

# Cogongrass: A Potentially Invasive Weed in Arkansas

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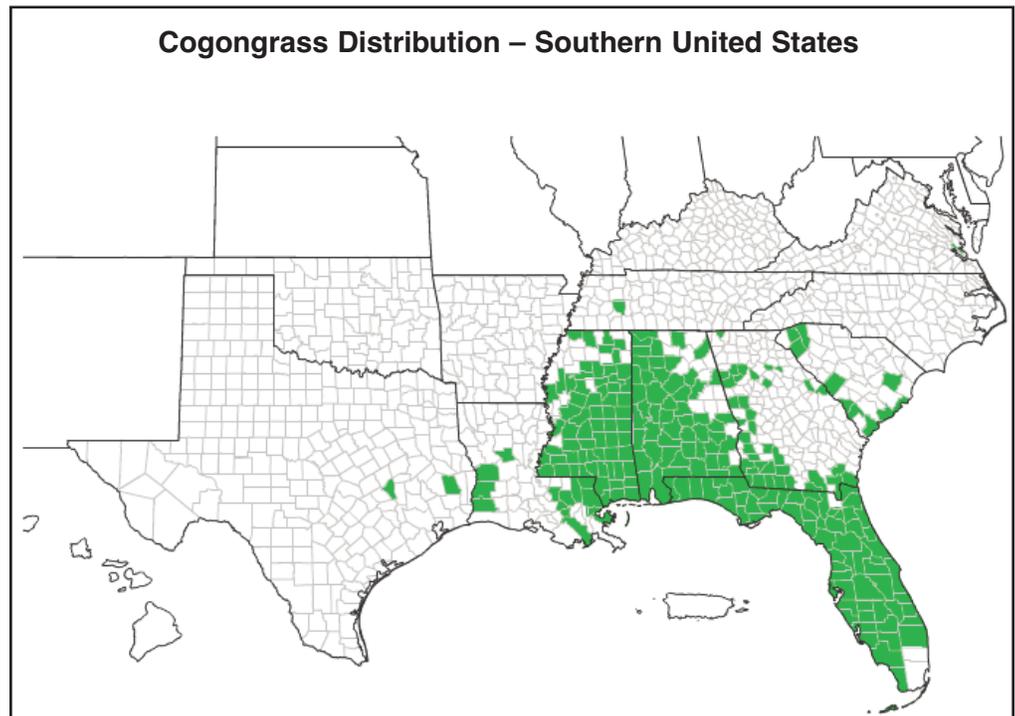
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Cogongrass [*Imperata cylindrical* (L.) Raeusch.; plant family *Poaceae*] is considered one of the top 10 worst weeds in the world. Cogongrass is a rapidly growing perennial grass that is widely adapted throughout the southeastern U.S. It is tolerant of shade, poor soils, high salinity, moisture and drought. Cogongrass can invade pastures, natural or planted forests, riparian areas, highway rights of way, urban areas and wetlands. It is native to Southeast Asia and was introduced into the U.S. in 1911 near Mobile, Alabama, as packing material in shipping containers. Before the 1920s, it was planted in Mississippi

and Florida for forage and for soil stabilization, but it was found to be unsuitable for forage and it spread rapidly displacing desirable vegetation. Cogongrass accumulates silica in the serrated leaf margins making it unpalatable for grazing except at very immature stages of growth.

Currently, cogongrass infestations cover over 1 million acres in the Southeast. Infestations are most widespread in Alabama, Florida, Mississippi and Georgia but also occur in Louisiana, South Carolina, Texas, Virginia and Oregon (Figure 1). As of 2009, cogongrass infestation had not been reported



**FIGURE 1. Distribution of cogongrass in the Southeast – 2007.**

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in Arkansas, but the proximity of infestations in neighboring states and the potential for seed spread by storm and traffic patterns make constant surveillance necessary to prevent establishment of this pest.

Unfortunately, cultivated selections of cogongrass are still sold by some nurseries as a reddish colored ornamental grass called Japanese bloodgrass or Red Baron bloodgrass. Unsuspecting homeowners discover that these plants can lose the red color and revert to the weedy and extremely invasive type of cogongrass that spreads into other areas of the landscape. The cultivated varieties are grown as far north as Michigan. A major concern is the potential hybridization of wild types and the cultivated forms, which could greatly expand the range of this invasive pest. ***Cogongrass and all of its ornamental cultivars are Prohibited Plants in Arkansas. It is illegal to grow, buy, barter or give away any of these plants in the state.***

## Description

Cogongrass infestations begin as circular patches that expand to crowd out existing vegetation. Evidence suggests that cogongrass is also allelopathic, meaning it produces chemicals in the soil that stunt growth of neighboring plants allowing it to outcompete neighboring vegetation.

