Otters, boars and monkeys, oh my! Connecting development, conservation and wildlife encounters in Singapore.

By Isaiah Han Yung Kwang

Sustainable Cities & Communities and Life on Land: Biodiversity loss and human-wildlife interactions are consequences of many issues, including the introduction of alien species and overhunting. While Singapore is clamping down on invasive species, there is another primary factor that should not be overlooked: development-induced habitat loss. Forest-adapted organisms are struck especially hard since establishing new populations in different habitats is difficult. Moreover, urban-adapted creatures are still susceptible to becoming roadkill. Though the government already has measures enacted to mitigate these impacts of deforestation, how exactly can ordinary citizens be empowered to tackle this giant?

When a family of smooth-coated otters (*Lutrogale perspicillata*) bask outdoors, crowds gather to snap charming photographs of them. However, if a wild boar (*Sus scrofa*) trots by, people cautiously keep their distance.

No matter how alluring one might seem, both species are still wild animals. Cases of human-wildlife interactions have risen, with boars and otters involved in injury-ending encounters.

Otters crossing a road in Singapore. (Image: Facebook/Ottercity/Tan Yong Lin)

While feeding is seen as a reason for these encounters, the onus should not solely be on individuals. Fundamentally, habitat loss is one key factor driving such interactions.

Worse still, many more flora and fauna are not urban-adapted[1]. Out of Singapore's estimated 45,000 species[2], 77 percent of Singapore's animal species and 980 plant species are threatened, according to the International Union for Conservation in 2003[3] and a 2019 publication[4] respectively. The cream-coloured giant squirrel (*Ratufa affinis*) is one considered to be extirpated since 1995, based on a 2011 publication[5].

Hope is not lost

Although alarming, Dr. Adrian Loo, Group Director for Wildlife Management from the National Parks Board (NParks), elaborates on the actions taken to curb further biodiversity loss. Singapore's last few primary forests at Central Catchment Nature Reserve (CCNR) and Bukit Timah Nature Reserve (BTNR) are heavily protected, since most of Singapore's biodiversity resides there.

As for cleared greenery, young secondary forests (having less diverse wildlife) or woodland would typically be chosen. For example, much of the cleared Bayshore forests were planted on reclaimed land.

However, given their local significance, not all secondary forests are destroyed either.

"Certain nature parks are buffers for primary forests, such as Zhenghua, Chestnut and Thomson," stated Dr. Loo. Buffers minimise the edge effect surrounding infrastructure has on forests. Large amounts of light and heat generated by buildings can lead to mass transpiration in these primary forests, resulting in their slow death.

Simultaneously, these zones are conservation hubs. Thomson Nature Park accomplishes this well, with the Raffles' banded langur (*Presbytis femoralis*) as the focal species. Native flora, including two critically endangered locally: the Singapore ginger (*Zingiber singapurense*) and rambutan (*Nephelium lappaceum*), were planted to fit their diet. Additionally, rope bridges for the primates were constructed across Old Upper Thomson Road, reducing roadkill incidences between CCNR and the park.

Other species with conservation efforts include the Singapore freshwater crab (*Johora singaporensis*) and sunda leaf fish (*Nandus nebulosus*). Even fungi are monitored - with the sculptured toadstool (*Amanita sculpta*) rediscovered in 2020[6].

Environmental Impact Assessments (EIAs): connecting the agencies together

Ar. Ms. Lim Shu Ying, Director (Urban Design) from the Housing and Development Board (HDB) explains that HDB is committed to protecting Singapore's green spaces, prioritising those with conservation value. However, given the country's size, some greenfield sites will be developed to meet land use needs.

To mitigate developmental impacts, EIAs are initiated before any project. Community stakeholders and agencies like NParks are consulted to consider the EIAs, before an environmental management and monitoring plan is executed. According to Dr. Loo, NParks is the greening agency for HDB in the Ministry of National Development.

