



Invasive ornamental plants: an escalating problem in South Africa

The majority of invasive plants in South Africa are ornamentals—and this is corroborated by the listing of a further 120 ornamental species on the invasive species list under NEMBA. This number will increase as more species escape cultivation and more species are introduced into South Africa. Serious steps are needed to curtail this escalation, starting with stringent regulation of new introductions which prohibit known invasive species and which encourage sterile cultivars. Equally important is the promotion of indigenous plants. South Africa boasts one of the richest floras in the world and the nursery industry should be investing far more into 'home grown' plants rather than 'exotic' introductions.

This edition of SAPIA News takes a look at three invasive ornamental species—a sterile cactus which spreads vegetatively from detached stem segments (even sterile species can invade!), an ornamental climber which spreads from wind-dispersed seed and poses a severe threat to agriculture and the environment, and lastly some good news in the biological control of Lantana, which is one of the world's worst invasive ornamental species.



Velvet bur cactus (*Opuntia pubescens*) (photo 1) is a sterile cactus which is spread by attaching itself to dassies (photo 2) in the Pretoria National Botanical Garden, and rubber vine (*Cryptostegia grandiflora*), a smothering, toxic, ornamental climber (photo 3).

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SAPIA newsletters are posted at the ARC website: www.arc.agric.za under 'Newsletters'

NEMBA: public comments received

Draft regulations and invasive species lists under the National Environmental Management: Biodiversity Act (NEMBA) were published in the Government Gazette for public comment on 12 February 2014. The public were given 30 days to comment. Check the following website for further announcements: www.invasives.org.za

Fact sheets with descriptions and photos of about 600 plant species can be found at the Weeds and Invasive Plants website: www.agis.agric.za/wip. Requests for information from the SAPIA database and submission of records of invasive plants should be sent directly to Lesley Henderson at L.Henderson@sanbi.org.za.

Watch out for a new invasive cactus: velvet bur cactus (*Opuntia pubescens*)

Dan'sile Cindi, Invasive Species Programme: EDRR, SANBI, Gauteng & Free State

Background.....A new invasive species of cactus, **velvet bur cactus (photo 1)**, has been discovered growing right in the National Botanical Gardens in Pretoria. For several years it was assumed that this small cactus that was invading the hill north and east of the SANBI Herbarium was jointed cactus (*Opuntia aurantiaca*). Recently the identity of this species has been confirmed as *Opuntia pubescens* by Dr. Leia Scheinvar, the *Opuntia* taxonomist at the National Herbarium in the Botanical Garden of UNAM (Universidad Nacional Autotoma de Mexico) in Mexico City.

What does it look like?.....**Velvet bur cactus** is a succulent plant armed with thin barbed thorns and has lemon-yellow flowers. The plant is relatively small and grows on average to approximately 20cm high. It is much branched with cladodes (stem joints) that are easily detached, and are 3–7cm long. The cladode surface is nearly smooth and mostly velvety or pubescent with numerous needle-like barbed spines that are brownish and measure 1–3 cm long (**photo 2**). Detached cladodes easily attach themselves to passing animals which can carry them considerable distances resulting in the rapid spread of the species.

The sterile fruit (**photo 3**) is small (about 2–2.5cm long), green to red, and slightly spiny with a well-defined navel-like depression (umbilicus). All detached cladodes and fruit, after falling to the ground, can root and grow to form new plants.

Velvet bur cactus can be confused with jointed cactus (**photo 4**) as well as bur cactus (*Opuntia salmiana*) (**photo 5**).



How to differentiate three similar species?

Velvet bur cactus (<i>Opuntia pubescens</i>)	Jointed cactus (<i>Opuntia aurantiaca</i>)	Bur cactus (<i>Opuntia salmiana</i>)
◆ Cladodes almost round	◆ Cladodes round to somewhat flattened	◆ Cladodes long, slender and round
◆ Cladode surface softly velvety, growth tips particularly velvety	◆ Cladode surface always smooth often with purple teardrop markings at the areoles	◆ Cladode surface smooth
◆ Spines more numerous and more slender than those of jointed cactus	◆ Spines stiff and robust	◆ Spines short, bristle like
◆ Flowers yellow, fruits red	◆ Flowers yellow, fruits red	◆ Flowers cream, fruits red
◆ No tuber formation	◆ Plants form an underground tuber	◆ No tuber formation



Velvet bur cactus continued



Velvet bur cactus (**photo 6**) showing hairy growth tips; jointed cactus (**photo 7**) in flower; a similar-looking indigenous *Euphorbia* species (**photo 8**) with pairs of spines along a horny margin and not in clusters on cushion-like structures (areoles).

