

An initiative of the Forests and Climate Change Programme (FORCLIME)

URBAN FORESTS

Open Green Spaces and Biodiversity in Jakarta



- A Guide to Jakarta's remaining Wildlife Habitats -



bi·o·di·ver·si·ty [ˌbaɪəʊdaɪˈvɜːsɪti]

1. The number and variety of organisms found within a specified geographic region.
2. The variability among living organisms on the earth, including the variability within and between species and within and between ecosystems.

The term **biological diversity** was used first by wildlife scientist and conservationist Raymond F. Dasmann in 1968, where he advocated conservation. It was widely adopted only in the 1980s.

The term **biodiversity** first appeared in a publication in 1988 when entomologist E. O. Wilson used it as a title. Since then, the term has often been used by biologists, environmentalists, political leaders, and citizens.

(Source: Wikipedia)



The Brahminy Kite (*Haliastur indus*) is the chosen symbol for Jakarta's Flora and Fauna. This species has disappeared from the wider Jakarta area and can only be found in the nearby island of Pulau Rambut.

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and all students who supported the surveys in Jakarta's urban forests.

Photos on the right side of the front cover

Top : Plantain Squirrel (*Callosciurus notatus*)

Middle : Sunda Coucal (*Centropus nigrorufus*)

Bottom: Blue Pansy (*Junonia orithya*)

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Foreword from the Secretary General of the Ministry of Forestry



Jakarta, a city known for its traffic jams and air pollution, still has places to discover where nature dominates and where a glance at Indonesia's original vegetation – namely forests – can still be caught. There are many different urban forests in Jakarta, both small and large ones in different states of “wilderness”, which are still home to a surprisingly diverse number of flora and fauna, even including endangered plant and animal species.

Urban forests are a great opportunity to experience nature at your doorstep. You don't need to travel far and it is affordable to get there as you can easily use the infrastructure, such as public transport, provided by the urban environment.

Whether in the 0.4 ha small urban forest around the Ministry of Forestry in Manggala Wanabakti, or the spacious 90 ha large landscape around University of Indonesia, animals such as birds, reptiles, amphibians and mammals can be found there. So if we just take a moment to have a closer look at the other living beings in extravagant Jakarta we realize the importance of promoting the remaining biodiversity and finding a balance between urban development and nature.

Therefore, let's protect the remaining wildlife in Jakarta and other places in Indonesia for present and future generations.

Jakarta, February 2014

A handwritten signature in blue ink, consisting of a stylized 'H' followed by a long horizontal stroke and a small flourish at the end.

Dr. Hadi Daryanto
Secretary General of the Ministry of Forestry



Foreword from the Governor of Jakarta



*Gubernur Provinsi Daerah Khusus
Ibukota Jakarta*

Saya menyambut baik terbitnya buku "Urban Forests, Open Green Spaces and Biodiversity in Jakarta dari Program GIZ Forclime, yang merupakan kerja sama antara Pemerintah Federal German dengan Kementerian Kehutanan Republik Indonesia.

Buku yang menyajikan informasi ruang hijau (hutan kota) di DKI Jakarta ini diharapkan menumbuhkan kesadaran masyarakat untuk lebih peduli lingkungan hidup dan penghijauan serta menumbuhkan rasa cinta masyarakat terhadap alam dan Kota Jakarta, untuk mewujudkan Jakarta Hijau dan Asri.

Jakarta,

Gubernur Provinsi Daerah Khusus
Ibukota Jakarta,



Joko Widodo



Introduction to Urban Biodiversity

The Importance of Open Green Spaces in Jakarta



In the 1970s Jakarta had tried to counter stir against the loss of green spaces and water absorbents. But the exploding growth left the city with most of its surface paved with concrete.

The growing promotion of urban forests and urban biodiversity in recent years has led to controversial views among the public, the media, among experts and conservationists. While some argue for the conservation of still existing biodiversity in more remote rural areas, others point out the growing importance of biodiversity in cities and metropolitan areas. Beyond various benefits for human beings, many scientists consider urban green spaces as accessible learning and observation grounds for studying possible impacts of climate change and for showcasing the importance of biodiversity conservation in cities and beyond. And no doubt, in a world with a growing population, of which the majority lives in urban areas, the meaning of urban biodiversity with all its functions will become of major importance.



Government campaigns aim at increasing the awareness about the importance of urban forests in Jakarta.



Jakarta's daily challenges: Traffic jams and air pollution caused by countless cars.

In Jakarta, Indonesia's capital, the current government has to deal with the shortcomings of spatial planning and urban development of the past, when maintaining biodiversity and urban green spaces had not been a priority. However, through Joko Widodo, the current governor of Jakarta, hopes have again been raised again that Jakarta's municipalities will more seriously follow up on their self-defined goals of turning up to 30 percent of the wider Jakarta area into open green spaces.

What may read as a technical issue in the beginning is in fact a tremendous effort of weighing up business interest with the concepts of conservation, public health and the increasing demands of a growing population. Jakarta in particular has to deal with an additional challenge, namely the severe impacts of the rainy season hitting on what is mostly paved surface, and thus causing costs of several millions of dollars each year.



The successful management of existing and the introduction of new open green spaces in Jakarta could mean a promising approach to meeting many of the above-mentioned interests.

Taking the example of trees, many of us are familiar with the concept that trees significantly contribute to the air quality by taking up carbon dioxide (CO₂) and releasing oxygen (O₂), or that their root system prevents soil from erosion. In the context of an urban environment such as Jakarta, the list of positive aspects trees can provide is even longer: shadow and cooling, habitat for animals and other organisms, air pollutant absorber, fruit and nut producer, provider of natural medicine, etc. A list like this, of course, does not only apply for trees. Water, insects, birds, air, basically all aspects of biodiversity, contribute in numerous ways to the prevailing ecosystems.

More difficult to quantify but nevertheless evenly important are the contributions of nature to human's well-being. Research has proven that the exposure to a green environment is highly beneficial to people's minds. People living close to open green spaces tend to spend more time outdoors, exercise more and socialize with neighbors and friends.

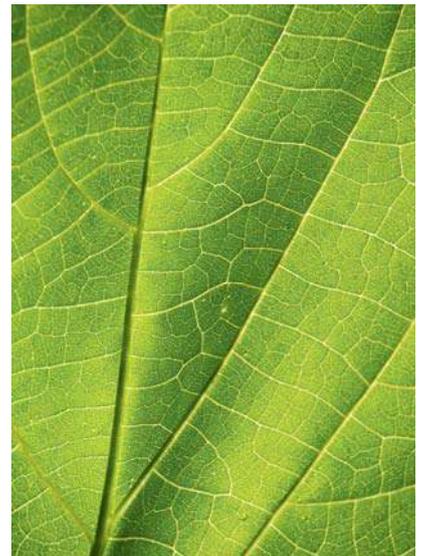
Scientists describe all those functions of nature that are beneficial to us humans as so-called *ecosystem services*. Interestingly, some of these services only grow to their full potential in cities and highly populated areas. Using the example of a tree again, the conversion of CO₂ into O₂ is a lot more in demand in air-polluted environments than it is in clean, industry free rural areas. While nature conservation efforts are commonly linked with uninhabited regions and forests, there is thus strong evidence that natural spaces in form of trees or other plants are at least evenly beneficial in urban environments.

Recognizing the importance of natural spaces and biodiversity for our well-being, attempts have been made to quantify the monetary value of ecosystem services in order to make them financially competitive against other forms of land-use. Not everyone agrees to this approach and critics point out the undeniable dependency of us humans on our environment, which cannot be measured in financial numbers.

Yet, in a place like Jakarta, besides ascertaining the monetary values of ecosystem services, the costs for the consequences of their absence will also have to be considered in the future. Costs for compensation and reparation of damage, caused for example by landslides, mudflows or flooding, will have to be compared with investments in sustainable infrastructure planning and risk mitigation efforts. Decision-makers may want to consider that taking actions to prevent such disastrous events, including the unpredictable effects of a changing climate, could be a lot less cost intensive than dealing with the consequences.



Besides the ocean, trees are the major oxygen producers on this planet and therefore a highly important resource for life on earth.



During the photosynthesis the chlorophyll rich proteins in the leaves of a plant convert the energy of light (usually the sun) into chemical energy, store it in carbons or use it directly. Oxygen is released as a side effect of the process.







Nearby green environments mean easy access to first hand experience with and education about biodiversity. A better understanding of its functions is not only necessary for children to become passionate about its protection. Also decision-makers at all levels need positive experiences and interaction with nature and wildlife in order to include them as priorities into their agendas.

Almost every year the impact of massive rainfalls causes severe problems for Jakarta's municipalities. Efforts on flood mitigation and disaster management mean a heavy burden on the city's annual budget.

Public awareness campaigns could highlight the important role of biodiversity and green spaces within wider Jakarta as one way to reduce the destructive impacts of flooding. In addition, spreading the information on how beneficial biodiversity in general is for human health and well-being, as well as pointing out the significant contribution to the concerns of the global climate change may help to catalyze and consolidate attention and support for relevant activities and regulatory measures.

A demonstrative and visible conservation project design like the reintroduction and protection of Jakarta's heraldic birds has a high probability to induce the necessary ownership and participation among the population, home garden owners and real estate developers.

However, for open green space projects aiming at enhancing the overall abundance of biodiversity in Jakarta, the government's initiative and full support will be essential to safeguard these efforts. At the same time credibility within Jakarta's population has to be established, and serious commitment to law enforcement will necessary to guarantee long-term success.



The Java Sparrow (Padda oryzivora) is one of the bird species that once native, now cannot be found within the city borders except in cages.

*“My life amounts to no more than one drop in a limitless ocean.
Yet what is any ocean, but a multitude of drops?”*

(David Mitchell, Cloud Atlas)



About Urban Forests in Jakarta



One of Java's endangered bird species, the Black-winged Starling (*Sturnus melanopterus*), can still be found in some of the mangrove areas in Jakarta.



The museum at the Ministry of Forestry in Manggala Wanabakti is home to a comprehensive exhibition about forests and forest economies in Indonesia.

Jakarta's existing urban forests represent different approaches to preserve urban biodiversity. The prevailing mangrove forest in the coastal regions is needed as an effective protection zone against the intrusion of ocean water. Originally, the vegetation in the area of the urban forests at *Toll Road Sedyatmo*, *Muara Angke* and *Angke Kapuk* had also been of major importance as wind and wave breakers. Many parts of the original landscape were sacrificed to the growing population and settlements and housing complexes pushed back the remaining natural forests further and further.

To meet the importance of the remaining ecosystems and homes to threatened bird species the status of *Muara Angke* was raised to a *Wildlife Sanctuary* in 1993 and *Angke Kapuk* protection forest was officially announced a *Protection Forest*. To display the efforts of rehabilitating and protecting the surrounding mangrove forests, especially the area around the *Toll Road Sedyatmo* is hosting annual mangrove planting activities, usually initiated by the Jakarta municipalities and implemented in cooperation with NGOs and community groups.

Besides their function as small ecosystems and habitats the urban forests in *Kridaloka Senayan* and *Srengseng*, close to Jakarta's city centre, serve the urban population as short term recreation zones. Working people meet here during their lunch breaks, locals use the facilities for sport and exercising, families and friends enjoy the green environs to go for a walk or socialize.

