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# 1. Introduction to Green Wave

Green Wave is an ongoing global biodiversity education project that empowers children and youths to make a difference – one school, one project, and one step at a time. The programme brings together children and youths from around the world to raise awareness about biodiversity, and the importance of protecting our natural environment. As part of the campaign, students around the world will plant locally important trees in their school compound annually at 10 am on 22 May, the International Day for Biological Diversity. In Singapore, this programme is organised by NParks as part of the Community in Nature (CIN) initiative.



THE GREEN WAVE

One school, one tree, one gift to nature

Find out more about Green Wave at

<https://www.facebook.com/greenwave.cbd.int>

Through the programme, students can learn about the importance of trees. Trees provide a range of goods and ecosystem services, such as producing oxygen, improving air quality, providing habitats for wildlife, reducing soil erosion and serving as a carbon sink by absorbing carbon dioxide from the atmosphere. Trees not only provide food and home for the animals, they also provide shade for smaller plants and support the growth of climbers and epiphytes, thus creating habitats for a rich variety of flora and fauna.

As Singapore moves towards becoming a City in Nature, NParks aims to restore nature back into our city. Green Wave serves as a platform for students to engage in active stewardship of the environment and contribute to the OneMillionTrees movement, in which a million trees will be planted across Singapore over the next 10 years. By taking part in Green Wave, students can also discover how trees and plants are able to counter the urban heat island effect to offer a cooler and more comfortable environment for all. These greening efforts will ensure that Singapore continues to be a highly liveable city, in the face of future challenges like increased urbanisation and climate change, as we move towards becoming a City in Nature.

Green Wave 2021 is supported by HSBC through our registered charity, the Garden City Fund, as part of our continual efforts to raise awareness and appreciation of Singapore's natural heritage.

## 2. Green Wave 2021 Plant Species

As part of Green Wave 2021, NParks will be providing the following tree or plant to participating schools on a first-come, first-served basis. Each school can indicate which species they would like to plant. Schools that do not have space to accommodate a tree can request for a potted plant instead.

### Legend for plant care instructions



Tree



Woody



Prefers full  
sun



Prefers  
semi-shade



Requires lots  
of water



Requires  
moderate  
watering



Ornamental  
foliage



Ornamental  
flowers



Roadside  
tree/palm



Native to  
Singapore



Fragrant



Suitable for  
seaside  
planting



Butterfly  
food-plant



Bee-attracting



Bird-attracting

For more information about trees and other plants in Singapore, visit NParks Flora&Fauna Web at <https://www.nparks.gov.sg/florafaunaweb/> and TreesSG at <https://www.nparks.gov.sg/treesg>.

## a. Tree Species

### *Tarennia fragrans*

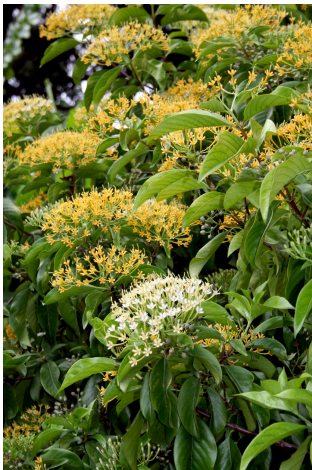
Common name: River Tarennia

Height: 6 m to 15 m

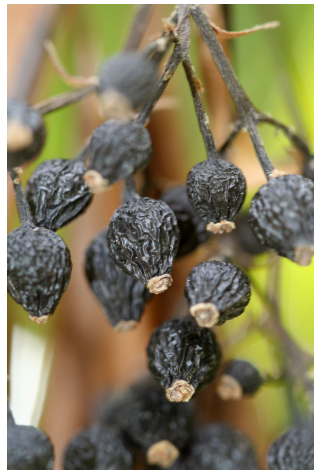


NParks Flora and Fauna Web Link: <https://www.nparks.gov.sg/florafaunaweb/flora/3/1/3175>

*Tarennia fragrans* is a native species that is naturally found in inland forests and coastal areas. It is a small low-branching tree or densely branching shrub that can grow up to 2.5 m tall, but may attain a smaller height if it grows under partial shade in limited spaces or rocky sites. Its stalked leaves have leathery blades that are usually oval to drop-shaped with a pointed tip, and are a shiny-yellowish green.



