

Biology and Management of Dayflowers (*Commelina* spp.) in Ornamental Plant Production and Landscapes in Florida¹

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Introduction

Several native and non-native dayflower (*Commelina*) species can be found in Florida landscapes and production nurseries. Two of the most widely distributed species include the native whitemouth dayflower (*Commelina erecta*) and the non-native spreading dayflower (*Commelina diffusa*), which is thought to have been introduced to Florida from Asia. Both species are widely distributed and have been vouchered in nearly every county in Florida. This publication is written for home gardeners and other green industry professionals to aid in the proper identification of these two common dayflower species. General management information is included for both dayflower species. For specific identification and control recommendations for Benghal dayflower (*Commelina benghalensis*), another common dayflower species that is a noxious regulated weed, see Ask IFAS ENH1085, “Biology and Management of Benghal Dayflower in Ornamental Crop Production.”

Species Description

Class

Both species are monocotyledonous plants.

Family

Commelinaceae—Spiderwort family

Other Common Names

Commelina erecta: Whitemouth dayflower, slender dayflower, widow’s tears

Commelina diffusa: Spreading dayflower, climbing dayflower

Life Span

Both whitemouth dayflower and spreading dayflower are warm-season, herbaceous perennials that can be found flowering and fruiting in the landscape year-round.

Habitat

As a pineland or coastal upland plant, whitemouth dayflower is extremely drought tolerant, preferring dry, well-drained soils. It can grow in a variety of soil types, from sandy, limestone-rich soils to heavier clay soils, and thrives in full sun to partial shade. Because of this adaptability, it occurs in residential lawns and gardens, prairies, ditches, and agricultural production areas, as well as along roadsides.

Spreading dayflower is nearly global in distribution and also thrives in various soil types. It is commonly found in damp, shady, and moist habitats near water bodies like swamps and marshes. Additionally, it grows in disturbed areas such as agricultural fields, field borders, gardens, and even forests, as well as along roadsides.

Distribution

Whitemouth dayflower is native to the Americas, Africa, and western Asia. In the United States, it is found from New York west to Nebraska and south to Florida and Texas, thriving in dry, sandy soils in habitats such as prairies, woodlands, and along streambanks. Native to Asia, spreading dayflower was introduced to the United States and is now present from Maryland west to Missouri and south to Texas and Florida, often found in disturbed habitats like gardens, lawns, and moist woodlands.

Growth Habit

Whitemouth dayflower has a moderate to fast growth habit that is initially erect, reaching heights of 3–12 inches. As it matures, the plant eventually becomes prostrate, spreading outward with low, rising stems that form dense patches over time (Figure 1). In contrast, spreading dayflower has prostrate, slender stems that creep along the ground, rising slightly and often rooting at each node (Figure 2). The stems of whitemouth dayflower are cylindrical and pubescent (have hairs) with distinct nodes or internodes. These tender stems and foliage are readily consumed by wildlife—including gopher tortoises, white-tailed deer, and cattle—and are also edible for human

consumption (Cavichi et al. 2023; Chamrad and Box 1968). Spreading dayflower stems are typically green to reddish green, covered with fine hairs, and trail along the ground, forming dense, sprawling mats.



Figure 1. Erect-to-prostrate growth habit of the whitemouth dayflower (*Commelina erecta*).

Credit: Annette Chandler, UF/IFAS



Figure 2. Prostrate growth habit of the spreading dayflower (*Commelina diffusa*).

Credit: Rebekah D. Wallace, University of Georgia, Bugwood.org

Shoot

The first leaves of whitemouth dayflower are light green, alternately arranged along the stem, elliptical in shape, 1.2 inches long and 0.8 inches wide, and lacking pubescence (Figure 3). As the leaves mature, they become more linear in shape, range from 2–6 inches in length, and have parallel leaf veins, entire leaf margins, and fine pubescence (Faden 2000; Hammer 2004). The leaves of the spreading dayflower are nearly sessile (attach directly to the stem without a stalk). The leaf blades are lanceolate (long and narrow, tapering to a point) or oblong, measuring 1.2–3.1 inches × 0.3–1.2 inches, and can be smooth or covered with coarse hairs.



Figure 3. Foliage of the whitemouth dayflower (*Commelina erecta*).

Credit: Annette Chandler, UF/IFAS



Figure 4. Foliage of the spreading dayflower (*Commelina diffusa*).

Credit: Bruce Ackley, Ohio State University, Bugwood.org

Roots

The roots of the whitemouth dayflower are fleshy, white, fibrous, and form a clustered bundle at the base. Similarly, the roots of the spreading dayflower are white and fibrous at the base, with additional roots emerging from the nodes that touch the ground.