The direct surroundings of the Ministry of Forestry at *Manggala Wanabakti* also forms a small urban forest, in which numerous tree species from all over the archipelago have been planted to display the variety. Despite its busyness during working hours especially the tall trees serve as a home for several bird species. In the affiliated Forest Museum visitors can learn about Indonesia's rich flora and fauna, the context between forests and forestry gets explained and numerous ways of benefitting from utilizing forests and forest products are displayed.



Most of the urban forests in Jakarta provide parking facilities, infrastructure and visitor facilities. The *Muara Angke Wildlife Sanctuary* and the *Angke Kapuk Protection Forest* require special tickets/permits which have to be issued prior to visiting.



When people hear the expression "zoo" many think of caged animals and fun parks. But the spacious surroundings of the *Ragunan Zoo* are also home to a large number of endemic animal and plant species. It is this variety of insects, birds, amphibians and reptiles that attracts animal lovers and nature photographers. The rich vegetation and tall trees in Ragunan also play an important role as resting sites for migrating bird species that use the urban forests as corridors during their travels.

In places like the urban forest at the *Arboretum Cibubur* and the *University of Indonesia* the various opportunities and benefits as a result of larger scale programmes to protect urban biodiversity can be witnessed. The established and maintained forest sections, for example, allow students easy access to undertake field studies and scientific research. Information centres help the visitor to get a better understanding for the ecological interdependencies and the larger concept of urban forests. The lakes and ponds serve on the one hand as water reservoirs and on the other hand as water catchment to prevent flooding. By maintaining forest sections resembling vegetation zones found in the eastern and in the western part of the archipelago, these protected urban forests also serve as seed and seedling provider for re-greening and reforestation projects outside of Jakarta.

And, of course, the spacious forest areas also serve the urban population as an opportunity to enjoy the benefits of nature and escape the traffic and hectic life style for a while. The arboretum and the urban forest at the university provide sheltered home to many animal and plant species. Similar to Ragunan Zoo, the lush vegetation and the large connected green spaces with high trees serve as resting sites for migrating birds of prey.

The small lake *Situ Rawa Dongkal* has originally been designed for the major function of serving as a water reservoir. At a later stage the municipalities decided to lift the direct surroundings of the lake to the status of an official urban forest. Since then a small but functioning ecosystem has evolved which now is popular among anglers, bird-watchers and nature photographers.

The following pages will give you an impression of the remaining fauna Jakarta still shelters and guide you through ten of the city's most known urban forests.



A lot of the remaining plant species can be found in the urban forests in and around Jakarta.



There are still a few quiet and peaceful places in Jakarta rewarding the visitor with recovering nature and scenic views.

*"The total value of biodiversity is infinite,
so having to debate about what is the total value of nature
is actually pointless, because we can't live without it."*

(Dennis Salles, expert on urban environment research)

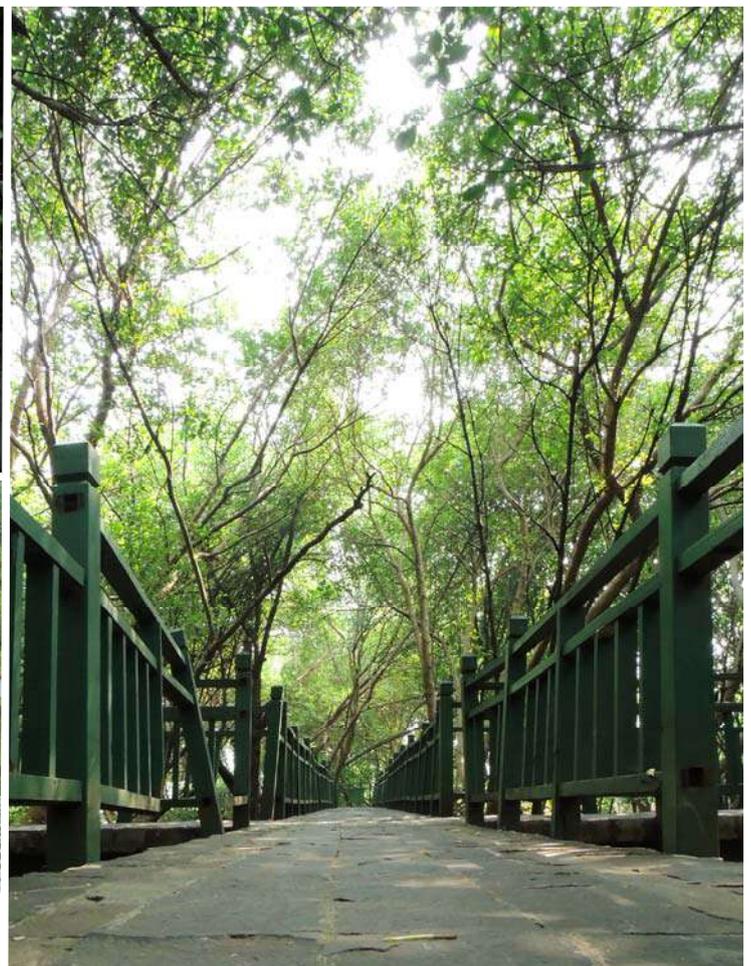


1. Angke Kapuk Protection Forest

This forest is located along the North coast of Jakarta; with a length of 5 km and an average width of 100 m wide, it covers a total of 44.76 ha. The mangrove trees play a major role in preventing coastal erosion by ocean waves and also function as a natural barrier against the intrusion of the sea. The partly swampy waters are the main food source for fish and other animals while, protected by their root systems, the mangrove rich areas are preferred places for breeding and laying eggs. The dense clumps of vegetation serve as windbreakers and the overall ecosystem is home to numerous bird and insect species. This protection forest is slightly different from Muara Angke, being more dominated by mangrove species locally known as *bakau* and *api-api*. Because it is connected to the wildlife sanctuary, Angke Kapuk also plays an important role as a habitat for the fragile populations of the Sunda Coucal (*Centropus nigrorufus*) and the Black-winged Starling (*Sturnus melanopterus*).



Sacred Kingfisher (*Todirhamphus sanctus*)



The environmental situation at the wildlife sanctuary at Muara Angke and the protection forest of Angke Kapuk display the current status of Jakarta's important coastal areas. Raised walks allow views into the inside of the ecosystem. Resting shelters along the way help to protect from sun and rain. Nature lovers, animal observers and wildlife photographers prefer the early morning or late afternoon hours. Parking facilities are available and in a cafeteria snacks and drinks are served.



Detail Map Angke Kapuk Protection Forest

(06° 06' 15.27" S and 106° 44' 07" E)



Icons:

Insect observation	Bird watching	Duck pond	Shelter	Parking area
Amphibian habitat	Water habitat	Walking trail	Ranger post	Cafeteria
Reptile habitat	Coastal habitat	Walk-in gate	Public toilet	

Getting there: Take the Angkotan U11 between Muara Baru and Taman Bandara and get off at the PIK Hospital (RS PIK). From there get an ojek to the entrance gate of Angke Kapuk Protection Forest.

Coming with own transport (car) take the City Toll Road towards Soekarno-Hatta Airport and use the exit to Pantai Indah Kapuk (PIK). Follow the road to the PIK Hospital and Angke Kapuk.

Admission: To enter the protection forest you need a permit from the Agriculture and Fisheries Service of DKI Jakarta (Gedung Dinas Teknis, 7th Floor, Jalan Gunung Sahari XI, Central Jakarta).





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Fauna in Angke Kapuk Protection Forest



Left page: Grey Heron (*Ardea cinerea*) - 1. Great Egg Butterfly (*Hypolyminas* sp.); 2. Left: Long-tailed Monkey (*Macaca fascicularis*); 3. Black-winged Starling (*Sturnus melanopterus*); 4. Sunda Teal (*Anas gibberifrons*); 5. Yellow-tailed Ashy Skimmer (*Potamarcha congener*); 6. Olive-backed Sunbird (*Nectarini jugularis*); 7. White-breasted Waterhen (*Amauornis phoenicurus*);



2. Muara Angke Wildlife Sanctuary

Muara Angke Wildlife Sanctuary (MAWS) is a mangrove forest area in Penjaringan, North Jakarta, and is managed by the Ministry of Forestry in Jakarta. The sanctuary is adjacent to the *Pantai Indah Kapok* real estate development, with the Angke River and Muara Angke fishing settlements forming the eastern boundary, while on the north side, Muara Angke shares the border with the Angke Kapuk Protection Forest. The wildlife sanctuary was originally designated as a nature reserve by the Dutch government in 1939, but over time increasing urban pressure has degraded the local environment, damaging large parts of the nature reserve. In 1998, to preserve and rehabilitate what was still there, the government changed the status of Muara Angke to a wildlife sanctuary covering an area of 25.02 ha. Despite being the smallest wildlife reserve in Indonesia, the area has major importance as a habitat for endangered bird species such as the Black-winged Starling (*Sturnus melanopterus*) and the Sunda Coucal (*Centropus nigrorufus*). The conservation organisation *Birdlife International* has declared Muara Angke one of Java's Important Bird Areas (IBA).



At the ranger post, information boards share knowledge about the mangrove ecosystem and existing wildlife. Muara Angke is very popular among bird-watchers and nature photographers who use the early mornings and later afternoons for wildlife observation. Raised boardwalks lead through the mangrove forest, with a watchtower allowing a view into the tree tops. Alternatively, local boat rentals offer the opportunity to explore the sanctuary from a different perspective. Despite from being a protected area, the sanctuary receives a lot of environmental pressure from the garbage floating down the river and getting stuck in the root system of the mangroves.

Juvenile Black Crowned Night Heron (*Nycticorax nycticorax*)



Detail Map of Muara Angke Wildlife Sanctuary

(06° 20' 01" S and 106° 70' 31" E)



Icons:

	Insect observation
	Amphibian habitat
	Reptile habitat
	Walking trail
	Water habitat
	Bird watching
	Parking area
	Observation tower
	Cafeteria
	Information center
	Public toilet
	Walk-in gate



Grey Heron (*Ardea cinerea*)

Entrance area



Getting there: Take the Angkutan B01 between Grogol and Muara Angke and get off at the Pojok Pizza Hut, Pluit. From there get on the Angkutan U11 between Muara Baru and Taman Bandara and get off at the gate of Muara Angke Wildlife Sanctuary. Coming with own transport (car) take the City Toll Road towards Soekarno-Hatta Airport and use the exit to Pantai Kapuk Indah (PIK). Follow the road to Pluit and stop at the gate of the wildlife sanctuary.

Admission: To enter the sanctuary you need to get a permit from Balai Konservasi Sumber Daya Alam (BKSDA) DKI Jakarta (Please contact the office in Jalan Salemba Raya No. 9, Central Jakarta - Phone/Fax: 62-21-315 8142). There are parking facilities opposite of the Muara Angke Area at the multistore building of Galeri Niaga Mediterania. Prices are Rp. 5,000 for cars and Rp. 3,000 for motorbikes.



Fauna in Muara Angke Wildlife Sanctuary



1. Oriental Whip Snake (*Ahaetulla prasina*); 2. Mangrove St. Andrew's Cross Spider (*Argiope mangal*); 3. Sunda Coucal (*Centropus nigrorufus*); 4. Green Paddy Frog (*Rana eruthraea*); 5. Green Fence Lizard (*Calotes versicolor*) - Right page: Long-tailed Monkey (*Macaca fascicularis*)





3. Mangrove Forest Toll Road Sedyatmo

This urban forest is located in Penjaringan, North Jakarta. It is one of Jakarta's last remaining mangrove forests and functions as an important belt to protect the area further inland from erosion and land loss. Almost every year, the government of Jakarta organises mangrove planting activities here; usually the events are conducted in cooperation with local communities and NGOs, demonstrating how effective the government and private sector can be when they combine their energies to rehabilitate and preserve nature.

