A New Intergeneric Hybrid Between *Franklinia alatamaha* and *Schima argentea*: ×*Schimlinia floribunda* (Theaceae)©

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INTRODUCTION

Franklinia alatamaha represents a monotypic genus that was discovered originally in Georgia, U.S.A., but is now considered extinct in the wild and is maintained only in cultivation. Although *Franklinia* is very ornamental, with showy flowers and crimson/maroon fall foliage color, it tends to be short lived when grown as a landscape tree and is known to be susceptible to a range of root pathogens. *Schima argentea* is an evergreen tree that is native to Asia and is valued for its glossy foliage, late-summer flowers, and broad adaptability in mild climates. Hybridization between these genera could potentially combine the cold hardiness and desirable ornamental characteristics of *F. alatamaha* with the greater adaptability, utility, and genetic diversity of *S. argentea*.

METHODS AND MATERIALS

Controlled crosses were made between *F. alatamaha* and *S. argentea* in Aug. and Sept. 1999 and 2000 at the Mountain Horticultural Crops Research Station, Fletcher, North Carolina, under the direction of Thomas G. Ranney. Pollen was collected from a specimen of *S. argentea* (accession 1999-098). This particular clone of *S. argentea* was provided by Clifford R. Parks and was propagated by seeds that he had collected near the Yunnan-Sichuan border in China. Flowers of *F. alatamaha* (accession 1998-450) were emasculated and hand pollinated. Approximately 150 flowers were pollinated over 2 years. Seeds were collected in September, the year following pollination, stratified in moist medium for 90 days at 6 ºC, and germinated under greenhouse conditions.

RESULTS AND DISCUSSION

A total of 83 hybrids were propagated from seed in 2000 and 2001. Growth was fast and many of these progeny attained heights greater than 2 m and flowered within 9 months of germination. Characteristics of the progeny clearly demonstrate their hybrid nature. Progeny are similar to *Franklinia* for leaf shape (leaves long-tapered at the base and broadest above the middle), lamina length, lateral vein number,

elongated bracts, petal width, and with the perianth bearing a silky pubescence on the abaxial surface of the sepals. Progeny are similar to *Schima* with conspicuously stalked inflorescences, often bearing more than one flower (subracemose), small subequal sepals, elongate peduncles, the number of flowers per inflorescence, abaxial pubescence of the petals, and smaller filament ratio. Progeny exhibit intermediate traits in the length of the tapered leaf base, leaf apex, abaxial leaf pubescence, flower diameter, the free sepal and petal length, sepal width, filament lengths, and filament length ratio. Progeny are typically very floriferous and exhibit an abundance of flowers (10 to 90) per shoot, exceeding either parent (2 to 4 in *F. alatamaha* and 10 to 15 in *S. argentea.* Therefore, this character trait provided the origin of the epithet chosen for the hybrid progeny. The filaments of the hybrids often are malformed and sometimes flattened, enlarged, and petaloid in appearance. Anthers of the hybrids often are nonexistent or malformed and rarely produce pollen. ×*Schimlinia floribunda* Ranney and Fantz (mountain schimlinia) is proposed as the name for these hybrids. Breeding and evaluation of hybrids is continuing in hopes of selecting desirable new introductions.

Green Roof Plants Mitigate Storm Water and Clean the Environment©

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INTRODUCTION

As North America becomes more developed, increasingly large areas of land are being covered with impervious surfaces such as buildings, roads, and parking lots. When storms occur, runoff can impose a significant threat to watersheds locally and regionally. Although green roofs are not new, Germany over the last 30 years has developed extensive green roof technologies that can be applied in the U.S.A. to reduce roof runoff and watershed damage. Green — sometimes called eco — roofs are, as the name implies, thin (4- to 6-inch deep) plantings that are placed on the roof of a building. Plant size and selection depends on the depth of the roof overburden (growing medium) and local climate, but almost always consists of winter-hardy, drought-tolerant, perennial plants. Although some information about green roofs is available, replicated performance specifics, especially as they relate to roof hydrology or the cleansing effects of green roofs, are mostly patented or proprietary, or anecdotal.

OBJECTIVES

The Center for Green Roof Research at Penn State investigates the performance characteristics of green roofs, particularly as they relate to the quantity and quality of storm water discharged from green roofs.