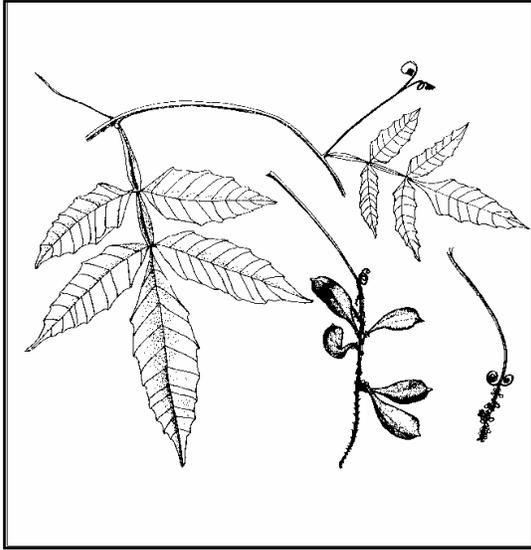


***Paullinia pinnata* L.**
SAPINDACEAE

bejuco de costilla

Synonyms: none



General Description.—Bejuco de costilla is also known in Spanish-speaking areas as bejuco de paloma and bejuco de guajanilla and in English-speaking areas as supple jack. It is a stout and strong woody vine that forms mats in forest openings and ascends rocks and trees by means of forked tendrils to access full sunlight. It may reach 10 m of extension (Vélez and Overbeek 1950) and 12 cm or more of stem diameter. The name bejuco de costilla (rib vine) arises from the appearance of young stems. The young, green stems are angularly striated; the large, lower stems have a rounded triangular cross section. The plant is easily recognized from the leaves that have five serrated leaflets with prominent veins and a winged rachis and petiole. The fruits are red or dark pink when ripe (Acevedo-Rodriguez 1985, Howard 1989, Liogier 1994).

Range.—Bejuco de costilla is native to Cuba, Hispaniola, Puerto Rico, the Lesser Antilles, Trinidad, Central America, South America, and tropical Africa (Howard 1989, Liogier 1994).

Ecology.—Bejuco de costilla is found primarily in the moist (1000 to 2000 mm of annual rainfall) forests. It is also reported to occur in subtropical dry (less than 1000 mm precipitation) forest in Puerto Rico (Acevedo-Rodriguez 1985). Soils derived from limestone and other sedimentary

rocks, and various igneous rocks at low and moderate elevations (below 400 m) are colonized. The species appears to be rare or absent from serpentine. It is present in both primary remnant and secondary forest stands.

Reproduction.—In Puerto Rico, the species blooms from June to November and fruits from July to December (Acevedo-Rodriguez 1985). The fruits are capsules that split in three valves when ripe to expose one to three black seeds partially covered by a white aril. A collection of fruits in Puerto Rico weighed 1.674 ± 0.0564 g. The fresh seeds recovered from those fruits weighed 0.150 ± 0.008 g and gave 5 percent germination. The seeds are recalcitrant (drying kills them). A later collection carefully protected from drying gave 100 percent germination. Germination is hypogeous. The seedlings grew rapidly and reached a maximum of 18 cm in 18 days after emergence. The seedlings quickly develop a deep and extensive tap and lateral root system. Moderate amounts of seed can be obtained by clipping the fruit clusters with a pruning pole and shelling out the seeds by hand. Seeds should not be picked up from the ground. Seed should be planted immediately or stored refrigerated in a closed plastic bag containing a moistened paper towel. Natural reproduction in forest stands is common to rare. Good survival and long life enable the species to maintain itself. More than one stem may arise from a horizontal root segment. Stems layer when they come in contact with the ground.

Growth and Management.—If needed for establishment during environmental restoration projects, containerized plants can be easily and quickly grown from seed. However, no planting projects are known. In forest management activity, it is more often desirable to eliminate vines than establish them. An effective method in closed forest stands is to cut the stems of vines near the ground a year before harvest. Although the vines resprout, most of the species, being shade intolerant, die or are seriously weakened and do not pose a serious threat to the reproduction stand. Herbicides can also be applied to the sprouts to make the method more effective, especially in more open stands. Bejuco de costilla is one of the alternate hosts of the tsetse flies (*Glossina palpalis*

and *G. tachnioides*) and has become the target of eradication measures in some parts of tropical Africa (Morris 1944).

Benefits.—The stems of bejuco de costilla are used to make baskets. Ground leaves and seeds are used to stupefy fish and in preparing herbal remedies (Acevedo-Rodriguez 1985). The seeds and leaves of this species are poisonous to humans and are reported to have been used in arrow poisons (Liogier 1990). Aqueous extracts of bejuco de costilla from Africa demonstrated inhibitory effects against several important infectious organisms (Souza and others 1993). The white aril associated with the seed is reported to be edible (Vélez and Overbeek 1950).

References

- Acevedo-Rodriguez, P. 1985. Los bejuocos de Puerto Rico. Vol. 1. General Technical Report SO-58. U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station, New Orleans, LA. 331 p.
- Howard, R.A. 1989. Flora of the Lesser Antilles, Leeward and Windward Islands. Vol. 5. Arnold Arboretum, Harvard University, Jamaica Plain, MA. 604 p.
- Liogier, H.A. 1990. Plantas medicinales de Puerto Rico y del Caribe. Iberoamericana de Ediciones, Inc., San Juan, PR. 566 p.
- Liogier, H.A. 1994. Descriptive flora of Puerto Rico and adjacent Islands. Vol. 3. Editorial de la Universidad de Puerto Rico, Río Piedras, PR. 461 p.
- Morris, K.R.S. 1944. A large-scale experiment in the eradication of tsetse (*Glossina palpalis* and *G. tachnioides*). Farm and Forest 5: 149-156.
- Souza, C. de, K.K. Amegavi, K. Koumaglo, M. Gbeassor, and C. De Souza. 1993. Study of the antimicrobial activity of the total aqueous extracts of ten medicinal plants. Revue de Medecines et Pharmacopees Africaines 7: 109-115.
- Vélez, I. and J. van Overbeek. 1950. Plantas indeseables en los cultivos tropicales. Editorial Universitaria, Río Piedras, PR. 497 p.

John K. Francis, Research Forester, U.S. Department of Agriculture, Forest Service, International Institute of Tropical Forestry, Jardín Botánico Sur, 1201 Calle Ceiba, San Juan PR 00926-1119, in cooperation with the University of Puerto Rico, Río Piedras, PR 00936-4984