The Agriculture and Fisheries Service of DKI Jakarta has developed the site as a *Mangrove Education Centre*, to increase public understanding about the importance of a functioning mangrove ecosystem. Visitors find a rich variety of birds, insects and butterflies along the hiking trails.



Lime Butterfly (*Papilio demoleus*)



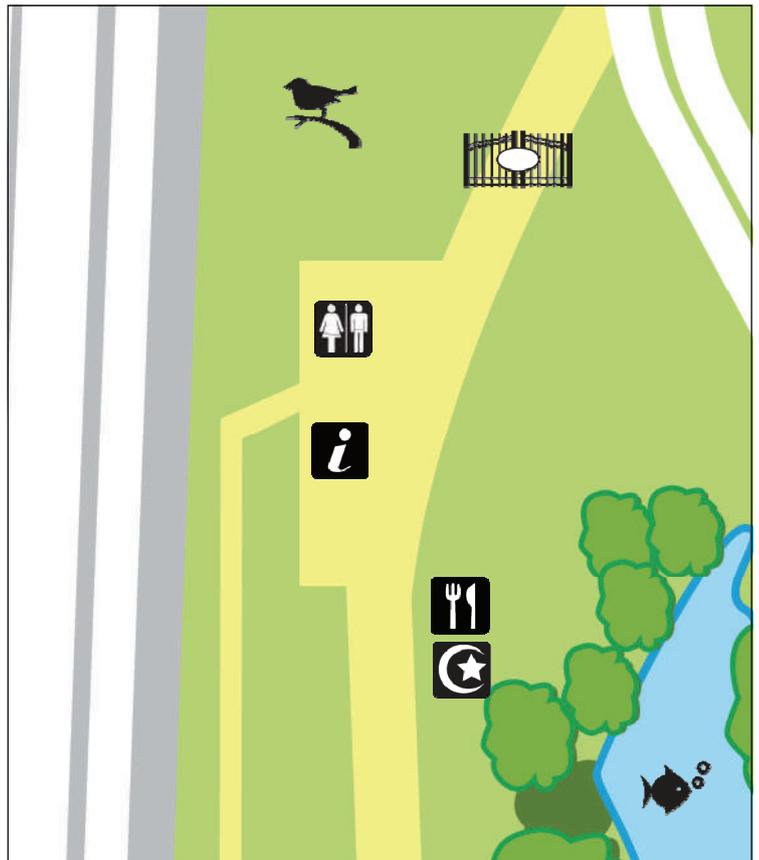
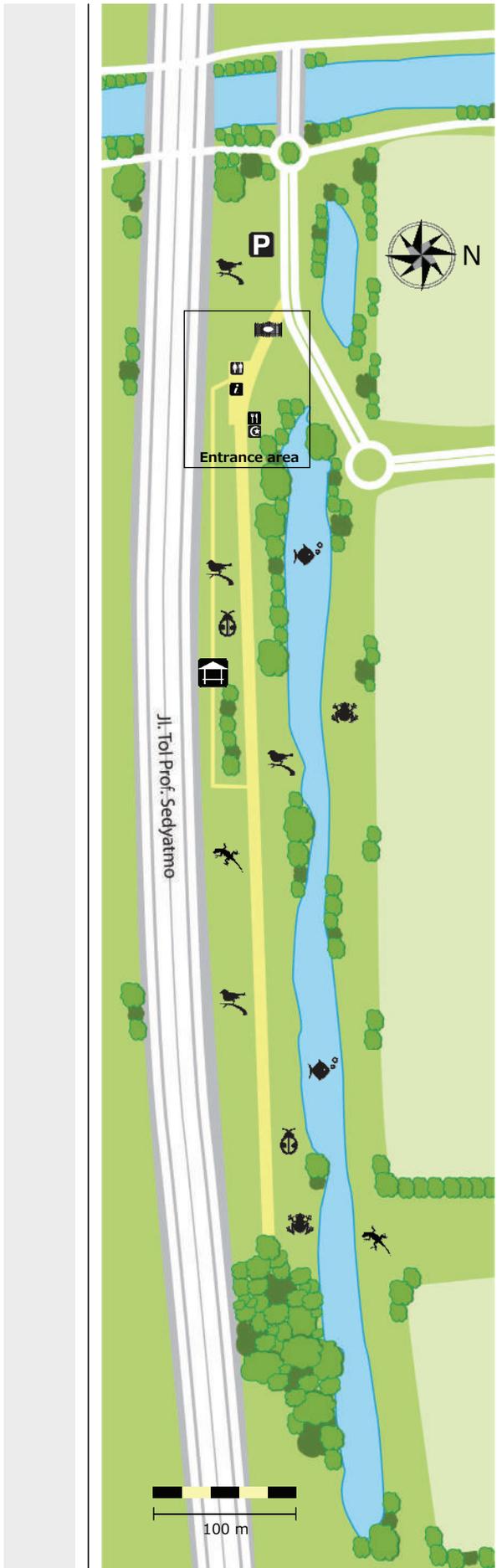
The urban forest at the Sedyatmo Toll Road has become a great place to learn about mangroves and coastal ecosystems. The natural environment remains remarkably intact, as the area benefits from the special focus of Jakarta's municipalities. The bridge walk is popular among bird lovers and nature photographers and – although it is unwanted and prohibited in the swampy waters – the mangroves also attract many people for fishing. A few warungs at the entrance serve food and soft drinks.

Olive-backed Sunbird (*Nectarinia jugularis*)



Detail Map of Mangrove Forest Toll Road Sedyatmo

(06° 07' 22.44" S and 106° 45' 17.37" E)



Entrance area

Icons:

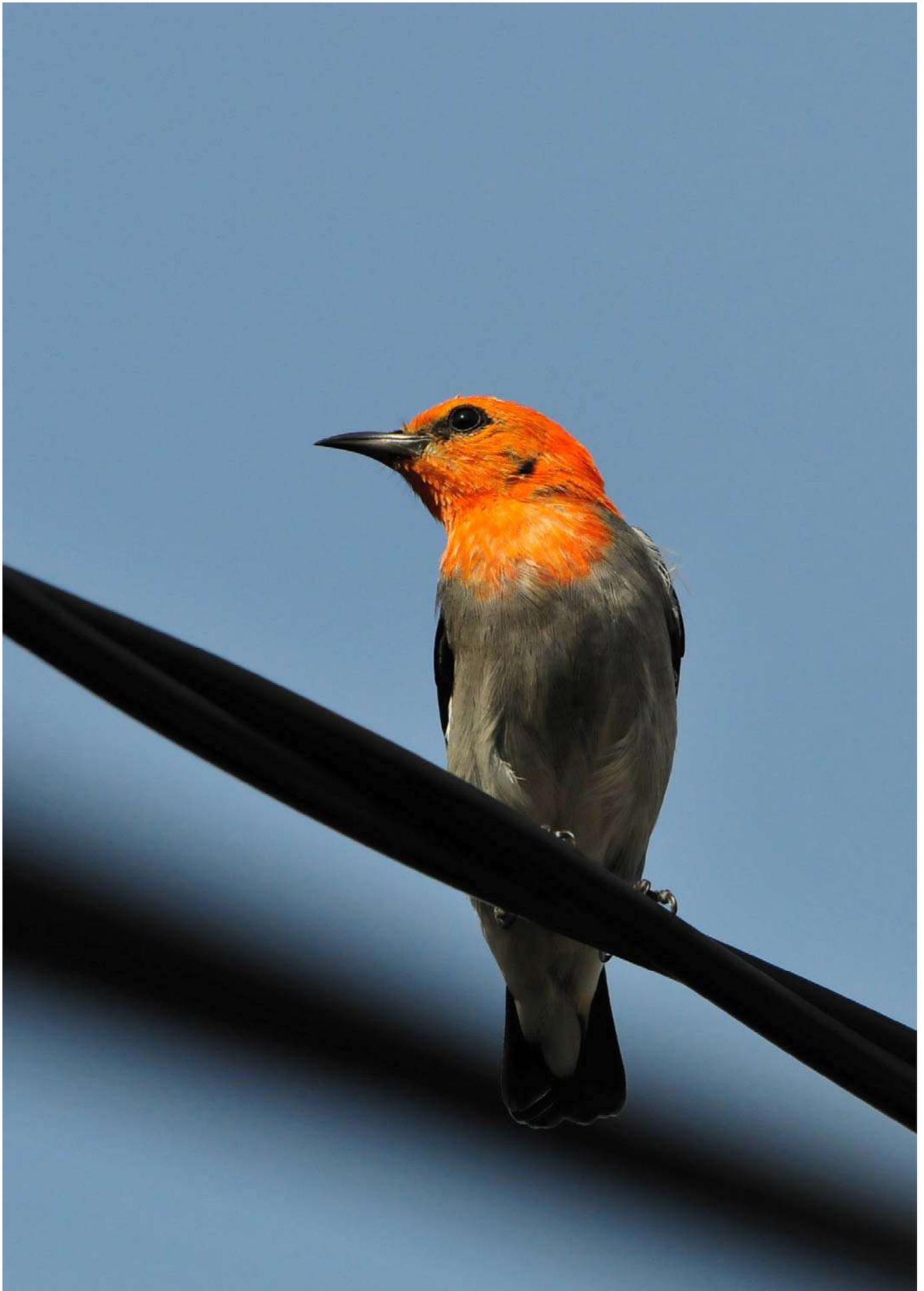
	Insect observation		Parking area
	Amphibian habitat		Praying room
	Reptile habitat		Cafeteria
	Walking trail		Information center
	Water habitat		Public toilet
	Bird watching		Shelter
	Entrance gate		

Getting there: Take the Angkotan U11 between Muara Baru and Taman Bandara and get off at the underpass of Toll Road Sedyatmo. From there it is a 700 m walk to the entrance of the mangrove forest.

Coming with own transport (car) you can take the City Toll Road towards Soekarno-Hatta Airport and use the exit Pantai Indah Kapuk (PIK). Follow the road to Pluit and until you reach the entrance of the mangrove forest.

Admission: Rp. 3,000 for ticket and Rp. 2,000 for parking





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Fauna in the Mangrove Forest Jalan Tol Sedyatmo



Left page: Scarlet-headed Flowerpecker (*Dicaeum trochileum*) - 1. Bar-winged Prinia (*Prinia familiaris*); 2. Common Flangetail (*Ictinogomphus decoratus*); 3. Scaly-breasted Munia (*Lonchura punctulata*); 4. Blue Pansy (*Junonia orithya*); 5. Orange Gaster (*Oecophylla smaragdina*);



4. Manggala Wanabakti

The urban forest of Manggala Wanabakti is in Central Jakarta, surrounding the buildings of the Ministry of Forestry on Jalan Gatot Subroto. Covering only 0.4 ha, it is among the smallest open green spaces in Jakarta, but the cooling impact of the huge trees, the existing wildlife and the recreational impact of natural work surroundings provide an example of how vegetation and construction can be integrated on a large scale for green urban environments. The area showcases a large variety of common and endangered tree species from all over Indonesia. The pond and the abundant vegetation create a small ecosystem that provides shelter for several bird and insect species.

