Passiflora tarminiana 简体中文 正體中文

System: Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Magnoliopsida	Violales	Passifloraceae

Common name banana passionfruit (English), tacso amarillo (Spanish, Ecuador), tumbo (Spanish, Peru, Bolivia), curuba ecuatoriana (Spanish, Colombia), bananadilla (English), curuba india (Spanish, Colombia), curuba (French), gulián (Spanish, Ecuador), curuba quiteña (Spanish, Colombia), banana passion flower (English), banana poka (English, Hawaii), banana passion vine (English)

Synonym *Passiflora mollissima*
Passiflora mixta

Similar species *Passiflora tripartita, Passiflora mixta, Passiflora pinnatistipula, Passiflora antioquiensis*

Summary Passiflora tarminiana is an aggressively invasive tropical vine native to the Andes. It invades disturbed areas, smothers trees, reduces biodiversity and assists other invasive species, such as feral pigs, which feed on the fruit. Biological control programmes trialled in Hawaii have had very encouraging results, and New Zealand is now looking at introducing biocontrol agents. Passiflora tarminiana is a newly-described species, so older references to Passiflora mollissima (now Passiflora tripartita var. mollissima (Kunth) Holm Nielsen & Jørgensen)) may in fact be referring to Passiflora tarminiana.

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Species Description
A climbing liana vine possessing trilobed, serrated leaves with soft, downy undersides, always hairless on top; minute subreniform, aristate, deciduous stipules; flower pendent; sepals and petals light pink to bright pink; floral tube light green; bracts ovate; fruit fusiform, growing larger at high elevations, to 150 g; pericarp soft and yellow to yellow-orange; pulp orange; numerous black seeds (Fruits from America, 2002).
P. tarminiana is a newly described species. It was formerly included with the species *P. mollissima*, and is still described under this name in many resources. The two species have a number of differing characteristics. *P. tarminiana* has flowers in which the petals and sepals open flat, or are reflexed back in some cases, and the sepals are close to the end of the floral tube. The nectary chamber is conspicuously wider than the floral tube. *P. tripartita* var. mollissima never opens its petals and sepals to more than a bell shape, and the sepals are short in relation to the length of the floral tube (Irvine, 2003). Its bracts form a narrow tube. Its stipules are much larger, embracing the stem, and permanent.*P. tarminiana* is highly tolerant or resistant to the anthracnose affecting fruits and leaves of *P. tripartita* var. mollissima and it regenerates more easily from the base. It seems more susceptible to attacks of Heliconiid butterfly larvae in the juvenile stage.

Notes
On the State of Hawai‘i noxious weed list, where it has invaded huge areas of native forest and the fruit provides a food source for feral pigs (PIER, 2003; Smith, 1998). Also a problem species in New Zealand and South Africa (Binggeli, 1997).
P. tarminiana is often confused with *P. mollissima*. This is especially true in Hawai‘i, where the 'banana poka', often described as *P. mollissima*, is actually *P. tarminiana*. *P. tripartita* var. *mollissima* is absent from Hawai‘i (Irvine, 2003).

Lifecycle Stages
Adult plants can reach an age of 20 years (Binggeli, 1997).

Uses
Often cultivated for fruit and as an ornamental plant, due to its attractive flowers (Binggeli, 1997). On Kauai, banana poka vines are woven into baskets (Starr, F., pers.comm., 2003).

Habitat Description
Found in disturbed habitats. Tolerates both high and low light levels, although seedlings do not tolerate dense shade. Tolerant of occasional frosts. Naturally occurs in the Andes, between 2000 and 3600 m a.s.l. Grows in areas with mean annual rainfall between 800 and 1300mm and a mean annual temperature of 11.4 to 15.0°C. Once reaching canopy height the vines spread laterally. (Binggeli, 1997)
In its region of origin, *P. tarminiana* only exists under cultivation as a fruit crop, with a few individuals escaped from cultivation, but never forming significant wild populations.