Inflorescence

Flowers of the whitemouth dayflower are approximately 0.75–1 inch across and are ephemeral, generally opening for a brief period in the early morning hours and closing by the afternoon (Figure 5). Nevertheless, this species produces an abundance of flowers, often blooming throughout the season. Flowering generally peaks in the summer and fall, though this species may bloom year-round in south Florida (Hammer 2004). Flowers occur in terminal clusters at the top of the plant, each composed of three ear-shaped petals: two deep blue-purple ones above and a smaller white petal below that resembles a tiny mouth, giving rise to the common name “whitemouth.” At the center of the flower are three small, bright-yellow sterile stamens and a larger fourth stamen with a butterfly-shaped tip (Faden 2000). Just below these are the style and two fertile stamens, which are long, curved, and pale blue. Behind the flower sits the spathe, which ranges in color from green to purple and is often hook-shaped with white hairs.

The spreading dayflower blooms from May through November, with its flowers arranged into cincinni (Figure 6) (Hong and DeFillips 2000). This type of inflorescence has lateral branches that alternate along a false axis. Each plant typically produces two cincinni: the lower one is usually bisexual, bearing 2–4 flowers on a shorter peduncle, while the upper one carries one or more male flowers on a longer peduncle. The petals are predominantly blue, but occasionally lavender, with the upper petals measuring 1.7–2.4 inches. A violet band appears on the connective tissue between the anther lobes, and the spathes are sickle-shaped with a heart-shaped to rounded base (Faden 2000).



Figure 5. Flower of the whitemouth dayflower (*Commelina erecta*).

Credit: Annette Chandler, UF/IFAS



Figure 6. Flower and spathe of the spreading dayflower (*Commelina diffusa*).

Credit: Rebekah D. Wallace, University of Georgia, Bugwood.org

Fruits and Seeds

The fruit of the whitemouth dayflower is a 1.6–2-inch-long capsule with three locules and two valves. It produces three brown seeds that measure between 0.9 and 1.4 inches in length (Faden 2000; Hammer 2004) (Figure 7). In contrast, the fruit of the spreading dayflower is an oblong, trigonous capsule, measuring 2 inches in length and divided into three valves. The posterior valve contains one indehiscent seed (closed when mature), while each of the other two valves contains two dehiscent seeds (open when mature). The seeds are black, ovoid-globose, and approximately 0.8 inches in size with a reticulate pattern.



Figure 7. Fruit of the whitemouth dayflower (*Commelina erecta*).

Credit: Rebekah D. Wallace, University of Georgia, Bugwood.org

Plant Biology

Whitemouth dayflower reproduces by seed. Following insect-mediated pollination and subsequent fruit set, the seeds of whitemouth dayflower are released from a dry capsule that remains attached to the plant. Since these seeds lack specialized structures for wind or water dispersal, they are most likely dispersed by gravity or by small animals that feed on them and carry them to new locations. Specifically, they are an important food source for bobwhite quail as well as white-winged and mourning doves (Everitt et al. 1999).

Spreading dayflower also reproduces by seed, which are spread by water, insects, animals, and mowing equipment. In addition to sexual reproduction by seed, spreading dayflower easily and quickly spreads vegetatively by rooting along its stem nodes and propagates by stem fragments.

Management and Control

While other non-native species of *Commelina* are considered weeds in both residential areas and agricultural production systems, managing whitemouth dayflower is generally unnecessary, as it does not typically exhibit invasive characteristics, like aggressive growth. For cultivated garden areas where weed control may be necessary, hand weeding can be effective for smaller growth patches. Care should be taken to remove all shoot tissues from the area, as stems from dayflower plants (whitemouth and spreading, along with other species) left behind can easily form roots and begin to regrow.

Spreading dayflower can be a nuisance in planting beds, on turf, and in and around ornamental plants during production. If chemical control of spreading dayflower is considered necessary in large-scale agricultural systems, an integrated strategy is recommended, combining selective or non-selective herbicides with practices such as intercropping, mulching, and soil solarization (Isaac et al. 2013). In planting beds, herbicides that contain the active ingredient glyphosate can provide postemergence control, but larger plants may require more than one application. Other active ingredients that are effective on smaller plants include glufosinate (Finale, Cheetah, etc.), pelargonic acid (Scythe), diquat (Reward), and bentazon (Basagran T/O). Preemergence herbicides are not as effective but flumioxazin (SureGuard or Broadstar) can provide some control if the plant is spreading from seed.

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¹ This document is ENH1403, one of a series of the Department of Environmental Horticulture, UF/IFAS Extension. Original publication date March 2026. Visit the EDIS website at <https://edis.ifas.ufl.edu> for the currently supported version of this publication. © 2026 UF/IFAS. This publication is licensed under [CC BY-NC-ND 4.0](#).

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