spaces due to land conversion and infrastructure development. Managing and conserving urban green spaces is essential to preserving their ecological, social, and psychological benefits [1], [2].

Green spaces significantly benefit urban living by mitigating environmental issues such as air pollution, water quality degradation, and the urban heat island effect. These spaces also promote mental and physical health by offering areas for recreation and social interaction [3], [4]. With increasing urbanization, preserving green spaces is critical for maintaining sustainable urban living environments. Understanding vegetation composition within these spaces is vital for long-term sustainability [5]. For instance, studies conducted in Jambi have highlighted the biodiversity conservation potential of green spaces in historical sites, which play a key role in broader ecosystem preservation efforts [6].

Despite the growing body of research on urban green spaces, there remains a significant gap in understanding vegetation diversity and conservation status in educational institution settings, particularly medical campuses in Jakarta. Most existing studies have focused on public parks or general urban areas, while campus green spaces remain underexplored. These unique environments often harbor diverse plant species that serve both ecological and educational functions, yet their conservation value remains poorly documented. This study hypothesizes that urban campus green spaces may harbor a significant proportion of threatened plant species, and that species diversity patterns may correlate with conservation priorities. Addressing this knowledge gap is essential for informing targeted conservation strategies in institutional green spaces.

In this context, the Faculty of Medicine at the University of Indonesia (UI) presents a unique opportunity to examine vegetation diversity and conservation status in an institutional green space within Jakarta's densely urbanized landscape. Despite their ecological importance, green spaces in medical campuses have received limited research attention, particularly regarding the relationship between species diversity and conservation status. This study aims to fill this gap by addressing two key questions: (1) What is the composition and diversity of plant species in the green spaces of the Faculty of Medicine UI? and (2) What proportion of these species are threatened according to the IUCN Red List [7]? We hypothesize that the green spaces harbor a substantial number of threatened species, highlighting their potential role as urban conservation refugia [8].

Effective management of green spaces depends on data-driven policies supported by advanced tools such as geospatial mapping and tree health monitoring. Geospatial tools enable efficient urban planning by integrating environmental, infrastructural, and demographic data, thus facilitating sustainable development strategies [9, 10]. These tools also help city planners balance urban expansion and environmental preservation. Monitoring tree health, especially in areas with high pedestrian traffic, is crucial to prevent potential hazards from tree failures, which could pose safety risks to the public [11]. Moreover, these monitoring efforts improve overall environmental quality by mitigating urban heat and reducing air pollution [12], [13].

In addition to enhancing public safety, green spaces act as natural environmental buffers. Trees and vegetation in urban areas are pivotal in filtering air pollutants and reducing particulate matter, leading to cleaner air for city inhabitants. The cooling effects vegetation provides also counteract the higher temperatures typical of urban environments, further emphasizing the importance of green space in climate resilience [12], [13]. Without these green buffers, cities are more prone to air quality degradation and heat stress, which can adversely affect the health and well-being of urban populations.

The sustainable management of urban green spaces requires a comprehensive approach that integrates ecological understanding, technological tools, and community involvement. The University of Indonesia’s study on plant species diversity within its campus highlights how research on green spaces can support broader urban conservation efforts. By protecting and expanding green spaces, cities can improve their environmental resilience, promote public health, and contribute to the well-being of their inhabitants while addressing the challenges posed by rapid urbanization.

2. Method

2.1. Research Location

The vegetation inventory was conducted at the Faculty of Medicine, University of Indonesia, comprising two campuses: Salemba (6°12'S, 106°51'E) and Cikini (6°12'S, 106°50'E) in Central Jakarta, Indonesia (Figure 1). Both sites are characterized by a mix of educational buildings, parking areas, and ornamental green spaces.

Data collection was conducted in September 2021. A census method was employed, where all individual plants within the green spaces were identified and recorded. For tree species, a minimum diameter at breast height (DBH) threshold of 10 cm was applied, while shrubs and herbs were recorded regardless of size. Vegetation was categorized into three strata: trees (DBH $\geq$ 10 cm), shrubs (height 0.5–1.5 m), and herbs (height $<$ 0.5 m).

Species identification was performed in situ using morphological characteristics. When field identification was not possible, voucher specimens were collected for further examination. Taxonomic nomenclature and conservation status were verified using authoritative sources, including the International Plant Names Index (IPNI), Plants of the World Online (POWO), and the IUCN Red List [14], [15]. Geographic coordinates of each individual plant were recorded using a handheld GPS device (Garmin GPSMAP 64s) to support spatial analysis.

