



FLY HOME

Designing Ecocentric Greenery System for Avian Biodiversity on Critical Ecological Network in Quezon City

ABSTRACT

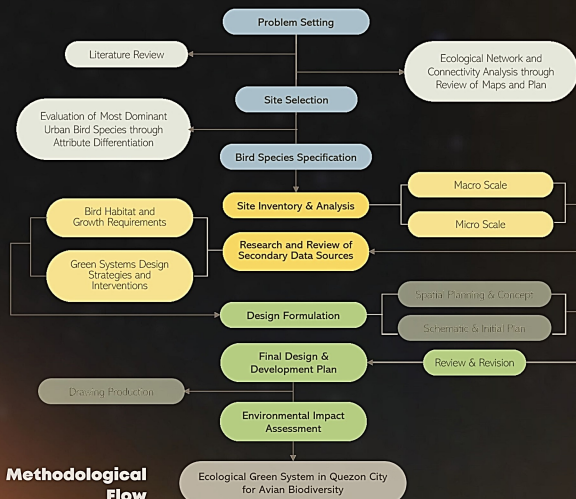
The incessant increase in human population continuously leads to the surge of built infrastructure, causing increased density and expansion of urban spaces. This phenomenon degrades the natural resources, interrupt environmental processes and ecological functions, and lessen the opportunities for biodiversity in urban spaces through threatened habitat loss for faunal species. In this research, the study of landscape architecture emerges by analyzing and proposing design and planning strategies focused on biodiversity enhancement and ecological connectivity restoration in urban spaces through green roof and green vertical systems. Greenery systems are sustainable strategies that incorporate vegetation in building structures and impervious surfaces to lessen the adverse impacts of urbanization. The research proposes design strategies and interventions through greenery systems in UP Ayala TechnoHub, Quezon City, which is selected through analysis of ecological network plans, landscape resistance surfaces, and ecologically critical areas in the city such as nodes and priority corridors. The greenery systems focused on necessities and preferences of dominant urban birds—*Passer montanus* and *Pycnonotus goiavier*, which are indicators of abundance of biodiversity. Hence, a thorough review and analysis of contributing factors affecting birds' movement patterns, activities, and welfare is conducted to develop the design strategies. The design proposal considered plant communities, lighting, irrigation, and hardscape specifications that are ecologically sensitive and encourages reproduction of the focal species, enhances the quality of environment, and promotes the safety of local biodiversity as well as ecological awareness of the community.

Main Problem

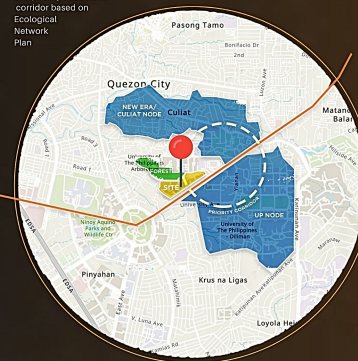
How can the urban greening systems on UP Ayala TechnoHub office buildings in Quezon City be designed and optimized to improve urban avian ecology and reduce the threat to habitat loss of the selected resident urban bird species?

Goal

strengthen the urban biodiversity and enhance the ecological conditions of the urban landscape considering the factors of avian behavior and necessities, ecological connectivity, and other environmental conditions.



Location of study site relative to green patch (forest area) and priority nodes and corridor based on Ecological Network Plan



UP AyalaLand TechnoHub

It is a 20-hectare development by Ayala Group and University of the Philippines (UP) located inside the boundaries of the UP Diliman campus. The PEZA-registered development area fosters small to medium-scale businesses and technological and scientific firms provided in the low-density technology complex.

Significance of the Site

The site is selected through analysis of the following criteria in Quezon City

based on criteria, UPATH...

- 1 ECOLOGICAL CONNECTIVITY** is a part of a critical ecological network in the city
- 2 LANDSCAPE RESISTANCE** has low resistance/risk value implying ease of travel for the birds on the site
- 3 LEVEL OF HABITAT DEGRADATION** however, has low habitat quality due to high level of degradation

concluding it an opportune site for the greenery systems

Focal Species

Given the data of dominance in Quezon City provided by the conducted survey of Vallejo et al., the characteristics of each of the identified dominant bird species in the city are gathered and contrasted among each other.

Based on the collected evidence, *Pycnonotus goiavier* and *Passer montanus* are the most suitable focal species to be accommodated in the study they possess the necessary attributes.

