

The Allegheny Pachysandra

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While everyone knows the common pachysandra, used so often as a groundcover, few realize that it is native to Asia, and fewer still realize that it has a beautiful, horticulturally neglected American cousin. Mike Dirr was spending a sabbatical leave from the University of Georgia at the Arnold Arboretum when he wrote this article with Jack Alexander, who is currently the Arboretum's plant propagator.

Repetition seems to be the rule with groundcovers, for the same taxa are used repeatedly, and few attempts have been made to educate the public or to offer alternative selections. *Euonymus fortunei* 'Colorata', *Hedera helix*, *Pachysandra terminalis*, and *Vinca minor* are the dominant offerings and comprise probably 50 percent of the total groundcovers used in the East and Midwest. None of these is without problems and in recent years *Pachysandra terminalis*, Japanese pachysandra, has been afflicted with *Volutella pachysandrae*, a fungal pathogen, that causes cankers and stem dieback. A severe infestation can devastate an established planting. Controls are available, but often by the time the homeowner recognizes that a problem exists, it is too late for effective treatment. The monoculture of trees should have taught us something; however, it appears as though the same type of mistake is being repeated with groundcovers.

An American species, *Pachysandra procumbens*, Allegheny pachysandra, is one of the most handsome plants for groundcover use, yet is seldom seen in gardens or in com-

merce. This fact has been lamented by other authorities, and the species suffers a fate common to other quality plants: entrapment in the confines of an arboretum or botanic garden. Two reasons for the lack of visibility are the limited publicity compared to its Japanese cousin and the purported difficulty of propagation. Division, which is the traditional means of increase, is excessively slow for commercial purposes.

The plant was discovered by André Michaux in the 1790s and was described in his now classic *Flora Boreali-Americana*. Its range was listed as the western Allegheny mountains; hence the derivation of the common name. In 1937, Braun noted that the species is found in Kentucky, Tennessee, northern Alabama, Mississippi, and northern Florida. The species also occurs in North and South Carolina. Wherry studied native stands of Allegheny pachysandra from Somerset, Kentucky, south to the Gulf of Mexico. He noted that the plant abounded on rocky slopes, being most at home in woods, but persisted even where trees had been cut and land pastured. The underlying rock was limestone and soil reaction was circumneutral (around pH 7). According to Wherry, most plants were situated on slopes along streams.



*The contrasting foliage of Pachysandra procumbens (above) and P. terminalis (below).
Photos by M. Dirr.*

The species is hardy far north of its range and is successfully cultured at the Morton Arboretum, Lisle, Illinois, as well as at Champaign-Urbana, Illinois, where temperatures may reach -20 to -25 degrees Fahrenheit. A planting has been maintained since 1962 at the University of Minnesota Landscape Arboretum where winter lows reach -30 degrees Fahrenheit; however, snow cover is usually constant and affords protection.

The Arnold Arboretum has plantings that have not been disturbed since June, 1943. One measures 3 by 4.5 feet, and another, 3 by 7 feet. The former is on the east side of the Hunnewell Building while the latter is on the north side and hemmed in by the parking lot and building so it can spread in only two directions. There is no evidence of any disease or insect problems in the plantings. The species' extreme shade tolerance is evidenced by the excellent performance in these locations. Under landscape conditions, a moist, well-drained, organic, slightly acid soil would probably prove optimum. Any plant that increases by rhizomes or underground rootstocks benefits from a loose, friable soil because there is less physical impediment to the expanding structures.

Summer foliage ranges from a grayish- to bluish-green with a slight mottle and does not possess the luster of Japanese *pachysandra*. The leaves assume a bronze color in the late fall and by winter's termination range from greenish-brown to brown. The foliage is not truly evergreen and may vary from deciduous to semi-evergreen. Leaf retention depends on siting and geographic location. The species forms a handsome carpet that varies from 6 to 10 inches in height. If the foliage deteriorates over winter, abundant new shoots will have developed to form a solid cover by May or June. The leaves are much wider than the Japanese species and display more prominent (coarser) serrations. Although alternate in arrangement, the leaves appear whorled because the nodes are so closely spaced. They range in size from 2 to 3.5 inches long and are almost as wide.

The flowers are especially attractive and develop in March and April on 2- to 4-inch-long spikes that emanate from the base of the stem. A single stem may have up to three spikes, but one is more common. The position of the flower provides another means of separating the two species, for on Japanese *pachysandra* the inflorescence is at the top of the stem in the middle of the pseudo-whorl of leaves. The flowers of *P. procumbens* are a purplish- or pinkish-white (stamens may be pink in color) and possess a pleasing fragrance. Wherry termed the odor rancid and musky, but based on personal observation this is not the case. The flowers are unisexual and apetalous with male and female on the same inflorescence. A few female flowers are confined to the base of the inflorescence while the conspicuous and abundant stamens occur at the top. Both species have naked (not hidden by bud scales) inflorescences, which are formed the summer and fall prior to flowering. Unfortunately if the Allegheny *pachysandra* is killed to the ground, the flowers will be lost. Even though they are basal, they elongate and partially rise above the foliage which is often flattened by winter weather. The early flowering date couples the species with *Acer rubrum* and together they could be considered "harbingers of spring."

Fruits are not showy and apparently seldom develop in cultivation. Examination of herbarium specimens of material collected from the wild showed that the fruit is a three-valved capsule that contains small lustrous, dark brown seeds. The fruit is not ornamental on either species, but perhaps controlled crosses might be made between the two, thus resulting in interesting hybrid progeny.

The Cornell Plantations reported in 1978 that Allegheny *pachysandra* was unfamiliar to many visitors and stimulated more questions than any other plant in their groundcover collections. They further noted that the species was not evergreen in Ithaca, New York, but was perfectly hardy, and that twelve-year-old plantings showed no disease or dieback problems.

Propagation difficulties may have limited commercial offerings in the past, but this is no longer a problem. Cuttings of vigorous semi-hardened growth taken in June have rooted readily. In experiments at the Arnold Arboretum, cuttings collected in September rooted no less than 80 percent in eight weeks when placed in sand and perlite under mist. Ten treatments were employed and even the

controls rooted, but indolebutyric acid (IBA) and naphthaleneacetic acid (NAA) when applied as dips (pure chemical dissolved in 50 percent ethanol) resulted in 100 percent rooting and large root systems.

Allegheny pachysandra is an aesthetically functional alternative to the more common groundcovers.



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