The white fragrant flowers of the *Tarennia fragrans* grow in clusters and turn yellow when mature. These flowers are pollinated by birds.  
(Photo credit: Patricia Yap, NParks Flora&FaunaWeb)



The fruits are round and green with many small brown seeds inside. They turn purplish or bluish-black when mature.  
(Photo credit: Patricia Yap, NParks Flora&FaunaWeb)



The *Tarennia fragrans* has stalked leaves that are leathery, and are usually oval to drop-shaped with a pointed tip.  
(Photo credit: Patricia Yap, NParks Flora&FaunaWeb)



## b. Potted Plant Species

### *Leea rubra*

Common name: Pucok Merah, Mali-Mali Puchuk Merah, Memali, Red Leea, Mali-Mali, Red Tree-Vine, Leea, Red Tree Shrub

Height: Up to 3 m tall



NParks Flora and Fauna Web Link: <https://www.nparks.gov.sg/florafaunaweb/flora/2/1/2192>

*Leea rubra* is a semi-woody shrub that grows up to 3 m tall, and is naturally found in dry monsoon forests, savanna, primary and secondary forests. The plant has alternate, stalked, pinnate leaves that are 30-60 cm long with many leaflets.

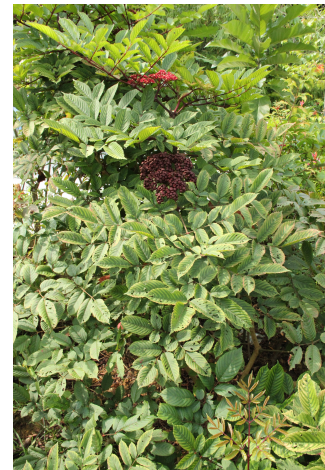
The leaves are used as a poultice to treat wounds while the roots are used for reducing fevers by inducing perspiration and for treating arthritis, rheumatism and stomachaches.



The *Leea rubra* plant has dark red or purple fruits when they are ripened. These fruits are eaten by birds and other small mammals. (Photo credit: NParks Flora&FaunaWeb)



The attractive bright red flowers of the *Leea rubra* are pollinated by several types of insects and butterflies. (Photo credit: Vicky Lim Yen Ngoh, NParks Flora&FaunaWeb)



The shrub can grow up to 3 m tall, and is suitable for planting along street sides, parks and gardens. (Photo credit: NParks Flora&FaunaWeb)


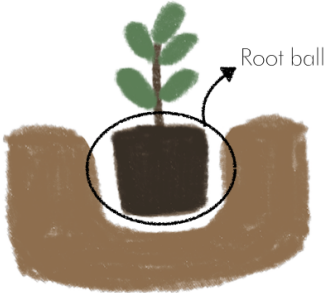

### 3. Materials Required and Planting Instructions


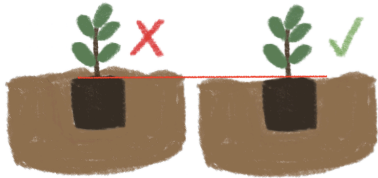
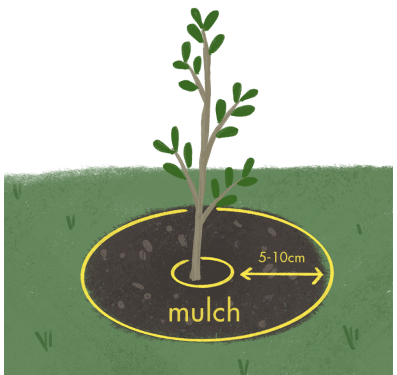
#### a. Tree Species

