

The Community in Nature Initiative Reconnecting Singapore's Urbanites with Nature

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Images by National Parks Board

In an increasingly urbanised world, there is a growing disconnect between the people who live in cities and the natural environment. Urbanites tend to have less contact with natural habitats and biodiversity than their country or rural counterparts, and in some cases, they have been known to develop a disinterest or distaste for natural settings. This "Nature-Deficit Disorder", as described by Richard Louv in his 2005 book *Last Child in the Woods*, is hypothesised to contribute to a range of behavioural problems, particularly in children. While Singapore is often considered to exemplify urban greenery, it is undeniably a city where this disconnect is manifested in much of the population. Most citizens are hard-pressed to identify even the most common of bird species, and it is not unusual to hear a child refer to the outdoors as "dirty".

In Singapore, nature conservation is not part of the public psyche, and much has to be done to improve the general awareness of, as well as encourage participation and stewardship in, nature conservation. While a large majority of Singaporeans recognise the value of nature, less than half are keen in participating in nature conservation efforts. As part of the national strategy to conserve Singapore's natural heritage, the National Biodiversity Centre of National Parks Board (NParks) has developed the "Community in Nature" initiative. This initiative aims to synergise and coordinate all nature-related events, activities, and programmes to better reach out to the community to encourage people to bond over and with nature. To cater to the various needs of different segments of the

community, its programmes are currently tailored to target schools, families, and citizen scientists.

Schools

As educational institutions, schools are natural targets for increasing awareness of biodiversity and environmental education. As ecological and environmental education are scarce in the Singapore curriculum, enrichment programmes provide an alternative avenue for students to learn about our biodiversity. While such programmes have been around for a long time, newer programmes have made use of recent developments in pedagogy and technology to enhance the learning experience.

Greening Schools for Biodiversity

"Greening Schools for Biodiversity" was initiated in 2014 to encourage student participation in caring for their school grounds and the environment. Open to students aged 10 to 18, the programme promotes the targeted planting of bird-, butterfly-, and/or dragonfly-attracting plants, guided by the results of student-led biodiversity audits. Through this programme, habitats are not only created for animals. By bringing entire school populations closer to nature, the resultant green network of schools also has the potential to act as linkways for wildlife movement between nature areas across Singapore. Participants of the programme are also encouraged to learn about, appreciate, and support local biodiversity.

The training programme equips students with skills to enhance the biodiversity on their school grounds. Over the

programme, students learn to use Google Earth to create vegetation maps and conduct land-use surveys. Subsequently, they also learn to survey the flora and fauna in their school during a biodiversity audit, in which they gain hands-on experience in conducting wildlife surveys while honing their observational skills. Guided by the information collected in the earlier biodiversity audit, students identify potential areas for planting by evaluating the site conditions around their school. They also brainstorm for ideas to increase the appreciation and awareness of biodiversity among their peers, teachers, and beyond. Finally, students carry out the targeted planting in their selected plots, creating new biodiversity-friendly habitats on their school grounds. Through these steps, they learn to be more aware of the biodiversity in their immediate surroundings as well as the ecological linkages between species. These green pockets in built-up areas are a solution to improving the connectivity of habitats in an intensely urban country like Singapore.

Biodiversity Week for Schools

Between 18 and 22 May 2015, the inaugural Biodiversity Week for Schools was organised in observance of the International Day of Biological Diversity. Under this programme, schools could sign up for a suite of different activities, each targeted at different age groups, to celebrate Singapore's natural heritage and International Day of Biological Diversity. Here, we discuss in more detail the "Green Wave" initiative, "Playtime with Paddy the Flying Pulai" workshop, and "All About Our Trees" e-learning module.



1. Students conducting a biodiversity audit as part of "Greening Schools for Biodiversity".

Green Wave is a worldwide biodiversity campaign that educates children and youths on the importance of protecting our natural environment. On 22 May at 10am each year, students around the world plant locally important trees in their school compounds; this creates a figurative "green wave" that begins in the Far East and ripples globally. This year, NParks continued to encourage schools to plant new trees within their school grounds as a way of participating in this event. In addition, schools were encouraged to perform mulching on existing trees to promote their health. By participating in this international, symbolic initiative, students can recognise the far-reaching impacts of their actions and be inspired to take the lead in conserving local natural heritage.