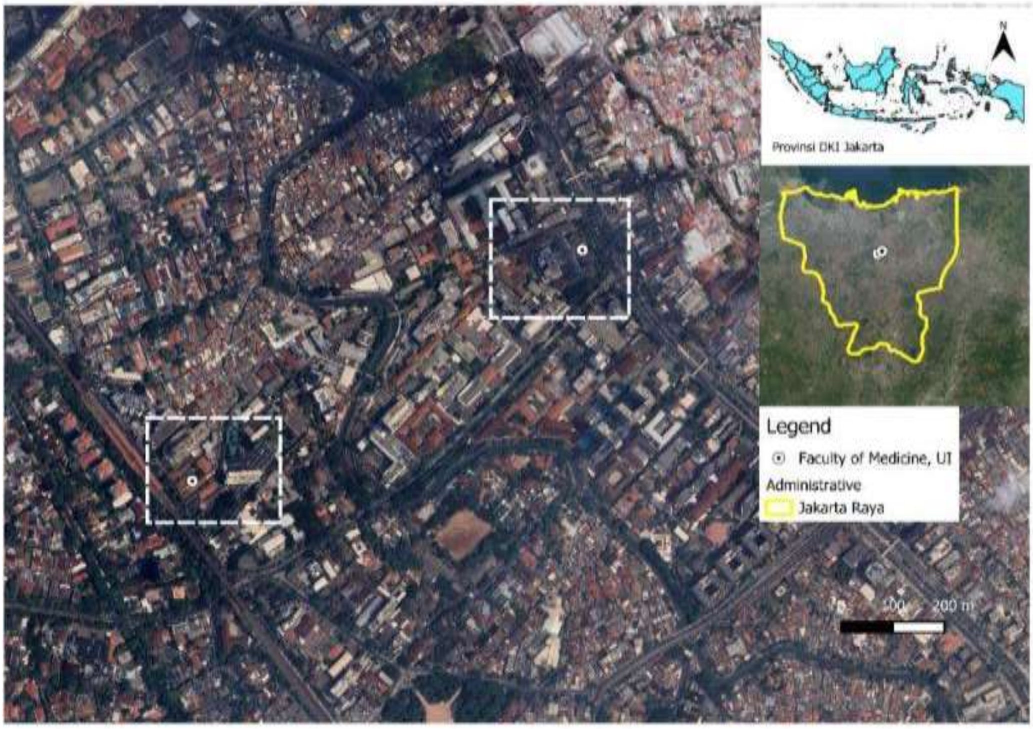

Figure 1. Research location at the Faculty of Medicine, University of Indonesia

2.2. Data Analysis

Data analysis was conducted using descriptive and quantitative approaches to comprehensively characterize the vegetation composition and diversity. The descriptive method was employed to summarize and categorize plant families, genera, and species, along with their frequency of occurrence and conservation status according to the IUCN classification [7]. Data were organized into tables, graphs, and diagrams to illustrate species composition, spatial distribution, and relative dominance within the study area [16], [17].

Species diversity was quantitatively assessed using several ecological indices. The Shannon-Wiener diversity index (H') was calculated to measure species richness and evenness using the formula:

$$H' = -\Sigma (p_i \times \ln p_i) \quad (1)$$

Where pi represents the proportion of individuals of species i relative to the total number of individuals. The Simpson's diversity index (D) was used to assess species dominance, calculated as:

$$D = 1 - \Sigma (n_i/N)^2 \quad (2)$$

Where ni is the number of individuals of species i and N is the total number of individuals. Species evenness (E) was computed as $E = H'/\ln S$, where S is the total number of species. The Margalef richness index (R) was calculated as $R = (S-1)/\ln N$ to measure species richness relative to the total number of individuals. The Shannon-Wiener index was interpreted following the classification: $H' < 1$ (low diversity), $1 \leq H' \leq 3$ (moderate diversity), and $H' > 3$ (high diversity) [18].

Moreover, the conservation status of identified species was evaluated based on the IUCN Red List classification [7], categorizing species as Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Near Threatened (NT), Least Concern (LC), or Data Deficient (DD). This classification informs conservation efforts and highlights the urgency of protecting threatened species, particularly in biodiverse regions such as the study area.

