

‘To discover so many intriguing things about trees from around the world is truly wonderful. This beautifully illustrated book reveals just how much these useful, fascinating, dangerous yet beautiful living beings really contribute to our lives.’ *Dame Judi Dench*

Remarkable Trees

Tony Kirkham and Christina Harrison

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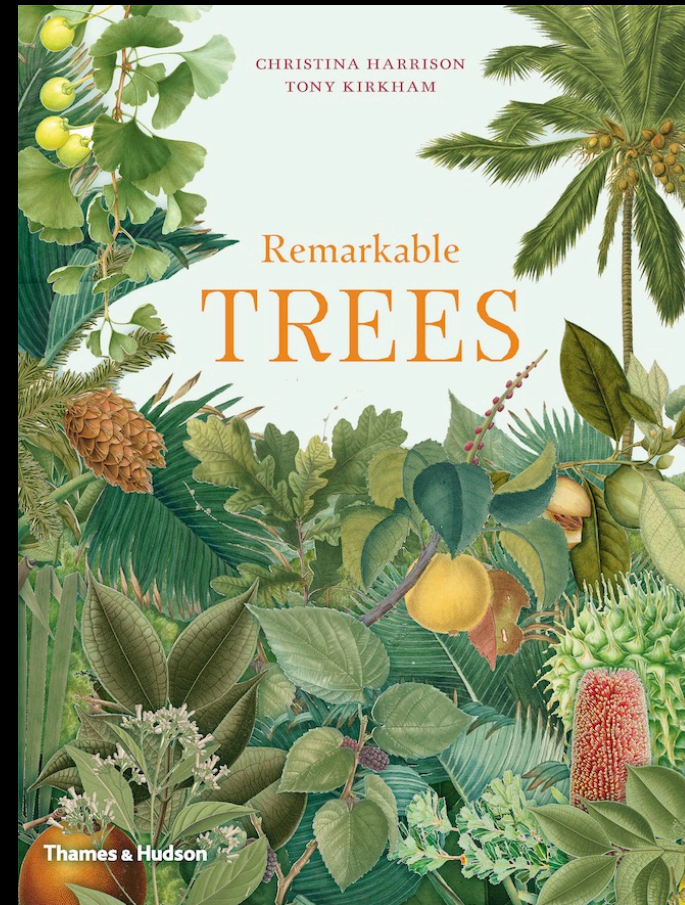
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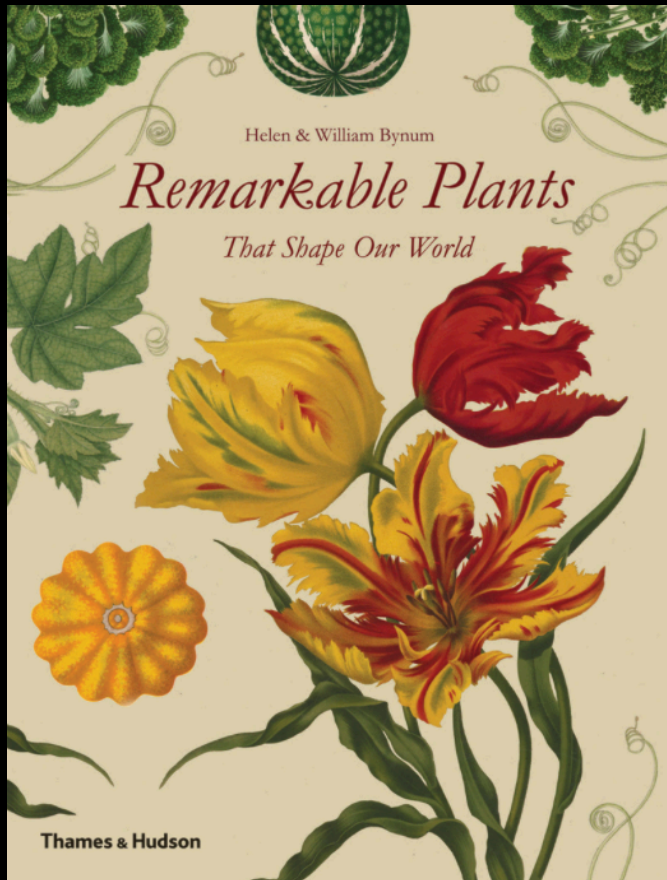
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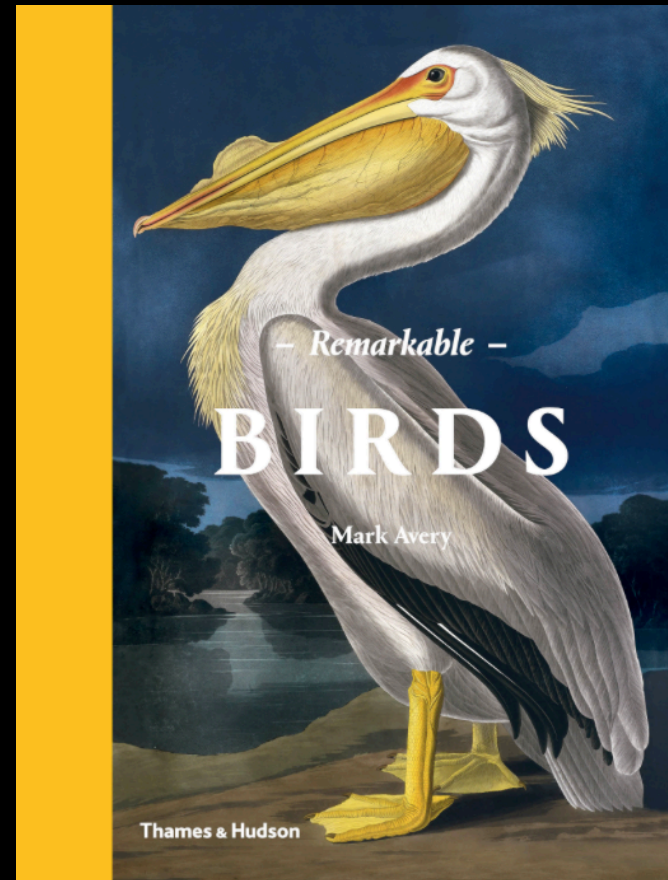
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Key Sales Points

