

Macfadyena unguis-cati  [简体中文](#) [正體中文](#)

System: Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Magnoliopsida	Scrophulariales	Bignoniaceae

Common name

Synonym

Batocydia unguis-cati , (L.) Mart. ex Britt.
Bignonia unguis-cati , L.
Doxantha unguis-cati , (L.) Miers
Bignonia tweedieana , Lindl.

Similar species

Macfadyena uncata, *Bignonia capreolata*

Summary

Macfadyena unguis-cati is a perennial, climbing liana found primarily in tropical forests. It is native to the Central and South Americas and the West Indies, but currently is represented on every continent except Antarctica. It is an invasive species in much of its range and is said to be “one of the most destructive exotic vines”. *Macfadyena unguis-cati* effects all layers of infected forest ecosystems by rapidly spreading both vertically and horizontally across everything with which it makes contact, overwhelming both the understorey plants and the canopy trees. *Macfadyena unguis-cati* species becomes established quickly and is difficult to eliminate due to its rapid growth, extensive root system, and prolific seed production. Methods of manual, chemical, and biological control for *Macfadyena unguis-cati* are available.



[view this species on IUCN Red List](#)

Species Description

Macfadyena unguis-cati is a perennial, climbing liana found in tropical forests. Its dark, fibrous stem may exceed a diameter of 8cm and may extend higher than 20m into the tree canopy (Francis, undated). The species' long primary root extends across the soil surface making large tubers (up to 40cm long) every 50cm from which runners are produced. Additionally, the stem produces adventitious roots to anchor to the host tree, and often roots at the nodes (McClymont, 1996).

The dark green, compound leaves are oppositely arranged and are composed of two leaflets with a trifid tendril between. The leaflet size and shape are variable: the small, narrowly ovate to lanceolate young leaves are 1-2cm long and 4-8mm wide and may become ovate, truncate, and up to 16cm long and 6.9cm wide at maturity. Mature leaves are glabrous with 4-6 prominent secondary veins. The hooked tendril, used to climb host trees, has three stiff arms 0.3-1.7cm long on a petiolule 0.5-2.5cm long (Woodson *et al.*, 1973).

M. Unguis-cati generally flowers from March-June in the late dry to early wet season (Woodson *et al.*, 1973) with all flowers blooming within a few days (Gentry, 1974). The inflorescence of the species is an axillary panicle generally bearing 1-3 tubular-campanulate flowers, though up to 15 flowers may be present. The five-lobed, yellow corolla has red-orange lines in the throat and is 4.5-10cm long and 1.2-2.4cm wide. Stamens number four (occasionally five) and are about 3mm long (Francis, undated; Woodson *et al.*, 1973). The species produces black, linear, flattened capsules ranging from 26-95cm long and 1-1.9cm wide. Each capsule contains about 100-200 small, brown, winged seeds (Francis, undated) that are 1-1.8cm long and 4.2-5.8cm wide (Woodson *et al.*, 1973).

Notes

Unlike most vines, *Macfadyena unguis-cati* is able to climb host trees of any size vertically through the use of its hooked tendrils (Putz, 1980). The production of multiple individuals from a single seed provides evidence that *M. unguis-cati* may be apomictic (able to produce seeds asexually as well as sexually) (PIER, 1999).

Lifecycle Stages

Seedlings of *Macfadyena unguis-cati* are numerous and may persist in this form for extended periods, likely putting energy into their tubers (FLEPPC, undated). The juvenile growth form of the species has only a few small leaves and trails across the forest floor in search of a host tree. When it reaches a suitable climbing surface, its growth towards the light can be rapid. The transition to the adult form of the species, with bigger and more numerous leaves and an increased diameter, is a slower process (Francis, undated; Woodson *et al.*, 1973). *M. unguis-cati* is a long-lived species, and may not flower until it is well-established (FLEPPC, undated).

Uses

Macfadyena unguis-cati is planted as an ornamental, particularly to screen fences or unsightly buildings. It is also used in folk medicine, where it is reported to have anti-malarial properties and is used to eliminate tapeworms, treat fevers, and treat dermatitis from *Hippomane macinella* L. (Francis, undated; Gentry, 1992).

Habitat Description

The native habitat of *Macfadyena unguis-cati* is tropical dry forest, tropical and premontane moist forest, and occasionally wet forest (Woodson *et al.*, 1973). The species is present from sea level to over 600 metres in elevation in its native Puerto Rico, where it inhabits areas with 750-2400mm of rain annually (Francis, undated). However, as an invasive species, *M. unguis-cati* may be found in orchards and gardens, on roadsides and in grasslands, and in open urban spaces, especially in temperate to subtropical regions with medium to high rainfall (Williams, 2002).

M. unguis-cati prefers fertile, well-drained soils (PIER, 1999) but can survive in most soils except those which are salty or poorly drained (Francis, undated). The species is very tolerant of low-light situations, especially when young, but grows much more vigorously in open, sunny habitat. It may be found anywhere from the forest floor to the top of the forest canopy (McClymont, 1996).

