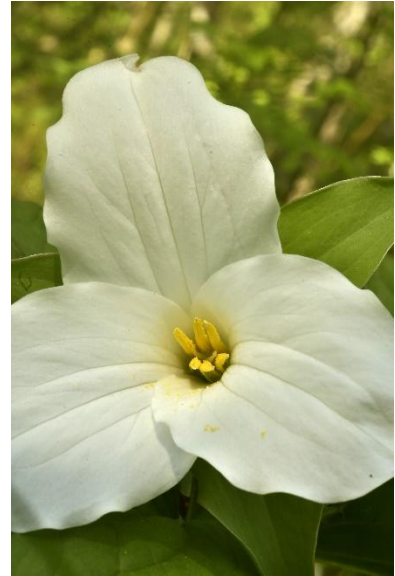


## Good Things Come in Three

There is an old saying that “good things come in threes”. Supposedly, it stems from an ancient belief that three of something is complete and ideal. Hence, “third time is the charm” and, should you have the good fortune of uncorking a Genie, you might be the beneficiary of three wishes! Even in the world of gardening, arranging plants in groups of three makes them look more natural. One plant that certainly embodies the beauty of three is the genus of *Trillium*, as displayed by the image of *Trillium grandiflorum* on the right! Commonly called Wakerobin or Toadshade, these April bloomers add a beautiful touch of 3’s to the woodland garden!



The genus of *Trillium* is relatively small, containing around 50 species primarily native to North America, although 5 species are native to Asia. Known for beautiful flowers and bracts, *Trillium* is a bit challenged when it comes to which family to call its own! It was originally placed in the Lily Family or Liliaceae, although in the late 1800’s some botanists suggest moving it to its own family of Trilliaceae. As the Lilly Family grew in size it became clear that not all members shared the same common ancestor of the family tree. In an attempt to resolve this issue, in 1998 several members were teased out, including *Trillium* which was placed in the Bunchflower Family or Melanthiaceae. This is currently the family most authorities agree upon, yet controversy remains with some even wishing to reinstate the Trilliaceae as its family! The genus name was first penned in 1753 by the Swedish botanist Carl Linnaeus (1707-1778), who was also responsible for originally placing it in the Liliaceae. It comes from the Latin and Greek root of *Tri* for three and *Lilium* in recognition of its original family!

All *Trillium* species grow from a slowly spreading underground rhizome or horizontal stem, from which a scape or leafless floral stem emerges as early as mid-March in NJ. Although this scape is an extension of the rhizome, it has the appearance of a traditional herbaceous plant stem. Another deceptive feature of this genus is the 3 large bracts located at the tip of the scape which resemble leaves. They do in fact carry on the photosynthetic function of true leaves but, by definition a bract is a modified leaf that is associated with and serves to protect a flower. In this case, these bracts wrap around and protect the flower bud as the scape pushes upward through the soil, as illustrated by the arrow at right for *Trillium grandiflorum*. As these 3 bracts open, the flower bud with its 3 petals and associated 3 bracts of the calyx subsequently appear. This showcases how well the flower is protected considering it has two sets of bracts! The plants have traditionally been divided into two groups, based on whether



it has a pedicel (a floral stem) and is termed pedicellate (as seen below with *Trillium grandiflorum*), or lacks a pedicel and is sessile. Plants with pedicellate flowers are commonly known as Wakerobin while those with sessile flowers are called Toadshade! Currently, the focus is on splitting the genus further into 4 subgenera, although the challenge here lies in the broad variability of seedlings within each species. For the gardener, the wonder of this genus is not in the complicated and seemingly endless classification of this plant, but simply their beauty!



Probably the most well-known and recognized species is *Trillium grandiflorum* or Great White Trillium. Described in 1805 by the British botanist Richard Anthony Salisbury (1761-1829), the species epithet is from the Latin *Grandis* or large and *Florum* for flowers, illustrating the large size of the predominantly white blooms. Native from Quebec and Ontario south to Alabama and Georgia, the plants display rich green, 3-6" long leafy bracts – remember, *Trillium* species do not have true leaves! The margin of each bract exhibits a distinctively wavy or undulating form (as seen at left) and comes to a sharp point at the tip. Emerging from the center of these bracts is a 1-4" long pedicel that supports a solitary flower with attractively recurved petals and its associated bracts. Each of the 3 oblong petals range from 2-3" long by ½-¾" wide and, when fully open forms a funnel-shaped flower upwards of 3" in diameter. The flower is subtended by 3 narrower and shorter green bracts of the

calyx. The flowers bloom from mid-April into early May, coinciding with the period when Robins once reappeared or 'awoke', earning them the common name of Wakerobin! As the pedicel lengthens, it develops a slight crook that allows the flowers to lean to one side and gives the appearance you are being greeted as you approach! The center of the flower typically has a light-yellow blush with 3 centrally positioned stigmas surrounded by 6 yellow anthers. The anthers are distinctly straight or linear in form and release yellow pollen along the margins while the stigmas are recurved, resembling a jester's hat. Typically, the plants do not self-pollinate and rely on bumblebees and wasps for pollination.

As the petals fade and fall, the 3 small bracts of the calyx remain to provide the backdrop for the enlarging light green seed capsule (as seen at right). These capsules are berry-like and fleshy, with 6 distinct ridges running from the tip to the base. Come late summer, the capsules split open to release upwards of 12 seeds. The seeds have a fleshy white, lipid rich appendage called an elaiosome that is highly desired by ants as a food source. Often, the ants



will even burrow into the capsule to get the seeds prior to the capsule splitting open! Attracted by the fats and proteins of the elaiosome, ants will carry the seed back to their nests whereupon the larva will dine on the energy rich attachment. Once devoured, the ants deposit the seed in refuse tunnels reserved for waste, providing the perfect environment for the seed to germinate. These elaiosomes are also a desired food source for wasps and yellow jackets who are successful in moving the seed about while enjoying a meal.



