

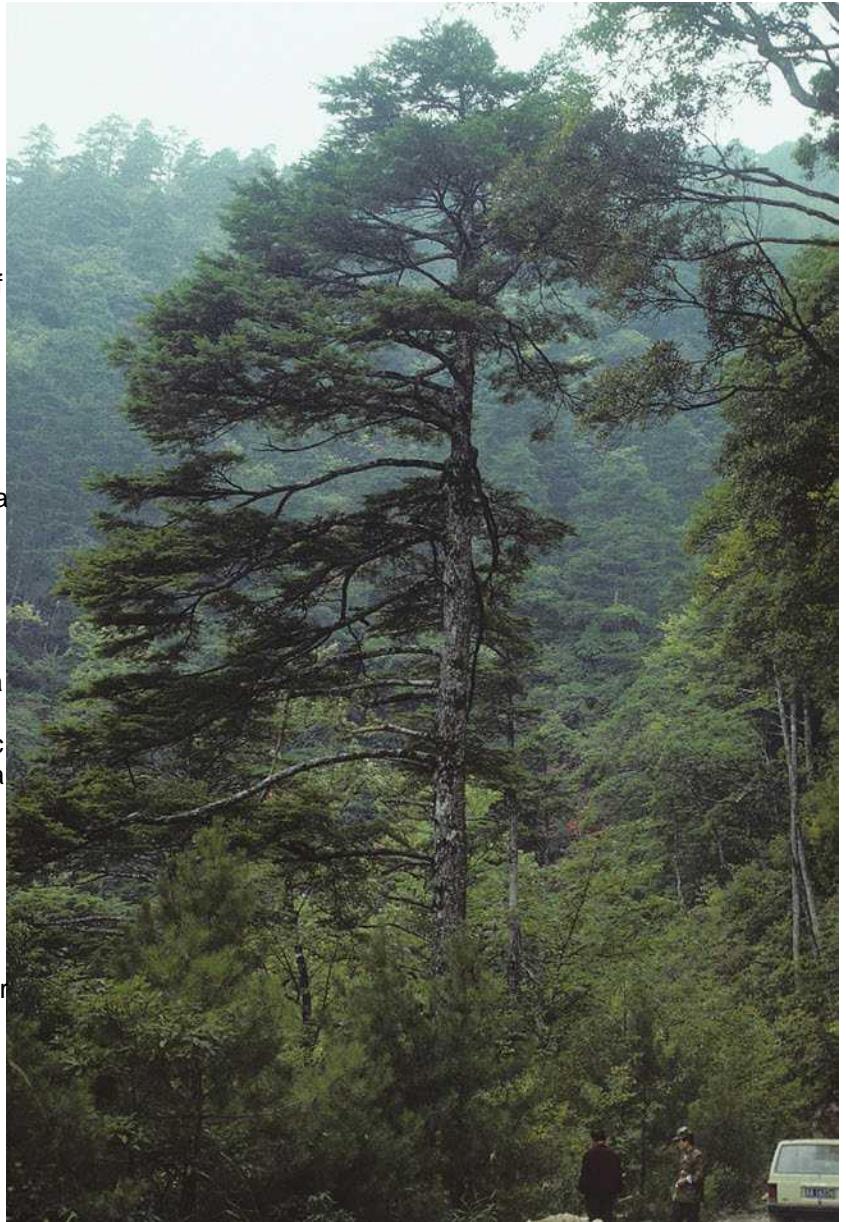
Chinese Hemlock

Tsuga chinensis

Peter Del Tredici

Facilitate research on its growth rate, habitat tolerances, and resistance to HWA. The collections began in 1994 with seeds provided by the Xian Botanical Garden and peaked in 1996 with 6 separate collections from various habitats in the Qinling Mountains in Shaanxi Province, the northern part of

One of the most important of all NACPEC collections is the Chinese hemlock (*Tsuga chinensis*). Prior to 1979, this species appears to have been successfully introduced into North America only once—a single seedling collected by E. H. Wilson in Hubei, China, in 1910 that is still alive today. This accession has been frequently propagated and widely distributed by the Arnold Arboretum. The lack of Chinese hemlock diversity became a significant factor when horticulturists began to notice that the species was highly resistant to the Japanese strain of hemlock woolly adelgid (HWA) that was ravaging native stands of eastern hemlock (*Tsuga canadensis*) throughout the central and southern portion of its range in eastern North America. Working through its various Chinese contacts, NACPEC began a concerted effort to acquire Chinese hemlock germplasm in order to fa-



A specimen of *Tsuga chinensis* var.
tchekiangensis growing in Jiangxi.



Tsuga chinensis growing in montane habitat.

its range. in all, some 33 different collections of three different varieties of the species were made. Representatives from 19 of these collections—totaling some 250 plants—are growing at various NACPEC gardens. The largest of them is at the Morris Arboretum and has reached 4.9 meters (16 feet) in height with a DBH (diameter at breast height) of 9 centimeters (3.5 inches) after 10 years of growth. True to initial reports, Chinese

hemlock has so far proved completely resistant to
HWA in a wide variety of North American
locations. It is fully cold hardy into
USDA Zone 5 (average annual minimum
temperature -10 to -20°F [-23.3 to
-28.9°C]) and is

relatively fast growing—the mean height of 38
seedlings growing under variable conditions on
Hemlock Hill at the Arnold Arboretum was
169 centimeters (66.5 inches) at 10 years
of age.

I observed Chinese hemlock at the
Arnold Arboretum during the 2009
growing season and noted that the species
both began growing and stopped growing
about two weeks earlier than eastern
hemlock. Interestingly, the new growth
on vigorous terminal shoots was the same
for both species—about 45 centimeters
(17.7 inches)—which was the greatest
among these seven hemlock species
measured. Compared to eastern
hemlock, Chinese hemlock is a bit



Slightly drooping branch habit on a young Chinese hemlock. Attractive foliage of Chinese hemlock.



Tsugachinensis 67

“droopier” during the growing season, seem to be comparably shade tolerant (although this trait has not actually been quantified), is less cold hardy—Zone 5 versus Zone 3 (average annual minimum temperature -30 to -40°F [-34.4 to -40°C])—and, as mentioned, has the great advantage of adelgid resistance. It

is a terrific plant for replacing adelgid-killed eastern hemlocks under cultivated conditions.

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and cultivation of Chinese hemlock (*Tsugachinensis*) and its resistance to hemlock

woolly adelgid (*Adelges tsugae*).
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