Open to the public on weekdays from 9 am to 3 pm, the *Forestry Museum* provides comprehensive information about forests, animals and wood usage, with examples from all over the archipelago.

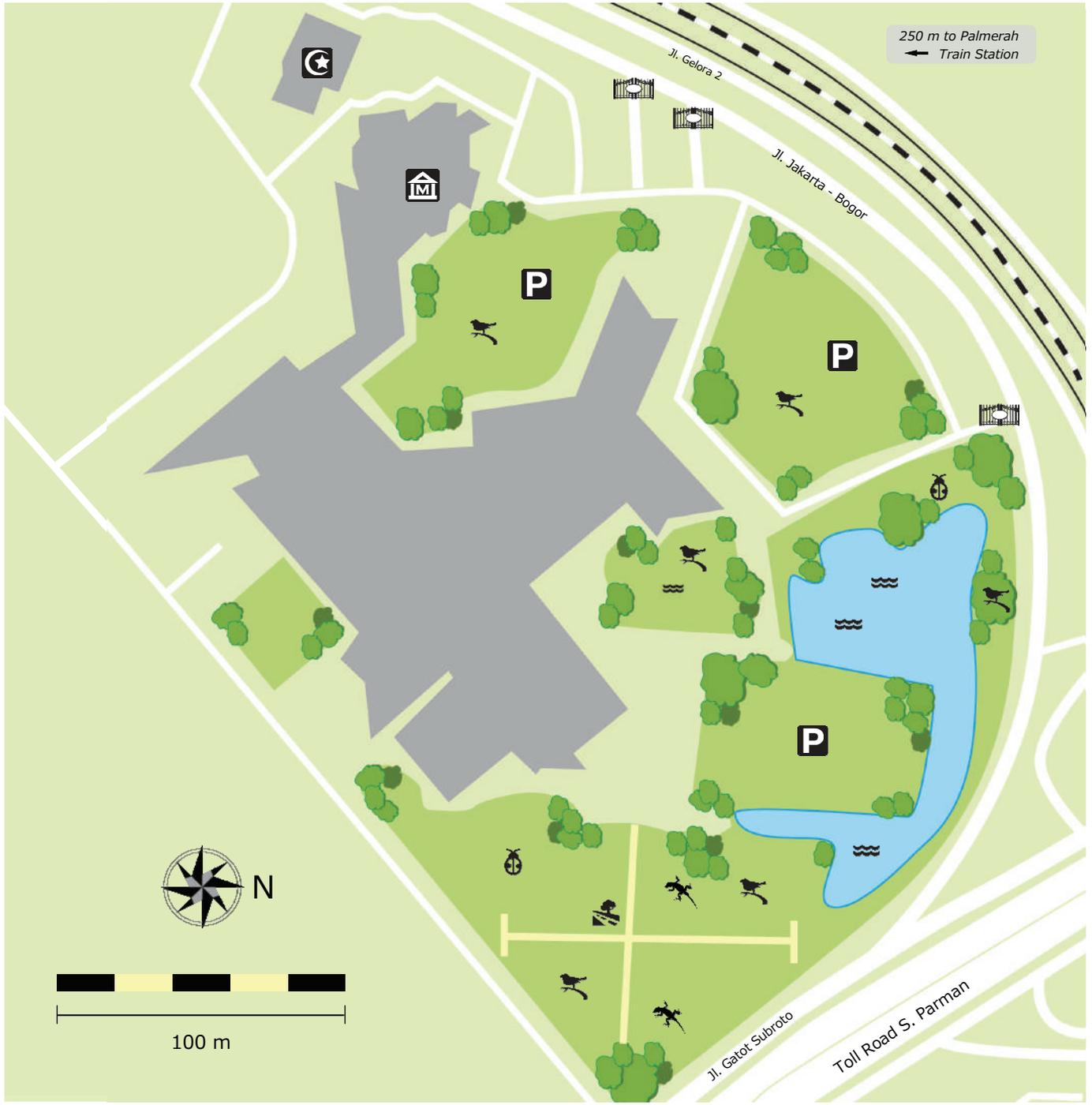


Passing by parking lots and buildings, one would not particularly think of a forest when entering Manggala Wanabakti. However, the huge trees and the variety of plants are difficult to find elsewhere in Jakarta. Name boards provide the names of the tree species. The urban forest is home to several bird species and the Red-crested Parakeet (*Psittacula alexandri*) is frequently sighted, together with various butterfly and dragonfly species. During operating hours of the office buildings, several restaurants and warungs offer food and drinks, while Sundays are usually quieter, with only a few street vendors selling snacks and soft drinks.



Detail Map of Urban Forest Manggala Wanabakti

(06° 12' 24" S 106° 48' 01" E)



Icons:

Insect observation	Bird watching	Parking area	Public toilet	Entrance gate
Amphibian habitat	Water features	Praying room	Shady path	
Reptile habitat	Special tree	Cafeteria	Museum	

Getting there: Take the Transjakarta busway in Corridor 9 between Pinang Ranti and Pluit, and get off at Slipi Petamburan Station. From there, you can walk to Manggala Wanabakti. Or you can use the train (KRL Serpong – Tanah Abang) and get off at Palmerah Station. Coming with own transport (car or motorcycle) you can go via Jalan Gatot Subroto to West Jakarta. Manggala Wanabakti is very close to the DPR Jakarta. Parking facilities are available.

Admission: Free; parking: for cars / motorbikes is the first hour Rp. 2,000 / Rp. 500, each additional hour is Rp. 1,500 / Rp. 500.



Fauna in Manggala Wanabakti



1. Spotted Dove (*Streptopelia chinensis*); 2. Orange Gaster (*Oecophylla smaragdina*); 3. Oriental Garden Lizard (*Calotes versicolor*); 4. The Tailed Jay (*Graphium agamemnon*); 5. Sooty-headed Bulbul (*Pycnonotus aurigaster*) - Right page: Red-breasted Parakeet (*Psittacula alexandri*)



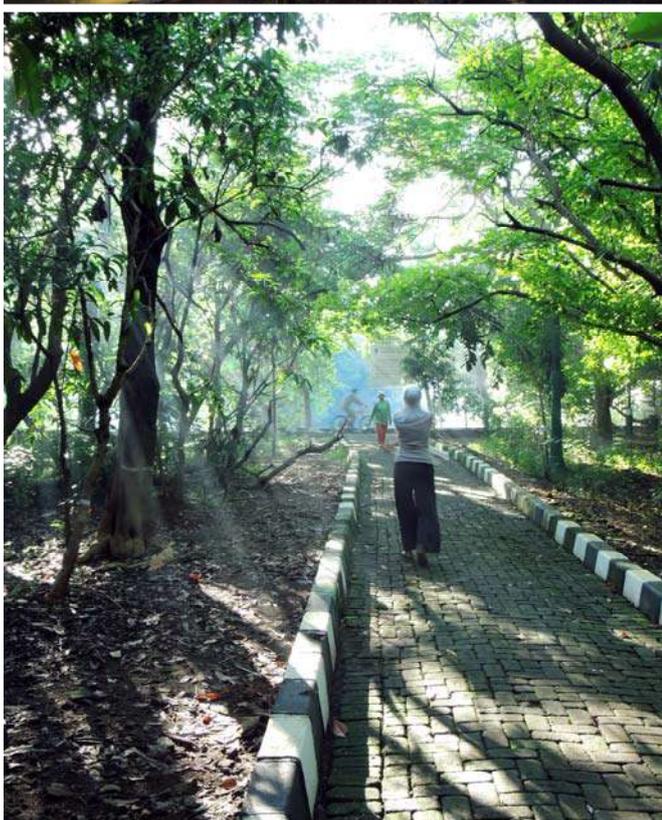
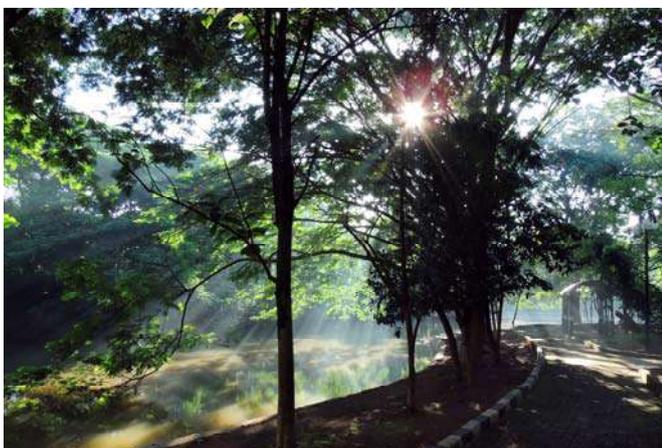


5. Srengseng

Srengseng Urban Forest is located in Kebun Jeruk - the only such urban forest in West Jakarta. With the management of urban forests in Jakarta under the authority of the Agriculture and Fisheries Service of DKI Jakarta, this area was officially converted to an urban forest through the Jakarta Governor Decree No. 202 of 1995. Before, it had served as a landfill site along the Srengseng riverside. This approximately 15 hektar of forest now plays an important role for water catchment, recreation and as a public space for socializing, with a spacious children's playground allowing the whole family to enjoy the green environment. There is a purpose-built climbing wall (visitors must obtain a special permit from the department), an open air stage on the lake that occasionally features concerts and other public events, and an information centre that displays facts about the history of Srengseng. Locals come here for jogging, and especially on Sundays residents use the space for meetings, walks and workouts.



Small Minivet (Pericrocotus cinnamomeus)



*Urban Forest Srengseng offers shady paths and a walkway around the pond. It is popular among sports fishermen because it is one of the few suitable locations in Jakarta where freshwater fishing is permitted. The woody surroundings offer great opportunities for bird-lovers; during the early morning hours and in the afternoon there is a great chance to see endemic Javanese species like the Javan or the Blue-eared Kingfisher. Srengseng is a habitat for snakes, frogs and other lizards and also a great place to observe the Flying Dragon (*Draco volans*).*



Detail Map of Urban Forest Srengseng

(06° 12' 40.41" S and 106° 45' 52.82" E)



Getting there: Take the Transjakarta busway in Corridor 8 between Lebak Bulus and Harmoni and get off at Kelapa Dua Sasak. You can either walk from there (around 1 km) or hire an ojek to drop you off at the urban forest.

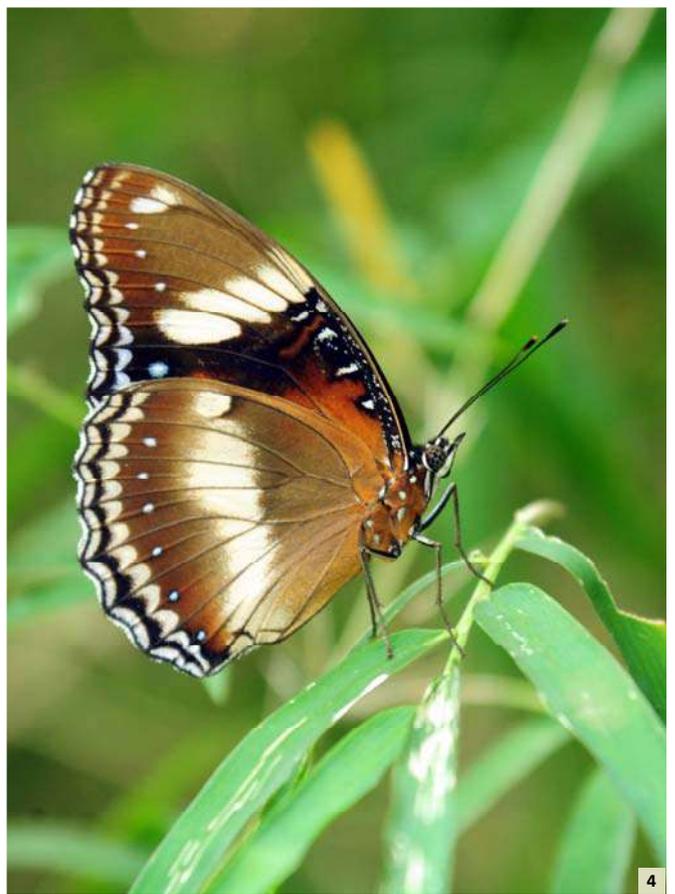
Coming with own transport (car or motorcycle) follow Jalan Panjang to West Jakarta and turn left into Jalan Srengseng Kelapa Dua. Follow Jalan Haji Kelik to the entrance gate. Limited parking space is available inside the forest area.

