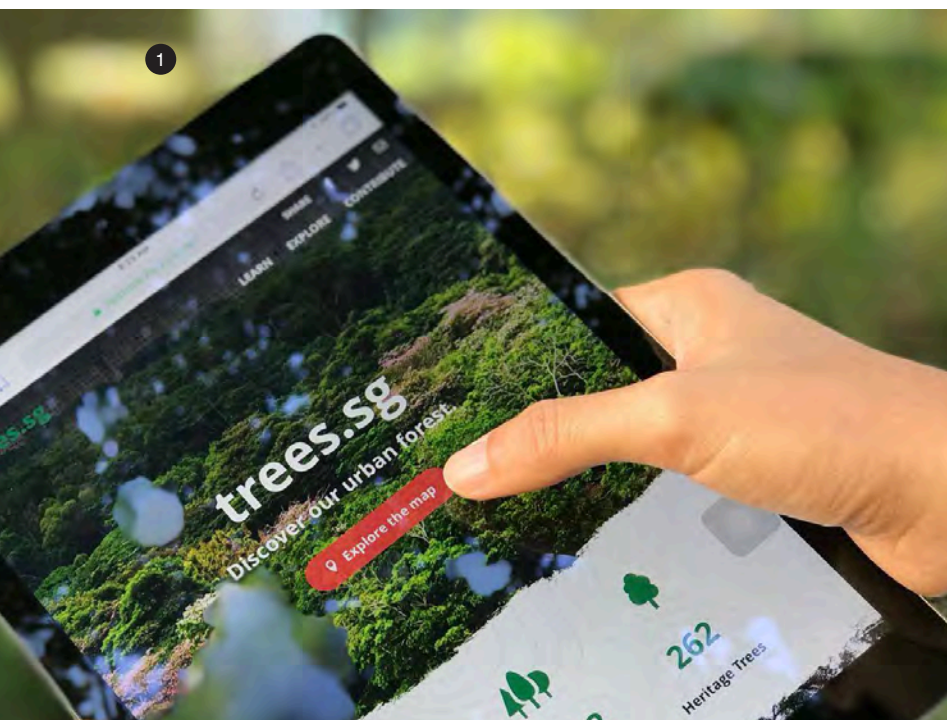


An Extensive Online Tree Map in Asia: trees.sg

Text and images by Duncan Leong



Aimed at cultivating an appreciation of trees in Singapore, the National Parks Board (NParks) launched the new online portal, trees.sg, (Fig 1) in March 2018. It is an easy platform for the general public to learn about trees in the city. Users can locate more than 500,000 trees on the interactive map, discover interesting tree biodata and interact with individual trees in various ways. During the interactive journey, they can learn about the benefits of urban trees, and how urban trees are cared for and conserved. It is one of the most extensive tree maps in Asia.

The objective of trees.sg is to creatively use information on trees to interest people in learning about the trees in their neighbourhood and thinking about what they can do for the environment. Besides attracting end-users, trees.sg has also garnered attention from local partners and international organisations alike.

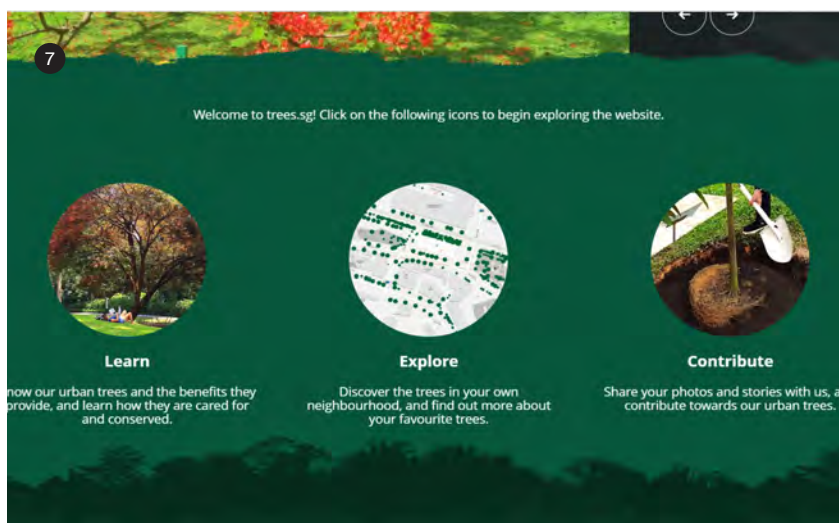
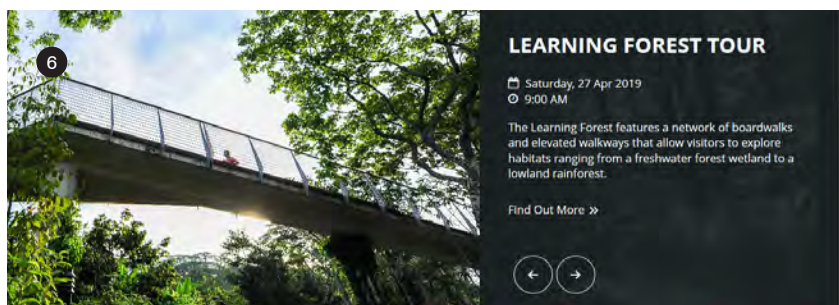
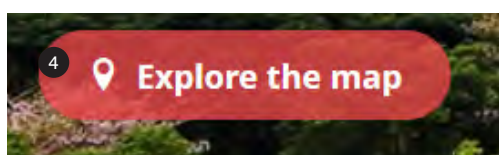
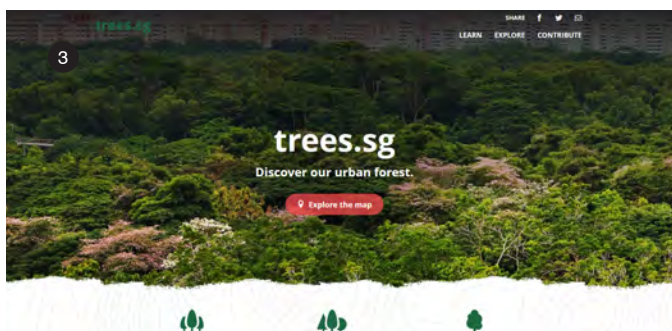
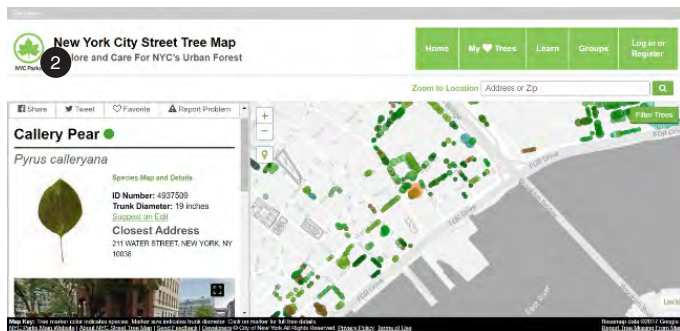
Roots of trees.sg