Playtime with Paddy the Flying Pulai was undertaken in collaboration with Raffles Institution's Ecological Literacy programme, which seeks to instil a sense of curiosity and exploration in

students to encourage environmental advocacy. Raffles Institution students are encouraged to find ways to share their learning and insights with the community at large; most recently, this has taken the form of a storybook for younger learners, *Paddy the flying Pulai*. Due to its effectiveness in communicating environmental messages to young children, NParks has adapted the publication into a crafts workshop for preschool students to learn about some of the flora and fauna in Singapore's forests. This workshop comes with a short animation, following the adventures of the book's central character, Paddy, and concludes with a folding craft activity, in which students assemble various characters to reconstruct the habitat depicted in the book.

All About Our Trees makes use of information technology to communicate the importance of local trees to a new generation of IT-savvy youths. The e-learning module contains two short

videos, *A History of Trees in Singapore* and *Common Trees of Singapore*, along with interactive quizzes to assess the student's understanding of the module. Illustrated in the style of fast-motion whiteboard animation, which is popular on several educational channels on YouTube, this e-learning module carries an important message to youths in a medium that they can identify with. Many of the resources were created by student volunteers and young adults, who better understand what captures the interest of their peers.

Families

Family groups have enormous potential for connecting with and involving parents and children alike in conserving Singapore's natural heritage. Research into significant life experiences (SLEs) shows that early experiences in nature have a disproportionately large impact in shaping one's interest in natural history. Families are always seeking meaningful and fun recreational activities to bond



2. Preschool children display their work after completing the folding craft activity during “Playtime with Paddy the Flying Pulai”.

over; nature appreciation provides opportunities for parents to spend quality time with their children while inculcating environmental ethics into them.

“My Family’s Nature Pledge” encourages families to experience nature and learn more about local biodiversity through participation in exciting events and activities under Community in Nature. In this programme, nature appreciation is promoted as a healthy, social activity for the family to bond over. Families are provided with a customised activity-poster and invited to complete a series of 10 activities and submit a photograph of the completed work. These activities are carefully crafted to promote nature experiences and learning about biodiversity in a fun way.

In addition to these 10 activities, participants are invited to various workshops and guided walks. One recent workshop was “Art in Nature”, conducted in Singapore Botanic Gardens. During the workshop, participants were led on

a guided tour around the gardens and invited to collect fallen plant materials to create their own nature collages. Through the workshop, both parents and children better learnt to appreciate the varied forms of plants around. The session was extremely well received due to the interactive and creative nature of the activities.

Citizen Science

With increasing education and awareness, we see a growing interest in volunteers to gain more knowledge or make a more meaningful impact through their efforts. An avenue that volunteers seeking to enhance their volunteer experience can participate in is citizen science, a decades-old movement that has intensified in recent years. In the book *Citizen Science: Public Participation in Environmental Research*, Janis Dickinson and Rock Bonney define citizen science as “public participation in organised research efforts”. Recognising that the public has a significant role to play in research, scientists and academics have

been harnessing the power of the people to collect large amounts of data. Citizen science programmes have the potential to achieve more than conventional outreach objectives, as the crowd-sourced data can also be used to inform management strategies and decision-making.

NParks has rolled out several programmes aimed at the segment of society more geared towards such active participation. On 16 April 2015, NParks launched a 10-day-long nationwide bird count that saw more than 400 volunteers conducting point counts at 60 parks and nature areas. Given the relatively small birding community and lack of birding tradition in Singapore, a large proportion of the volunteers had little or no experience in birdwatching. They were thus required to attend a training session to be familiarised with 30 common garden and urban birds in Singapore that formed the baseline comparison across all sites. They were also trained in the basic skills necessary to conduct a point count and tested in the field during the training sessions.



3. A close-up of the folding craft activity kit.



4. A family participating in "Art in Nature" creating a nature collage.



5. Seagrass monitoring at Chek Jawa by TeamSeaGrass.

This ensured that data collected by both amateur and experienced volunteers could be compared across all sites, if only for the selected bird species. This programme will subsequently be run twice a year to cover both the breeding season (in April) and migratory season (in November).