##### Materials required for planting

- Watering can
- Changkol
- Scissors (to cut open polythene bag)
- Approved Soil Mix (ASM)\* (loamy soil, compost, washed sand in 3:2:1 ratio)
- Mulch\*

\* Items marked with asterisks are not provided by NParks

Step 1: Site selection	<p>Ensure that the site chosen</p> <ul style="list-style-type: none"> <li>- is not waterlogged</li> <li>- has the necessary light conditions</li> <li>- has sufficient space for your tree to grow</li> </ul>	
Step 2: Preparation of planting hole	<p>Dig hole, measuring around 1m by 1m (or 3x the size of root ball) (Fig. 1).</p> <ul style="list-style-type: none"> <li>- Dimensions of the root ball (within polythene bag) and the hole can be estimated using the changkol.</li> <li>- Ensure that the hole is big enough to contain the root ball.</li> </ul> <p>If hole is prepared a few days prior to planting, backfill the hole with Approved Soil Mix* (ASM). This is to prevent waterlogging of the planting hole.</p>	 <p>Fig. 1</p>  <p>Ensure that the hole is big enough to contain the root ball.</p>
Step 3: Planting	<p>Do not water the sapling before planting. Use scissors to cut out the base of polythene bag (Fig. 2). Place the tree into the hole in an upright position. Cut away the remaining polythene bag</p>	 <p>Fig. 2</p>

	<p>around root ball. Shovel in ASM (loamy soil, compost, washed sand in ratio of 3:2:1) (Fig. 3). Cover up hole. Take care not to cover or bury the base of the trunk with soil (Fig. 4).</p> <p>If planting hole was prepared a few days prior to planting: On the day of planting, remove the backfill soil from the planting hole before following the above instructions in step 3.</p>	 <p>Fig. 3</p>  <p>Fig 4: Soil should not cover the bottom part of the trunk.</p>
<p>Step 4: Mulching &amp; Watering</p>	<p>Spread a 5 to 10 cm-thick layer of mulch* around tree to protect soil (Fig. 5). Shredded dry leaves can also be used for mulch. Water soil around tree everyday for at least 2 months.</p>	 <p>Fig 5: Spread a 5-10cm thick layer of mulch around tree to protect soil</p>

