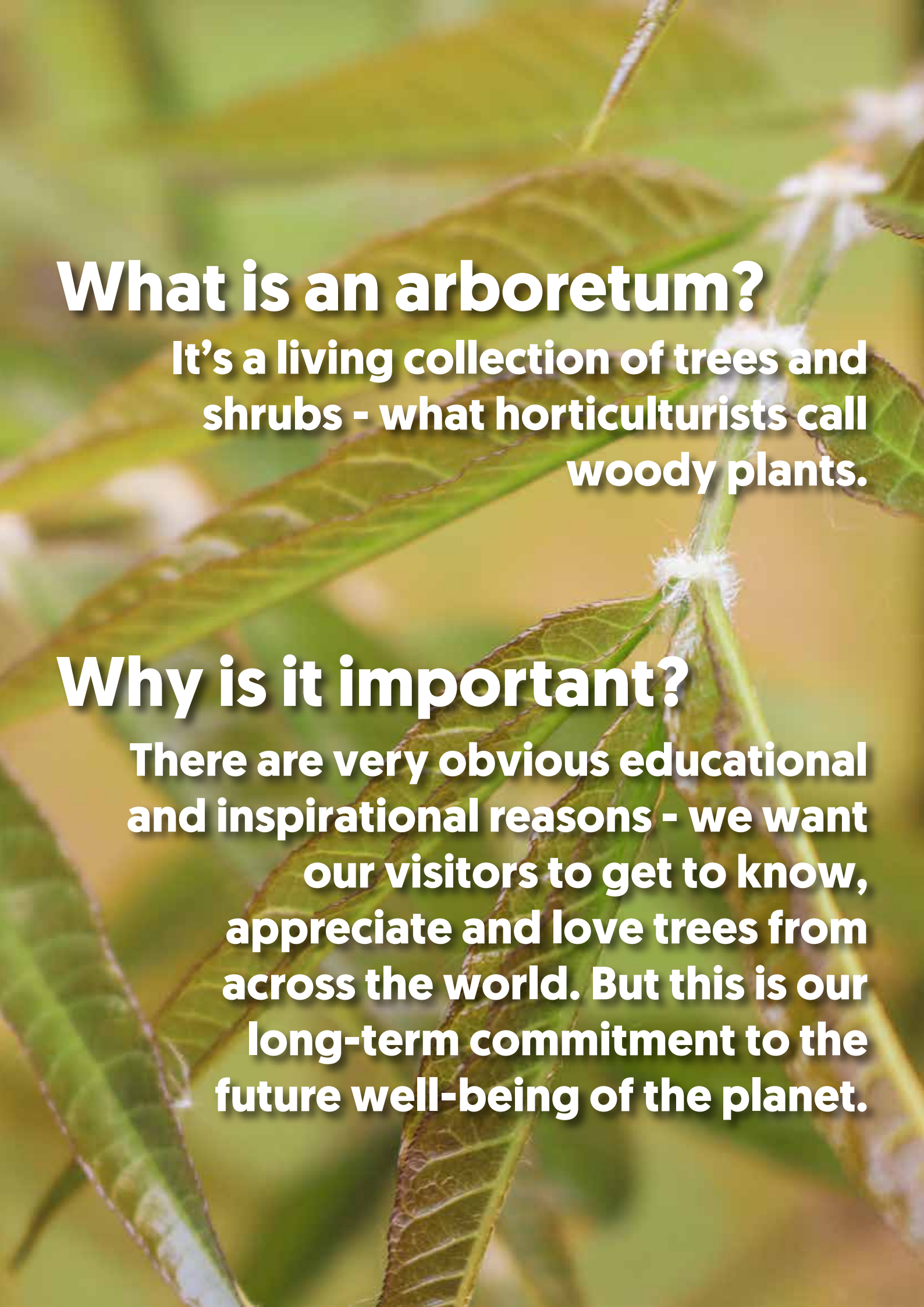
Tour

National Botanic Garden of Wales
Gardd Fotaneg Genedlaethol Cymru

Arboretum Trail

The Arboretum is, arguably, the most ambitious display in the Botanic Garden



What is an arboretum?

It's a living collection of trees and shrubs - what horticulturists call woody plants.

Why is it important?