One consideration of creating citizen science programmes for a nature community as nascent as the one in Singapore is the lack of knowledge and awareness of volunteers prior to volunteering. It is thus crucial to ensure that adequate training is provided, particularly for more rigorous data collection. Another birding programme, Heron Watch, teams up experienced birdwatchers with new volunteers to survey designated transects for water birds such as herons, bitterns, and egrets. Such a transfer of knowledge on the job is the approach followed by many large-scale bird surveys elsewhere and forms the foundation of many established birding communities. While NParks'

Garden Bird Count is focused on garden birds found in parkland, Heron Watch targets many coastal and riverine habitats where water birds are commonly spotted.

Citizen science programmes under Community in Nature are not limited to birds or the terrestrial environment. TeamSeaGrass is a collaboration between NParks and international organisation Seagrass-Watch, the largest scientific, non-destructive seagrass assessment and monitoring programme in the world. The team actively monitors three key seagrass meadows in Singapore—Cyrene Reef, Pulau Semakau, and Chek Jawa—which provide the baseline data necessary to identify important trends relating to the health of the meadows. This small but dedicated group of volunteers has presented its data at a local scientific symposium, proving that citizen scientists can yield useful and reliable information.

With the proliferation of smartphones, there has also been a growth in the number of mobile applications for citizen science purposes and crowd-sourcing information. Community in Nature has tapped into this by developing a new app to map the distribution of flora and fauna throughout the country. Named SGBioAtlas, the app allows users to easily record and identify biodiversity sightings that contribute towards the Biodiversity and Environment Database System (BIOME), an existing national online database of biodiversity and environment-related data, which the public can use to analyse spatial trends or search for the reported locations of specific species. Over time, this atlas will become a database of biodiversity distribution that can be used as a management and research tool.

Festival of Biodiversity

Inaugurated in 2012 by Singapore President Tony Tan Keng Yam, the Festival of Biodiversity is a signature



6. Booths and workshops at the 2014 Festival of Biodiversity.

event of Community in Nature organised annually by NParks in collaboration with the Biodiversity Roundtable (a group comprising local non-governmental organisations involved in local biodiversity issues). It is a national effort to communicate the importance of local biodiversity and its conservation to Singaporeans and residents of Singapore.

The two-day educational event involves some 100 volunteers and 40 partners comprising nature groups, biodiversity experts, schools, corporate organisations, and government agencies, each contributing to the festival's programme and exhibits. All the partners involved bring to the festival their knowledge, expertise, and resources to create a greater awareness of and interest in Singapore's natural heritage and to instil a sense of national pride to sustain our rich biodiversity for future generations.

The first festival, held in Singapore Botanic Gardens, attracted some 3,000 visitors;

the second and third festivals, which were held at a shopping mall, attracted at least 10,000 and 15,000 visitors respectively. Bringing biodiversity into the heart of a popular shopping mall allows us to proactively reach out to uninitiated passing shoppers, with volunteers passionately showcasing a plethora of plant and animal specimens and sharing interesting nuggets of information about local biodiversity. Many young children were also given an opportunity to interact with biodiversity-related activities.

Effects and Future Efforts

Even though Community in Nature is still in its early stages, the feedback to its programmes has been encouraging. More data has to be collected to fully understand their impact, but responses on the ground have been encouraging. Many participants have expressed their surprise at the amount of biodiversity that can be found in their surroundings and are keen to pursue nature activities in Singapore. By intensifying public

awareness programmes and incorporating biodiversity into school curricula, we can enhance people's appreciation of our native biodiversity and increase active participation in nature conservation activities. In the long run, Community in Nature aims to cater to a wider audience with a greater variety of programming options, while increasing its presence in schools, where educational programmes are the most impactful.

With time, we can begin to reconnect Singapore's urbanites with their natural heritage, which is crucial to the survival of our remaining natural habitats in Singapore. Historically, the public has come together before to voice objections against the decimation of key habitats, such as Chek Jawa. With increasing pressures for development, the support and understanding of the populace will be necessary to ensure that more of these natural habitats are not sacrificed, but instead, protected for many years to come. 