3. Results and Discussion

3.1. Composition and Diversity of GS Vegetation in Faculty of Medicine UI

The results of the vegetation inventory conducted within the green space of the Faculty of Medicine, University of Indonesia, revealed a total of 514 individual plants, representing 107 species from 38 families (Table 1, details in Appendix 1). The ten most common species included *Monoon longifolium* (45 individuals), *Terminalia neotaliala* (32 individuals), *Thyrsostachys siamensis* (25 individuals), *Mangifera indica* (23 individuals), *Ixora chinensis* (23 individuals), *Euodia hortensis* (20 individuals), *Pterocarpus indicus* (18 individuals), *Mimusops elengi* (15 individuals), *Ptychosperma macarthurii* (12 individuals), and *Syzygium samarangense* (11 individuals) (Figure 2a). Additionally, the ten most abundant families were Arecaceae (55 individuals), Annonaceae (49 individuals), Myrtaceae (36 individuals), Rutaceae (34 individuals), Combretaceae (33 individuals), Apocynaceae (33 individuals), Moraceae (32 individuals), Rubiaceae (29 individuals), Poaceae (25 individuals), and Fabaceae (25 individuals) (Figure 2b).

Species diversity analysis revealed a high diversity level within the green space, with a Shannon-Wiener index (H') of 4.07, indicating high species diversity. The Simpson's diversity index (D) was 0.97, suggesting low dominance by any single species and a well-distributed community structure. The species evenness (E) value of 0.87 indicates that individuals are relatively evenly distributed among species, reflecting a balanced plant community. Additionally, the Margalef richness index (R) of 16.98 demonstrates substantial species richness relative to the total number of individuals. These indices collectively demonstrate that the green space at the Faculty of Medicine UI support a rich, diverse, and ecologically stable vegetation community.

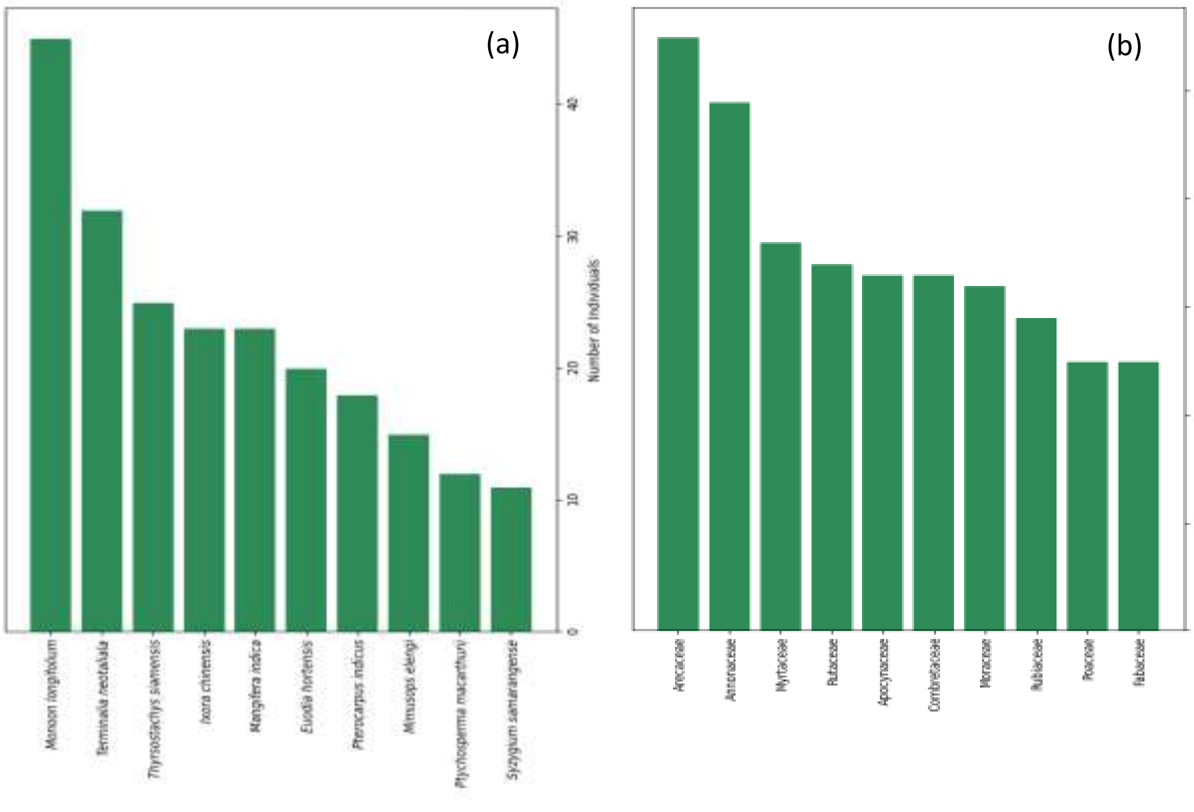

Figure 2. Vegetation structure of green space at the Faculty of Medicine, University of Indonesia; (a). Top ten species with the most individuals; (b). Top ten families with the most individual.