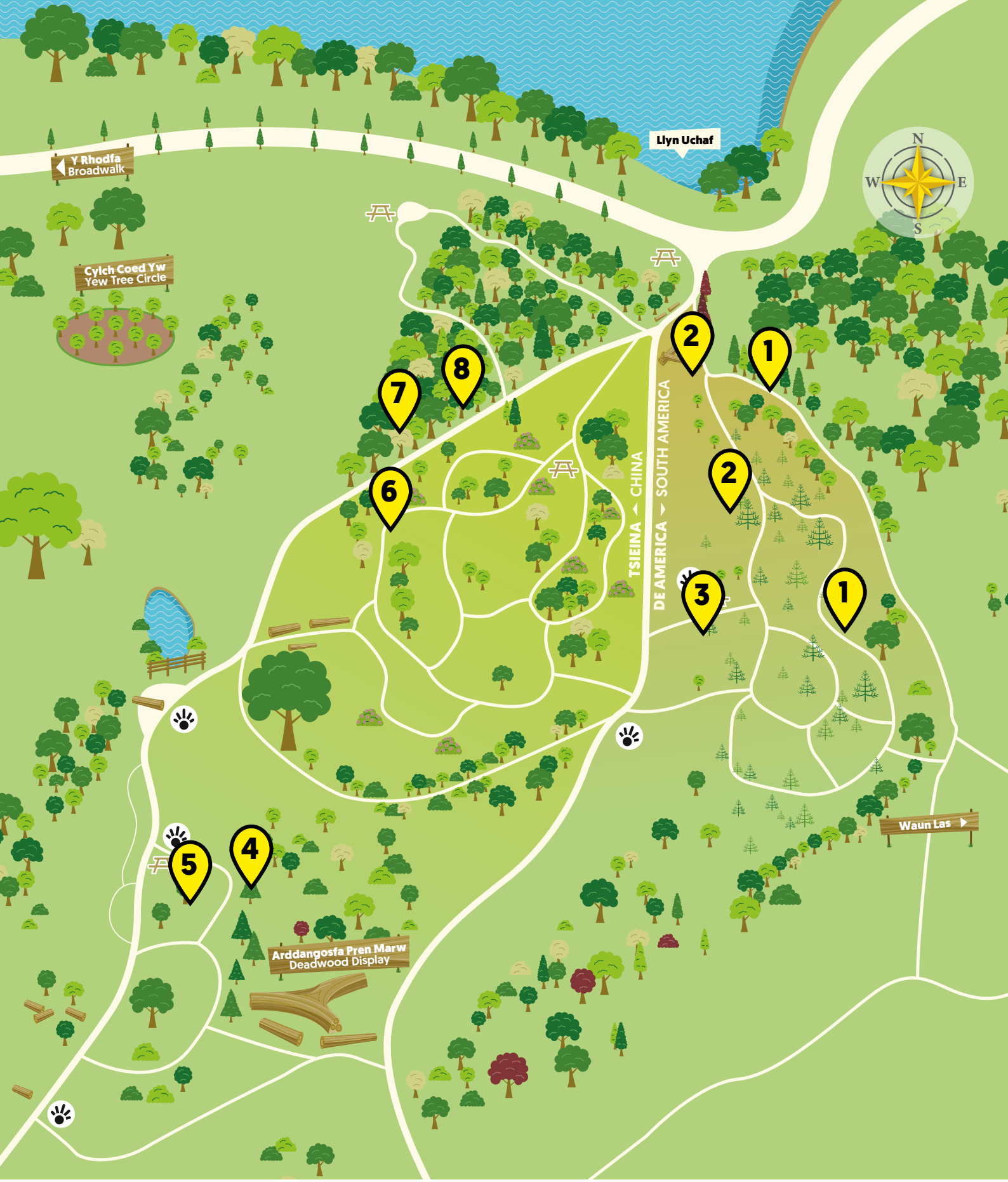
There are very obvious educational and inspirational reasons - we want our visitors to get to know, appreciate and love trees from across the world. But this is our long-term commitment to the future well-being of the planet.

We're growing trees and shrubs from wild collected seed. If any of these tree species become extinct or unsustainable in their natural wild spaces, seeds and cuttings from arboreta like this can be used to rebuild the natural populations. Think of it as slow conservation - using our horticultural and scientific expertise to safeguard tree species for the future.

This Arboretum is still young and is a work in progress - most trees were planted after the Botanic Garden opened in 2000. Within a shelter belt of native Welsh trees, you'll find sections dedicated to regions that we're prioritising first - China, North America and South America.

Where is the Arboretum?