The roots of trees.sg can be traced back to the geospatial technology first initiated by NParks as far back as 1999, then named the Parks and Greenery Management Information System. The work involved in developing trees.sg included the conversion of non-geospatial data to geospatial information, and mapping the geospatial position and other attributes of trees.

Singapore's location on the Equator brings about a climate of perpetual summer and high rainfall, key factors that encourage plant growth. It is also a region rich in biodiversity. With the foresight of former Prime Minister Mr Lee Kuan Yew, Singapore has been placing great emphasis on safeguarding its green cover and optimising its geographical advantages over the last four decades to become the "City in a Garden" that it is renowned for today, along with the pursuit of economic success.

This branding of "City in a Garden" is one of the factors that has contributed to Singapore's distinctiveness and competitive advantage in the tropics. It has set in place a vibrant and sustainable high-quality living environment and inculcated a sense of nationhood by creating opportunities and platforms for communities to come together to partake in this vision. For the past years, the Mercer Quality of Living Survey ranked Singapore first among Asian cities in providing a high quality of living. Its greening efforts has also contributed in attracting talents to its shores (National Geographic, 2017).

1. trees.sg portal (www.trees.sg).
2. New York City Tree Map (<https://tree-map.nycgovparks.org>)
3. Homepage of trees.sg
4. Explore Map
5. Statistics Bar
6. Event Carousel
7. Featured Contents Section



Incorporating Geospatial Technology

NParks uses internal web-based management geo-database systems to integrate operational geo-spatial data such as locations of trees, park location plans, park facilities, biodiversity data, and conservation data. They also incorporate mobile tree inspection functions, which enhance the capabilities of GIS data collection on tree data and allows management of maintenance records. NParks' field crew uses the mobile tree inspection application, more commonly referred to as the "Mobile TI App", to enable the logging of data related to the species, location and overall assessment of each tree. Once data is entered and synchronised, it integrates with the geodatabase to generate a unique ID to each tree and stores it in the geodatabase.

Inaugural trees.sg Project

The inaugural trees.sg project started in May 2017. The team's scope of work included defining the requirements and design specifications, and conducting research studies, public surveys and functional testing. The first phase of the project was to perform a literature review on some of the best trees portals (Fig 2) around the world. Through surveys, feedback in the local context was gathered and compared with the findings from the foreign tree portals. Most respondents commented that trees were abundant in Singapore and these gentle green giants provided the much-needed shade from the hot sun. The shade-providing benefit of trees was mentioned by respondents of different profiles, ranging from joggers to motorists.

The team decided that the homepage's design should function as the main gateway to users in exploring information regarding trees in Singapore. It further connects users to useful external information through links (Fig 3 - 10).

TREE OF THE MONTH (APRIL 2019)

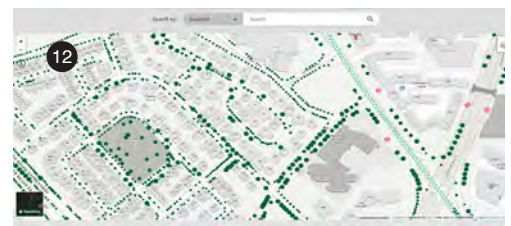


With its iconic umbrella-shaped crown, the Rain Tree provides shade in our parks and along our roads. The Rain Tree is so named because the leaflets close on overcast days. It is also called '5 o'clock' which means '5 o'clock', as the leaves fold up in the evening.

