'Ruby Slippers' and 'Munchkin' Oakleaf Hydrangeas

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Oakleaf hydrangea (*Hydrangea quercifolia* Bartr.; family Hydrangeaceae Dumort.) is an ornamental shrub that is native to the southeastern United States (McClintock, 1957). Most plants grow 2 m or taller in height with an equal to wider spread (Dirr, 2004). Cream-colored conical inflorescences up to 30 cm in length are produced in early summer and often turn an attractive pink color as they age. Mahogany-red fall foliage and exfoliating bark provide fall and winter interest in the landscape. Inflorescences consist of a combination of showy sterile and inconspicuous fertile flowers.

Approximately 40 oakleaf hydrangea cultivars have been described (Dirr, 2004, 2009; van Gelderen and van Gelderen, 2004). Oakleaf hydrangea cultivars differ primarily in floral characteristics and plant size. Although most cultivars have inflorescences consisting of single flowers, hose-in-hose double ('Snowflake') and fully sterile-flowered ('Harmony', 'Roanoke', 'Vaughn's Lillie') forms are available. Among the single-flowered forms, cultivars differ in proportion of sterile to fertile flowers. For example, 'Snow Queen' is noted for having large and numerous sterile flowers, whereas 'Alison' has an equal distribution of both types of flowers (Dirr, 2004). Oakleaf hydrangea sepals turn brown or pink as they age with 'Alice' and 'Amethyst' developing some of the deepest pink-colored inflorescences on aging. Most cultivars reach at least 2 m in height at maturity with reports of some cultivars (e.g., 'Alice') growing to 4 m (Dirr, 2004). Plant width is generally slightly greater than height. Two compact selections, 'Pee Wee' and 'Sikes Dwarf', are commonly available in the trade. Both reach ≈0.6 to 1 m in height and width at maturity but lack some of the ornamental traits found among the more attractive standard-sized oakleaf hydrangea cultivars (personal observation). Inflorescences are small and sepals of sterile flowers do not completely cover inflorescences. Although the

sepals of 'Sikes Dwarf' turn light pink as they age, those of 'Pee Wee' quickly turn brown. Both plants have an open plant habit and irregular shape, giving them a somewhat unkempt appearance.

The oakleaf hydrangea breeding program at the U.S. National Arboretum's work site in McMinnville, TN, was started in 1996 for the purpose of developing attractive, compact oakleaf hydrangea cultivars that would be suitable for use in small residential gardens. Reported here are basic botanical descriptions, origins, and cultural requirements of 'Ruby Slippers' and 'Munchkin', which are the first two cultivars resulting from this program.

Origin

Controlled hybridizations were made in 1998 between *H. quercifolia* 'Snow Queen' and 'Pee Wee'. Although most of the F₁ progeny had the upright, full inflorescences of 'Snow Queen', none had a compact growth habit. In 2001, 10 of the most attractive 'Snow Queen' × 'Pee Wee' progeny were intercrossed using bulked pollen from the 10 selections. A seedling from this second-generation population was selected in 2004 for further evaluation. In 2006, plants of this selection were sent for evaluation to nursery and university cooperators in Alabama, Florida, Georgia, Illinois, Kentucky, Maryland, Mississippi, Missouri, New Jersey, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, and Washington. After evaluation in these locations, this selection was released in 2010 under the name 'Ruby Slippers'.

Open-pollinated seed was collected in 1997 from *H. quercifolia* 'Sikes Dwarf'. Two seedlings from this population, one with a moderately compact plant habit and the other with large, upright inflorescences, were hybridized in 1999. A seedling from this second-generation population was selected in 2002 for further evaluation. In 2007, it was sent for evaluation to nursery and university cooperators in the 19 states listed. Based on evaluations at these locations, this selection was released in 2010 under the name 'Munchkin'.

The cultivar names Ruby Slippers and Munchkin were registered in 2010 with the International Cultivar Registration Authority for *Hydrangea* (Hélène Bertrand, Institut National d'Horticulture, Angers, France) in

accordance with the International Code of Nomenclature for Cultivated Plants (Brickell et al., 2004). Herbarium specimens of both cultivars have been deposited at the U.S. National Arboretum Herbarium as cultivar standards.

