Under the Umbrella of Conservation

by Tom Clark

Conifers merit several superlatives within the plant world including tallest, biggest, and oldest. These cone-bearing plants have an ancient lineage and more than a few are considered "living fossils." Widespread across six continents, conifers are dispersed across an enormous geographical range and an astounding diversity of habitats. Members of this resilient group even appear in the fossil record of Antarctica. Despite their adaptability through centuries and across the globe, conifers have recently earned a more dubious distinction: an astonishing percentage of conifer species (44 percent!) are of conservation concern in the wild.

Japanese umbrella-pine: distinguished in gardens, vulnerable in the wild

Included in that group of threatened plants are six conifers growing in the Arboretum's living collection. The species of conservation concern in their natural ranges as designated by the International Union for Conservation of Nature and Natural Resources are *Sciadopitys verticillata* (Japanese umbrella-pine), *Abies squamata* (flaky fir), *Araucaria araucana* (monkey puzzle), *Chamaecyparis lawsoniana* (Lawson false-cypress) and *Picea omorika* (Serbian spruce), which are considered "vulnerable," and *Metasequoia glytostroboides* (dawn redwood), which is considered "critically endangered." These endangered plants contribute greatly to the PHA plant collection's diversity and beauty, but perhaps more importantly, they are a valued resource for education and conservation.

Although one of the five most sacred trees in Japan, the wild populations of Japanese umbrella-pine (*Sciadopitys verticillata*) suffer from exploitation in the wild for their valuable timber. Umbrella-pines regenerate slowly after harvesting and are frequently supplanted by faster-growing species. This Japanese endemic plant is now restricted to remnant stands on the islands of Honshu, Kyushu, and Shikoku where the renowned plant explorer Ernest H. Wilson noted in 1916, "it delights in steep, rocky situations sheltered from strong winds and where it is cool and moist."

One of the finest conifers for Vineyard landscapes, the Japanese umbrella-pine is well adapted to the Vineyard's cool, humid maritime climate. However, it is also quite adaptable, growing well from Maine to the southeastern states provided the soil is neither drought prone nor water-logged for long periods. Planted as seed or very small plants between 1962 and 1966, the six specimens at PHA average 30 feet tall, the tallest topping 37 feet. To the impatient gardener its characteristically slow growth rate may be discouraging, but its beauty, elegance, and adaptability more than nullify any complaints. I recommend a site protected from strong winds; specimens that are broken by wind may lose their regal look and become shapeless masses with multiple leaders and misdirected growth.

As evidenced by the many fine specimens at the Arboretum and in Vineyard gardens, *Sciadopitys verticillata* has a firm foothold in cultivation. Well-grown specimens have a narrowly to broadly conical form cloaked with thick, lustrous, dark green needles arranged in whorls like the ribs of an umbrella, quite unlike needles of true pines (genus *Pinus*). The individual needles of the umbrella-pine are actually two needles fused together. However some scientists argue they are not true needles at all; they are phyllodes: modified stems that perform the same photosynthetic function as needles. In either case it is a unique adaptation whose origin lies along umbrella-pine's long evolutionary path. Perhaps it's best left to the paleobotanists to debate. Beyond debate is that this distinguished conifer deserves wider use in gardens both for its beauty and its conservation status.

Mature cones and the distinctive needles of Japanese umbrella-pine