

Ho! Ho! Ho! Merry Christmas Senna¹

by Ken Langeland

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Introduction

Christmas must be just around the corner because home landscapes are colored with the bright yellow flowers of Christmas senna (*Senna pendula* var. *glabrata*). Christmas senna is a long time favorite landscape plant, commonly cultivated as an ornamental in Florida at least since the 1940s (Bailey and Bailey 1947). Christmas senna is so named because it blooms during the Christmas season (Fall-Winter). It is popular, in part, because of its showy yellow flowers (Fig. 1). This is especially true in the northern part of the state, where it is one of the few landscape plants that bloom in late fall and early winter. It also is popular for butterfly gardens (Fig. 2). Christmas senna also is known as Christmas cassia, winter cassia, climbing cassia, cassia shrub, butterfly cassia, butterfly bush, or just plain cassia. The common name “cassia” is derived from the genus *Cassia*, to which the species historically belonged. “Climbing” describes the plant’s clambering growth habit when support is available, while “shrub” refers to its growth habit in open ground. In the nursery trade it is known by the botanical name of *Cassia bicapsularis*.

Christmas senna can be seen blooming not only in landscapes, but also along roadsides, canal banks, hammocks, marshes, and even mangrove communities. It escaped from cultivation and has become a weed in natural areas and other sites in central and southern Florida (Fig. 3). Those traveling the state by car will especially notice the brilliant yellow flowers along commonly traveled roads such as Florida’s turnpike south of Orlando, I-75 south of Sarasota, and SR 60 between Yeehaw Junction and Vero Beach.

The virtues of Christmas senna as an ornamental landscape plant have been well described (e.g. Dirr 2002; Gilman and Black 1999; Bender and Felder 1993). Little, however, has been published concerning the escape of this plant

into the wild. Because of the confusion in taxonomy, everyone may not realize that the plants for sale in the nursery trade are the same species as those escaped and growing in the wild. This article will provide information on the biology of Christmas senna outside of cultivation and clarify the taxonomy.

Distribution

Christmas senna is native to Brazil, Peru, Bolivia and south to Paraguay and Argentina. It is cultivated in warm regions of both hemispheres. In the US it occurs in Florida, Texas (common in southern Texas), California, Arizona, and probably in other Sunbelt states (Isely 1998). It is cultivated in all regions of Florida (Hunt 1977, Nelson 1996). Herbarium records document it as outside of cultivation from Hillsborough and Brevard Counties south to Dade and Collier Counties (Wunderlin et al. 2003). It is reported from scrub and forest natural areas in Palm Beach County and from the edge of Lake Okeechobee in Hendry County (EPPC 1996). In Collier County, it invades mangrove communities at the headwaters of the Baron River (personal observation by the author). It was reported as a weed of canal banks, roadsides, and fencerows in 1977 (Orsenigo 1977). It has been observed in the wild in south Florida since the early 1970s (D. F. Austin, Florida Atlantic University, 1995 personal communication). It is noted as naturalized in south Florida and becoming weedy in the Bahamas and disturbed areas in South America (Irwin and Barneby 1982). Isely (1990) described it as moderately established outside of cultivation in Florida.

Natural History

Christmas senna produces flowers from October through January. Large numbers of seeds are produced, which mature through the spring and summer. Seeds may be dispersed by *continued on page 12*



Fig. 1



Fig. 2



Fig. 3



Fig. 4

1. The invasive characteristics of this plant have not been assessed using the IFAS Assessment of Non-Native Plants in Florida’s Natural Areas.

Merry Christmas Senna *continued*

birds, mammals, and/or human conveyance but specific dispersal agents have not been identified. Plants are hardy north of the frost line as they will regrow after tops are killed by freezing (Maxwell and Maxwell 1961). Specimens (reported as *C. bicapsularis*) over 3 m (10 ft) are common as far north as Charleston, South Carolina (Dirr 2002). The lack of herbarium records north of Hillsborough and Brevard Counties suggests that the plant has not escaped or effectively reproduced out of cultivation in colder climates of the state. Plants may not produce viable seed when they are frozen back in winter, which is a possible explanation. However, sexual reproduction has been observed as far north as Gainesville (David Hall, 2003 personal communication). Whether the species can become as abundant in the northern part of Florida remains for future determination.

Christmas senna often becomes established in sunny openings and then clambers over adjacent vegetation (Austin 1998). It displaces native plants in both disturbed and

undisturbed areas of Florida's tropical hammocks, coastal strands, and canal banks (M. Renda, The Nature Conservancy, 1996 personal communication).