- The story of trees, produced in collaboration with the Royal Botanic Gardens, Kew, with exquisite images from their archive and explanations from two Kew experts
- A companion volume to the successful *Remarkable Plants* (978 0 500 517420) and *Remarkable Birds* (978 0 500 518533) that focuses on significant trees from around the globe, some familiar, others scarcely known outside of their local regions
- Explores around sixty tree species, explaining why each is important to us, and revealing their ecological, historical and cultural significance

Half-title: The strange dragon's blood tree of Socotra.
Frontispiece: Black locust tree (detail) by Masumi Yamanaka.

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Olive

Olea europaea

A tree that featured in a contest between Olympian deities, the European olive has played an important part in human history. According to Greek myth, in a dispute between Athena and Poseidon to decide who would be the patron deity of Greece's principal city, the goddess planted an olive tree sapling. Her gift was so useful to the

inhabitants that she was chosen, and hence the city became known as Athens. So highly valued was the olive that its oil was presented as a prize to the victorious athletes in the ancient Athenian games, and an olive tree still grows on the Acropolis as a symbol of this foundation story.

The sheer usefulness of the hard wood, fruits and oil of the olive tree have made it an extremely valuable commodity over thousands of years. In addition, the olive also has great symbolic significance, epitomizing all the blessings of life – longevity and

fertility, nourishment, hope, wisdom and wealth. The olive branch as an emblem of peace has ancient roots, perhaps best known from the story of Noah and the Ark in the Bible, and is still universal today. Olive branches are represented on the flag of the United Nations, where they encircle a map of the world, and also on the Great Seal of the United States, as well as on the flags of Cyprus and Eritrea. A small golden olive branch was left on the Moon by astronauts of Nasa's Apollo II mission, representing a wish for peace for all the peoples of Earth.

Olea europaea, its subspecies and numerous domestic cultivars all thrive in the baking sun and dry heat of the Mediterranean, where they often grow on thin limestone soils. These small but tough ever-green trees, which are rarely over 10–15 metres (33–50 feet) tall, have narrow waxy leaves that help retain precious moisture. Olive trees can

A wreath including olive leaves was found in the tomb of the Egyptian boy-king Tutankhamun, dating back 3,300 years.

The olive tree is synonymous with the Mediterranean, where many ancient groves still thrive. It is a symbol of longevity, peace and fertility.



Pomegranate

Punica granatum

Early herbals include some curious entries on the pomegranate, mainly drawn from the writings of the 1st-century AD Greek physician Pedanius Dioscorides. They describe the fruit's pleasant juice and claim it was good for the blood, for the liver, for bleary eyes and heartburn among other ailments. In Rembert Dodoens' *New Herbal* of 1578 it states: 'The juice of the Pomegranate is very good for the stomacke, comforting the same when it is weake and feeble, and cooling when it is to hoate or burning.' Three types of the fruits were mentioned, and the line drawings on the ageing pages of these books are surprisingly accurate, suggesting a close familiarity with both the tree and the fruit.