Reproduction
Feral pigs, when present, are the principal short-distance dispersal agents. Alien frugivorous and granivorous birds, as well as man, act as long distance dispersal agents (PIER, 2003).
Grows from seed to flowering in around one year. Mainly out-crosses, although self-pollinating may occur. Fruit contains numerous seeds (Binggeli, 1997). Hybridizes easily with other Passiflora species of subgenera Tacsonia and Manicata.

General Impacts
P. tarminiana can rapidly reach and smother the forest canopy when the sub-canopy vegetation is disturbed either naturally, by hurricanes and other high winds, or by man or feral pigs (Smith, 1985 in PIER, 2003). *P. tarminiana* suppresses tree regeneration, topples shallow-rooted trees, kills standing trees through shading, and lowers species richness (Binggeli, 1997).

Management Info
Physical: Small plants can be hand pulled; older ones must be dug out (PIER, 2003).
\r\n Chemical: Cut vines and treat with herbicide, such as Tordon, Roundup or Escort (Binggeli, 1997; DOC, 2003).
\r\n Biological: Three biocontrol agents have been released in Hawai‘i. *Cyanotricha necryia*, a foliage-feeding moth, was released in 1988 but failed to establish.
Another moth species, *Pyrausta perelegans*, was released in 1991. It feeds on the buds, leaves, fruit, and shoot tips of *P. tarminiana*. It has established but is not common. A leaf spot fungus, *Septoria passiflorae*, which was released in 1996, is now widespread and causing large disease epidemics. There have been *P. tarminiana* biomass reductions of 80-95% over more than 2000 ha, giving indications that the leaf spot fungus has great potential. Other agents that are being investigated include *Zapriotheca* nr. *nudiseta*, a fly that feeds on flower buds, as well as *Josia fluonia* and *J. ligata*, two species of defoliating moths (Landcare Research 1999; 2001). In damp areas *P. tarminiana* may suffer from slug herbivory (Binggeli, 1997).

Pathway
Grown for its fruit in some areas (Binggeli, 1997).Often planted as an ornamental plant because of its attractive flowers (Binggeli, 1997).

Principal source: PIER (Pacific Island Ecosystems At Risk), 2003.
Binggeli, P. 1997. Woody plant Ecology.

Compiler: IUCN/SSC Invasive Species Specialist Group (ISSG)

Review: Dr. Geo Coppens Consultant, Tropical Fruit. CIRAD. France

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ALIEN RANGE

[1] EAST AFRICA
[2] NEW ZEALAND
[1] PHILIPPINES
[1] SOUTH AFRICA
[7] UNITED STATES
[1] NEW CALEDONIA
[1] PAPUA NEW GUINEA
[1] REUNION
[1] SRI LANKA
[1] ZIMBABWE

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Summary: Some useful information on *P mollissima/tarminiana*. Minimal management information.
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Summary: Honey, I Shrunk the Weed . A very useful article with good pictures on the use of biological contol in Hawaii.
Available from: http://www.landcareresearch.co.nz/publications/newsletters/weeds/wtsnew19.pdf [Accessed 20 January 2003]
Landcare Research, 2002. What s New in biological control of Weeds? No. 21 May 2002.
Summary: Has a small amount of information regarding biological control, and a footnote on Passiflora species in New Zealand.
Available from: http://www.landcareresearch.co.nz/publications/newsletters/weeds/wtsnew21.pdf [Accessed 12 August, 2003].
PIER (Pacific Island Ecosystems at Risk), 2003. *Passiflora tarminiana*
Summary: Contains a useful comparison between three species in the *Passiflora* spp. Ecology, synonyms, common names, distributions (Pacific as well as global), management and impact information.
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General information
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Summary: A description of *P. tarminiana*as a new species, distinct from *P. mollissima*
Fruits from America, 2002. CIRAD-FLHOR/IPGRI Project for Neotropical Fruits © International Plant Genetic Resources Institute 2002.
Summary: A good, brief summary of information about the species with clear pictures.
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Summary: Minimal information, but has a little on specific infestations in Hawaii.
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