



Cultivation Notes

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Buttonbush – *Cephalanthus occidentalis*

Family: *Rubiaceae*

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“What’s that?!” is a frequent reaction to a first sighting of a Buttonbush shrub in bloom. Buttonbush (*Cephalanthus occidentalis*), though not rare, is not usually encountered on a normal walk in the woods because of its preference for very wet places. The surprised reaction is to the sight of a woody shrub growing in a few inches of water and bearing spherical flower clusters an inch or so in diameter that look like white pincushions lavishly decorated with yellow-headed pins – the head-flowers described by the Latin name. The pins are pistils, each protruding from one of the 160 or so skinny tubular flowers that are tightly packed together to make up the sphere. The stamens are nowhere to be seen because they are hidden, each tucked behind one of the four tiny petals that make up the tubes. One wonders how this arrangement can facilitate pollination by hovering butterflies and other insects. By means of some painstaking research, involving electron microscopy and delicate dissections, Imbert and Richards (1) attacked this question.



Cephalanthus occidentalis

It turns out that the stigma picks up pollen from the stamens in the bud at least twelve hours before the flowers open in June. The flowers begin to open around sunset and by 2:00 A.M. the white corollas are about half an inch long and the pistils extend another half inch or so beyond the petals, each carrying its load of pollen. Self-pollination? Not really. On this first morning the stigmas are impervious to pollen tube growth. The stigmas serve only as delivery organs for pollen, which the insect visitors pick up as they poke around looking for nectar and deliver to other flowers in the time-honored way. Beginning on the second day small ruptures appear on the stigma, and the adhering pollen, which by now includes both self and non-self grains, germinates. Though both self and non-self pollen grains form pollen tubes, the tubes of the self grains are distorted and seldom grow through the junction between the stigma and the style. In contrast the tubes of the non-self grains head straight for the ovules. The corollas remain on the inflorescences about four days, beginning to turn brown on the second or third day. The seeds ripen over the next few weeks, two to a flower, in the spherical heads, which gradually turn brown. Flowering and seed production continues throughout the summer.

In our area, *Cephalanthus* is one of those genera beloved of botany students that comprises only one species, in this case, *occidentalis*. The one other species in the United States, *C. salicifolius*, or Mexican Buttonbush, hops the Rio Grande on occasion from Mexico into Texas. Other species of *Cephalanthus* occur in South America, southern Africa, and southeast Asia. All have the characteristic flower heads and opposite or whorled leaves, but not all are wetland plants. Within its family, Rubiaceae, Buttonbush has some distinguished relatives including Coffee and Cinchona, the famous historic cure for malaria. Buttonbush bark and leaves also contain alkaloids that some say are curative, but are mostly harmful. Humbler family members in Rhode Island are *Hedyotis caerulea*, or Quaker Ladies, and 15 common species of *Galium*, or Bedstraw.

Standing water isn’t necessary to keep *C. occidentalis* shrubs healthy, but wetness is. Beyond its need for much water, it grows in a wide range of conditions, occurring in eastern North America from Nova Scotia into northern Mexico and west to the Great Plains, with a few populations in Arizona and California. It can even withstand a small amount of salinity, hence its usefulness in shoreline plantings to control erosion.

McCarron et al (2) found that 0.2 percent salinity has little effect, although three weeks of flooding with 1% salinity is fatal. (The salinity of seawater is 3.5 percent.) Buttonbush can thrive in partial shade, but blooms more profusely in full sun. Although it is considered a short-lived shrub, it can live twenty years and attain a height of twenty feet. Luckily, it tolerates pruning.

Buttonbush is a welcome addition to any property that contains or abuts a wetland. The shrub not only attracts butterflies, but waterfowl eat its seeds and wood ducks nest among its stalks. Propagation is easy, as cuttings take root when pushed into wet, sandy soil and seeds germinate without pretreatment in the same wet soil. Many nurseries sell a vigorous cultivar known as 'Keystone'.



Cephalanthus occidentalis

References:

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<http://www.gardenguides.com/taxonomy/common-buttonbush-cephalanthus-occidentalis/>

<http://plant-materials.nrcs.usda.gov>, Plant Fact Sheet, Common Buttonbush

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RIWPS Policy — *Never dig plants in the wild or without the written permission of the landowner. Take seeds sparingly.*

Note: Cultivation Note is a regular feature in *WildfloraRI*, the Bulletin of the Rhode Island Wild Plant Society. If you would be interested in writing a future cultivation note article or have suggestions of plants you would like to see included, please contact Dick Fisher at Richard.Fisher2@verizon.net. The previous cultivation note topics are listed on the website and there is an easy to follow set of guidelines for the format of your article. — *WildfloraRI* Editorial Committee