Knowledge and appreciation of the juicy glistening garnet-coloured fleshy seeds of the pomegranate date back much further than these old tomes of herbal wisdom, and even beyond the classical Greeks. It has been cultivated since antiquity around the Mediterranean and is thought to be native to

the lands of Iran and northern Turkey. Its fruits and flowers have been popular for thousands of years, with references found in ancient Egypt and Mesopotamia. In his tomb, Ineni, an ancient Egyptian architect and official from the early part of the 18th Dynasty (over 3,000 years ago), listed over 350 plants that he grew in his garden at Thebes, among which were five pomegranate trees. One of the pharaohs for whom Ineni worked, Tuthmosis III, also loved gardens. In a room now known as the Botanical Garden at the temple of Amun at Karnak, he had carved wall reliefs made of all the exotic plants he had collected from Asia Minor, including the easily recognized pomegranate.

The pomegranate features in the *Tacuinum Sanitatis* – a beautifully illustrated eleventh-century treatise on health. Later, Dodoens recommended it to protect against 'wambling of the stomacke.'

Granata acetosa.



Granata acetosa. p. plo. fia. Electo q sunt multe succositate. unguentis epi ca. p. fer. nocuumm nocent pectori. Remo nocuumm cum calce melito. Quid ghanit. chiumm. mo dicum. Nag pueniit calis. unguib. etate. cale regioni.

Baobab

Adansonia digitata

An iconic tree of the African landscape, the baobab is credited with being nourishing, medicinal and magical. Its immense girth and distinctive shape make it immediately recognizable; it's often known as the 'upside-down tree' as its bare branches in the dry season make it look as if it's growing with its roots in the air. It has plenty of other strange names too, including monkey bread tree, dead rat tree and the chemist tree. One huge individual in Namibia (known as Grootboom)

was radiocarbon dated as 1,275 years old, which made it, at the time of its collapse in 2004, the oldest known flowering plant in the world, as most other ancient trees are coniferous, such as the redwoods, pines and yews (p. 000).

This species of baobab is native to the drier parts of tropical and southern Africa, where it is a widespread and common sight in the thorny woodlands of the savannah. A majestic tree, it can grow up to 30 metres (98 feet) tall and the same in circumfer-

ence, with an extensive root system. The disproportionately large trunk of this slow-growing species is an evolutionary marvel, allowing it to store water to survive through the many hot dry months which bake the arid and semi-arid landscapes in which it grows. Large individuals are said to be able to store up to 100,000 litres (26,400 US gallons) of water in their trunks, and elephants have been known to gouge them to reach the precious liquid inside. Many other species also visit the baobab for food and shelter, including baboons, warthogs, as well as species of bird, reptile and insect.

The baobab's large and showy white flowers appear at the onset of the rainy season suspended on long pendulous stalks so that they can be more easily pollinated by bats. Each has a tuft of stamens below the

Baobabs are wrapped in myth and legend, often featuring in creation stories, and are also perceived to have magical properties.

The large showy white flowers of the baobab first open in the evening and often only stay open for 24 hours. They are pollinated by bats and bush babies.





In their native forests they are a favourite with monkeys, wild pigs, and elephants, which can track them down from over half a mile away through the trees thanks to their pungent odour.

The durian tree can grow up to 40 metres (130 feet) tall, forming a conical shape. The oblong leaves are quite attractive, being glossy green above and a pale bronze underneath.

Durian

Durio zibethinus

Known in its native Southeast Asia as the 'King of Fruits', and famed more widely as the world's most malodorous fruit, the durian has gained a notorious reputation. Because of its overpowering smell it is banned from several airlines, hotels and the public transport system in Singapore. Eating the ripe fruits has been likened to consuming custard in an open sewer. But while its smell may be evocative of sewage, the fruit's creamy flesh is regarded as a delicacy. Mark Twain when travelling in the region was told that 'if you could hold your nose until the fruit was in your mouth a sacred joy would suffuse you from head to foot'. The flavour has been variously described as reminiscent of caramel, almonds or bananas, and for the naturalist Alfred Russel Wallace it called to mind cream cheese, onion sauce and even sherry. Opinion is divided – in some the durian provokes a deep disgust, in others a high regard.

Wild durian trees can grow up to 40 metres (130 feet) tall and are native to Borneo, Indonesia, Malaysia and possibly also Sumatra. The very large, oval, thick-rinded fruits can weigh a hefty 3 to 8 kilograms (7 to 18 pounds) and are covered with ferociously sharp spines. They develop from beautiful, yellow-white flowers with reflexed petals, which are held in clusters directly on the branches and trunk and also have a distinctly unpleasant odour, like sour milk, but this is a direct signal that they are ready to be pollinated. These pendant flowers offer plentiful nectar and pollen for their main pollinators – species of fruit bats, which visit at dusk and throughout the evening. Once the bats have done their job the petals fall and the fruit begins to form.

