

LOCAL NAMES

English (poumuli); Fijian (pou)

BOTANIC DESCRIPTION

Fluggea flexuosa (poumuli) is a small to medium-sized tree; 10–16 m tall, rarely attaining 25–30 m. Mature trees typically attain a diameter at breast height of about 20–30 cm, up to a maximum of 50 cm. The canopy may be oblong or spreading. Trees have a well developed, near-surface, lateral root system. In younger specimens the crown is narrowly columnar to conical with many small straight, radiating, horizontal branches. Older trees have straight, clear boles for up to 6 m, sometimes with indistinct buttresses.

Leaves simple, alternate, oblong-elliptic, with a rounded or tapered base and prominent, pointed, often recurved tip, shiny dark green above and light green below, 8–14 (–18) by 3–5 (–8) cm. Young leaves are light green. Petioles 5–10 mm long, either red or green.

Inflorescence in masses of small, light greenish-yellow flowers arranged in short axillary clusters along the twigs. Both male and female flowers have 5 sepals but no petals. Female flowers have an annular, crenate disk and a globular, superior ovary.

Fruits small, globose berries, 3–5 mm in diameter, ripening from light green, through reddishgreen to dark purple-black at full maturity. There are 3000–8000 fruits per kg; 4–6 angular seeds about 1 mm long in each fruit; and about 300,000 seeds per kg.

BIOLOGY

Poumuli flowers are dioecious. Flowering and fruiting commence at about age 2-3 years, although flowering may commence within 18 months of field planting, thereafter, flowering and fruiting occur year round.

ECOLOGY

Poumuli is found in open lowland, humid tropics. It occurs in primary forest and dense shrublands at low altitudes, and is often a pioneer species in river floodplains on poorly drained sites, fallow fields on coralline soils, including secondary forests and near-coastal thickets.

In its native habitat, it is frequently associated with *Macaranga* spp. and whitewood (*Endospermum medullosum*). Poumuli is drought tolerant, tolerate waterlogging or shallow inundation in poorly aerated soils, and tolerant of light salt spray and resistant to steady winds and cyclones.

BIOPHYSICAL LIMITS

Altitude: 0-350 (-900) m

Temperature: 22-28°C

- Mean maximum temperature of hottest month 29-32°C

- Mean minimum temperature of coldest month 19-24°C

- Minimum temperature tolerated 12°C

Rainfall: 1500-5000 mm

Soil type: Tolerates wide range of soils including light to heavy soils, coralline, red clay, poorly drained, and coastal neutral to acid soils (pH 4.0-7.4).

DOCUMENTED SPECIES DISTRIBUTION

Native: Indonesia, Philippines, Samoa, Solomon Islands, Vanuatu

Exotic: Fiji, New Caledonia, Tonga, Wallis and Fortuna Islands



The map above shows countries where the species has been planted. It does neither suggest that the species can be planted in every ecological zone within that country, nor that the species can not be planted in other countries than those depicted. Since some tree species are invasive, you need to follow biosafety procedures that apply to your planting site.

PRODUCTS

Timber: Poumuli is an important source of durable, round timber for fence posts and construction poles. The timber has straight grain and a moderately fine texture, easy to work, resistant to drywood termites and fungi, and very well suited for service in ground contact.

Fuel: The wood makes an excellent, hot-burning fuel.

Wildlife habitat & food: The tree provides excellent habitat and a food source for many fruit and insect-eating bird species, e.g. white eye, Pacific pigeon, and fruit doves, as well as flying foxes.

Tannin or dyestuff: Leaves of the red-veined form are used to stain Pandanus leaves a charcoal color. The purple juice from the fruit is used as a dye.

Apiculture: The flowers are an excellent food source for bees, providing both pollen and nectar hence a tree of moderate importance for honey production.

Medicine: A drink made from the rasped bark is used to treat fever. The shredded root is also used medicinally.

SERVICES

Ornamental: The species is commonly planted in homegardens, meeting places (fale), and wide-spaced alleys and is well suited to such plantings due to its compact, low stature, wind firmness, and attractive appearance.

Soil stabilization and improvement: The tree is useful for soil stabilization and is known to improve soil organic matter especially in improved fallows.

Reclamation: As a lowland pioneer species, the tree plays an important environmental role in revegetation of disturbed sites.

Intercropping: The species is well suited for planting in various agroforestry systems including plantations mixed with other tree and food crops. The species plays a role as a nurse or intercrop species with other valuable, long-rotation timber species, such as whitewood (*Endospermum medullosum*), mahogany (*Swietenia macrophylla*), and sandalwood (*Santalum* spp.).

Shade or shelter: Poumuli is well suited to provide varying levels of shade (depending on planting spacing) for a wide range of crop species including cacao (*Theobroma cacao*).

Boundary or barrier: It is often planted as a boundary marker along farms and roads due to its longevity and compact crown. Poumuli makes an excellent narrow, low windbreak, especially younger trees with more dense foliage, up to about ten years of age.

Erosion control: The tree is useful in less exposed portions of coastal protection plantings.

TREE MANAGEMENT

In pure plantations, a spacing of 5-6 m x 4 m is preferred. The most common spacing for mixed species forestry plantings is 8 x 3 m. When intercropped with cash crops the spacing should be 8–10 m between rows and 6 m within rows. In woodlots the preferred spacing is 6 x 4 m. A stocking rate of over 1000 stems/ha at age 6 years is appropriate for pole production.

Poumuli has good self-pruning characteristics, starting at age 3-4 years. Pruning of lower branches to a height of 3 m at age 3-4 years is recommended for the production of posts. Additional later pruning of side branches up to a height of 6 m is desirable for production of larger poles.

Mature trees (10-year-old) coppice very well if cut at more than 1 m above ground level. To ensure the required size of the end product is achieved, appropriate thinning regimes should be developed.

Poumuli being a light-demanding species, can be planted together with other species such as coconut (*Cocos nucifera*), breadfruit (*Artocarpus altilis*), citrus (*Citrus* spp.), mahogany (*Swietenia macrophylla*), and tropical almond (*Terminalia* spp.).

GERMPLASM MANAGEMENT

Mature dark-colored fruits should be collected directly from the canopy or by lopping off small branches and picking the ripe fruits. Ripe fruits should be soaked in water overnight and then depulped by rubbing and washing over a fine mesh sieve. Seeds are orthodox and can keep for many years in airtight containers under refrigeration (4°C). When sowing, seeds should be shallowly covered to about 1-2 mm depth. First germination occurs in 2-5 weeks. Seedlings prefer full sun.

PESTS AND DISEASES

Poumuli generally has a low susceptibility to pests and diseases. Brown root rot (*Phellinus noxius*) has been observed on Poumuli trees. Plants require protection from termites.

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SUGGESTED CITATION

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