

Ficus pumila

Creeping fig

Moraceae

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OVERVIEW

Ficus pumila, native from South China through Malaysia, is a creeping vine like fig plant that is commonly planted as an ornamental in Hawai'i and other warm climates of the world as a cover on rock walls, trees, and other structures. In Hawai'i and most other places where *F. pumila* is cultivated, sexual reproduction of the plant does not occur because without its associated pollinator present, the seeds are not viable. Though not known to spread by seeds yet, *F. pumila* is capable of aggressive vegetative growth and can become a nuisance by climbing high into trees and growing beyond the desired area. If pollinator wasps were introduced, it is likely that breeding colonies would establish, leading to the naturalization and spread of *F. pumila*.

TAXONOMY

Family: Moraceae (Mulberry family) (Neal 1965).

Latin name: *Ficus pumila* L. (Neal 1965).

Synonyms: *F. repens* Hort. (Neal 1965). *F. hanceana* Maxim., *F. scandens* Lam., *F. stipulata* Thunb. (Wunderlin & Hansen 2000).

Common names: Creeping fig, climbing fig, creeping rubber plant (GRIN 2002).

Taxonomic notes: The genus *Ficus* is made up of about 1,000 species from pantropical and subtropical origins (Wagner et al. 1999).

Nomenclature: The common name, creeping fig, refers to the creeping habit of *F. pumila*.

Related species in Hawai'i: Most other *Ficus* species commonly cultivated in Hawai'i are trees. *F. pumila* is one of the few species of *Ficus* in Hawai'i that takes the form of a creeping vine. About sixty other *Ficus* species are cultivated in Hawai'i (Neal 1965). Of these, three have naturalized after the intentional introduction of their associated pollinator wasps.

DESCRIPTION

"Woody vines or sprawling shrubs, vines closely appressed to substrate, shrubs loosely ascending, evergreen. Roots adventitious, nodal. Branches appressed-pubescent when young, glabrous in age. Leaves dimorphic; stipules 0.3-0.8 cm; petiole 1.5-2 cm. Leaf blade oblong to ovate-elliptic or obovate, 4-10 s 2.5-4.5 cm, those of appressed climbing stems distichous, appressed, smaller (than those of loose, extended, flowering stems), spreading, leathery, base obtuse to rounded, margins recurved, apex obtuse to nearly acute; surfaces abaxially glabrous or puberulent on veins, adaxially glabrous, prominently reticulate; basal pari of veins 1; lateral pars of veins 3-6, straight; secondary veins

prominent. Syconia solitary, pedunculate, green, oblong, obovoid, pyriform, or nearly globose, 3-4 x 3-4 cm, slightly pubescent but becoming glabrescent in age; peduncle thick, 8-15 mm; subtending bracts ovate, 5-7 mm; ostiole closed by 3 bracts." (Flora of North America 2002).

BIOLOGY & ECOLOGY

Cultivation: *F. pumila* is a common ornamental plant grown in warm tropical areas of the world. The plant grows as a vine and can adhere to rock, concrete, and other surfaces by means of a rubbery substance which exudes from aerial roots (Neal 1965). It is often planted along rock walls, on sides of buildings, and on other trees. A few varieties are cultivated including *F. pumila* var. *minima* Bailey, a small leaved variety (Neal 1965).

Invasiveness: There have been no accounts of pollinator wasps being introduced to places where *F. pumila* is cultivated and spread has been only by vegetative means. However, the vine is a vigorous grower and can vegetatively spread into unwanted areas. In New Zealand, this species is recognized as a potential problem (Ewen 1996). It does not yet set seed there, but it is recognized that if the wasp were to arrive there, seed set would be possible. According to Haley (1997) and the Department of Conservation in New Zealand, "*F. pumila* spreads fairly slowly but creates a dense, smothering mass as it develops. It covers almost everything in its path, very greatly modifying the habitat if it is left to develop." It is also listed as a weed by the Western Australia global compendium of weeds (Randall 2002). In Florida, it has been known to grow out of control and can even push up roof tiles (Flora of Rice University Campus 2001). In Hawai'i, in some areas of lowland moist sites, it has been observed growing beyond the garden into adjacent disturbed scrub forest. If left untrimmed, the vine takes on a woody shrub-like growth. *F. pumila* grows at a fast rate and will cover large areas rapidly if allowed (Dehgan 1998).. It can grow horizontally along vegetation and walls as well as high into trees or power poles (up to at least 10 m).

Pollination: The fruit (syconium or fig) and reproduction systems of species in the genus *Ficus* are unique. Each species of *Ficus* has an associated species of agaonid wasp (Hymenoptera: Chalcoidea: Agaonidae). *Ficus* species can only be pollinated by their associated agaonid wasps and in turn, the wasps can only lay eggs within their associated *Ficus* fruit.

Propagation: *F. pumila* is propagated from cuttings. It can be propagated from seeds but must be pollinated by its associated pollinator wasp for seeds to be viable.