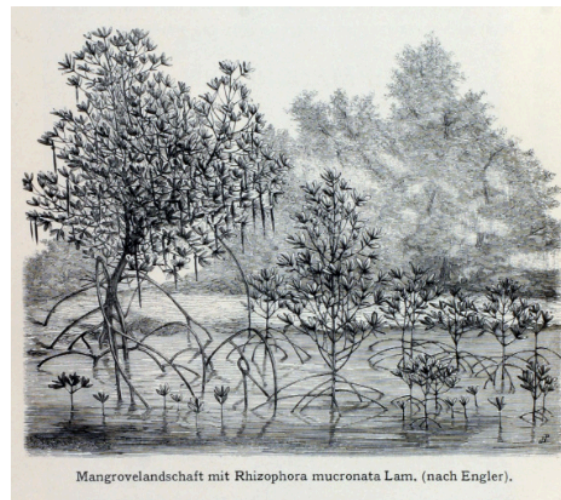


OPPOSITE Once pollinated, flowers of the red mangrove develop into long green propagules. These can then detach, float away and quickly develop into a new tree on a suitable shoreline.

BELOW These mangroves develop aerial roots – stilt or prop roots – that help them ‘breathe’ but also support the plant in the intertidal zone.

Not only are mangroves very unusual plants, they are also extremely useful ones. A multitude of insects including ants and fireflies are at home in mangrove forests, while some amphibians, reptiles, birds, and mammals including bats and monkeys, visit and find food there. The tangle of roots is home to barnacles and other molluscs, and when submerged they also act as a safe haven for young fish, crabs and shellfish, as well as larger species such as turtles and crocodiles. In their native range, mangroves are an integral part of a healthy coastal ecosystem and also support local livelihoods – from fishermen to those involved in local tourism. They also provide timber and fuel, and their bark can be used to make rope and dyes. Mangroves are well known for protecting coastlines against tidal erosion, and are also valuable carbon sinks.

Mangrove forests have suffered from habitat destruction, but many areas are being replanted in conservation initiatives, involving local communities, to stabilize and reclaim land. Such projects, which can be complex in their practicalities, often include the red mangrove (though it is now regarded as invasive in Hawaii). While it is hard to place a monetary value on trees, according to a recent WWF report the goods and services offered by mangrove forests are worth US\$ 186 million per year to the world economy.



canoes (*waka*). Strong *tōtara* heartwood was particularly favoured for *waka*, and these were made in a variety of sizes, the largest holding up to 100 people as special war canoes to carry the fiercest warriors to battle. *Tōtara* became an essential part of Māori culture, and the wood was used extensively for their beautiful carvings, which even today are used to tell of their ancestors, history and in some cases to reputedly offer protection. Māori carving developed a very distinctive character over time, evolving from its Polynesian origins, and different carving styles developed in different areas of the country. Carvers became highly respected members of Māori communities and the art is still firmly associated with tribal identities today.

Traditional Māori medicinal uses of *tōtara* included burning the bark to produce smoke to treat skin complaints and even venereal disease, making an infusion from the leaves for settling upset stomachs, and boiling the inner bark to create a tonic for fevers. The heartwood of *Podocarpus* contains a chemical compound called totarol, which is responsible for the timber's resistance to rot. This is of potential interest as research has shown it to have anti-bacterial properties and it may have a use in medicine as well as in cosmetics and even dental products.

Podocarps were once extensively logged by the European settlers of New Zealand, who valued the wood for many of the same purposes as

A Māori chief addresses a gathering of warriors from a canoe pulled on the shore, in a lithograph by Augustus Earle. *Tōtara* heartwood was particularly favoured for making special war canoes or *waka*. The largest could hold up to 100 people and they were used to carry warriors into battle.



BELOW The wood of the *tōtara* tree is easily carved and has long been favoured by the Māori, including for masks, as seen in the centre. This drawing of Māori and other objects was made on James Cook's eighteenth-century *Endeavour* voyage by artist Sydney Parkinson.



the Māori, but also for railway sleepers, harbour pilings and especially fence posts. Deforestation for construction and agriculture greatly reduced the podocarp forests, but the trees are now protected by law; only old fallen logs found outside reserves can be used for timber or carvings. Although slow growing it does propagate relatively easily and can live to be 1,000 years old. The champion tree, known as Pouakani in King Country, is around 40 metres (130 feet) tall and is reputed to be 1,800 years old.

Today, podocarps, along with many species of myrtle, face a new menace from a wind-borne fungus called myrtle rust. It has spread across the Pacific from Brazil, arriving in New Zealand in 2017, and now threatens the survival of many unique native plant species here and in many other countries. New Zealand is working in partnership with Kew's Millennium Seed Bank Partnership to try to bank as many seeds as possible of this endangered species as an insurance policy for their long-term survival. The remnants of old forests, which once covered huge swathes of New Zealand, are now recovering, and it is hoped that this iconic tree with such an ancient lineage and so closely identified with indigenous culture, may become abundant again.

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