

Postcards from **PARADISE**

The Cane Grasses

By Roger L. Hammer
Miami-Dade Parks Department

The name cane grass is often applied as a generic term for any grass species with tall, cane-like stems. There is no grass species in Florida, neither native nor naturalized, with the common name cane grass, which causes much confusion whenever this term is used. In Florida, cane grass has been used to reference at least four species of grasses. Resource managers should differentiate between these species to ensure that the plant being referenced is properly identified. Here is a closer look at these so-called cane grasses:

Burma reed, *Neyraudia reynaudiana*, is an Asian species from Japan, China, Malaya, and Myanmar (Burma) to eastern India. It spreads by rhizomes and forms dense clusters of stems to 10 or 12 feet tall. Each stem averages about 0.5 inches wide, often branched near the top, with distinct internodes along the stem. Leaf blades are 10 inches long or longer and 0.5 to .75 inches wide. There is a conspicuous horizontal line of hairs on the otherwise hairless outer leaf surface at the juncture of the leaf blade and leaf sheath. This characteristic is useful when trying to identify non-flowering specimens. The showy, plume-like inflorescence, 14 to 30 inches long, is silvery-white and often arching, which may give the flowering spike a one-sided appearance.

Napier grass, *Pennisetum purpureum*, also called elephant grass, is native to Africa. It colonizes freshwater wetlands, canal banks, and moist disturbed sites outside of its natural range. It is well-established in central and southern Florida where it forms dense stands, crowding and shading out beneficial native wetland vegetation. This grass produces 0.38 to 0.5 inch, robust, copiously branched stems that reach 10 or 12 feet tall with distinct internodes along the stem. The leaves range from 0.38 to 1.25 inches wide, up to 1.5 feet in length, and have a prominent white midrib running down the center of each leaf. Flowers and fruit are in cylindrical, tawny or purplish terminal spikes, 8 to 12 inches long, and 0.5 inches wide. The flowering spikes look similar to those of cattail, *Typha* spp.

Common reed, *Phragmites australis*, is reported from Nova Scotia to British Columbia, southward into California, Florida, Louisiana, Mexico, the West Indies, South America, Eurasia, Africa, and Australia. There is considerable debate whether this plant is actually native over this wide geo-



Burma reed (*Neyraudia reynaudiana*) has a showy flowering plume. A single clump of this plant can produce up to 120,000 seeds! Photo courtesy Miami-Dade County Natural Areas Management.

Burma Reed

Burma reed (*Neyraudia reynaudiana*) is a large-plumed, exotic clumping grass that has become an invasive weed in southern Florida. It grows in sunny upland areas and averages four to twelve feet in height. Burma reed is a highly prolific seed producer; each clump contains approximately 40 stalks with 12 to 20 flowering plumes, and can potentially produce up to 120,000 seeds. It has colonized the margins of many disturbed areas, roadway edges, and adjacent tree islands or low hammocks.

In its native range, Burma reed grows at altitudes from sea level to 5,000 feet. It was introduced into the United States in the 1920s at the U.S. Department of Agriculture test garden in Coconut Grove, from which it escaped. Burma reed has spread throughout Miami-Dade County in colonies along the margins of disturbed areas such as roadsides and old fields. It is especially problematic in the globally-imperiled pine rockland habitat in southern Florida.

Burma reed causes damage to native Florida ecosystems by crowding and shading understory species. Because of its height, combustibility, feathery large plumes, and hay-like leaf litter it produces, this tall grass is a dangerously flammable fuel. Flames from this plant can reach heights of 30 feet, and its plumes can become fiery arrows that can be picked up by winds. In pine rocklands, 30% cover of this grass adds over 3 tons of fuel per acre.

Burma reed is currently centered in Miami-Dade County but is slowly expanding its range — it has also been observed in Broward, Palm Beach, Lee and Collier Counties. Its invasion is associated with the distribution of quarried limestone rock used by concrete manufacturers. The rock is taken by train from Miami-Dade County and distributed to many locations throughout the southeastern United States. Its native range indicates that it is cold tolerant and may be capable of moving northward from Florida into the southeastern United States. — *Renee Rasha, Palm Beach County Environmental Resources Department.*

Burma reed - There is a conspicuous horizontal line of hairs on the otherwise hairless outer leaf surface at the juncture of the leaf blade and leaf sheath. Photo courtesy Miami-Dade County Natural Areas Management.

The leaves of Napier grass (*Pennisetum purpureum*) have a distinctive white midrib. The flowers are in cylindrical, tawny or purplish terminal spikes. Photo by Roger Hammer.



An area overgrown with Burma reed near Miami's MetroZoo caught fire in March 1996 and sent flames 30 feet into the air. Photo by S. Demetropoulos.

graphical area. In Florida, it has weedy tendencies in freshwater wetlands, but this is also true of other native plants, most notably cattail. Common reed produces erect stems from 6 to 12 feet tall, with stout, creeping rhizomes. The elongated leaf blades are 0.5 to 2 inches wide, and the branched, terminal, tawny or purplish flowering spike is 6 to 16 inches long. The flowering spike is usually arching, giving the inflorescence a one-sided appearance.