Follow the trail



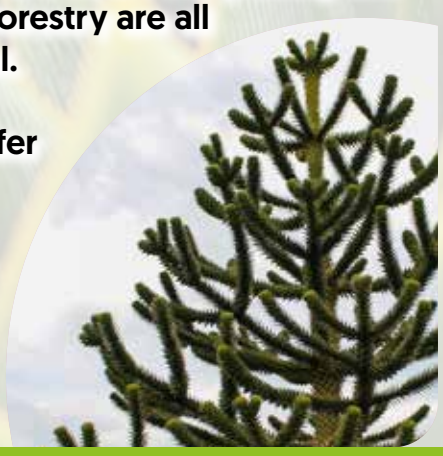
1. *Araucaria araucana* – Monkey Puzzle ◯
2. *Nothofagus antarctica* – Southern Beech ◯
3. *Saxegothaea conspicua* – Prince Albert's Yew ◯
4. *Pinus wallichiana* – Bhutan Pine ◯
5. *Zelkova serrata* – Japanese Elm ◯
6. *Fraxinus suaveolens* ◯
7. *Rhododendron sikangense* ◯
8. *Sorbus glomerulata* – Hubei Mountain Ash ◯

viewing point ✓ when found

1. *Araucaria araucana* – Monkey Puzzle

The Monkey Puzzle is a common sight across the UK, in gardens, parks and churchyards. The tallest and most mature can be traced back to the original introduction by Archibald Menzies, who practised medicine in Caernarfon before setting sail on HMS Discovery.

These majestic specimens are native to the Andes Mountains of Argentina and Chile. Sitting above the timberline, about 1,800 metres, the magnificent specimens are symbolic of the region's montane flora.
However, despite being well adapted to the volatile climate, with heavy snow, volcanic eruptions, and landslides being an ever-present risk, it is human activities that threaten their existence in the wild. Fire, grazing and encroachment by commercial forestry are all tangible threats to their survival.



Here at the Botanic Garden, we have partnered with the Conifer Conservation International Programme to provide refuge. Within the Arboretum, you will see many specimens, each grown from seed and represent distinct populations. The presence of such genetic variation is an important tool for conservation.

2. *Nothofagus antarctica* – Southern Beech

The Southern Beech is a resilient, deciduous species found in the most temperate regions of Chile and Argentina. Their native range is so large that some of the most southerly trees on earth are Southern Beech.

Their ability to inhabit a wide range of environments helps them to exploit new ecological niches, like frost pockets where no other tree species would dare to reside are commonplace to find them.
Commonly known as Ñire, they can be found in many forms across Patagonia, as 20-metre-high forest trees or short and grazed shrubs of only 2m in the grasslands. Despite the species being present in Y Wladfa, Chubut Province, no Welsh language name is documented for the species. If you know more, we would love to hear from you.

This species is cultivated next to the Monkey Puzzle trees as these would be the quintessential constituents of Andean forests. One day we hope to have our own Andean forests here in Llanarthne.

3. *Saxegothaea conspicua* – Prince Albert's Yew

In the English language, Saxegothaea conspicua is known as Prince Albert's Yew. This is an example of the practice which was common in botany to name plants after patrons of the sciences. Prince Albert of Saxe-Coburg and Gotha was one such patron. In Chile and Argentina, where the species naturally occurs, the vernacular and most commonly used name is Mañío Hembra.

Found in the temperate Valdivian rainforests, Prince Albert's Yew is adapted to grow in wet conditions as an understorey tree, not unlike its northern namesake, the European Yew, Taxus baccata. Despite commonalities, the two are distantly related. Prince Albert's Yew is a relic of plant diversity as the only species of its particular lineage.

They are, however, widespread, growing to 1,000m high on vegetated mountains and at sea level in the Cordillera region, surviving in poorly-drained coastal habitats. However, the fragile nature of plant communities means that conservation efforts are still required to protect the widely distributed populations.

In forestry, Prince Albert's Yew is prized for its yellow-rose coloured timber. The wood is commonly used for making furniture. To prevent exploitation of wild populations, management by conservation practitioners is required. Specimens as old as 750 years are safeguarded to protect the regions natural heritage.

4. Pinus wallichiana – Bhutan Pine

The Bhutan Pine can be found further than its name suggests. Distributed from west to east, Pinus wallichiana can be found in Badakshan Province in Afghanistan or the northern Indian state of Utter Pradesh.