Reproduction

Macfadyena unguis-cati reproduces prolifically both vegetatively and sexually. The species may produce clones by means of roots and runners, with the trailing stems of the species putting down roots whenever they touch the ground. Young plants will also sprout when damaged (Francis, undated). The flowers of *M. unguis-cati* are bisexual (Judd *et al.*, 1999) and are produced synchronistically usually once a year in the spring, though in Puerto Rico the species flowers twice. The capsules mature about six months after flowering, and the winged seeds are dispersed by wind and water (Francis, undated). The seeds are short lived (surviving no more than 1 year in the field), but those that germinate usually do so in 3-6 weeks. 20% of the seeds have been seen to produce two or three seedlings (PIER, 1999).

General Impacts

Macfadyena unguis-cati is said to be “one of the most destructive exotic vines” (McClymont, 1996) and is considered to be a “troublesome”, “obnoxious” (FLEPPC, undated), and “serious” (PIER, 1999) weed in much of its range. It is sometimes called a “transformer species” due to the way it leads to ecosystem change (Achilles, 2003). *M. unguis-cati* effects all layers of infected forest ecosystems by spreading both vertically and horizontally across everything with which it makes contact. It forms a thick carpet of leaves and stems on the forest floor, outcompeting the understory plants and stopping germination of other species. It grows to top of the forest and spreads across the canopy, killing the host trees with its weight and shade.

M. unguis-cati grows rapidly, has a long lifespan, and requires few resources to thrive. It can survive grazing, fire, and light frosts; disturbances may actually make the species grow even more rapidly through new sprouting from damaged stems and roots (Francis, undated; PIER, 1999). This species is difficult to eliminate due to its rapid growth, extensive root system, and prolific seed production. These factors combine to give the species a high risk score of 17 (PIER, 1999).

Management Info

There are multiple methods of managing/eradicating *Macfadyena unguis-cati* including manual, chemical, and biological.

Manual: Manual control of *M. unguis-cati* is conducted by cutting the stems and digging out the roots of the invaders. This method is not practical except on very small populations because of the growth pattern of the species (McClymont, 1999).

Chemical: Chemical control has been shown to be successful in areas in which the herbicide Glyphosate (N-(phosphonomethyl) glycine) has been approved. In these areas, vines are cut from trees at 1.5 metres and cut again at the surface. The cut stump is treated with a 1:1.5 Glyphosate:water treatment (Achilles, 2003), or with straight Glyphosate (McClymont, 1999). Once the area begins to actively grow following this treatment (usually three to six weeks later), the area is foliar sprayed with a Glyphosate and surfactant mix, with care being taken to avoid non-target species. Additional foliar spraying may be needed for five years or more after the initial treatment (Achilles, 2003). This method should not be used in ecologically sensitive areas due to the potential herbicide drift (McClymont, 1999).

Biological: The leaf-feeding beetle *Charidotis auroguttata* (Boheman), the leaf-sucking tingid *Carvalhotingis visenda* (Boheman), and the leaf-tying moth *Hypocsmia pyrochroma* (Jones) were all shown to be specific to *M. unguis-cati*. *C. auroguttata* was released in South Africa in 1999 to control its *M. unguis-cati* population, and *C. visenda* was approved in 2007 for release into Australia. Each biological agent works against *M. unguis-cati* by feeding on it preferentially to other tested species (Dhileepan, 2006; Dhileepan, Trevino, and Snow, 2007; Willimas, 2002). The suitability of these biological agents to other environments must be carefully considered, and is dependant on the plant species present in each location, among other factors.

Cultural: Other tips for controlling the spread of *M. unguis-cati* include planting the species only in approved regions and pruning the planted species each year after flowering to prevent its spread (Francis, undated).

Pathway

Principal source: [Francis, undated. *Macfadyena unguis-cati* Fact Sheet. International Institute of Tropical Forestry, U.S. Department of Agriculture, Forest Service.](#)

[McClymont, 1996. Cat's Claw Creeper \(*Macfadyena unguis-cati*\). BRAIN \(Brisbane Rainforest Action & Information Network\) Newsletter, April 1996.](#)

[PIER, 1999. *Macfadyena unguis-cati* \(L.\) Gentry, Bignoniaceae.](#)

Compiler: National Biological Information Infrastructure (NBII) & IUCN/SSC Invasive Species Specialist Group (ISSG)