Mr. Lionel Ang, HDB's Director (Infrastructure Engineering), said that vegetation is directionally cleared in phases, allowing animals to move ('shepherded') to adjacent plots in a preselected direction. Remaining animals and plants are then translocated appropriately. Though animal displacement should be minimised, some unfortunately become roadkill or are put down due to human-wildlife injuries. Perhaps more could be done to monitor their movement.

Collaborating with others

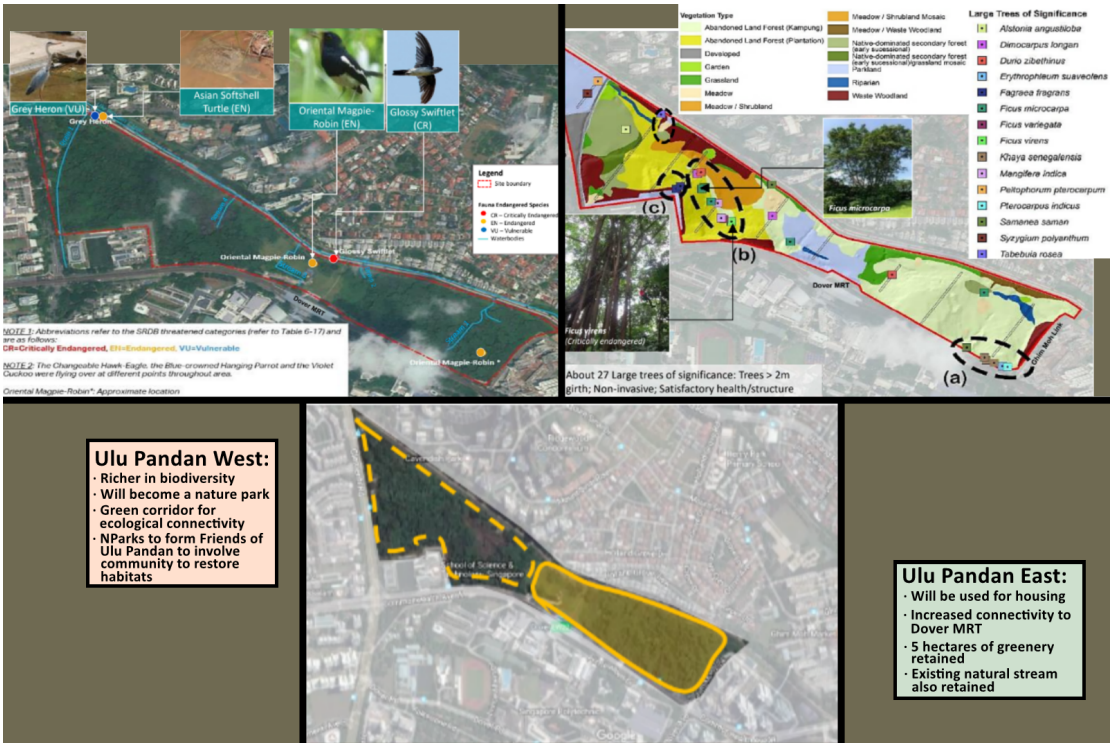
"We would actively engage nature groups for various development areas," commented Ms. Lim. The Herpetological Society of Singapore (HSS) has been invited before, according to Mr. Kannan Raja, scientific officer of HSS. Ms. Anbarasi Boopal, co-chief executive from Animal Concerns Research and Education Society expressed the same sentiment.

Ms. Boopal also noted that human-wildlife interactions stem from habitat fragmentation (created microhabitats). The upcoming Bidadari estate is one example of a microhabitat, since greenery is integrated with it. Hence, at HDB's MyNiceHome Roadshows, NParks was invited to share with future residents ways to harmoniously coexist with these species, mitigating such encounters' impact.

Empowering Singaporeans

"COVID-19 has played a big part in making people aware of green spaces," said Ms. Navene Elangovan, environmental reporter from TODAY.