Monoon longifolium, *Terminalia neotaliala,* and *Mangifera indica* exhibited high tolerance to urban environmental conditions, such as air pollution, elevated temperatures, and soil quality fluctuations (Figure 3a). These species are commonly utilized in urban greening programs due to their resilience and adaptability to such environments [20], [21]. The ability of these trees to thrive in polluted areas is supported by physiological responses, such as increased ascorbic acid levels, which enhance their resistance to airborne pollutants [20]. Similarly, Pterocarpus indicus and *Phoenix canariensis* are recognized for their adaptability to environmental changes, making them suitable for urban forestry [21].

The presence of species such as *Mangifera indica* and *Pterocarpus indicus* supports the ecological functions of green spaces and has significant economic and social value. These species are often utilized for local needs, such as fruit and timber, providing both ecosystem and economic benefits to urban communities [22], [23]. Additionally, *Ficus benjamina* is crucial in absorbing air pollutants, particularly in areas with high pollution levels, thus improving urban air quality and ecosystem health [24].

Several plant families identified in the green space of the Faculty of Medicine, such as Arecaceae, Myrtaceae, and Annonaceae, are also commonly found in other urban green spaces [25]. Arecaceae (palms) are known for their adaptability to urban environments and contribute significantly to improving air quality while providing habitats for wildlife (Figure 3b). Furthermore, Myrtaceae and Annonaceae, which include species like *Syzygium* spp. and *Monoon longifolium* (Figure 3c), are capable of absorbing air pollutants and producing economically valuable fruits, making them important for urban greening projects that enhance biodiversity and provide food sources [26]-[28].

Moreover, Moraceae, including *Ficus benjamina*, are essential in carbon dioxide absorption and water cycle regulation. At the same time, Fabaceae contribute to soil nitrogen enrichment, supporting the growth of other vegetation and maintaining soil health [29], [30]. Different families, such as Combretaceae and Apocynaceae, offer shade and aesthetic value, while Anacardiaceae, like *Mangifera indica*, provide economic benefits as a source of local food [31], [32].

Abstract. It is the first part of the scientific article. It comprises a summary of the whole content of a scientific article. It provides a general overview of the content of scientific articles to the reader. By reading the abstract, readers can decide whether the research topic is relevant to their wish or not.

Figure 3. General description of the green space vegetation at the Faculty of Medicine, University of Indonesia. (a). Green space Condition inside the Cikini campus, (b). *Adonidia merrillii* (Palem Putri), (c). *Monoon longifolium* (Glodogan tiang) which is climbed by *Epipremnum aureum* (Sirih gading).

Table 1. Green space Vegetation at the Faculty of Medicine, University of Indonesia