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ALIEN RANGE

[2] AUSTRALIA	[1] BERMUDA
[1] CHINA	[1] COOK ISLANDS
[1] FRANCE	[1] FRENCH POLYNESIA
[1] GREECE	[1] INDIA
[2] INDONESIA	[1] ITALY
[1] KENYA	[1] MALAYSIA
[1] MAURITIUS	[1] MICRONESIA, FEDERATED STATES OF
[1] NEPAL	[2] NEW CALEDONIA
[1] NEW ZEALAND	[1] NIUE
[1] REUNION	[1] SAINT HELENA
[1] SERBIA AND MONTENEGRO	[1] SOUTH AFRICA
[1] SRI LANKA	[1] SWITZERLAND
[1] UGANDA	[10] UNITED STATES
[1] VANUATU	[1] ZIMBABWE

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Management information

Dhileepan, K. 2006. Application to release the leaf-tying pyralid moth *Hypocosmia pyrochroma*, a potential biological control agent for cat's claw creeper *Macfadyena unguis-cati* (Bignoniaceae). Queensland Department of Natural Resources, Mines & Water. Submitted July 2006.

Summary: This application reviews the invasion of *Macfadyena unguis-cati* in Australia and examines the specificity of the leaf-tying pyralid moth *Hypocosmia pyrochroma* to the species.

Available from: <http://www.environment.gov.au/biodiversity/trade-use/invitecomment/pubs/hypocosmia-pyrochroma.pdf> [Accessed 29 August 2007].

Dhileepan, K., M. Trevino, and E.L. Snow. 2007. Specificity of *Carvalhotingis visenda* (Hemiptera: Tingidae) as a biological control agent for cat's claw creeper *Macfadyena unguis-cati* (Bignoniaceae) in Australia

Summary: This article provides information on the biological control agent *Carvalhotingis visenda* which was approved for release in Australia.

Dhileepan, K., M. Trevino, G.P. Donnelly, and S. Raghu. 2005. Risk to non-target plants from *Charidotis auroguttata* (Chrysomelidae: Coleoptera), a potential biocontrol agent for cat's claw creeper *Macfadyena unguis-cati* (Bignoniaceae) in Australia. *Biological Control*, 32: 450-460.

Summary: This article provides biological management information for *Macfadyena unguis-cati*.

Francis, John K. Undated. *Macfadyena unguis-cati* Fact Sheet. International Institute of Tropical Forestry, U.S. Department of Agriculture, Forest Service.

Summary: This fact sheet provides an overview on *Macfadyena unguis-cati*, including the description, range, reproduction and growth, management, and benefits of the species.

Available from: <http://users.tpg.com.au/users/frizzle/weedfacts/catsclawfact.htm> [Accessed 06 August 2007].

McClymont, Ken. 1996. Cat s Claw Creeper (*Macfadyena unguis-cati*). BRAIN (Brisbane Rainforest Action & Information Network) Newsletter, April 1996.

Summary: This article provides both general and management information on *Macfadyena unguis-cati*.

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Williams, H.E. 2002. Life History and Laboratory Host Range of *Charidotis auroguttata* (Boheman) (Coleoptera: Chrysomelidae), the First Natural Enemy Released Against *Macfadyena unguis-cati* (L.) Gentry (Bignoniaceae) in South Africa. *The Coleopterists Bulletin*, 56(2): 299-307.

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General information

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Summary: Available from: http://www.herbier-tahiti.pf/Selection_Taxonomie.php?id_tax=8199 [Accessed 1 April 2008]

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Gargominy, O., Bouchet, P., Pascal, M., Jaffre, T. and Tourneux, J. C. 1996. *Consequences des introductions d'espèces animales et végétales sur la biodiversité en Nouvelle-Calédonie*. Rev. Ecol. (Terre Vie) 51: 375-401.

Summary: Consequences to the biodiversity of New Caledonia of the introduction of plant and animal species.

Gentry, A. H. 1974. Coevolutionary Patterns in Central American Bignoniaceae. Annals of the Missouri Botanical Garden, 61(3): 728-759.

Summary: This article looks at coevolutionary patterns in members of the Central American Bignoniaceae family.

ITIS (Integrated Taxonomic Information System), 2008. Online Database *Macfadyena unguis-cati*.

Summary: An online database that provides taxonomic information, common names, synonyms and geographical jurisdiction of a species. In addition links are provided to retrieve biological records and collection information from the Global Biodiversity Information Facility (GBIF) Data Portal and bioscience articles from BioOne journals.

Available from:

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Summary: This textbook reviews each plant family and gives details as to the phylogeny of each.

MacKee, H.S. 1994. Catalogue des plantes introduites et cultivées en Nouvelle-Calédonie, 2nd edn. MNHN, Paris.

Summary: Cet ouvrage liste 1412 taxons (espèces, sous espèces et variétés) introduits en Nouvelle-Calédonie. L'auteur précise dans la majorité des cas si l'espèce est cultivée ou naturalisée.

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Summary: Resource that includes the distribution of invasive species throughout the Pacific Islands.

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W TROPICOS. 2007. *Macfadyena unguis-cati*. The Missouri Botanical Garden's online VAST (Vascular Tropicos) nomenclature database and associated authority files.

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