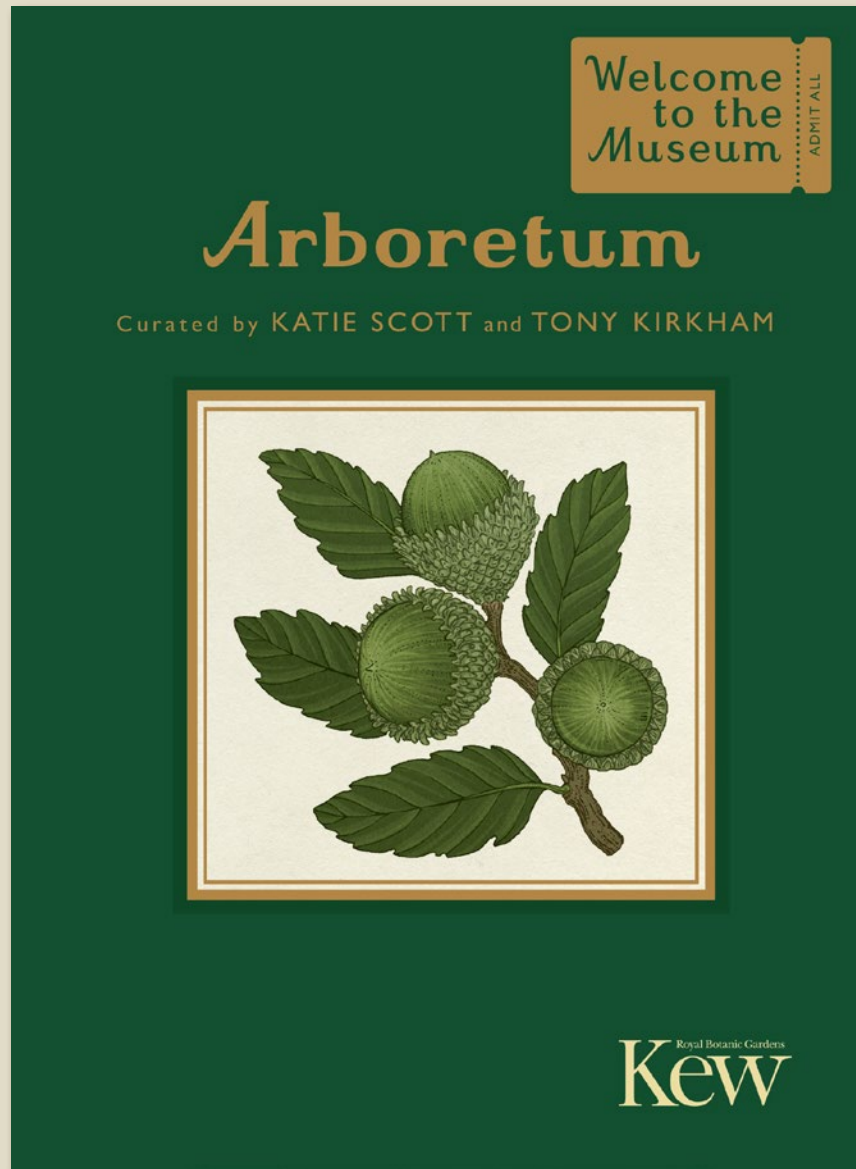


# Arboretum Mini Gift



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# Arboretum Mini Gift

TEMPERATE CONIFER FORESTS



## Boreal Conifers

One of the most ancient tree species, conifers are synonymous with boreal forests. Densely packed green firs spruce and pines all tower high above the dark, damp ground below, while in autumn, the larch brightens up the scene with a warm golden glow.

'Conifer' basically means 'cone-bearing' and, instead of flowers, these trees produce seeds in cones. Conifers are evergreen which means they start producing food as soon as they wake up after the winter and don't have to wait for new needles to grow. The larch is the odd one out being a deciduous conifer: it loses its needles each year. However larches have delicate needles compared to evergreen conifers, so they are

quicker and easier to grow. Although their growth is slow, conifers have adapted to be able to cope with the harsh weather. Their recognisable narrow, conical-shaped canopies are made up of flexible branches that sweep downwards. This design helps to shed heavy snowfall and reduce the potential damage to the branches from snow and strong winds.

