

A Tale of Two Palms: An Assessment of *Trachycarpus fortunei* and *T. wagnerianus* (Arecaceae)

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Abstract

The taxonomic status of *Trachycarpus fortunei* and *T. wagnerianus* varies considerably. These small to moderate, solitary, highly esteemed, cold-tolerant fan palms are likely from China and perhaps Japan but are unknown in a truly wild, natural, original state. Their taxonomic status varies: they have been considered separate species, the latter has been placed in synonymy with the former, or the latter has been listed as an infraspecific taxon of the former. Here, we amply illustrate, discuss, and review their histories, nomenclature and typification, distribution and ecology, conservation, ethnobotanical uses, and cultivation. We also provide detailed descriptions and a morphometric character comparison to develop reliable character tools for distinguishing both taxa. The results indicate that these taxa are highly variable because of long histories spanning thousands of years of selection, breeding, and hybridization, intentional or not, mostly for enhancement of the numerous products derived from them. In many respects, they are artificial, domesticated species. While these results suggest but do not confirm their separate taxonomic status, they provide reliable character tools for distinguishing both taxa. A rigorous and robust molecular phylogenetic analysis is needed to sort out these two taxa and the entire genus.

Introduction

Trachycarpus (from the Greek *trachus*, meaning rough, and *karpos*, meaning fruit, and alluding to the irregularly shaped fruit), includes about 10 species of moderate, mostly solitary, dioecious or polygamous, variable fan palms ranging from mountainous regions of northern India to northern Thailand, Vietnam, and China (Dransfield et al. 2008).

Trachycarpus fortunei (windmill palm, Chinese windmill palm, Chusan palm, Fortune's windmill palm, hemp palm) is one of the most distinctive, exotic, landscape palms for California and around the world where it is cultivated in suitable subtropical and warm-temperate locales (Fig.

1). Indigenous to China and perhaps neighboring areas and a solitary, slender-stemmed, palmate-leaved palm, its most defining characters are the windmill-like leaves and the vertically elongated mass of fine, long, dark brown to black, hair-like fibers emanating from the margins of the persistent leaf bases and typically densely clothing the trunk in its entirety. For thousands of years these fibers have been harvested locally and much prized to make ropes, mats, mattresses, brooms, and brushes, and other everyday household products while the fruits are the source of wax, food, and medicine (Essig and Dong 1987).

Another feature that sets *Trachycarpus fortunei* apart and is especially esteemed by palm growers, collectors and the landscape industry in more temperate regions, where cold hardiness is critical, is its remarkable tolerance of extended periods of damp to wet and cool to cold, even severe sub-zero (C) temperatures. These features make it one of the most cold-tolerant palms, enabling its cultivation in the Pacific Northwest of the United State and adjacent Vancouver, Canada, Ireland and the British Isles, southern Switzerland and northern Italy, and central Japan, to name a few challenging places to cultivate palms year-round outdoors.

Trachycarpus wagnerianus (dwarf or miniature windmill palm, waggie palm, miniature Chusan palm, Wagner's windmill palm), a closely related taxon with a similar, hairy trunk and cold hardiness, is much less common in the landscape (**Fig. 2**). However, it is exceedingly handsome, especially when young, because of its smaller habit and smaller, nearly dwarf leaves with stiff, rigid segments, immediately setting it apart from the more common and larger *T. fortunei*.

In recent, major, on-line botanical databases, *Trachycarpus wagnerianus* is listed as a synonym of *T. fortunei* (POWO 2025, TROPICOS 2025, WFO 2025); these databases are probably mostly based on Govaerts and Dransfield (2005), Henderson (2009), Iwatsuki et al. (2016), Pei et al. (2010), and Wu et al. (2010). Another major on-line database, IPNI (2025) offers no opinion about the synonymy of *T. wagnerianus* with *T. fortunei* but refers one to the WFO. The WFO (2025) does list *T. wagnerianus* as a synonym but, strangely, also bases its synonymy opinion on the IPNI (International Plant Names Index). On the other hand, in popular, mostly horticultural accounts, *T. wagnerianus* is typically maintained as a separate taxon, either as a species (Jones 1995, Kimnach 1977, MBG 2025, McCurrach 1960 [incorrectly as *T. takil*], Osborne et al. 2005, RHS 2025, Stevens 2010, TPC 2025), variety, or even a cultivar of *T. fortunei* (Gibbons and Spanner 2013 [informally], Jacquemin 1999, Riffle et al. 2012) although Palmpedia (2025) treats it as a synonym.

The basis of this conundrum of the taxonomic status of *Trachycarpus fortunei* and *T. wagnerianus* is likely that the former is unusually variable and is probably now unknown in a truly wild, natural, original state. Garry Tsen of China Gardening Nursery (Coldplant.com), who has explored exten-



1. *Trachycarpus fortunei* is one of the most distinctive, exotic, cold-hardy, landscape palms for California and subtropical and warm-temperate locales. Note the bent leaf blade segment tips. In 2011, Santa Barbara, California.

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