No	Common name	Scientific name	Family
1.	*Teh-Teh-an*	*Acalypha kerrii*	Euphorbiaceae
2.	*Palem Putri*	*Adonidia merrillii*	Arecaceae
3.	*Alamanda*	*Allamanda cathartica*	Apocynaceae
4.	*Sirsak*	*Annona muricata*	Annonaceae
5.	*Srikaya*	*Annona squamosa*	Annonaceae
6.	*Buni*	*Antidesma bunius*	Phyllanthaceae
7.	*Sukun*	*Artocarpus altilis*	Moraceae
8.	*Nangka*	*Artocarpus heterophyllus*	Moraceae
9.	*Belimbing*	*Averrhoa carambola*	Oxalidaceae
10.	*Nolina*	*Beaucarnea recurvata*	Asparagaceae
11.	*Bunga Kertas*	*Bougainvillea glabra*	Nyctaginaceae
12.	*Pepaya*	*Carica papaya*	Caricaceae
13.	*Cemara*	*Casuarina equisetifolia*	Casuarinaceae
14.	*Tapak Dara*	*Catharanthus roseus*	Apocynaceae
15.	*Palem Bambu*	*Chamaedorea seifrizii*	Arecaceae
16.	*Jeruk Nipis*	*Citrus aurantiifolia*	Rutaceae
17.	*Jeruk*	*Citrus aurantium*	Rutaceae
18.	*Jeruk Purut*	*Citrus hystrix*	Rutaceae
19.	*Jeruk Pomelo*	*Citrus maxima*	Rutaceae
20.	*Sentong Beringin*	*Clusia rosea*	Clusiaceae
21.	*Pepaya Jepang*	*Cnidoscolus aconitifolius*	Euphorbiaceae
22.	*Kelapa*	*Cocos nucifera*	Arecaceae
23.	*Puring*	*Codiaeum variegatum*	Euphorbiaceae
24.	*Ceguk*	*Combretum indicum*	Combretaceae
25.	*Hanjuang*	*Cordyline fruticosa*	Asparagaceae
26.	*Pohon Sapu Tangan*	*Cynometra browneoides*	Fabaceae
27.	*Flamboyan*	*Delonix regia*	Fabaceae
28.	*Kelengkeng*	*Dimocarpus longan*	Sapindaceae
29.	*Pandan Bali*	*Dracaena draco*	Asparagaceae
30.	*Pandan Bali*	*Dracaena fragrans*	Asparagaceae
31.	*Daun Suji*	*Dracaena reflexa*	Asparagaceae
32.	*Daun Suji*	*Dracaena angustifolia*	Asparagaceae
33.	*Daun Merah*	*Dracaena reflexa var. angustifolia*	Asparagaceae
34.	*Durian*	*Durio zibethinus*	Malvaceae
35.	*Palem Kuning*	*Dypsis lutescens*	Arecaceae
36.	*Sirih Gading*	*Epipremnum aureum*	Araceae
37.	*Daun Nyamuk*	*Euodia hortensis*	Rutaceae
38.	*Patah Tulang*	*Euphorbia tirucalli*	Euphorbiaceae
39.	*Daun Zig-Zag*	*Euphorbia tithymaloides*	Euphorbiaceae
40.	*Beringin*	*Ficus benjamina*	Moraceae
41.	*Beringin*	*Ficus callosa*	Moraceae
42.	*Karet Kebo*	*Ficus elastica*	Moraceae
43.	*Biola Cantik*	*Ficus lyrata*	Moraceae
44.	*Beringin*	*Ficus maclellandii*	Moraceae
45.	*Beringin*	*Ficus microcarpa*	Moraceae
46.	*Bunut*	*Ficus virens*	Moraceae
47.	*Kaca Piring*	*Gardenia jasminoides*	Rubiaceae
48.	*Daun Afrika*	*Gymnanthemum amygdalinum*	Asteraceae
49.	*Walisongo*	*Heptapleurum actinophyllum*	Araliaceae
50.	*Bunga Sepatu*	*Hibiscus rosa-sinensis*	Malvaceae
51.	*Bakung Air Mancur*	*Hymenocallis speciosa*	Amaryllidaceae
52.	*Palem Botol*	*Hyophorbe lagenicaulis*	Arecaceae
53.	*Kangkungan*	*Ipomoea obscura*	Convolvulaceae
54.	*Soka*	*Ixora chinensis*	Rubiaceae
55.	*Melati*	*Jasminum sambac*	Oleaceae