Description

Hydrangea quercifolia 'Ruby Slippers' (NA 74836; PI 658493) is a deciduous, rounded shrub (Fig. 1A) that reached 1 m high and 1.5 m wide in 7 years of growth in McMinnville, TN [USDA Hardiness Zone 6b; U.S. Department of Agriculture (USDA), 1990; Waynesboro silt loam] under full sun conditions. Mature leaves are ovate to sub-orbicular in outline, five to seven lobed, truncate at the base, up to 15 cm long and 17 cm wide, lobes broad, serrate, and often slightly lobed. Foliage is medium green [Royal Horticulture Society (RHS) 137A–B; Royal Horticulture Society, 2007] on the adaxial leaf surface, changing to various shades of mahogany red (RHS 183A–B; 185A; 187A) in the fall. Flowering occurs in early summer. Inflorescences are up to 25 cm in length and 10 cm in diameter and are held above the foliage. At full flower, the exterior surface of the inflorescence is almost completely covered by large, showy sepals. Flowers initially open white (RHS 155A–C) but quickly begin to turn pink. Sepals eventually deepen into a bright rose color (RHS 59D; Fig. 1B). Flowers are followed by large numbers of dark brown seed capsules that persist throughout the winter but are not ornamental.

Hydrangea quercifolia 'Munchkin' (NA 73936; PI 658494) is a deciduous, rounded shrub (Fig. 1C) that reached 0.9 m high and 1.4 m wide in 9 years of growth in McMinnville, TN (USDA Hardiness Zone 6b; USDA, 1990; Waynesboro silt loam) under full sun conditions. Mature leaves are ovate to sub-orbicular in outline, five to seven lobed, truncate at the base, up to 17 cm long and 18 cm wide, lobes broad, serrate, and often slightly lobed. Foliage is medium green (RHS 137A–B) on the adaxial leaf surface changing to various shades of mahogany red (RHS 183A–B; 185A; 187A) in the fall. Flowering occurs in early summer. Inflorescences are up to 17 cm in length and 12 cm in diameter and are held above the foliage. The exterior surface of the inflorescence is primarily covered by large, showy sepals. Flowers open white (RHS 155A–C) aging to medium pink (RHS 182C; Fig. 1D). Flowers are followed by large numbers of dark brown seed capsules that persist throughout the winter but are not ornamental.

Culture

Statements and recommendations on plant performance and culture are based on information provided by nursery and university cooperators in multiple locations looking at three plants per site as well as plant performance in replicated trials at the Nursery Research Center in McMinnville, TN. Like other oakleaf hydrangeas, 'Ruby Slippers'

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Fig. 1. Plants and inflorescences of *Hydrangea quercifolia* 'Ruby Slippers' and 'Munchkin'. (A) Field-grown plant of 'Ruby Slippers'; (B) 'Ruby Slippers' aged inflorescence; (C) field-grown plant of 'Munchkin'; (D) 'Munchkin' aged inflorescence.

and 'Munchkin' grow well in moderately fertile, well-drained soil. Both are hardy in USDA Cold Hardiness Zones 5 to 8. They can be grown in full sun or partial shade, but some shade will be beneficial in Zones 7 and 8.

Both cultivars can be propagated from softwood cuttings using intermittent mist and 4000 ppm indole 3-butyric acid with rooting occurring within 4 to 6 weeks. They can also be micropropagated. Plants are suitable for either field or container production and will

usually produce flowers on small plants the first summer after propagation.

Outstanding Characteristics and Uses

'Ruby Slippers' and 'Munchkin' are well suited for use as specimen plants, in mass plantings, or in the shrub border. Because of their small size, they are particularly useful in small residential landscapes. Both cultivars were selected for compact growth habit and

attractive flowering characteristics. Because inflorescences are held above the foliage and covered with large sepals, the cultivars offer outstanding visual appeal. The inflorescences of 'Ruby Slippers' turn a deeper, brighter color on aging than do those of 'Munchkin', but 'Munchkin' is the more compact of the two cultivars. Both cultivars are tightly branched and require little, if any, pruning to maintain a dense shape while under production or in the landscape.

Availability

Like other woody ornamental plants released from the National Arboretum, 'Ruby Slippers' and 'Munchkin' are not patented so may be propagated and sold freely. Plants are available from wholesale, mail order, and a limited number of retail nurseries (source list available on request). The National Arboretum does not have plants of these cultivars available for general distribution but can supply cuttings to nurseries wanting to propagate these plants.

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