**Key to plate**

- 1 Balsam fir  
Also known as height: 20m  
Seed cones and leaves
- 2 American larch  
Also known as height: 20m  
Seed cones and leaves
- 3 Black spruce  
Also known as height: 20m  
a) seed cones and leaves
- 4 Larch  
Also known as height: 20m  
a) female cone cones and leaves  
b) male cones c) mature seed cones

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TEMPERATE CONIFER FORESTS

## Redwoods

The majestic redwoods are record-breaking conifers and include some of the largest and tallest trees on Earth. One impressive coast redwood called 'Hyperion' has reached the dizzying height of just over 115m. The oldest specimen on record is estimated to be 3500 years old.

The dawn redwood grows in China, while the giant and coast redwoods grow in North America. The North American species are never found together: the coast redwoods grow in the fog belts of the Pacific coastline and the giant redwoods in open groves further inland, on the western slopes of the Sierra Nevada mountains. Both trees have extremely wide trunks, defined by spruce-consumed bark growing up to 60cm thick, and their evergreen branches start high up the trunk, which protects them from forest fires.

Unlike the two North American redwoods, the Chinese dawn redwood is a deciduous conifer with flat, leathery needle-like leaves and reddish-brown, fibrous bark. Incredibly, it was first discovered in 1941 as a 150-million-year-old fossil tree dating from the Mesozoic Era. A few years later a living species was found in Central China. Seeds were collected and distributed to arborets around the world, where they grow today.

**Key to plate**

- 1 Coast redwood  
Seeds cones height: 115m  
a) tree b) cones c) mature female seed cones
- 2 Giant redwood  
Seeds cones height: 115m  
a) tree b) cones and female cones  
c) seed d) cross section of trunk
- 3 Dawn redwood  
Maximum plant height: 100m  
a) leaves b) mature seed cones

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TEMPERATE BROADLEAF FORESTS

## Habitat: Temperate Broadleaf Forest

Temperate deciduous forests make up some of the world's most dramatic biomes. These forests produce dairy foods at the start of the growing season, transforming to lush greens, then bursting into blazing reds, oranges, yellows and browns before their leaves drop, leaving bare, skeletal structures to face the cold months ahead.

These magnificent forests occur mainly in the mid-latitude parts of the globe, encompassing parts of the United States, Canada, Europe, China, Korea, Japan and Russia and South America. All of these regions have four seasons, with no season getting too hot or too cold.

Remarkably, all these forests share similar genera of tree species, which include oaks, maples, beeches and ashes, but also have their own native species in each region. Beneath these forest giants, smaller shade-tolerant species such as dogwoods and sourwood fill the understory and shrub layer, mingling with ferns and mosses to create perfect hidden habitats for birds and small mammals. The forest floor itself is full of insects and fungi, who enjoy the rich, fertile soil created by falling leaves and woodchips.

**Key to plate**

- North American broadleaf forest
- 1 Pear  
Also known as height: 30m
- 2 Flowering dogwood  
Corns height: 30m
- 3 American beech  
Figs height: 30m
- 4 Doge orange  
Also known as height: 30m
- 5 White sassafras  
Twigs height: 30m

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TEMPERATE CONIFER FORESTS

## Boreal Broadleaves

Although boreal forests, or 'taiga', are dominated by conifers, there is also a very small but hardy selection of broadleaved trees present, including poplars, willows and birches.


While generally short-lived species, rarely reaching 100 years, these trees have many characteristics that help them survive in the taiga. They can all grow, flower and fruit during the short summer, and then shed their leaves at just the right moment to prepare for the long winter. Their compact leaves have a small surface area, which means they can be produced quickly – ideally suited for a forest with a short growing season – and they are also able to withstand strong winds.

The broadleaved trees grow near water, making the most not only of the available moisture there, but also the light levels around lakes and rivers where there is no competition from the dense-leaved conifers. In the northern tundra, these trees are short and stunted but further south, towards the temperate broadleaved forest, they have straighter trunks and grow taller.

**Key to plate**

- 1: Speckled alder  
*Alnus incana* subsp. *rugosa* Height: 22m  
a) branch b) flower
- 2: Large-toothed aspen  
*Populus grandidentata* Height: 25m  
Leaf
- 3: American mountain ash  
*Sorbus americana* Height: 12m  
Leaves
- 4: Balsam poplar  
*Populus balsamifera* Height: 30m  
Flower
- 5: White birch  
*Betula papyrifera* Height: 20m  
a) trunk/bark b) male flower c) leaf
- 6: Moosewood  
*Acer pensylvanicum* Height: 10m  
a) leaf b) twig and buds c) trunk/bark

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