Cogongrass colonies have a clumpy appearance (Figure 2). The plants have upright leaves that often grow 3 to 4 feet long (may grow up to 6 feet long). The leaves appear to rise directly from the ground and grow from the underground rhizomes. The leaf sheaths are overlapping, giving the plant bases a rounded appearance with no apparent stem. The plants are often yellowish-green in color and may have a reddish cast in the fall before turning brown in winter. Leaves are about one inch wide with finely serrated edges. A key characteristic is the prominent white midrib that is offset to one side, particularly toward the leaf tip (Figure 3). Cogongrass has a prominent membranous and hairy ligule at the base of the leaf (Figure 4). The plants produce a dense mass of roots with extensive segmented rhizomes.

Cogongrass spreads naturally by rhizomes and windblown seed. Seed may also be carried on vehicles or on mowers and other machinery. Rhizomes and viable vegetative plant parts may be spread through soil on equipment and through fill dirt as well. The seed requires light for germination, which favors establishment in open and disturbed areas having little plant competition. Seedlings are frequently



**FIGURE 2. Cogongrass infestation. Note the leaves rising from the ground in clumps within the patch.**

found in sites disturbed by clear-cutting, burning, tillage, excavation or grading. New plants grow quickly and begin to produce rhizomes about four weeks after emergence.

Unlike other grasses, cogongrass normally flowers at the start of the growing season soon after spring growth begins (March to May). However, flowering may also occur following frost, fire, mowing, tillage or other disturbances. The feather-like seedheads range from 2 to 8 inches long. They are easily identified by the silvery or whitish silky hairs attached to the seed, which create the appearance of a feathery plume (Figure 5). Each cogongrass plant can produce up to 3,000 seeds per season.

Early research suggested that cross-pollination is necessary for viable seed production. It was noted that infestations beginning from rhizomes only spread



**FIGURE 3.** Cogongrass leaves have a prominent midrib offset to one side, especially toward the leaf tip.

vegetatively until unrelated patches grow close enough for cross-pollination to occur, allowing viable seed production. But in Mississippi, seed germination from first-year cogongrass populations was over 95 percent. Cogongrass seed has little dormancy, and research has shown it loses viability after one year.

## Control

Effective control includes good sanitation to prevent spread of seed and rhizomes. Vehicles, ATVs and machinery should be inspected for the fluffy seed and possible rhizome contamination after being used in infested areas. In Florida, spread along roadsides has been attributed to transport of seed and rhizomes on mowing, grading and earth-moving equipment. Use of biological controls has been largely unsuccessful.

Cogongrass does not persist under tillage and is not likely to infest cultivated fields. In areas not



**FIGURE 4.** Cogongrass has a hairy ligule and may or may not have a hairy leaf sheath.



**FIGURE 5.** Cogongrass seedheads have a feathery plume appearance and may be 2 to 8 inches long.

prone to erosion and that are free of rocks, young infestations can be controlled with repeated tillage over the season. The initial tillage should begin in the spring (March through May) to a depth of at least 6 inches and should be repeated every six to eight weeks. It is important to clean all equipment on site to prevent the spread of rhizomes. The site should be replanted with a suitable grass or cover crop as soon as the cogongrass infestation is under control. Mowing may help reduce cogongrass stands. Areas must be mowed frequently and at a low height.

Cogongrass top growth is very flammable and can burn even when green. Dense stands of dry cogongrass burn intensely hot with temperatures that kill other vegetation, including pine trees. In its native range, cogongrass evolved with fire and burning stimulates its growth and spread. However, fire can be of use in control efforts for removing top growth to allow better herbicide coverage on regrowth.

Only two herbicides have been shown to be effective for controlling cogongrass – glyphosate (example trade names: Roundup, Glypro, Accord, etc.) and imazapyr (example trade names: Arsenal, Arsenal AC and Chopper). Glyphosate has only foliar activity, but imazapyr has both foliar and soil residual activity and can injure other susceptible plant species that are planted too soon after the last treatment. The product label on all herbicides should be consulted for recommended areas of use and for restrictions on crop replanting or rotation.

Even at high rates and using tank-mix combinations, cogongrass often regenerates within a year following a single application of either herbicide. The most effective herbicide program begins with a fall application before the end of the growing season followed by a spring application on regrowth to kill remaining rhizomes. A minimum of two applications per year is needed, and older infestations may require two to three years of treatment to eliminate rhizomes. Replanting a replacement species of forage or trees is recommended when greater than 90 percent control is achieved. Replacement species should be planted at a dense rate or should be fast and vigorous growing to outcompete any remaining cogongrass.

If you suspect the presence of cogongrass, please notify the Arkansas State Plant Board (501-225-1598 or <http://www.plantboard.org/>) or the State Plant Health Director's Office of USDA, APHIS, PPQ (501-324-5258).

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## Photo Credits

**Figure 1.** Center for Invasive Species and Ecosystem Health. University of Georgia, Warnell School of Forestry and Natural Resources and College of Agricultural and Environmental Sciences. <http://www.cogongrass.org/>

**Figure 2.** Jeffrey W. Lotz, Florida Department of Agriculture and Consumer Services, Bugwood.org

**Figures 3, 4 and 5.** Chris Evans, River to River CWMA, Bugwood.org



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