Erythrina berteroana Urb.

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FABACAEAE (BEAN FAMILY)

Erythrina neglecta (Dwyer and D'Arcy 1980)

Elequeme, gallito, machete, pernila de casa, pito, poró de cerca

The genus *Erythrina* contains more than 60 species (Krukoff and Barneby 1974) distributed through the Tropics and subtropics in a wide variety of habitats (Neill 1988) in both the Old and the New World; its 100 species include *E. berteroana* (Krukoff 1982). *Erythrina berteroana* grows from southern Mexico to Colombia and Venezuela in South America (Dwyer and D'Arcy 1980, Holdridge and Poveda 1975).

Erythrina berteroana is a small, deciduous tree that reaches 12 to 15 m in height and 20 cm d.b.h. (Holdridge and Poveda 1975). The branchlets are smooth, lustrous, and armed with thorns. Leaves are trifoliate with leaflets 5 to 17 cm long, 5 to 20 cm wide, obliquely ovate to ovate rotund or with the terminal leaflets subrhomboidal, as wide or wider than long, shortly acuminate apically, widely cuneate basally, adaxially glabrous, and minutely puberulent beneath, often appearing glaucous. Petiolules are up to 1 cm long, glabrous, and often a different color than the rachis. Petioles are 4 to 15 cm long and glabrous. The tree grows from sea level to about 1800 m, in areas where rainfall ranges from 1500 to 4000 mm per year (Budowski 1997). The tree grows in acid soils (up to pH 4) with high aluminum saturation (more than 50 percent) and in a wide range of temperatures. It is also presumed that in high elevations it is frost resistant (Kass 1994).

Erythrina berteroana wood has a specific gravity of about 0.30 and it is recognized by its abundant axial and radial parenchyma with thin cell walls (Baretta-Kuippers 1982). The timber is light, coarse, and unattractive and lacks durability. In Central America the tree is most frequently used as a living fencepost. It has a more limited use as fodder for cattle and goats (Centro Agronómico Tropical de Investigación y Enseñza 1986b). Crude protein content ranges from 21 to 30 percent with an average of 25 percent, and digestibility ranges from 37 to 57 percent (Kass and others 1993).

Inflorescences are terminal and up to 0.5 m long. The tree flowers December through March. Flowers have a calyx that is narrowly campanulate, 16 mm long and 4 mm wide, stiffly carnose, and minutely puberulent. The banner is elliptic, 80 mm long and 20 mm wide, thick petaloid, and glabrous. The wings are oblong, 10 mm long and 2.5 mm wide; the keels are suborbicular, 8.5 mm long, and 6.5 mm wide. Stamens are diadelphous with an odd stamen free at the base and nine others of two lengths united to the middle of the sheet. The pistil has a slender ovary and a style 30 mm long. The stigma is capitate (Dwyer and D'Arcy 1980). The species is pollinated by hummingbirds (floral nectar has a 25-percent sugar concentration) (Baker and Baker 1982). Fruitification usually runs February through April, later in high elevations. Fruits are capitate and moniliform pods up to 30 cm long and 1.5 cm wide with a 2.5-cm long stipe. Collectors know the pods are mature when the color turns to dark brown. Seeds are red and less than 10 mm long with a black line from the hilum (Krukoff 1982). They have a hard, impermeable seedcoat.

Pods are usually collected directly from the tree between April and July according to elevation. Seeds collected from Santa Maria de Dota (1550 m, 2051 mm annual rainfall) and Laguna Alfaro Ruíz (1800 m, 1921 mm annual rainfall) average between 3,100 and 3,900 per kg (Centro Agronómico Tropical de Investigación y Enseñza 1986b). A single tree in a living fence that is pruned annually may produce 30 to 50 pods or 80 to 120 g of seed per year. Seeds may be stored in cold chambers at 5 °C with a relative humidity of 30 to 40 percent for more than 1 year (Víquez and Camacho 1993).

When *E. berteroana* is propagated by seed, either simple scarification to permit moisture to penetrate the seed or a 12-hour soak in warm water (40 °C) is a necessary pregermination treatment. Germination rates of 85 to 90 percent have been obtained in nursery trials using seeds collected during the previous year and stored in cold chambers at 5 °C with a relative

humidity of 30 to 40 percent (Víquez and Camacho 1993).

Germination may be carried out in boxes filled with washed sand, and seedlings may be transplanted to black plastic bags filled with a mix of soil, sand, and compost (2:1:1 in volume). Nursery-grown seedlings can be planted in the field when they reach 20 to 30 cm tall. They can be established either by planting directly in the field or by removing seedlings from nursery beds and planting as bareroot stock, first removing all leaves (Víquez and Camacho 1993).

When vegetatively propagated, large cuttings, 1.5 to 2.5 m long and 6 to 10 cm in diameter, taken from 1- to 2-year-old branches may be planted up to 40 cm deep. This method is used to establish living fences. When the species is grown for forage production, cuttings may be planted closer, perhaps 0.5 by 0.5 m.

The species responds to regular pruning by producing a great volume of large-leafed shoots in 3 to 4 weeks (Russo 1993). Biomass production of 1 km of living fence varied according to pruning frequency: every 4 months produced 2100 kg per km per year of leaves and 1500 of woody biomass; every 6 months produced 1560 kg per km per year of leaves and 2100 of woody biomass and every 8 months produced 1125 kg per km per year of leaves and 2100 of woody biomass (Russo 1990).


2cm