No	Common name	Scientific name	Family
56.	*Melati Gunung*	*kopsia pauciflora*	Apocynaceae
57.	*Tembelekan*	*Lantana camara*	Verbenaceae
58.	*Daun Jarum Tujuh Duri*	*Leuenbergeria bleo*	Cactaceae
59.	*Palem Kipas*	*Licuala grandis*	Arecaceae
60.	*Mangga*	*Mangifera indica*	Anacardiaceae
61.	*Sawo Kecik*	*Manilkara kauki*	Sapotaceae
62.	*Sikat Botol*	*Melaleuca citrina*	Myrtaceae
63.	*Tanjung*	*Mimusops elengi*	Sapotaceae
64.	*Glodogan Tiang*	*Monoon longifolium*	Annonaceae
65.	*Mengkudu*	*Morinda citrifolia*	Rubiaceae
66.	*Pisang*	*Musa paradisiaca*	Musaceae
67.	*Rambutan*	*Nephelium lappaceum*	Sapindaceae
68.	*Bunga Mentega*	*Nerium oleander*	Apocynaceae
69.	*Alpukat*	*Persea americana*	Lauraceae
70.	*Daun Hati*	*Philodendron hederaceum*	Araceae
71.	*Kurma*	*Phoenix canariensis*	Arecaceae
72.	*Kurma*	*Phoenix dactylifera*	Arecaceae
73.	*Kurma*	*Phoenix rupicola*	Arecaceae
74.	*Ceremai*	*Phyllanthus acidus*	Phyllanthaceae
75.	*Sirih*	*Piper betle*	Piperaceae
76.	*Sirih Merah*	*Piper crocatum*	Piperaceae
77.	*Cabai Jawa*	*Piper retrofractum*	Piperaceae
78.	*Kamboja*	*Plumeria alba*	Apocynaceae
79.	*Kamboja*	*Plumeria rubra*	Apocynaceae
80.	*Mangkokan*	*Polyscias scutellaria*	Araliaceae
81.	*Matoa*	*Pometia pinnata*	Sapindaceae
82.	*Jambu Batu*	*Psidium guajava*	Myrtaceae
83.	*Angsana*	*Pterocarpus indicus*	Fabaceae
84.	*Palem Hijau*	*Ptychosperma macarthurii*	Arecaceae
85.	*Delima*	*Punica granatum*	Lythraceae
86.	*Kaktus Mawar*	*Rhodocactus grandifolius*	Cactaceae
87.	*Palem Raja*	*Roystonea regia*	Arecaceae
88.	*Bunga Kencana Ungu*	*Ruellia fruticosa*	Acanthaceae
89.	*Trembesi*	*Samanea saman*	Fabaceae
90.	*Serut*	*Streblus asper*	Moraceae
91.	*Kecibeling*	*Strobilanthes crispa*	Acanthaceae
92.	*Jambu Mawar*	*Syzygium jambos*	Myrtaceae
93.	*Jambu*	*Syzygium malaccense*	Myrtaceae
94.	*Pucuk Merah*	*Syzygium paniculatum*	Myrtaceae
95.	*Salam*	*Syzygium polyanthum*	Myrtaceae
96.	*Jambu*	*Syzygium samarangense*	Myrtaceae
97.	*Tabebuai*	*Tabebuia aurea*	Bignoniaceae
98.	*Tabebuai*	*Tabebuia pallida*	Bignoniaceae
99.	*Mondokaki*	*Tabernaemontana divaricata*	Apocynaceae
100.	*Mondokaki*	*Tabernaemontana pandacaqui*	Apocynaceae
101.	*Terompet Emas*	*Tecoma stans*	Bignoniaceae
102.	*Ketapang Kencana*	*Terminalia neotaliala*	Combretaceae
103.	*Bambu Kerisik*	*Thyrsostachys siamensis*	Poaceae
104.	*Adam Hawa Ungu*	*Tradescantia pallida*	Commelinaceae
105.	*Palem Putri*	*Veitchia arecina*	Arecaceae
106.	*Palem Ekor Bajing*	*Wodyetia bifurcata*	Arecaceae
107.	*Bidara*	*Ziziphus mauritiana*	Rhamnaceae

3.2. Assessment of Endangered Plant Species

The vegetation inventory revealed 61 individual plants from 6 species, all classified as threatened according to the IUCN Red List. These included 2 individuals from 2 Critically Endangered (CR) species, 24 individuals from 2 Endangered (EN) species, and 35 individuals from 2 Vulnerable (VU) species (Table 2). These findings highlight the urgent need for more intensive conservation efforts to protect these species from extinction through ex situ conservation or reorganizing the vegetation composition within the green space.

The threatened species comprised 6 species from 5 families: Asparagaceae (1 species), Arecaceae (2 species), Annonaceae (1 species), Fabaceae (1 species), and Combretaceae (1 species). The presence of Critically Endangered species (*Beaucarnea recurvata* and *Hyophorbe lagenicaulis*) underscores the conservation significance of this green space as a refuge for threatened plant species in an urban environment.