Admission: Ticket and Parking Rp. 3,000





Fauna in Srengseng



Left page: Flying Dragon (*Draco volans*) - 1. Brown-throated Sunbird (*Anthreptes malaccensis*); 2. Jumping Spider (*Plexipus* sp.); 3. Crab-eating Frog (*Fejervarya cancrivora*); 4. Great Eggfly (*Hypolimnas bolina*)



6. Kridaloka Senayan

Only one hectare in size, Kridaloka Senayan is considered a very small urban forest. Despite this, the open green space is home to many bird species, like the Coppersmith Barbet (*Megalaima haemacephala*) and the Red-breasted Parakeet (*Psittacula alexandri*). It is also famous for its abundant variety of plants and tree species. Situated right in the center of Jakarta, this urban forest serves as a recreation and meeting point for people who seek a temporary escape from the city's hectic and pushing lifestyle. It is located behind the Senayan swimming pool, so many Jakartans come to Kridaloka to combine open air exercise with visiting the pool or gym. It is also quite popular among community groups such as *Parkour Jakarta*, who meet and exercise together on Sundays between 9 am and noon. Kridaloka Senayan can easily be reached by public transport. Parking space is limited, especially during major events in the stadium or the Jakarta Convention Center (JCC).



Coppersmith Barbet (*Megalaima haemacephala*)

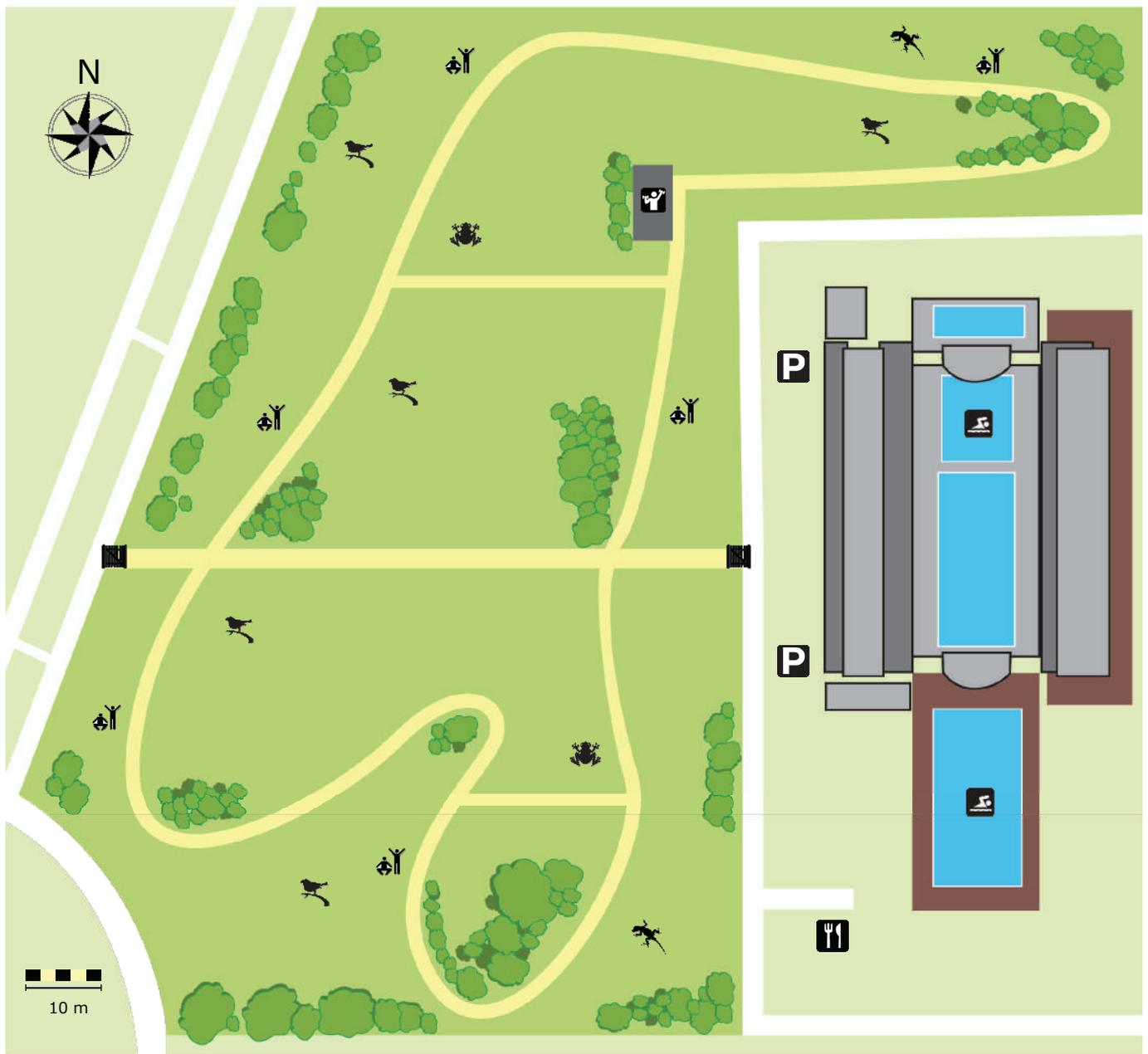


*Kridaloka Senayan is one of the few great locations in Jakarta for observing the colourful Red-breasted Parakeet (*Psittacula alexandri*). The little forest has developed to a breeding area and the rasping sound of the birds can be heard all around. Not only bird-watchers but also insect lovers are attracted by what the urban forest has to offer. The daylight during the early mornings and late afternoon hours are usually the best for photography.*



Detail Map of Urban Forest Kridaloka Senayan

(06° 13' 03.01" S 106° 48' 15.80" E)



Icons:

Insect observation	Bird watching	Parking area	Gym	Walk-in gate
Amphibian habitat	Exercise facilities	Praying room	Swimming	Cafeteria
Reptile habitat	Public toilet			

Getting there: Take the Transjakarta busway in Corridor 1 between Blok M and Kota, and get off at Gelora Bung Karno or Polda Metro Jaya Bus Station. From there, you can either walk or hire an ojek to drop you at the Senayan swimming pool.

Coming with own transport (car or motorcycle) enter into Gelora Bung Karno until you reach the Senayan swimming pool area. It is situated close to the Jakarta Convention Centre (JCC). Parking facilities are available.

Admission: Ticket: Rp. 5,000 and Parking: Rp. 2,000. To enter Senayan complex: Rp. 3,000 for motorbikes and Rp. 6,000 for cars

Hint: During shows in the Jakarta Convention Centre (JCC) or major sports events the Senayan area can be crowded and parking facilities difficult to find.



Fauna in Kridaloka Senayan



1. Day-flying Moth (*Amata huebneri*); 2. Lesser Grass Blue (*Zizina otis*); 3. Lynx Spider (*Oxyjopes javanus*); 4. Housefly (*Musca domestica*); 5. Pink-necked Green Pigeon (*Treron verans*) - Right page: Common Iora (*Aegithina tiphia*)





7. Ragunan

Ragunan Zoo is located at Pasar Minggu, South Jakarta and was founded back in 1864 under the name “Planten En Dierentuin” which means “Plants and Zoo”. The wider zoo territory covers a total of 140 hectares. Usually visitors come to see the collection of 4040 specimen of 295 animal species kept in enclosures. In addition the entire area functions as an urban forest and is home to numerous species native to Jakarta. Early morning and afternoon hours offer great opportunities to observe birds, insects, beetles, butterflies and dragonflies. Squirrels, water monitors, lizards, frogs and different kind of snakes can also be found within the zoo’s boundaries.

During the months of March and April the urban forest of the zoo area in Ragunan functions as a resting site for migrating birds of prey like the Oriental Honey Buzzard (*Pernis ptilorhynchus*) and the Japan Sparrowhawk (*Accipiter gularis*).



Plantain Squirrel (*Callosciurus notatus*)



For the interested naturalist the spacious urban forest area of the Ragunan Zoo offers great opportunities to observe a wide range of wildlife native to Jakarta. For bird-watching in particular the best time is between 6.00 - 9.00 a.m. in the mornings and 3.00 - 5.00 p.m. in the afternoon. People who intend to visit the urban forest have to enter the zoo and are able to take advantage of infrastructure and facilities provided there. The wide range of plants, flowers and animals offers great opportunities for nature photographers. In the zoo the Schmutzer Primate Information Centre is of particular interest.



Detail Map of Urban Forest Ragunan

(06° 18' 39.51" S and 106° 49' 16" E)



Icons:

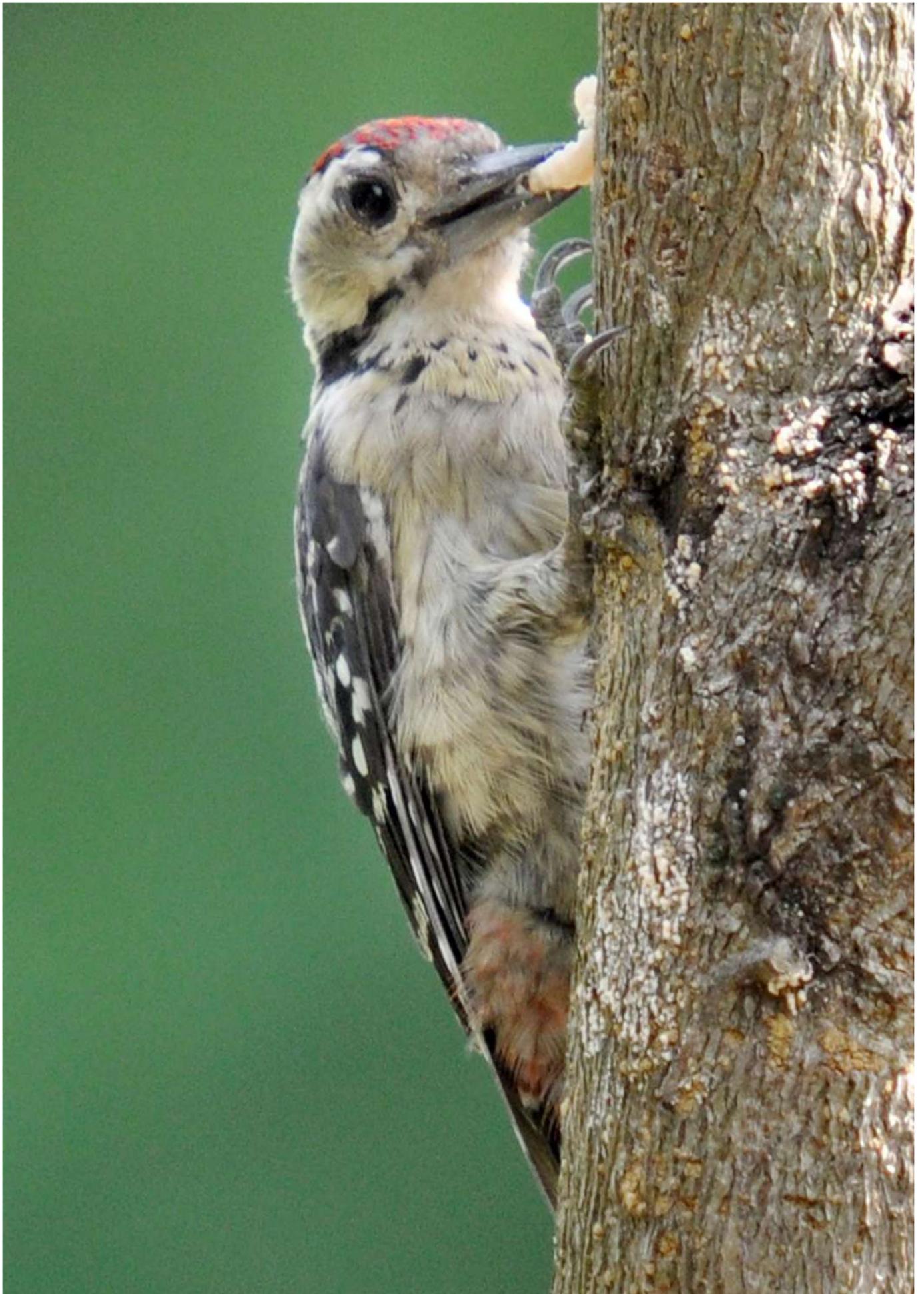
Insect observation	Amphibian habitat	Walking trail	Praying room	Playground
Bird watching	Migration zone	Bus stop	Public toilet	Information centre
Reptile habitat	Water habitat	Entrance gate	Parking area	Cafeteria

Getting there: Take the Transjakarta busway in Corridor 6 between Ragunan and Dukuh Atas and get off at Ragunan Station. Another option is to take the Kopaja Bus No. 68 (Kampung Melayu – Ragunan) or the Metromini Bus No. 77 (Blok M – Ragunan).

Coming with own transport (car or motorcycle) head towards Pasar Minggu in South Jakarta and follow the signage to Ragunan Zoo (Kebun Binatang). Parking facilities are available.

Admission: Ticket: Adult Rp. 5,000, Child Rp. 3,000; Parking: Rp. 15,000 for bus, Rp. 6,000 for cars and Rp 4,000 for motorbikes





Fauna in Ragunan

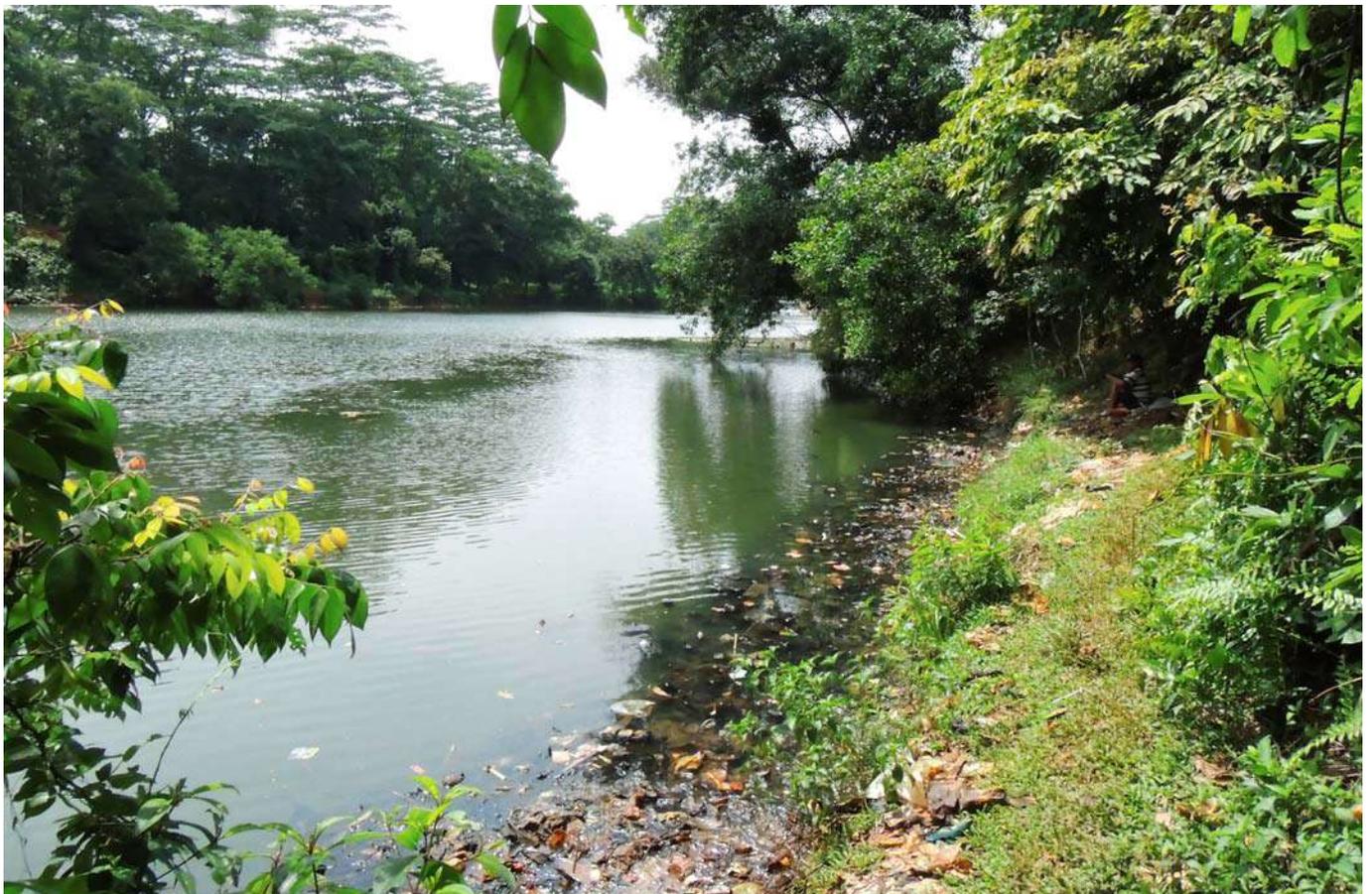


Left page: Fulvous-breasted Woodpecker (*Dendrocopus macei*) - 1. Tiny Green Grasshopper (*Conocephalus* sp.);
2. Yellow-tailed Ashy Skimmer (*Potamarcha congener*); 3. Blue-eared Kingfisher (*Alcedo meninting*); 4. Cricket Frog (*Rana nicobariensis*);
5. Green-crested Lizard (*Calotes jubatus*); 6. Water Monitor (*Varanus salvator*)



8. Universitas Indonesia

The University of Indonesia Urban Forest covers a total of 90 hectares, of which 55.40 ha are located in the wider city area of Jakarta, with the rest belonging to the Depok municipality. The lakes serve as a water catchment and the forest helps to absorb the air pollutants of wider Jakarta. Students of biology, chemistry, pharmacy and geology come here for field trips and research as part of their academic education. The combination of campus, research site, recreation, water reservoir and wildlife habitat is an excellent example of how nature conservation not only serves the environment itself, but can also be highly beneficial to humans. Due to the lush vegetation a large variety of wildlife and plants can be found here. The forest also plays an important role as a resting site for several species of migrating birds of prey, like the Oriental Honey Buzzard (*Pernis ptilorhynchus*), the Japanese Sparrowhawk (*Accipiter gularis*) or the Chinese Goshawk (*Accipiter soloensis*).

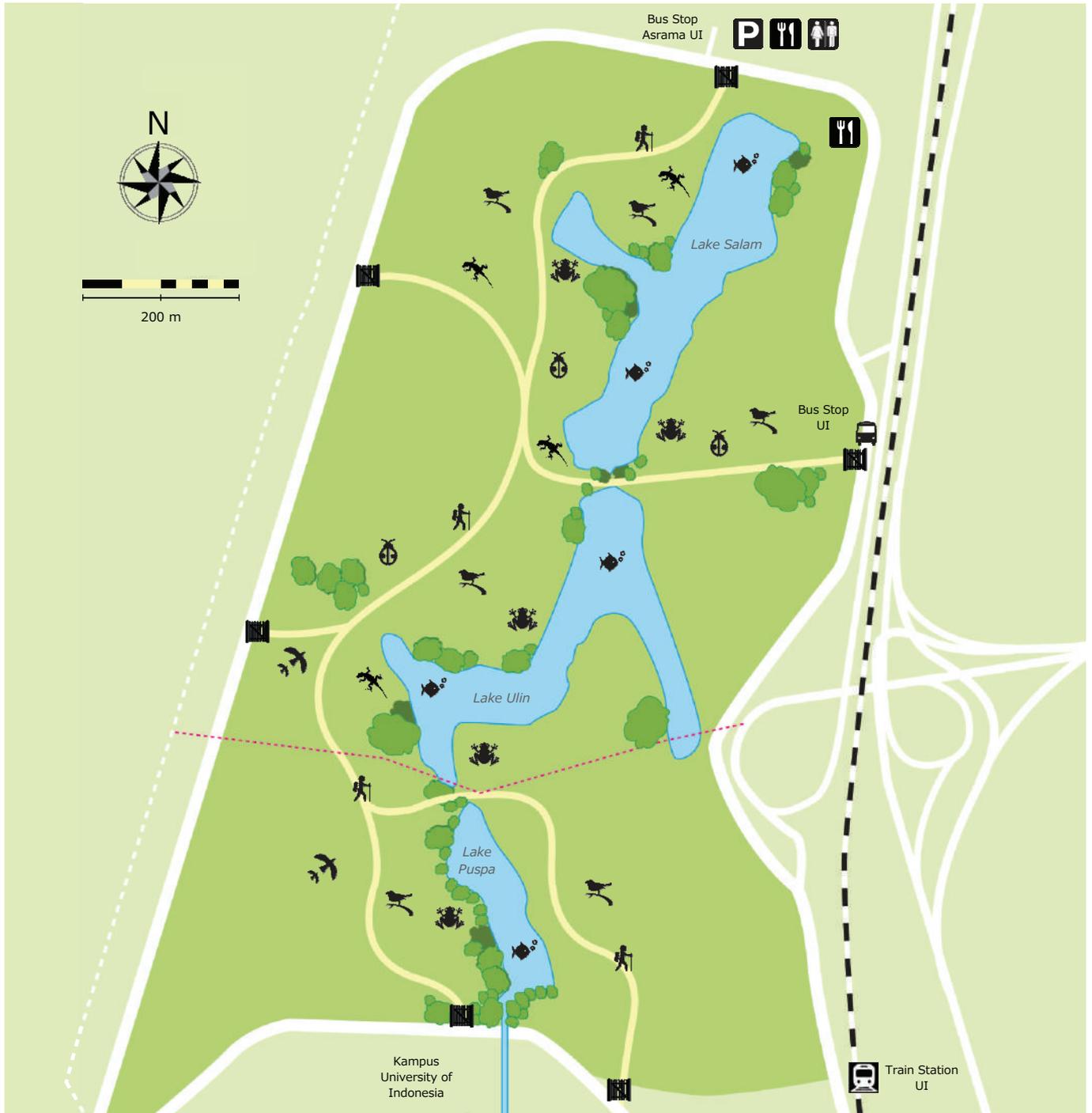


The university's urban forest consists of a freshwater ecosystem, two miniature versions of the typical forest types found in the east and the west of the archipelago and a section maintaining plant species endemic to the wider Jakarta region. The diversified vegetation is inviting, offering extensive walks to explore the flora and fauna. Early mornings and afternoon hours provide the best opportunities for bird-watchers and nature photographers. The nearby university buildings have eating facilities, praying rooms and public toilets.