Attributes of bird species as good indicators of biodiversity abundance and ecological contributions

- frugivorous and/or granivorous functional guild
- wide geographic range
- high occurrence
- easily respond to environment



Pycnonotus goiavier
Yellow-Vented Bulbul

Passer montanus
Eurasian Tree Sparrow

- 3 Brown Shrike (*L. cristatus*)
- 4 Pied Fantail (*R. javanica*)
- 5 Golden-Bellied Fly-Eater (*G. sulphurea*)

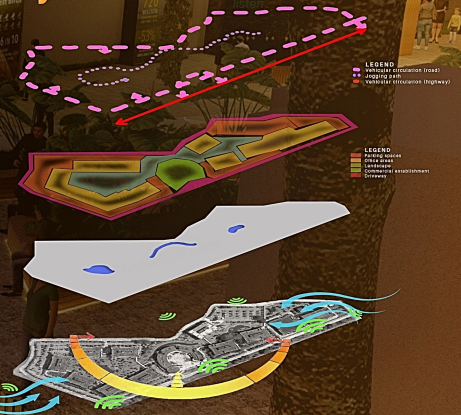
Site Analysis

Circulation

Zoning

Hydrology

Climatic Analysis

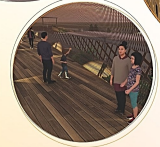
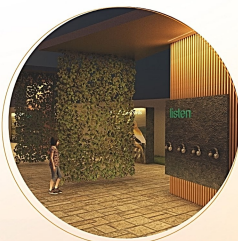




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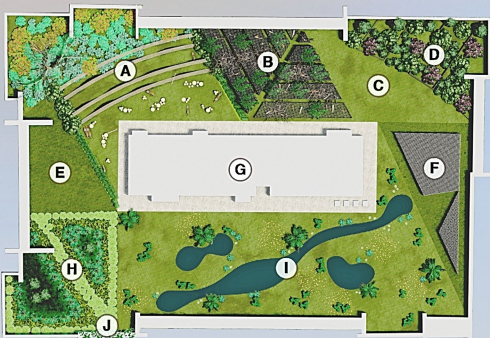
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lighting specification



Lighting Fixture	Illuminance	Application
Die cast aluminum surface-mounted floor light	6 lux	Pathways, stairs
Recessed strip light with diffuser	8 lux	Seating furniture, audio booths, exhibit walls
Bending strip light with silicone tubing	4 lux	Signage

site development plan



legend

- A Layered food source vegetation
- B Observation deck
- C Pond area
- D Stairs
- E Discussion space
- F Pathway
- G Audio booth area
- H Exhibit walls
- I Signage
- J Entry from building interior
- K Connection to green façade
- L Toilet

insectivorous

- Arachis pintoi
- Wedelia trilobata
- Ixora philippinensis
- Hibiscus rosa sinensis
- Carmona retusa
- Eugenia oleina
- Tabernaemontana sp.
- Mussaenda philippica
- Murraya paniculata
- Cassia alata
- Lantana camara
- Hedychium coronarium
- Bixa orellana
- Canna generalis
- Thalia geniculata
- Antigonon leptopus

granivorous

- Saccharum spontaneum
- Lantana camara
- Hedychium coronarium
- Bixa orellana
- Cyperus alternifolius

frugivorous

- Ixora philippinensis
- Carmona retusa
- Eugenia oleina
- Murraya paniculata
- Lantana camara
- Vitis vinifera

also functions as:

- ornament
- shelter
- perimeter planting
- perching site

ornamental plants & others

- Tagetes patula
- Philodendron sellowum
- Asplenium nidus
- Podocarpus macrophyll
- Rhapis excelsa
- Paspalum conjugatum
- Typha angustifolia

site perspectives



restricted access roof decks

open access roof decks

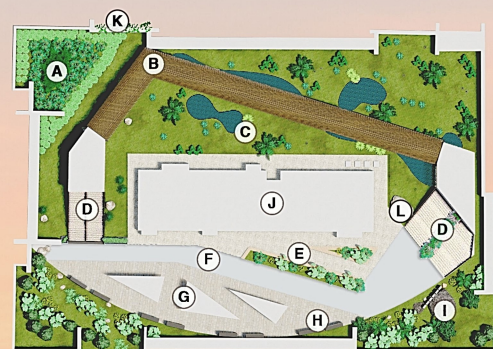
A roof deck is selected that shall supposedly allow public access for educational demonstration and usage of the employees, guests, student visitors, researchers, staffs of the office buildings, and the community for ecological learning experience, human involvement.

The proximal connection of spaces encourage healthy and successful breeding and promote abundance of the avian species through convenient access to critical resources

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