Species: *Syzygium grande*
Common Name: Jambu Laut
Location: Ayer Rajah Expressway

[Locate this tree on the map](#)

The "Tree of the Month" will be awarded to the tree which received the most number of virtual hugs over the previous month.



DID YOU KNOW?

9 Have you heard of the Handkerchief tree (*Manittoa browneoides*)? This common roadside tree in Singapore is named after its prominent flushes of young leaves, which resemble soft white handkerchiefs hanging from the tree! However, these "handkerchiefs" do not last for long. Within a few days, they start to turn green and eventually harden into mature leaves.

[Learn more about this species >>](#)

01 | 05



14 eaf" a Post, "Log" a Photo!

Name

Email

Message

0/140

Image (max. 2MB)

JDQTL

Submit

WHAT'S HAPPENING

10 Share your photos of trees around you or flowering trees by uploading them onto the correct tree in our tree map.

Golden showers

CL
15 Apr 2019

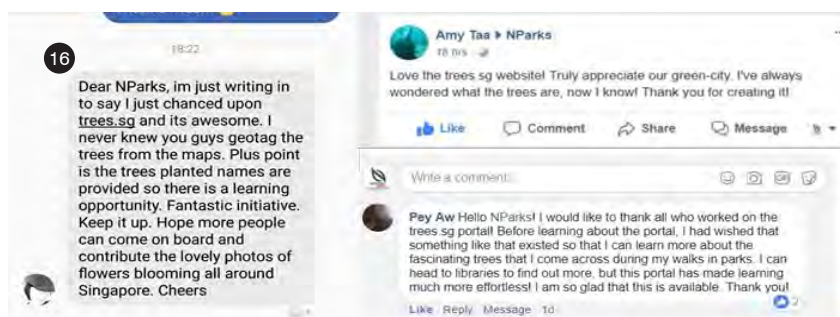
Gold!

CL
15 Apr 2019

Hello yellow!

Judith
07 Mar 2019





Tree of the Month

One of the innovative features in trees.sg is the “Tree of the Month” concept, which recognises the highest amount of “hugs”, equivalent to Facebook “likes”. A ranking of trees is formulated each month based on the total number of hugs. Visitors can easily view and find out more about the most popular trees. Within the Trees of the Month page, there are functions that enable easy social media sharing, such as on Facebook and Twitter. In addition, the “Locate this tree on the map” function directs users to the interactive map where its geographical location is displayed with other tree information.

Other Features

The quick and efficient search function (Fig 11) features a drop-down menu to allow selection between two options of search queries, whether based on location or species. For location-based searches, entering an address will prompt an autocomplete suggestion drop-down list of similar addresses. Clicking the selected address will bring users to the zoomed-in view of the corresponding area on the map. For species-based searches, entering the common or species name of a tree will prompt an autocomplete suggestion drop-down list of species names that correspond with the searched name. Clicking the selected species name will result in the marker of trees of that species to appear on the map as clusters, with a rounded-up total number.

The maps in trees.sg provide visitors panoramic views of trees in Singapore. The initial view shows clustering on the map, with information on the tree count in the specific regions, and users are also able to view information on individual tree


points (Fig 12). The tree icons are designed to differ in size according to the girth size of the tree.

The big picture perspective extends from the map to the rich tree information window (Fig 13). The default presents useful access to information such as common name, species name, family name, estimated age and physical distribution. There are also other useful functions, such as attributes, native distribution, local conservation status, fun facts and benefits. Each page is carefully designed to provide users a good experience, e.g. the length of the page has been adjusted so that users do not have to scroll down too much.

Information on tree pruning is also incorporated to share about the tree management regime. Users who wish to post a “love letter” (Fig 14) for a particular tree can do so by clicking on the “Leaf” a post or “Log” a photo!’ buttons.

Another exciting function for users is being able to post information about flowering trees. For example, they can upload photos of a flowering tree, which will result in a status change in the tree to become “I’m flowering!”. This “flowering” status will disappear after one week if there is no new post on the particular tree.

Results Achieved

Since the launch of trees.sg (Fig 15), the feedback has been encouraging (Fig 16). People from different walks of life are engaged and have shared their appreciation of urban trees in Singapore, including how urban trees are managed and the challenges involved. It has increased their knowledge of trees in their own neighbourhood. 

8. Tree of the Month Section
9. Did you Know Section
10. What’s Happening Section
11. Map search function
12. Individual tree points
13. Tree information window
14. “Leaf” a post
15. Launch of trees.sg
16. Encouraging feedback received

References

- ¹ Locatelli, Luca, Bryan Van Der Beek, Luca Locatelli, and Housing & Development Board. “This City Aims to Be the World’s Greenest.” National Geographic. August 31, 2017. Accessed March 05, 2019. <https://www.nationalgeographic.com/environment/urban-expeditions/green-buildings/green-urban-landscape-cities-Singapore/>.