Table 2. Red List of Green Space Vegetation at the Faculty of Medicine, University of Indonesia

No	Common name	Scientific name	Sum	IUCN Status
1.	*Palem Putri*	*Adonidia merrillii*	3	Vulnerable (VU)
2.	*Nolina*	*Beaucarnea recurvata*	1	Critically Endangered (CR)
3.	*Pandan Bali*	*Dracaena draco*	6	Endangered (EN)
4.	*Palem Botol*	*Hyophorbe lagenicaulis*	1	Critically Endangered (CR)
5.	*Angsana*	*Pterocarpus indicus*	18	Endangered (EN)
6.	*Ketapang Kencana*	*Terminalia neotaliala*	32	Vulnerable (VU)
	Total		61	

Endangered plants often play a crucial role in maintaining urban ecosystem balance, such as enhancing habitat quality and supporting biodiversity [33]. For instance, species like *Cycas circinalis* and *Myristica teijsmannii*, listed on the IUCN Red List in Indonesia, hold not only high conservation value but also have potential uses in food, medicine, and construction materials [19]-[34]. However, these species are primarily threatened by land use changes, urbanization, and overexploitation [35].

Comprehensive conservation efforts and increased public awareness of the importance of protecting these species are necessary to preserve biodiversity in urban green spaces. Effective habitat protection and sustainable management of green spaces are critical to maintaining urban ecosystem balance amid the rapid pace of urbanization [36].

3.3. Urban Green Space Management Strategies for Conservation

Urban green space management is crucial for conserving biodiversity and promoting ecosystem health in urban environments. Effective strategies for managing these spaces must integrate ecological and social factors, ensuring that they not only support diverse plant and animal life but also enhance the well-being of urban residents. This section will discuss various management strategies, comparing the approaches taken at the Faculty of Medicine (UI) with those in major cities, both in Indonesia and internationally.

Green space management in urban areas can effectively protect biodiversity and contribute to creative conservation. We have strong evidence now that modest changes in the vertical structure of vegetation can have a big impact on biodiversity in urban locales. As municipalities begin to recognize that biodiversity is an important architectural element of their green space management plans [33]. At UI, for example, efforts have been undertaken to encourage native plant species and provide local wildlife habitats. This agrees with research findings from elsewhere, which indicate that urban green spaces can alleviate some of the impacts of urbanization and provide sanctuary for globally endangered species and urban wildlife [37]. This approach is similar to what has been done in cities like Singapore, where urban planning integrates biodiversity conservation. Therefore, it is unsurprising to find diverse ecosystems existing comfortably with high-rise buildings [38].

Moreover, participatory planning is vital for the success of urban green space management. Engaging local communities in the planning and maintaining these areas not only fosters a sense of ownership and responsibility but also strengthens conservation efforts [39]. For example, Jakarta city led initiatives have been instrumental in maintaining urban parks and green spaces, resembling participatory models in cities such as Melbourne, where public engagement enhanced green space quality and biodiversity [40]. This approach not only benefits ecological outcomes but also promotes social equity by ensuring that all residents have access to quality green spaces [41].

Another essential aspect of urban green space management is the integration of ecological and socioeconomic factors. Urban green spaces provide substantial health benefits, contribute to local well-being, and promote social justice by offering accessible recreational spaces to all socioeconomic groups [42]. The UI management of green spaces includes educational programs aimed at raising awareness about the ecological and social benefits of these areas. This mirrors initiatives in cities like New York, where community gardens serve dual purposes as green spaces and platforms for environmental education [43]. Such initiatives foster a greater connection between urban residents and their local ecosystems, encouraging sustainable behaviors and long-term environmental stewardship.

In addition, the policy has an important bearing on green space management in a city. Effective policies prioritizing green infrastructure can significantly enhance biodiversity and ecosystem services [44], [45]. For example, Beijing government policies have increased green space coverage, illustrating the importance of political support in urban greening efforts [44]. Local government policies that emphasize sustainable urban planning support UI green space management strategies. This mirrors a global trend in which policy frameworks are increasingly geared towards biodiversity conservation and sustainability objectives [46].

4. Conclusions

This study highlights the rich plant species diversity within the green space of the Faculty of Medicine, University of Indonesia. The study identified a total of 107 species from various families. Among these, 61 individuals from 6 species were classified as threatened according to the IUCN Red List, including 2 Critically Endangered, 24 Endangered, and 35 Vulnerable individuals, emphasizing the need for intensified conservation measures. A multifaceted approach is essential for the sustainable management of this green space. This involves continuous ecological monitoring, promoting public engagement and awareness, and adopting strategic conservation planning. Additionally, integrating biodiversity-focused interventions, participatory planning, and supportive policy frameworks is critical for enhancing urban biodiversity and ecosystem health. These findings provide crucial insights for reinforcing urban biodiversity management and advancing broader environmental sustainability efforts.

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