Giant reed, *Arundo donax*, is native to the Mediterranean region and has escaped cultivation in California, Florida, Hawaii, and elsewhere outside of its native range. It is widely cultivated in the southeastern United States. Stems are stout, from 2 to 3 inches in diameter and 4 to 18 feet tall, growing from thick, woody rhizomes. Leaves alternately occur along the stem in a flat plane. Adjacent leaf sheaths overlap along the length of the 18 to 20-foot stems. Leaf blades range from 2 to 2.5 inches wide and 10 to 14 inches long and are either uniformly green or white-striped on var. *versicolor*. The terminal, pyramidal plumose flower spike is 6 to 8 inches wide and 15 to 20 inches long. This species seems to favor canal banks, ditches, and other moist habitats. It also persists from cultivation at abandoned sites and may form dense, rhizomatous colonies.

Common reed (*Phragmites australis*) is frequent along roadsides and canalbanks. The terminal, branched flowering spike is tawny to purplish - often arching, with a one-sided appearance. Photo by Ken Langeland.



A Looming Threat to Urban Development

In addition to crowding out and smothering native vegetation, the tall stature of these grasses promotes high intensity wildfires. For instance, an area overgrown with Burma reed near Miami's Metrozoo caught fire in March 1996 and sent flames 30 feet into the air (see photo), creating an extremely hazardous situation. Due to this dangerous fuel load, cane grasses should be of particular concern to resource managers responsible for natural areas surrounded by urban development.

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Cane Grass Control

In natural areas where non-target damage is a concern, cane grasses can be controlled by cutting the culms down to the ground, removing the stems from the site, waiting for the culms to resprout to a height of about 12-20 inches, and spraying the sprouts with 10% ROUNDUP Pro. In areas where prescribed fire can be employed, the sprouts can be similarly treated several weeks after burning. Treating Burma reed after wildfires or prescribed burns is the most cost effective control measure. If non-target damage is of no concern (such as along roadsides) the plants can be sprayed with 2% ROUNDUP Pro without prior cutting. Follow-up treatments may be necessary. If the grasses are growing in wetlands, an aquatic herbicide such as RODEO should be used.

For resource managers who would like to keep abreast of current management options and techniques for the control of exotic grasses, the Florida Exotic Pest Plant Council (EPPC) has formed an Exotic Grasses Task Force. For information concerning meeting dates and times, contact Joe Maguire, Miami-Dade Park & Recreation Department, Natural Areas Management, at (305) 257-0933.

Where non-target damage is not a concern, cane grasses can be controlled by cutting the culms and treating the re-sprouts with a herbicide. Photo by S. Demetropoulos.



Arundo the World in (*at least*) Eighty Ways

By Mike Bodle

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*His tears run down his beard, like winter's drops
From eaves of reeds*

(The Tempest, v. 1)

In the case of giant reed (*Arundo donax*), it is very telling that Shakespeare found dripping reeds evocative of sorrow. This plant has been very useful for many, but brings tears of frustration to many natural areas managers around the world.

Arundo donax is a giant among plants in many ways. Its shoots grow to monstrous heights, reaching 20 feet. Its flower spikes come only in double XL, although seed are often infertile. The perennial rootstocks thicken to resemble Hulk Hogan's thighs (author, pers. obs.). Also, single giant reed colonies can spread from these roots to completely overwhelm areas several acres in size. When arundo densely fills areas, wildlife uses are curtailed as native plant communities are displaced. Also, tremendously dense shoots prevent entry by all but the smallest critters.

Giant Reed Takes Giant Steps

Arundo has apparently been gigantically popular with the human species since nearly the dawn of time. About as soon as people started migrating around the globe, they

starting moving it from its native Mediterranean shores. Its popularity continues into our own times. On a planetary scale, millions still use it for roofing material, medicinal, and agricultural applications. Most have introduced arundo by rhizome propagation, although plants have reportedly been grown from Asian seed (Hoshovsky, 1995).

During southern California's colonial period arundo was planted widely for erosion control, windbreaks, and ornamental purposes. The plant did so well that by the 1820s *Los Angeles* were using it for a roof-thatching material - a purpose it has filled in the Old World for thousands of years.

This reed has culture, too. Since ancient times music has come from arundo's piping canes. Early musicians used arundo to fashion simple pipes. Today, it provides the finest material for reeds for woodwind instruments. No modern material has been found to be superior for this use (Hoshovsky, 1995).

Arundo extracts have found their way into the human pharmacopeia as well. It has reportedly been used to counter cancer, treat hyper- and hypotension, as an agent for diuretic, sudorific, and antilactogogic actions (whatever those are), and to treat syphilis (Hoshovsky, 1995).

But, there are many that curse giant reed's very exist-



Giant reed (*Arundo donax*) has escaped in California, Florida and Hawaii. The showy flowering plume is pyramidal. Seeds are often infertile. Photo by Mike Bodle.