Taxonomy

The genus *Senna* (Family Fabaceae) is represented by ten species in Florida, four native and six introduced (Wunderlin 1998). The correct nomenclature for the Florida plants called by the common name Christmas senna is *Senna pendula* (Willd.) Irwin & Barn. var. *glabrata* (Vogel) Irwin & Barn. (synonym *Cassia colutooides*). This revised nomenclature is based on the separation by Irwin and Barnaby (1982) of the large genus *Cassia* into *Cassia*, *Senna*, and *Chamaecrista* based on male floral characteristics.

Christmas senna plants found in cultivation or established in Florida usually have been identified as *Cassia bicapsularis*, which they are not (Isely 1998). The species *Cassia bicapsularis*, now properly called *Senna bicapsularis* (L.) Roxburgh, has been only slightly introduced into the United States and is not known to have escaped in Florida (Isely 1990). *Senna bicapsularis* has leaflets in 3 pairs and flower stalks (pedicels) 3-5 mm (0.12-0.2 in) long, while the commonly escaped *Senna pendula* has leaflets in 4-7 pairs and flower stalks (pedicels) 2 cm (0.08 in) or more long (Isely 1998). The species name *pendula* describes the growth habit of the branches, which arch downward.

Botanical Description

Christmas senna is a sprawling evergreen shrub to 4 m (13 ft) tall (or wide), with somewhat zigzag, sparsely hairy stems. Leaves are alternate, stalked, even-pinnately compound, with 4 to 7 pairs of leaflets, the larger ones occurring at the leaf tip. The leaflets are up to 4 cm (1.6 in) long, oblong with rounded tips; leaf stalks (petioles) have a gland on the upper surface, between lowermost leaflets (and occasionally between others). The flowers are yellow or yellow-green, 3 to 4 cm (1.2 to 1.6 in) across, in 3- to 12-flowered racemes near the stem tips. Stamens in the flowers have prominent, curved filaments (Fig. 4). The fruit is a brown slender pod, cylindrical, glabrous, 7 to 12 cm (3 to 5 in) long.

Control

Christmas senna can be controlled by foliar or basal bark herbicide application. The following foliar applications on a spray-to-wet basis have been found effective: 1.0% Roundup Pro, 0.5% Garlon 3A + 0.375% Induce, 0.50 oz/gal Escort + 0.375% Induce, 3.13% Brush-B-Gon. Basal bark application of 10% Garlon 4 in oil is used by the Southwest Florida Water Management District (Mack Sweat, 2003 personal communication).

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Evaluation of Foliar Applied Herbicides for Control of Christmas Senna¹

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Introduction

Christmas senna (*Senna pendula* (Willd.) Irwin & Barn. var. *glabrata* (Vogel) Irwin & Barn.) has been commonly cultivated as an ornamental in Florida at least since the 1940s (Bailey and Bailey 1947). It escapes from cultivation in central and southern Florida and has become a weed in natural areas and other sites. It was reported as a weed of canal banks, roadsides, and fencerows in 1977 (Orsenigo 1977) and has been observed in the wild in south Florida since the early 1970s (D. F. Austin, Florida Atlantic University, 1995 personal communication). It is noted as naturalized in south Florida and becoming weedy in the Bahamas and disturbed areas in South America (Irwin and Barneby 1982). It often becomes established in sunny openings and then clambers over adjacent vegetation (Austin 1998). It displaces native plants in both disturbed and undisturbed areas of Florida's tropical hammocks, coastal strands, and canal banks (M. Renda, The Nature Conservancy, 1996 personal communication). The purpose of this study was to evaluate herbicides for control of Christmas senna.

Materials and Methods

PLANT CULTURE

Christmas senna seeds were collected in January 2000 from plants growing along a roadside in Lee County, FL. In May 2000, seeds were removed from the pods, scarified, and germinated in moist petri dishes. Upon reaching a height of 4.0 to 8.0 cm (1.6 to 3.2 in), seedlings were planted in one-gallon containers of commercial topsoil in a plastic house at the UF/IFAS Center for Aquatic and Invasive Plants in Gainesville, Florida. Seedlings were allowed to grow from June 2000 through April 2001, during which time they were transplanted to 2.5-gallon containers. The plants were removed from containers and planted on two-foot centers at the IFAS Agronomy farm (Green Acres) near Citra, Florida in April 2001. Plants

were overhead irrigated every other day and weeds were controlled by tilling and spot spraying with a glyphosate containing herbicide. Plants grew vigorously and attained 1.5 to 3.0 meters in height.