This is reflected in the 2021 Ulu Pandan ('Dover Forest') case, with many people wanting the forest preserved. Their voices were heard in 1,800 responses from HDB's public consultation and over 50,600 signatures from online petitioning; prompting HDB to revise the development plans.



Ulu Pandan EIA. From the left, clockwise: threatened fauna, significant large trees and habitat types, projected zoning plans (Image: HDB)

Ms. Navene opined that these compromises could be seen as “kicking the can down the road”. However, Dr. Loo reassured that though marked for housing, it is up to the next generation to decide to continue conserving these forested zones.

Essentially, Singaporeans should persist in expressing their concerns over habitat loss. As seen in Dover, changes can be made.

Education and conservation

Despite such progress, all interviewed stakeholders agreed that more education is needed. Mr. Lee Wee Meng, co-director of the Biodiversity Cell of youth environmental group NUS SAVE, said that “young people are not aware of these developments”, with Bayshore as an example; in light of the society receiving more members in 2022.

NParks’ Community-In-Nature programmes, nature walks organised by NUS SAVE and HSS and joining education groups like Nature Kakis (an NParks and People’s Association initiative localised in different regions, Boon Lay being one), spark interest in wildlife; extending beyond photography.

People can contribute to surveys by documenting specific species found in particular habitats and sharing the data with NParks; aiding in their conservation, especially for lesser-known species.

NUS SAVE's nature walk to the Southern Ridges (Image: Lee Wee Meng)

Transparency and teamwork are needed going forward

Further efforts to relay the government's efforts to citizens should be considered. More cross-agency outreach could be implemented, with HDB and NParks present to explain their roles during development. HDB could also reassess its housing needs and opt for methods with minimal habitat destruction, like recycling land in old towns.

While Singapore has seen improvements in balancing development and conservation, she must stay vigilant. Continued collaboration and review of developmental practices will ultimately pave the way for wildlife to thrive in our urban nation.

References:

Special credits to the following stakeholders for providing valuable insights:
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NParks: Adrian Loo
ACRES: Anbarasi Boopal
HSS: Kannan Raja, Shivaram Rasu
NUS SAVE: Ryan Fan, Lee Wee Meng
TODAY: Navene Elangovan

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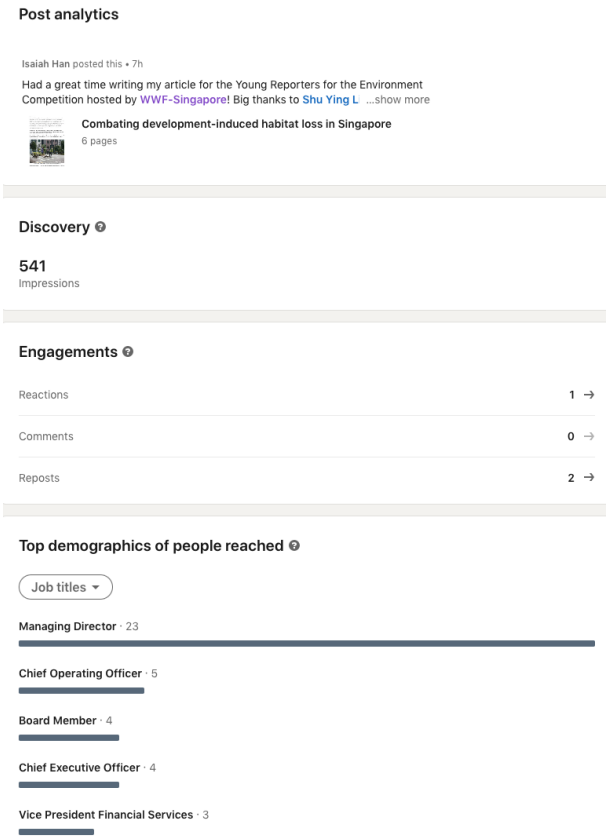

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