Detail Map of Urban Forest University of Indonesia

(06° 21' 01.05" S and 106° 49' 46.51" E)



Icons:

Insect observation	Bird watching	Parking area	Public toilet	Walking trail
Amphibian habitat	Water habitat	Walk-in gate	Information center	
Reptile habitat	Migration zone	Cafeteria		

Getting there: Take the train to Bogor and get off at the University Indonesia Station. From there you can take the shuttle bus to the university until the Asrama UI bus stop.

Coming with own transport (car or motorcycle) take the road from Pasar Minggu, Lebak Bulus or Pasar Rebo to Depok (Jalan Lenteng Agung Raya) and after Pancasila University follow the signage to the University of Indonesia.

Admission: Free; parking facilities at the Asrama UI (against donation to the security person in charge)



Fauna in Universitas Indonesia



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1. Black Red Tiny Grasshopper (*Conocephalus* sp.); 2. Oriental Whip Snake (*Aetulla prasina*); 3. Oriental Honey Buzzard (*Pernis ptilorhynchus*); 4. The Tailed Jay (*Graphium agamemnon*); 5. Vegetable Grasshopper (*Atractomorpha crenulata*); 6. Multi-coloured St. Andrew's Cross Spider (*Argiope versicolor*); 7. Many-lined Sun Skink (*Eutropis multifasciata*) - Right page: Lesser Short-nosed Fruit Bat (*Cynopterus brachyotis*)





9. Arboretum Cibubur

The Ministry of Forestry and the National Boy Scout Association established Arboretum Wanawisata Pramuka Cibubur in February 1981, in cooperation with the Ministry of Agriculture. Former president Soeharto officially opened the arboretum in 1985 as a place where trees, shrubs and herbaceous plants could be cultivated for scientific and educational purposes. Covering an area of 20 ha, with a flat to gently sloping topography, this urban forest displays a large collection of tropical plants from many different parts of the country. Typical for the area is the Latosol soil, a red-yellow type of tropical rainforest soil, with a thin but very fertile layer of humus. Rainfall reaches around 2,800 mm (110") with 147 rainy days almost evenly each year. In March and April there is a great chance for bird-watchers of seeing the Oriental Honey Buzzard (*Pernis ptilorhynchus*) or the Japanese Sparrow Hawk (*Accipiter gularis*) when they use Cibubur as a stopover during migration.



Common Dartlet (*Oriens gola*)



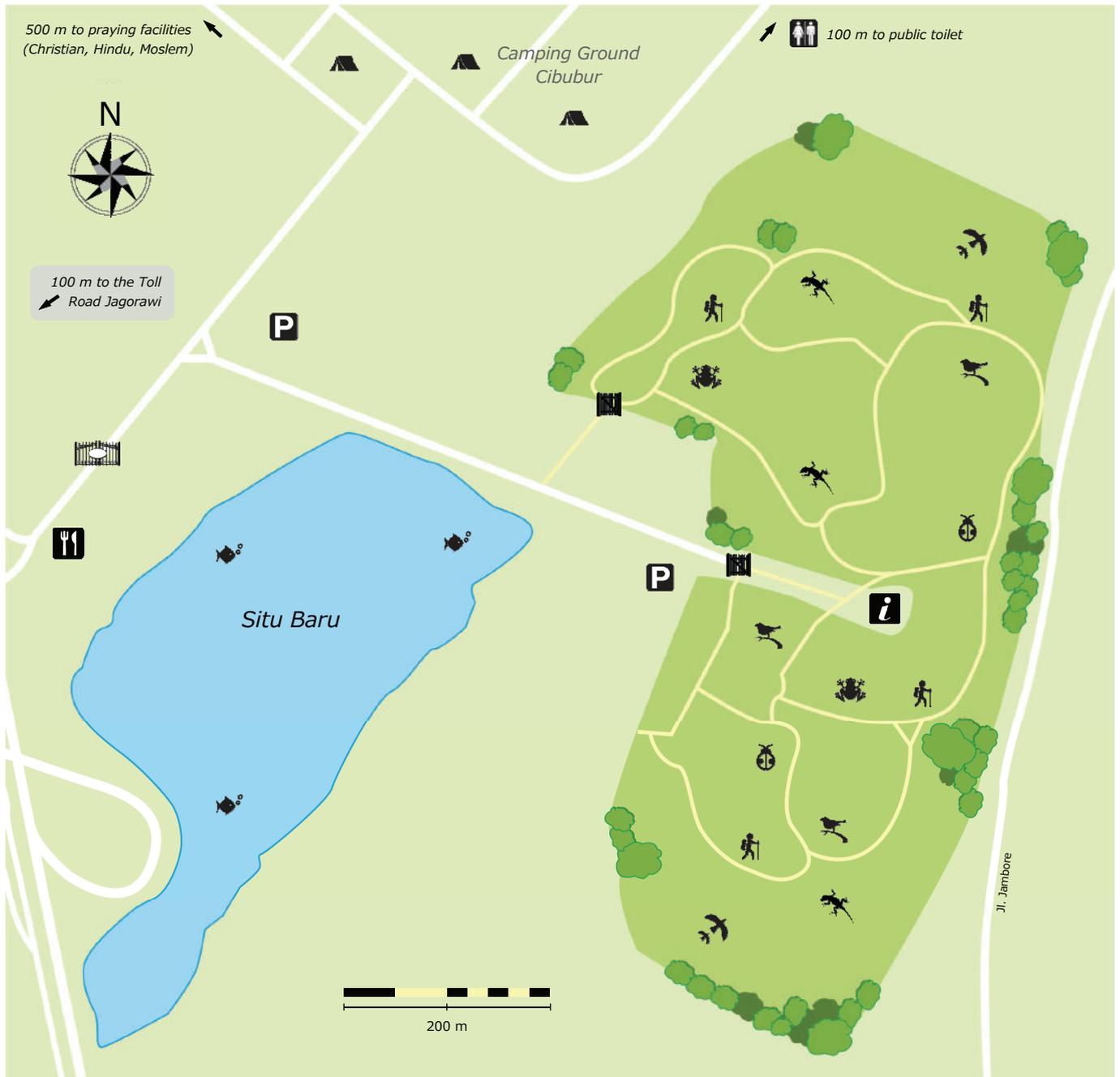
This urban forest and the nearby lake offer a great escape, right at the edge of busy Jakarta, inviting the visitor for long walks to explore the wide variety of tropical plants. Students often come here for their surveys and studies. The arboretum is home to many species of butterflies, dragonflies and insects. Bird-watching and nature photography are usually best in the early mornings and in the late afternoons. The arboretum has an information centre for visitors interested in learning more about the history and the urban forest, while the neighbouring camping ground has eating facilities and public toilets.

Many-lined Sun Skink (*Eutropis multifasciata*)



Detail Map of Urban Forest Arboretum Cibubur

(06° 20' 01" S and 106° 70' 31" E)



Icons:

Insect observation	Bird watching	Parking area	Public toilet	Entrance gate
Amphibian habitat	Water habitat	Praying room	Information center	Camping ground
Reptile habitat	Migration zone	Cafeteria	Walking trail	Walk-in gate

Getting there: Take the Angkutan T16 from Pasar Rebo, East Jakarta, to Cibubur and get off at the entrance gate of the Camping Ground. Coming with own transport (car or motorcycle) take the Jagorawi Toll Road to Bogor and use the exit Cibubur. Follow the road until you reach the entrance gate of Cibubur Camping Ground.

Admission: It is free to enter the Urban Forest, but for research and exploration activities a permit from the Agriculture and Fisheries Service of DKI Jakarta is required. To enter the camping ground, tickets are Rp. 6,000/person. For parking the prices are Rp. 5,000 for motorbike, Rp. 8,000 for cars and Rp. 15,000 for busses.





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Fauna in Arboretum Cibubur



Left page: Spotted Grasshawk (*Neurothemis ramburii*) - 1. Jeweled Flower Mantice (*Creobroter gemmatus*);
2. Javan Kingfisher (*Halcyon cyanoventris*); 3. Honey Bee (*Apis mellifera*); 4. Green-crested Lizard (*Calotes jubatus*);
5. Asian Toad (*Bufo melanostictus*); 6. Yellow-lined Jumping Spider (*Epeus flavobilineatus*)



10. Situ Rawa Dongkal

Situ Rawa Dongkal is situated in East Jakarta, around two km away from the *Arboretum Cibubur*. It has originally been established as a water reservoir. With an elevation of around 72 metres above sea level it plays an important role for Jakarta's water back-up. Later on the government in Jakarta decided to create an urban forest around the area which today covers around 3.8 ha. Besides gradually establishing functioning water and land ecosystems, this urban forest also serves as a seed collecting site and tree nursery for plants which later will be used for greening activities in East Jakarta.

Besides recreational activities for the surrounding population Situ Rawa Dongkal has become popular as a fishing site. The process of establishing the area as an urban forest on the one hand reflect the effort of Jakarta's government in trying to reach the target of converting a total of initially 20 and later 30 percent of the city's territory into open green spaces. On the other hand it shows the possible combination of human benefits (as a water reservoir) and nature conservation.