The wide-ranging geography of the species has contributed to considerable genetic diversity, with many isolated populations occupying a range of climates and conditions. Typically, the Bhutan Pine is known for its ability to ascend the Himalayan mountains, dominate in forests up to 3,900 metres. Either growing in large stands on its own or mixed with other conifers and broadleaves, this is a species well adapted to harsh and rugged terrain.It is grown commercially at lower altitudes, primarily for its resin. You may be familiar with turpentine and other products like shoe polish which incorporate pine resins. Its wood is unsuitable for construction but the timber is harvested to create a range of packaging products.

Despite its abundance, botanic gardens in partnerships with the International Conifer Conservation Programme, are working to capture the distinct 'genotypes' of the species. Variations in their genetics provide clues to how plants adapt and evolve. We often think of conservation as being about conserving species, but on occasions, the variation within a species is equally important.

5. Zelkova serrata – Japanese Elm

The Japanese Elm is native to the East Asia region including, Japan, the Korean Peninsula, China and Taiwan. It is a deciduous tree in the elm family known for its exceptional autumn colour.

Zelkova serrata is associated with limestone valleys growing in wet woodlands or riparian habitats. Its ability to withstand high rainfall and its ornamental value has made it a favourite tree of gardeners in Wales. In the US, it is also popular for municipal plantings, typically used to replace Dutch Elm disease-susceptible species. In Japan, it is associated with sacred sites like shrines due to its cultural symbolism.

The fortunes of the Japanese Elm differ throughout its native range. Although commonly grown in Japan, the genetic diversity is low due to the propagation method employed.

In the Korean Peninsula and China, populations are fragmented and small. In China's Quinling Mountains and Huai River Basin regions, the species was previously abundant but agricultural expansion and logging have reduced the populations considerably.

In the People's Republic of Korea, the presence of the species has been reported, but the conservation status is unknown.

6. Fraxinus suaveolens

One of the botanical tragedies of recent times is the loss of Ash (Fraxinus excelsior) from the Welsh countryside. The prevalence of Ash dieback (Hymenoscyphus fraxineus) has ravaged the native populations and, over time, will reduce the presence of Ash to a small resistant group.

However, other species of Ash may be resistant and able to withstand the advances of the disease-causing fungi. Fraxinus suaveolens is potentially one such species. It is highly likely that the species co-evolved in the presence of Ash Dieback and has innate resistance.

The Sikkim Ash occurs in northern regions of India and China, growing in montane forests and river valleys. Much like the related European species, it exhibits adaption to growing in a temperate climate and high rainfall areas.

The specimens in the Arboretum were donated to the Botanic Garden by colleagues at Ness Botanic Garden. It had previously been collected as a seed for study and helped support crucial taxonomic work on the genus by botanists based at the University of Liverpool.

7. Rhododendron sikangense

Rhododendrons are well represented in Welsh gardens, they are highly ornate, and many are adapted to our temperate climate. Early plant collectors to East Asia brought back many species to Britain, and plant breeders have been hybridising them ever since.

Although they seem familiar, many species remain rare in cultivation and threatened in the wild. Rhododendron sikangense is an example of such. It is native to the high mountain slopes and mixed forests of the Chinese provinces of Sichuan and Yunnan. In its native habitat, it typically flowers between May and July, displaying flowers ranging from white, to purple or pink.

Botanic gardens worldwide are working to study and conserve rhododendrons like this. An international conservation consortium has been created to help foster collaboration between researchers, conservation practitioners and horticulturists.

Together botanic gardens are creating a large network of plant collections that acts like a distributed nature reserve, protecting genetic resources for future generations and restoration.

8. Sorbus glomerulata – Hubei Mountain Ash

The Hubei Mountain Ash was first described in the scientific literature in 1907 but, despite its attractive horticultural qualities, it hadn't been cultivated in a documented collection until the 1990s.

In 1992, Shanghai Botanical Garden germinated seed collected from Sichuan Province. Seeds and plant materials were then shared with other botanic gardens with expertise in the genus Sorbus worldwide. This specimen was first introduced to Wales by the Botanic Garden's first Curator, Wolfgang Bopp.

In its native habitat, the Hubei Mountain Ash grows as an understory plant in mixed forests. The species has become adapted to such environments, exhibiting a tolerance of shade and a shrub-like habit. The pinnate leaves have a vivid red autumn colour, which often coincides with its white fruit. Sorbus glomerulata shares many qualities with the mountain ash species native to Wales, but their native ranges have diverged by some 5,500 miles.

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Mae fersiwn Gymraeg o'r ddogfen hon ar gael