Impacts of velvet bur cactus.....Are not yet known but it is suspected that they will be similar to the notorious jointed cactus, namely, the decrease in grazing area for livestock; injuries to livestock; lowered value of pasture and curtailed movement of animals; displacement of indigenous plants; injuries to humans; and curtailed movement of people in the infested area.

What can you do to help and who to contact

The Invasive Species Programme: Early Detection and Rapid Response relies on the awareness and sharp eyes of you and others to achieve its success. If you see this invasive plant, please get in touch with us so that the infestation can be included in the overall management plan.

Please provide us with the following information where possible:

- **Locality**—preferably supply GPS information (coordinates) of the population, otherwise give directions to the population in relation to the nearest farm, district or town and supply any landmarks that will help us locate the plants
- **Photograph** of the population and/or individual plants
- **Population size**—give a rough estimate of the surface area of invasion/ number of plants in the population (for example: less than 50, more than 500, between 100 and 200 etc.)

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For more information e-mail us at invasivespecies@sanbi.org.za. For help in identifying species, visit www.ispot.org.za

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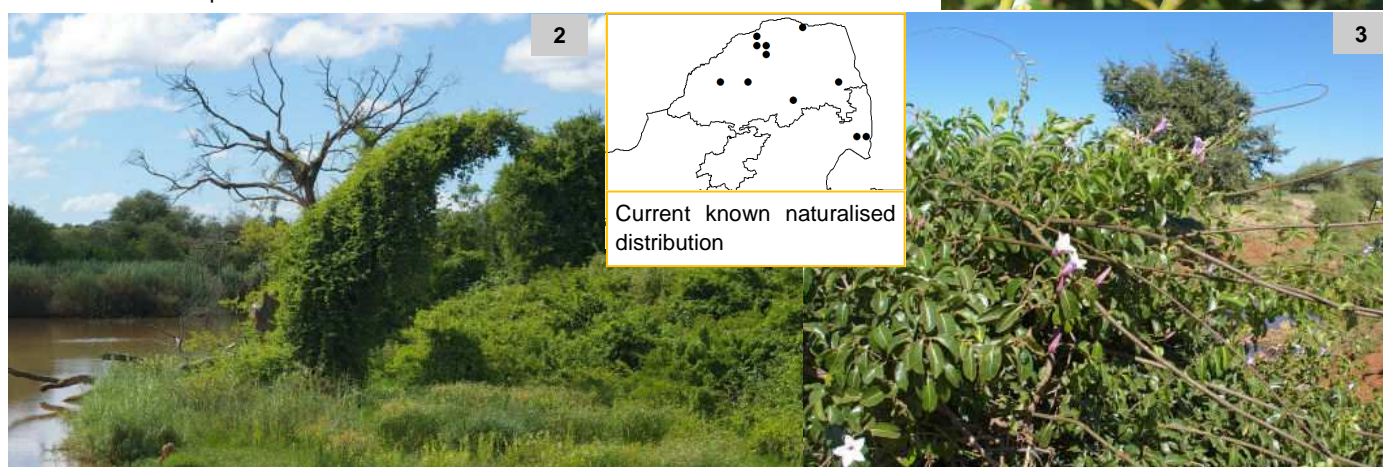


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Rubber vine (*Cryptostegia grandiflora*): threatens grazing lands, riverine forests & woodlands

Rubber vine (*Cryptostegia grandiflora*) is an ornamental, multi-stemmed shrub 2–3 m high or a climber to 10 m or more. Leaves are glossy dark green occurring in opposite pairs along branching stems which become long and whip-like. Flowers are pale pink, tubular with five spreading lobes (**photo 1**). Fruits are two-horned 'pods' (follicles) which split open to release seeds with tufts of long, white silky hairs. Plants contain a toxic milky sap.