HERBICIDE APPLICATION

Herbicides were applied November 9-10, 2001. Weather during and immediately after herbicide application was clear, calm, and 78 F. Herbicides were applied on a spray-to-wet basis, which resulted in application of approximately 0.75 l of spray solution per plant. Each herbicide treatment (Table 1) was applied to 10 randomly assigned replicate plants. Induce (Helena Chemical), a nonionic fatty acid based surfactant, was added to spray solutions of Transline, Garlon 3A, and Escort. Water, containing no herbicide or adjuvant, was applied to experimental checks.

EVALUATION

Final evaluation for herbicide efficacy was determined on July 10, 2002 (eight months post application) as percent of foliage that was defoliated or attached and completely necrotic. Foliage that contained any green tissue was not considered necrotic.

Results and Discussion

All rates of Transline (0.750% to 0.125%), Garlon 3A at 1.0% and 0.5, Escort at 0.02 and .01 oz per gallon, Roundup Pro at 2.0%, 1.5%, and 1.0%, and Brush-B-Gon at 3.13% gave complete control of Christmas senna (Table 1). Plants were completely defoliated, woody plant parts were desiccated and brittle, and plants showed no indication of regrowth. In contrast, untreated plants were defoliated 56% by cold damage but were vigorously regrowing at the evaluation time in July. Roundup Pro at 0.5% resulted in excellent control with nine of ten replicate plants being 100% defoliated. Lower rates of Garlon 3A (0.25% and 0.063%) and Escort (0.025 oz/gal and

Table 1. Control (%defoliation) of Christmas senna eight months after foliar herbicide applications (all additions of Induce, an adjuvant, at 0.375%).

Treatment	% Defoliation
0.750% Transline + Induce	100
0.500% Transline + Induce	100
0.250% Transline + Induce	100
0.125% Transline + Induce	100
1.000% Garlon 3A + Induce	100
0.500% Garlon 3A + Induce	100
0.250% Garlon 3A + Induce	95
0.063% Garlon 3A + Induce	82
0.020 oz Escort/gal + Induce	100
0.010 oz Escort/gal + Induce	100
0.025 oz Escort/gal + Induce	91
0.012 oz Escort/gal + Induce	77
2.0% Roundup Pro	100
1.5% Roundup Pro	100
1.0% Roundup Pro	100
0.5% Roundup Pro	98
3.13% Brush-B-Gon	100
1.95% Roundup Super Concentrate	59
Untreated check	56

0.012 oz/gal) resulted in good to fair control. Roundup Super Concentrate at 1.95% provided no control of Christmas senna.

Transline contains the active ingredient clopyralid, which is known to have excellent herbicidal activity on other leguminous weeds such as kudzu. It is not registered in Florida but is scheduled to be registered in counties of western Florida (Scott Ditmarsen, Dow AgroSciences, 2003 personal communication).

Brush-B-Gon, is a dilute product of triclopyr (0.75 lb a.e./gal), which is packaged for homeowner use and available in small containers in retail garden supply stores. The dilution used in this study is that recommended on the Brush-B-Gon label. The concentration of active ingredient in this Brush-B-Gon dilution is in between the 1.0% and 0.5% dilutions of Garlon 3A, which is a concentrated (3 lb a.e./gal), commercial product.

Roundup Super Concentrate is a glyphosate containing product that is packaged for homeowners and available in retail garden supply stores. It is more concentrat-

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Foliar Applied Herbicides *continued*

ed (3.7 lb a.e./gal) than Roundup Pro (3 lb a.e./gal), which is packaged for commercial applicators. The concentration of Roundup Super Concentrate used (1.95%) is between the two highest concentrations of Roundup Pro used and would be expected to perform as well based on herbicide rate. The lack of control observed with Roundup Super Concentrate compared to Roundup Pro may be related to adjuvants in the different formulations (proprietary information) but cannot be explained in this study.

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FLEPPC Board Gets Down and Dirty



The most recent quarterly meeting of the FLEPPC Board of Directors took place at Fort Jefferson National Monument in the Dry Tortugas National Park, 70 miles west of Key West, Florida.

Following up on the 1995 exotic plant management plan that FLEPPC helped develop, board members spent several hours removing exotic *Agave* plants from Loggerhead Key. It was a prickly job and drew blood from several of us, but our time was well spent. During a sweep of the island, we pulled or treated *Agave* plants regrowing from an established population that was removed in the late 1990s along with Australian pines (*Casuarina equisetifolia*) (see article by Tony Pernas, et al, *Wildland Weeds*, Winter 2001). – Ed.



The tenacious Jonathan Taylor of the National Park Service organized the FLEPPC board member *agave* pull.

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