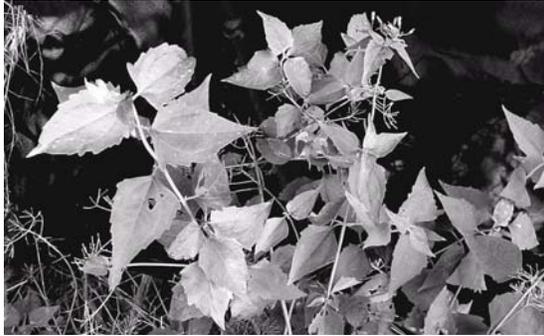


***Chromolaena odorata* (L.) King & H.E. Robins.**  
ASTERACEAE

Christmas bush

Synonyms: *Eupatorium odoratum* L.  
*Eupatorium conyzoides* Vahl  
*Eupatorium brachiatum* Sw. ex Wikstr.  
*Eupatorium atriplicifolium* Vahl  
*Osmia odorata* (L.) Schultz-Bip.



**General Description.**—Christmas bush, also known as bitter bush, Siam weed, baby tea, cariaquillo, Santa María, and fleurit-Noël, is a scrambling shrub (Howard 1989, Liogier 1997). It may reach 1 m or more as a free standing shrub and 4 m or more when climbing into trees or shrubs. Stems reach 2 cm in diameter. The plants are maintained by a system of abundant, yellowish, fine lateral roots. Multiple sprouts arise from the root crown and lower stems. The individual branches are long with relatively few branches. Foliage occurs only on recent growth. The opposite, three-nerved leaves are deltoid to ovate-lanceolate, usually with a dentate margin and a long pointed tip. The leaves are aromatic when crushed. The inflorescences are corymbs of cylindrical heads located on the terminals of lateral branches. There are 15 to 25 tubular florets per head, white, lavender, pink, or blue in color. The seeds are a brownish gray to black achene that is 4 mm long with a pale brown pappus 5 or 6 mm long (Howard 1989, Liogier 1997).

**Range.**—Christmas bush is native from Florida through the West Indies and from Texas through Central and South America to Argentina (Howard 1989, Liogier 1997). It has been accidentally or deliberately introduced and has naturalized throughout much of the tropics, including Guam and Hawaii (Pacific Island Ecosystems at Risk 2001).

**Ecology.**—Christmas bush grows from near sea level to over 1,000 m in elevation (Binggeli 1999). It thrives on all types of well-drained soil and can grow on soils relatively low in fertility. Disturbance is required before a site can be colonized (Pacific Island Ecosystems at Risk 2001). Once established, Christmas bush competes aggressively with herbs, grass, and shrubs in open areas. In its native range, it is frequently seen on roadsides, riverbanks, vacant lots, abandoned farmland, and neglected pastures. Christmas bush has found a particular niche in the slash-and-burn agriculture cycle. In Borneo, Christmas bush and other perennial grasses and shrubs invade within 3 years of abandonment and are gradually replaced by trees (Ohtsuka 1999). The species is not shade-tolerant and will not grow under a closed forest stand. It is also intolerant of frost (Binggeli 1999) and is limited by drought (below about 900 mm of mean annual precipitation).

**Reproduction.**—Christmas bush blooms annually and is an abundant producer of seeds. Flowering and fruiting begins after plants are 1 year old (Binggeli 1999). The flowers are pollinated by insects. The small fruits mature in about a month (Binggeli 1999). One collection of seeds in Puerto Rico averaged 2,670,000 seeds/kg but did not germinate. A second collection averaged 1,560,000 seeds/kg and gave 11 percent germination between 3 and 120 days after sowing. Germination is epigeal. The seeds are wind-dispersed, and transport by animals is possible because of small hooks on the seeds. In India, it was observed that only about 1.4 percent of the first-year seedlings survived into the second year (Binggeli 1999). Stems root whenever they come in contact with the ground.

**Growth and Management.**—Individual stems last about 2 years and die back to or near the base and are replaced by new sprouts. Plants easily survive cutting and fire. The best current control method is mechanical or hand cutting followed by

herbicide treatment. Partial control can be obtained through the use of aggressive cover crops. Relatively good biological control has been obtained with *Pareuchaetes pseudoinsulata* Rego Barros (Lepidoptera) in Guam and several other Pacific islands (Pacific Island Ecosystems at Risk 2001).

**Detriments and Benefits.**—Invasion of Christmas bush has been disastrous by seriously suppressing native species in disturbed forests and pastures in the tropics outside its native range. The shrub is reported to be highly allelopathic to nearby vegetation (Muniappan 1994), a fact that has been demonstrated in controlled studies (Sahid and Sugau 1993). Christmas bush reduces the diameter growth of teak in infested plantations (Daryono and Hamzah 1979). It was thought to be useful in the control of *Imperata* grass and for this reason was deliberately introduced into the Ivory Coast, but the results were disappointing (Binggeli 1999). Because of the abundance of dead leaves and dry shoots, Christmas bush stands are a fire hazard (Muniappan 1994). Cattle do not eat Christmas bush; however, it is browsed by white-tailed deer (Meyer and others 1984). In herbal medicine, leaf extracts with salt are used as a gargle for sore throats and colds. It is also used to scent aromatic baths (Liogier 1990). Extracts of Christmas bush have been shown to inhibit or kill *Neisseria gonorrhoeae* (the organism that causes gonorrhoea) *in vitro* (Caceres and others 1995) and to accelerate blood clotting (Triratana and others 1991). A satisfactory medium-density particleboard was prepared from Christmas bush stems (Kaleta and others 1999). During fallows between cultivation, Christmas bush adds copious amounts of organic matter to the soil and may reduce the populations of nematodes (M'Boob, 1991). It is also useful as mulch for row crops (Swennen and Wilson 1984).

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