The flowers of *Trillium grandiflorum* often develop a red blush as they age and on occasion, all red selections of the species can appear, often side-by-side with the typical white form. However, if a guaranteed red flowered form is preferred, *Trillium erectum* is a wonderful choice (as seen at left). Having a native range similar to its white flowered cousin, this species is commonly called Red Trillium in honor of the flower color. Growing to an overall

height of 12-18", the deep red to maroon flowers measure 2-2½" in diameter and once again appear atop a 2-6" long pedicel. They too lean to one side, giving the appearance you are being observed while the three photosynthetic, bright green bracts beneath stretch to upwards of 7" long. Both edges of the bracts curl upwards, giving the bracts a distinctive appearance somewhat akin to a canoe! Once the flower fades, a red to maroon capsule develops and adds another ornamental dimension to the plant.

If more colorful 'foliage' is preferred, consider *Trillium cuneatum* (as pictured at right and below). Native from Pennsylvania south to Georgia and west to Mississippi and Indiana, the large egg-shaped bracts are initially red, maturing to green with light, silvery green markings throughout. Named in 1840 by the French born botanist, Constantine Samuel Rafinesque (1783-1840), the species epithet is from the Latin *Cuneatus*, meaning wedge shaped and is thought to refer to the base of the bracts. The thick, fleshy scape is often a deep ruddy red, especially close to the soil. Unlike the previous two species, the deep red flower lacks a pedicel and sits atop the three large, leaf-like bracts (as seen at right). Whether it is the resemblance of the flower perched atop the leaves to that of a toad or perhaps the mottled foliage that loosely resembles a toad's skin, sessile forms of *Trillium* have garnered the name Toadshade. Also



differing from its two cousins, the slender subtending floral bracts are red, rather than green. The flower petals remain bolt upright, creating a dramatic 2-3" tall flower that surround the 6,  $\frac{3}{8}$ - $\frac{1}{2}$ " long anthers. The anthers are once again straight or linear, with each having two beautiful stripes of golden yellow pollen running along their edges. The pollen provides a very regal appearance as it contrasts against the deep red anthers.



One of the most robust species, it spreads to produce a nice carpet of blooms. At Frelinghuysen Arboretum in Morristown NJ, it has colonized in a moist location beneath a tall colony of Pepperbush (*Clethra alnifolia*), as seen above. The flower often has a subtle yet sweet fragrance, somewhat akin to bananas, giving it another common name of Sweet Betsy!



If mottled foliage and yellow flowers are preferred, *Trillium luteum* is the selection in need! Originally named *Trillium sessile* var. *luteum* in 1813 by the American minister and botanist, Gotthilf Heinrich Ernest Muhlenberg (1753-1815), it was elevated to a species level in 1901 by the American botanist Thomas Grant Harbison (1862-1936). When the 3 large bracts first unfold, they are often dark green with a hint of red, against which the silvery green markings contrast nicely. As the plants age, the deep green base lightens and although still attractive, the mottling becomes somewhat less pronounced. The bright yellow flowers are once again sessile as Muhlenberg's original name suggests, with the petals standing straight upright at the center of the 3 large bracts, as seen at left and below. The slender subtending floral bracts are light green and often have a pronounced light-yellow stripe down the center. The central 6

anthers are yellow with identically colored pollen dispensed along the edges. In a fashion similar to *Trillium cuneatum*, the anthers curl slightly into the center and conceal the stigma (readily seen above).

By and large, *Trillium* species appreciate a shaded location in soils enriched with humus, allowing the area to retain moisture throughout the summer. At Willowood Arboretum, plants are flourishing on a well-drained slope in silty soils receiving filtered light throughout the day. Plants are notoriously difficult to start from seed



and should be sown as soon as the seed ripens, preventing desiccation. In general, it takes 4-5 years to transition from seed to a flowering plant. As the foliage dies back in late summer, the rhizome can also be lifted and divided to produce young plants, provided each segment has at least one bud and some roots. The challenges of propagation have given the notion that this genus is difficult to grow. In actuality, once established the plants are easily grown. All the species discussed are hardy in zones 5-8 or colder and are tolerant of a soil pH from 6 to near 8!

All these species look great mixed with ferns such as Maiden Hair Fern (*Asplenium pedatum*) and Wood Fern (*Dryopteris marginalis*) or the various selections of Japanese Painted Fern (*Athyrium niponicum* var. *pictum*) if a color other than green is desired. *Trillium grandiflorum* pairs very nicely with a carpet of Spring Beauty (*Claytonia virginica*) as seen below or, for a longer season of interest, consider Walter's Violet (*Viola walteri* 'Silver Gem'). For a bold look, pair *Trillium luteum* with the blue flowered Woodland Phlox (*Phlox stolonifera*) or perhaps the yellow flowers of Golden Ragwort (*Packera aurea*) as seen above and Barren Strawberry (*Waldsteinia fragarioides*). The possibilities are far greater than you may have imagined!

Although *Trillium* species have the stigma of being difficult to grow, they are actually very long-lived and have minimal cultural needs. Although I have yet to see seedlings in a Garden setting, the slowly spreading rhizomes create ever expanding colonies with ever expanding masses of stately flowers. Having long been a fan of triangulating plants to make them look more natural in a garden, *Trillium* is but one additional reason why "good things do come in threes"!



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