Dispersal: Fruits of other *Ficus* species in Hawai'i are spread by fruit eating birds. The fruit of *F. pumila* are fairly large and may not be attractive to smaller birds, though they may be able to nibble on some seeds, ingestion of entire fruits by some birds is unlikely. This plant has been spread widely on Maui as a common component in landscaping. New Zealanders report that *F. pumila* spreads out from old gardens, at the edge of forest reserves for example, or historic gardens. It is capable of spreading from garden rubbish dumped along roadsides (Haley 1997).

Pests and Diseases: Brickell and Zuk (1997) report the following pests and diseases of *Ficus* spp.: mealybugs, scale insects, spider mites, root knot nematodes, and thrips occur under most environmental conditions, fungal and bacterial leaf spots, crown gall, twig dieback, and Southern blight

DISTRIBUTION

Native range: *F. pumila* is native from South China through Malaysia (Neal 1965). GRIN (2002) lists the native distribution as: China; Japan – Honshu, Kyushu, Ryukyu Islands, Shikoku; Taiwan; and Vietnam.

Global distribution: *F. pumila* is cultivated in various parts of the world including New Zealand, Central and South America, and in Florida, Hawai'i, Texas, and California. The following locations are listed by the Missouri Botanical Garden specimen database (2002): California, 20-110 m (66-361 ft), 32.40N-37.36N, 117.10W-121.53W; Costa Rica, 2-10 m (7-33 ft), 3.38N-8.39N, 83.10.42W-83.11W; Guatemala, 10 m (33 ft), 15.30N, 89.00W; Honduras, 800 m (2,625 ft), 14.15N, 87.10W; Nicaragua, 80-900 m (262-2,953 ft), 11.58N-12.25N, 85.18W-86.53W; Bolivia, 420-1,900 m (1,378-6,234 ft); and Vietnam, 303-1,400 m (994-4,593 ft), 21.44N, 106.22.54E.

State of Hawai'i distribution: *F. pumila* is commonly cultivated on all the main islands of Hawai'i.

Island of Maui distribution: On Maui, *F. pumila* is well distributed from sea level up to about 3,900 ft (1,189 m) in both moist and dry sites. It is common in residential and urban areas where it is grown along rock walls, on buildings, or up tree trunks. *F. pumila* is heavily planted in Kihei, Lahaina, and Kahului. It is moderately planted in Paia, Ha'iku, Makawao, Pukalani, and Kula. Only a few cultivated plants were observed in Hana. Plants exhibit moderately vigorous growth at most of these sites. All sites were noted as cultivated except for one sight in Waihe'e where the status was listed as unknown. At this site, the plant was cultivated, though it had extended vegetatively well beyond the initial planting site into adjacent disturbed scrub forest. It was not quite naturalized, but was spreading vegetatively, so the unknown status was given. This lowland site bordered a semi-wild area and was fairly hot and humid. When left untrimmed, the vine turns into a woody shrub like plant. Large pear shaped fruits are seen occasionally.

CONTROL METHODS

Physical control: Once the plant is established, mature woody growth begins to occur, growth rate accelerates, and fruit develops. Keeping the plant trimmed encourages new growth with smaller leaves and discourages aggressive woody growth and fruiting (Riffle 1998). Because the vine roots along stems, physical control of this plant would be tedious. Pieces left behind are likely to re-grow. It is possible to keep the plant contained by trimming or shearing the plant. In New Zealand, slashing, grubbing, hand pulling, and allowing cut material to dry out before disposal is recommended (Haley 1997).

Chemical control: No known chemical control has been attempted in Hawai'i. Based on a successful operation on a substantial infestation in New Zealand, Haley (1997) recommends a spray of Escort herbicide 5 grams to 10 litres of water in a backpack sprayer.

Biological control: Nadel et al. (1991) report several pests including various ants which were seen carrying off pollinator wasps from *Ficus* fruits, Hymenoptera and mites that may be parasites of the pollinator wasps, and staphylinids which were seen entering *Ficus* fruits and eating the pollinator wasps.

Cultural control: New Zealanders recommend to keep the plant strictly confined to walls or structures where it is used as an ornamental and to avoid its use anywhere near vulnerable habitat (Haley 1997). In Hawai'i, this plant should not be planted in or adjacent to native areas or areas where it is unwanted to prevent vegetative spread into these areas. Precaution should be taken with cut material, allowing it to dry out before disposal and do not dump garden rubbish on roadsides.

Noxious weed acts: None known.

MANAGEMENT RECOMMENDATIONS

F. pumila is one of many species of *Ficus* cultivated in Hawai'i. It currently is not capable of sexual reproduction and can only spread vegetatively. It is commonly used in landscaping on rock walls. It should not be planted in or near natural areas or places where its aggressive growth is unwanted. Because of widespread distribution in Hawai'i due to popularity in landscaping, it is likely that the pollinator wasps would successfully establish if introduced, allowing *F. pumila* to naturalize and spread uncontrollably. The *Ficus* pollinator wasps should be placed on the injurious species list to prevent future invasion by this and other *Ficus* species in Hawai'i.

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