

Palicourea crocea (Sw.) J.A. Schultes
RUBIACEAE

cachimbo

Synonyms: *Palicourea coccinea* Poiteau ex DC.
Psychotria crocea Sw.
Palicourea repara Benth.
Palicourea croceoides Ham.
Palicourea crocea DC. var. *riparia* (Benth.) Griseb.
Palicourea brevithyrsa Britt. & Standl.



General Description.—Cachimbo is a medium to large shrub also known as red palicourea, yellow palicourea, yellow-cedar, tapa camino, ponasí, bois de l'encore, bois cabrit, and bois fou-fou (Little and others 1974). There is some ambiguity in the classification of this species. Liogier (1997) separates *P. crocea* and *P. croceoides* on the basis of flower color; Howard (1989) treats them as a single species under *P. crocea*. We will follow Howard for the purposes of this description. The stems of cachimbo are green when young, changing to gray. The inner bark remains green. The wood is moderately hard and brittle. There are usually several sprouts from the base and long straight branches arising from major stems. Cachimbo develops a robust, shallow lateral root system with abundant fine roots. Foliage is relatively sparse and concentrated near the growing tips. The plant is glabrous or nearly so. The leaves are elliptic, 7.0 to 14.5 cm long and 3.5

to 5.5 cm broad, and pointed at both ends with a petiole 0.5 to 1.0 cm long. The tubular flowers are grouped in cymes. Flower color ranges from yellow to red. The fruits are ovoid to globose, 4 to 6 mm in diameter and dark red, purple, or black. They are faintly sweet with a grassy flavor. There are two seeds per fruit when perfectly developed. The seeds are black or grayish with a hard, bony shell, and hemispherical, with a groove on the flat side and three ridges on the rounded side.

Range.—The natural range of cachimbo extends from southern Mexico through Central America and South America to southern Brazil and Paraguay on the mainland and includes the Greater and Lesser Antilles in the Caribbean (Howard 1989, Liogier 1997)

Ecology.—Cachimbo grows in areas receiving precipitations ranging from 1500 to over 4000 mm/yr. Soils where it grows are usually loams to clays derived from volcanic or sedimentary parent material. Elevations may be a few meters above sea level up to 1,000 m (Little and others 1974). Cachimbo requires disturbance to establish itself. It grows well in tree-fall gaps, landslides, artificial openings, and under thin forest canopies. It competes aggressively with forbs, other shrubs, and young trees. When the canopies close and shade becomes dense, existing plants decline and eventually disappear. Labrón (1977) calls the species a “gap opportunist.” Cachimbo was a principal species in abandoned pastures in the Luquillo Mountains, Puerto Rico, 60 years ago, but not in abandoned shade coffee plantations (Zimmerman and others 1995). The species grows slowly on nutrient-poor substrate (as in landslide areas), but responds to N and P fertilization under those conditions (Fetcher and others 1996).

Reproduction.—Cachimbo flowers and fruits irregularly throughout the year (Little and others 1974). The fruits in one Puerto Rican sample

weighed an average of 0.1488 ± 0.0055 g/fruit. Seeds cleaned from the sample averaged 0.0314 ± 0.0048 g/seed or 32,000 seeds/kg. Thirty-five percent of these seeds germinated between 39 and 84 days after sowing in commercial potting mix. *Palicourea* flowers are pollinated by humming birds and the fruits are dispersed by frugivorous birds (Taylor 1996). Bees were also observed to visit the flowers (Labrón 1977). Cachimbo suffers relatively little seed loss to pathogens and predators and germinates at a higher percent after natural dispersal than without it (Myster 1997). Seedlings are common and widespread in suitable habitat. There is no significant difference between seasons in seedling appearance, but regardless of season, seed germination is always higher in the open than in closed canopy areas (Labrón 1977). Transplanted wildlings survive and grow poorly (personal communication with F.N. Scatena, IITF, Río Piedras, PR)

Growth and Management.—Cachimbo grows slowly (a few cm) the first year and rapidly (1 m or more per year) for about 2 years in openings (Labrón 1977). After about 3 years, seedlings sown under an open canopy had accumulated about 20 times more biomass than seedlings sown under closed canopy conditions. The above-ground to below-ground ratio of the open-canopy plants was 4.8 (Labrón 1977). Cachimbo may reach 6 m in height and 7.5 cm in stem diameter (Howard 1989, Little and others 1974). No annual rings are visible. However, single stems last about 10 years, and plants can continue to regenerate with new sprouts. Plants cut during plantation cleaning and trail clearing quickly regain their former height (author's observation). Scatena and others (1993) present an equation to predict oven-dry above-ground biomass (T_o) from diameter at breast height (D) and height (H): $T_o = \exp(0.752 \ln(D^2H) - 2.362)$ where $R^2 = 0.861$.

Benefits.—Cachimbo is a food source for several species of song birds (Devoe 1989). It is higher in the major nutrients in its tissues than most of the trees and shrubs with which it is associated (Scatena and others 1993) and is probably a good recycler of nutrients and a good forage plant. People in some areas of Puerto Rico use crushed cachimbo leaves to stop bleeding (Labrón 1977).

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