\* Items marked with asterisks are not provided by NParks

## Tree planting guide

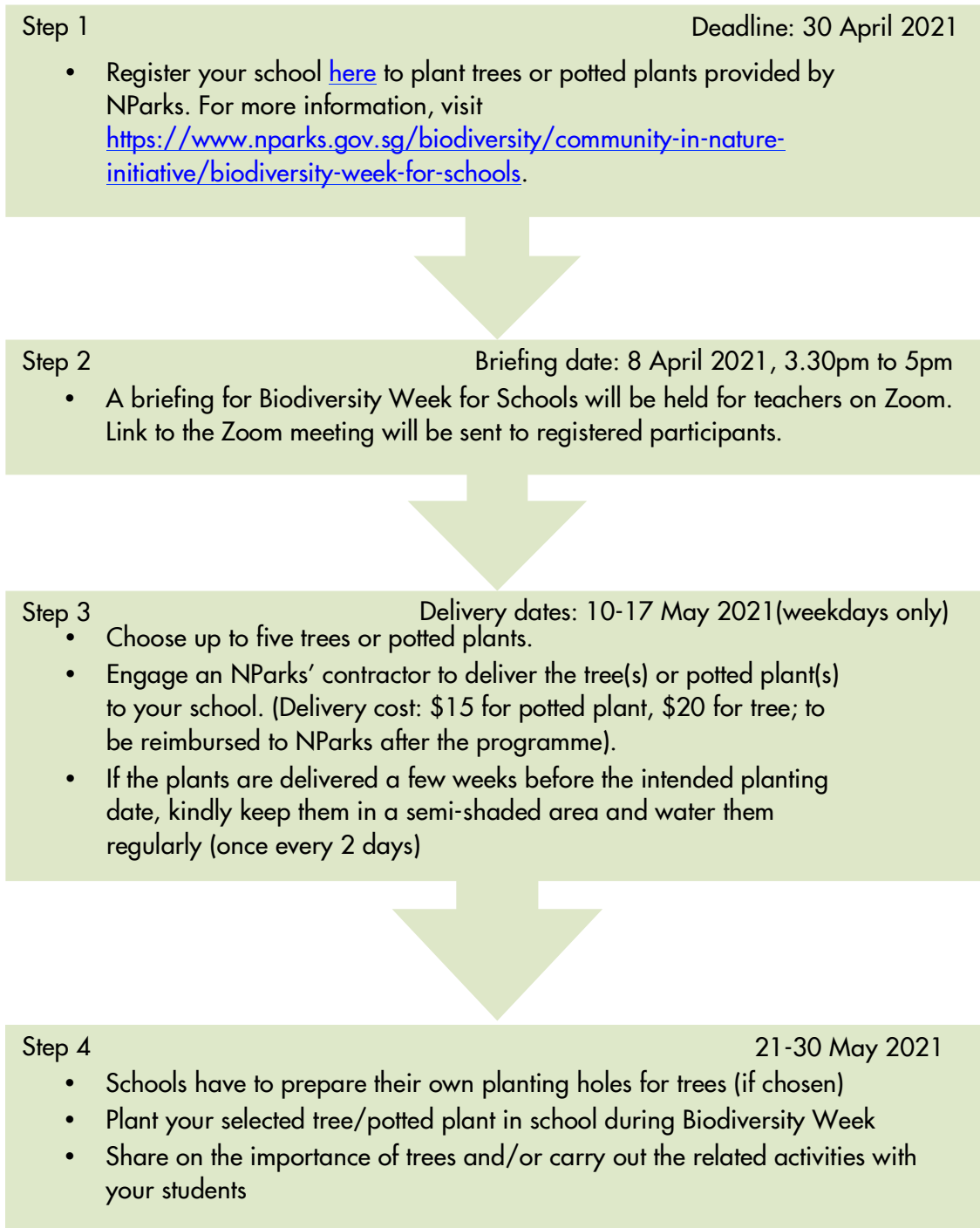
Please refer to this video (<https://www.youtube.com/watch?v=y8v9roL4wN0>) for more information.

## b. Potted Plant Species

Step 1: Site selection	Ensure that the site chosen <ul style="list-style-type: none"><li>- is not waterlogged</li><li>- has the necessary light conditions</li></ul>
Step 2: Watering	Water the potted plant and convey information about the plant to students.
Step 3: Care of plant	Ensure that the plant is watered sufficiently as per species requirement (moderate watering).

Note that *Leea rubra* can also be planted into soil. If kept in a pot or polybag, the plant might have to be re-potted into a bigger pot or bag after a few years. This will give the space for the plant to stay healthy. You may refer to [https://www.youtube.com/watch?v=rkMS\\_JcE7yU](https://www.youtube.com/watch?v=rkMS_JcE7yU) for steps to re-pot.

## 4. Timeline of Events



## 5. Share your Greening Journey

- Complete the [post-activity survey](#) and submit your photos to us at [cin@nparks.gov.sg](mailto:cin@nparks.gov.sg).
- Share your school's greening journey at <http://www.facebook.com/nparksbuzz> and/or <https://www.facebook.com/greenwave.cbd.int> (tag us @nparksbuzz and use #OneMillionTreesSG in the post).

## 6. After the Programme

- Reimburse NParks directly for the delivery fees – NParks will invoice schools after the programme ends.
- An e-invoice will be sent to MOE schools.
- Hard copy invoice and an email will be sent to non-MOE schools.
- Payment details will be indicated in the invoice.