Green-crested Lizard (*Calotes jubatus*)

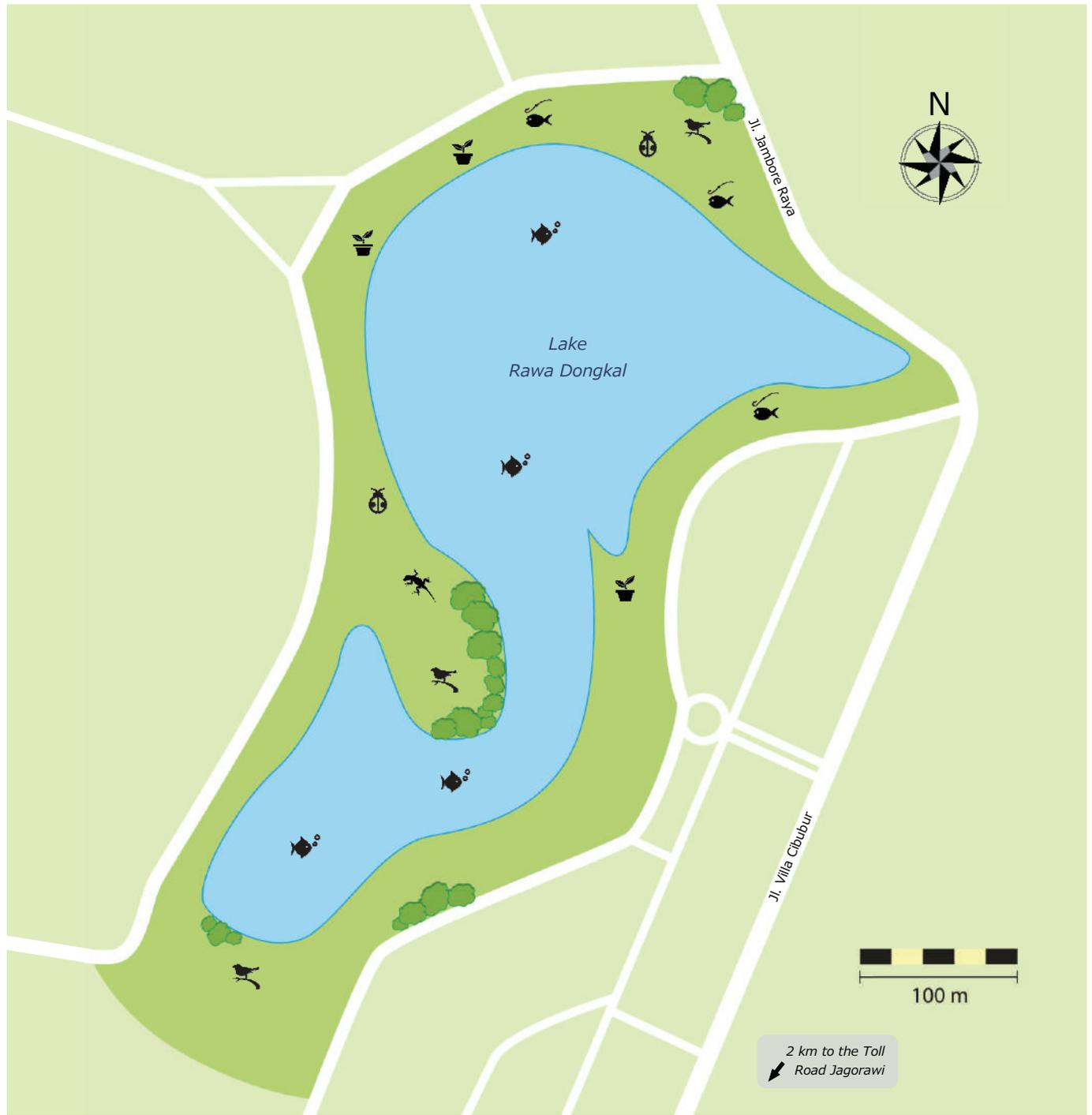


The water reservoir and the surrounding urban forest provide a great destination for people who need to escape the city for a while. A day out can be combined with a visit to the nearby arboretum in Cibubur. Situ Rawa Dongkal is good for observing and studying dragonflies. The colourful Blue-eared Kingfisher is also a common site. Early morning and later afternoon hours provide the best opportunities for nature photographers and bird watchers. Please note that there are no proper hiking trails or visitor facilities like public toilets or a praying room, yet.



Detail Map of Urban Forest Situ Rawa Dongkal

(06° 23' 06" S and 106° 45' 11" E)



Icons:

 Insect observation	 Bird watching	 Reptile habitat	 Water habitat	 Fishing
 Amphibian habitat	 Tree nursery			

Getting there: Take the Angkotan T16 from Pasar Rebo, East Jakarta, to Cibubur and get off at the bus stop at Urban Forest Situ Rawa Dongkal. Coming with own transport (car) take the Toll Road from Jakarta to Bogor or Jalan Raya Bogor to the Arboretum Cibubur. From there, follow the road to Pasar Rebo and you will find Situ Rawa Dongkal by the road side.

Admission: Free; please note that there are no official parking facilities directly nearby the lake area.



Fauna in Situ Rawa Dongkal



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1. Blue-eared Kingfisher (*Alcedo meninting*); 2. Common Flangetail (*Ictinogomphus decoratus*); 3. Green-crested Lizard (*Calotes jubatus*); 4. Scaly-breasted Munia (*Lonchura punctulata*); 5. Water Monitor Lizard (*Varanus salvator*) - Right page: Plantain Squirrel (*Callosciurus notatus*)





Wouldn't it be nice to have them back?



(Photo: Rich Vial)

Java Sparrow (*Padda oryzivora*)



Greater Racket-tailed Drongo (*Dicurus paradiseus*)

The once deep ties of Jakarta's citizens towards nature are reflected in the fact that four of the city administrations chose birds as their heraldic symbols: While the Little Egret (*Egretta garzetta*) of West Jakarta and the Spotted Kestrel (*Falco moluccensis*) of Central Jakarta can still be seen in the city area, East Jakarta's Greater Racket-tailed Drongo (*Dicurus paradiseus*) and South Jakarta's Java Sparrow (*Padda oryzivora*) have disappeared from Jakarta's urban environment.

Cynical minds might suggest to simply pick new mascots and change the logos instead of taking the effort of trying to rebuild vital populations of these, once widespread bird species. But keeping in mind the wider context, a project that unfolds along the reintroduction of those two missing bird species may actually be a promising initiative for the successful management of urban green spaces and biodiversity in Jakarta. Yet, some major elements such as a clearly defined goal, a high degree of transparency, and the division into doable steps with tangible and visible milestones, will be required to ensure successful implementation.



East Jakarta
(Greater Racket-tailed Drongo)

West Jakarta
(Little Egret)

Central Jakarta
(Spotted Kestrel)

South Jakarta
(Java Sparrow)

Jakarta's city administrations originally chose birds as heraldic symbols for their emblems.



One of the biggest threats for popular cage birds like the Java Sparrow is the fact that they get caught in the wild instead of being bred in captivity. Other birds get caught and used for traditional medicine or hunted just for fun.

Birds are considered quite sensitive towards environmental changes regarding their habitat, and their presence – or absence – can therefore act as a reliable indicator for the actual condition and stresses of an urban environment. Naturally, the reintroduction of a species goes along with (re-)establishing the natural habitat and living conditions required by this particular animal or plant. Consequently, reintroducing a species into a city environment usually leads to an increase in green areas which, besides providing a habitat for the promoted species, comes along with many additional benefits for human well-being, the climate, and overall biodiversity in Jakarta.

In the case of the Java Sparrow and the Greater Racket-tailed Drongo, a campaign will have to be developed to promote their reintroduction into the Jakarta urban environment. Promoters of Jakarta's lost mascots could, for instance, list the specific needs of the two bird species and, based on this overview, develop doable steps and milestones aiming at successfully building up again a stable population of the Java Sparrow and/or the Greater Racket-tailed Drongo in Jakarta.



Once the strategy has been developed, implementation can be promoted on several levels. While real estate developers can consider relevant aspects in their landscape designs, home garden owners on a smaller scale can be educated and invited to create elements needed by birds in their own gardens. Also larger hotel complexes, for instance, usually have the flexibility to modify the environments they are working in towards a species' requirements. Furthermore, planners of open green spaces and the managing authorities also have the opportunity to support such an ongoing joint venture by choosing the right vegetation in the targeted areas, for example in cemeteries, urban forests and parks.

As the Java Sparrow is a popular cage bird in Jakarta (which also hosts the largest bird market in Asia), law enforcement – based on existing regulations prohibiting the trade with this species – would be another crucial necessity to protect a still young and vulnerable population of the Java Sparrow. Also youth groups, school classes, NGOs or volunteers could be of great support in monitoring the progress during the first implementation stages. Once a viable population has been established, the communities can be involved under the guidance of the local authorities to safeguard the long-term success of such a reintroduction project.

Ideally, and surely relevant for enhancing the overall biodiversity in a place as big as Jakarta, all institutions need to agree on the target and support the process within their authorities. In the particular circumstances regarding the Java Sparrow and the Black-tailed Drongo, a locally initiated community project focusing on the reintroduction of the once native bird species still found outside of the city borders could be evenly promising - even with only limited government support.

Along the implementation of such a project, Jakarta's city emblems could function as pegs for public awareness campaigns pointing out the importance of biodiversity and open green spaces in Jakarta. Through environmental education about biodiversity and conservation such flagship species are suitable to reveal the possible impacts of climate change. A first step into this direction has been the selection of the original logo for the Transjakarta Busway. By choosing a bird species, namely the Brahminy Kite (*Haliastur indus*), which is also the symbol of Jakarta province for flora and fauna, the municipalities wanted to emphasize the environmental friendliness of public transport services in Jakarta.

Wouldn't it be worth trying? Wouldn't it be nice to have them back?



The "Melia Purosani" Hotel in Yogyakarta launched its conservation programme for the Java Sparrow in 2009. By providing suitable nesting material and appropriate breeding facilities the project has been able to reintroduce a stable population of the threatened bird species within the hotel compound.



The project has become a demonstrative example for successful conservation efforts on a small scale level based on private sector initiative. Hotel "Melia Purosani" attracts visitors from many places and functions as a field study site for school groups and students.



About this brochure

Following a series of events organised by FORCLIME in 2011 and 2012 on the role of forests and urban biodiversity (photo contests, exhibitions, workshops), the programme collaborated with the local NGOs “Transformasi Hijau” and “Indonesia Wildlife” to produce a guidebook to the urban forests and remaining wildlife habitats in Jakarta.

This brochure provides an overview of ten urban forests in Jakarta, including photographs, maps, as well as existing biodiversity at each location. It so informs the interested reader about places in Jakarta where nature – as a place to escape the busy city life – can still be experienced. For nature lovers and wildlife photographers the urban forests described here offer the opportunity to discover Jakarta’s remaining diversity of plant and animal species, such as the endangered Sunda Coucal (*Centropus nigrorufus*) or the Black-winged Starling (*Sturnus melanopterus*).

Through this publication FORCLIME wants to promote the importance of functioning urban ecosystems and the still existing biodiversity in Jakarta. Yet, achieving the city’s ambitious goal of converting a total of 30% of Jakarta’s territory into “Open Green Spaces” will require the participation and commitment of all stakeholders – from the municipalities to the individual citizen. Only then can this promising approach contribute to the protection of both existing biodiversity and the reintroduction of animal and plant species once present in the region.

About FORCLIME

The Forests and Climate Change Programme (FORCLIME) supports the efforts of the Government of Indonesia to mitigate climate change by protecting forests and to maintain their capacity to provide goods and services sustainably for the benefit of the people. Supporting the reform of the forest administration, capacity development and implementation of best management practices for sustainable forest management and biodiversity conservation are among the avenues chosen to contribute to the government’s targets. In selected districts of Kalimantan the programme invests in demonstration activities to show the feasibility of a scheme to *Reduce Emissions from Deforestation and Forest Degradation* (REDD+). FORCLIME is an Indonesian-German cooperation programme jointly implemented by the Indonesian Ministry of Forestry, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and KfW Entwicklungsbank (KfW). The German contribution is funded by the German Federal Ministry for Economic Cooperation and Development (BMZ).

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As an international cooperation enterprise for sustainable development with worldwide operations, the federally owned Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH supports the German Government in achieving its development policy objectives. It provides viable, forward-looking solutions for political, economic, ecological and social development in a globalised world. Working under difficult conditions, GIZ promotes complex reforms and change processes. Its corporate objective is to improve people’s living conditions on a sustainable basis.

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“Kampung Kite Kalo Bukan Kite Nyang Ngurusin Siapa Lagi?”

(‘If we don’t care about our hometown, who else will?’)



URBANFORESTS

Open Green Spaces and Biodiversity in Jakarta



FORCLIME is a programme implemented on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ) and the Ministry of Forestry of Indonesia.



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