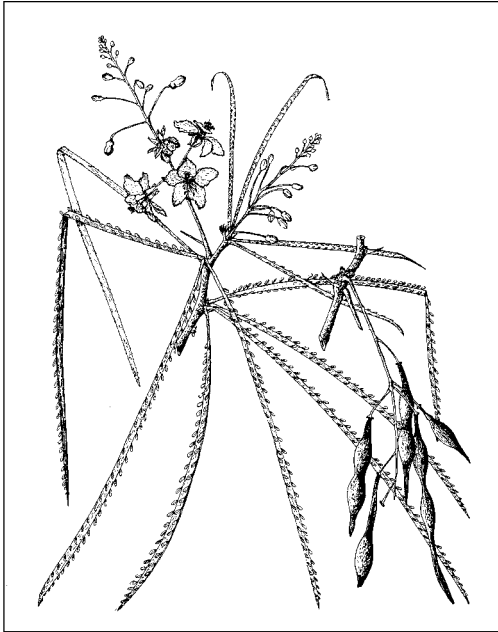


Parkinsonia aculeata L.
LEGUMINOSAE-CAESALPINIOIDEAE

Jerusalem-thorn

Synonyms: none



General Description.—Jerusalem-thorn occupies the transition zone between shrub and tree life-forms. In difficult sites and portions of its range, it is very shrubby, but in moist and fertile areas, it becomes a small tree up to 10 m in height. Jerusalem-thorn often has multiple stems, especially if burnt or cut, and usually has a branchy, low, and diffuse crown. The branches and foliage are often somewhat pendulous. It has a taproot, carrot-like in young plants, and slender laterals radiating out from it at all depths. Old trunks are brown and fissured or scaly. The bark of smaller stems and twigs is thin, smooth, and yellow-green or blue-green. There are paired spines at the nodes and a larger spine (1 to 2 cm long) at the end of the leaf axis. The leaves are alternate, bipinnately compound (20 to 40 cm long) with a flattened rachis and many tiny (2 to 4 mm long) leaflets that are shed during the winter or the dry season. The yellow or yellow and orange fragrant flowers are grouped in racemes and have five sepals and five petals. The fruits are legumes 3 to 10 cm long, slightly flattened with constrictions between each seed. The seeds are one to several in number, ellipsoid, gray, and about 4 by 8 mm. The species has a haploid chromosome number of 14 (Pantulu 1942). Jerusalem-thorn is also known as horse bean, palo verde, retama, palo

de rayo, espinillo, sulfato, cina-cina, mataburro, madam naiz, and arrête-boeuf (Correll and Johnston 1970, Howard 1988, Liogier 1988, Little and Wadsworth 1964).

Range.—Jerusalem-thorn is native to Texas, Arizona, Mexico, Central America, and South America as far south as the north of Uruguay (Holdridge and Poveda 1975, Little and Wadsworth 1964, Piaggio 2001). It has been planted and has naturalized in many of the islands of the Caribbean, including Puerto Rico and the U.S. Virgin Islands (Liogier 1988). The species has been introduced into the Old World and has become widespread in Australia. Jerusalem-thorn is planted as an ornamental in Florida, and the Southern and Western United States.

Ecology.—Jerusalem-thorn will grow on most types of soils, including sand dunes, clay soils, strongly alkaline, chalky, and mildly salty soils. It withstands a great deal of heat and can survive in areas that receive less than 30 cm of annual rainfall. Jerusalem-thorn is damaged by temperatures below -8°C (Floridata 2001). Individual plants are attacked and damaged by termites, scales, and a number of other insect species, but populations are generally relatively free of pests. It requires full or nearly full sunlight to survive and reproduce. In most environments, Jerusalem-thorn needs some kind of disturbance to become established.

Reproduction.—Jerusalem-thorn flowers and fruits throughout the year in Puerto Rico (Little and Wadsworth 1964). Jerusalem-thorn often flowers and fruits at 2 m in height or less. The flowers are pollinated by bees that are attracted to and orient themselves to the banner petal, which absorbs UV radiation (Jones and Buchmann 1974). Seeds collected in Puerto Rico by the author numbered 13,300 seeds/kg. Little and Wadsworth (1964) report 12,300 seeds/kg. Seeds from the former collection were scarified and germinated at 59 percent, beginning 2 days after sowing (Francis and Rodríguez 1993). Jerusalem-thorn produces two kinds of seeds. About 25 percent of them have thin testae and will germinate readily without pretreatment; the rest have hard seed coats and

must be scarified before they will germinate (Floridata 2001). Mechanical scarification was used by the author; soaking for 45 minutes in concentrated sulfuric acid worked equally well in another test (Everitt 1983). In nature, seeds are transported by water, birds, and animals (Pacific Island Ecosystems at Risk 2001). Artificial propagation is routinely done with seeds followed by ordinary nursery culture in containers. *In vitro* propagation using nodal explants has been demonstrated (Jaideep and others 1992). Jerusalem-thorn will continue to resprout after many cycles of annual disturbance.

Growth and Management.—The growth rate is moderate, from ½ to 1 m per year in early years. Jerusalem-thorn plants live about 30 years (Pima Community College 2001). Jerusalem-thorn can be problematic as an exotic in rangeland, as it has become in Australia. Biological control attempts are ongoing, but have not yet been successful. Jerusalem-thorn can be controlled with tractors by pulling or dozing the large plants out, if the seedlings are also controlled. Good control has been achieved with several herbicides as well (Pacific Island Ecosystems at Risk 2001).

Benefits.—The principal use of Jerusalem-thorn today is for landscaping. Its abundant yellow floral display alone justifies its use. Perhaps its best use is in xeric gardens, where it contrasts well with succulents and other desert plants (Floridata 2001). It is also useful in hedges and for living fenceposts (Hoekstra and others 2001). Jerusalem-thorn is also planted for environmental restoration in desert areas. Besides being hardy, it has the added benefit of fixing nitrogen (Harris 1982). The wood is moderately hard, heavy (specific gravity 0.6), and brittle. It is used principally for fuel. Native Americans harvested the seeds, which they parched before eating (Floridata 2001). Various extracts of leaves, flowers, fruits, and bark are used in herbal medicine to treat arthritis and fever, and as a nerve stimulant and abortive (Liogier 1990). Livestock eat the foliage and fruits (Little and Wadsworth 1964). Jerusalem-thorn is occasionally browsed by white-tailed deer and the seeds are eaten by bobwhite quail (Everitt and Drawe 1993).

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