Rubber vine, native to the dry south-west of Madagascar, has become invasive in tropical North and South America, India and Australia, where it is regarded as a weed of national significance (Moor *et al.* 2003). Its prolific, smothering growth habit displaces and kills native plants and animals, chokes waterways, reduces grazing land and causes livestock losses due to poisoning. The invasive threat of this climber has recently become apparent in South Africa and it has been listed under NEMBA as a category 1b plant, meaning that its further cultivation is prohibited and that it should be controlled.



Rubber vine has invaded several watercourses in Limpopo and, in particular, vast stretches of the Mogoalakwa River which flows into the Limpopo River (**photo 2**). It has also invaded pastoral land (**photo 3**) and is a rampant weed in some towns such as Messina.

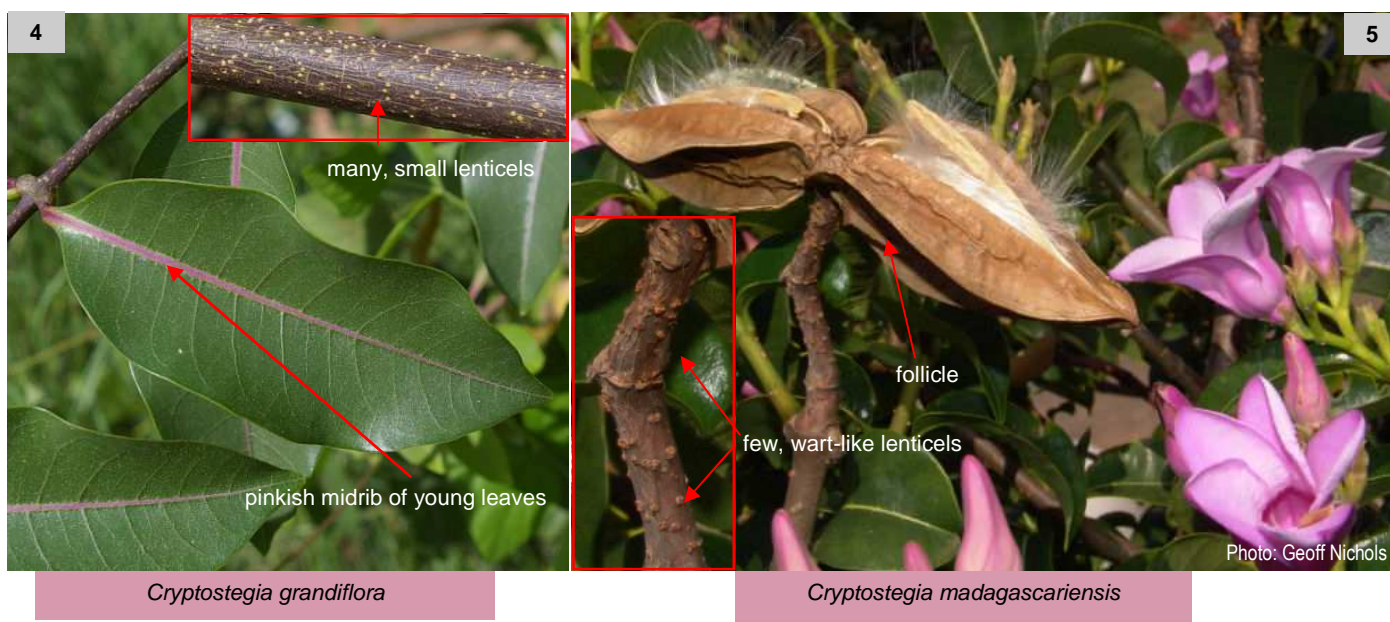
Madagascar or purple rubber vine (*Cryptostegia madagascariensis*), which occurs throughout western Madagascar, has also been listed under NEMBA as a category 1b plant since it has become invasive in parts of the tropics and is potentially invasive in South Africa.

Comparison of rubber vines

<i>Cryptostegia grandiflora</i>	<i>Cryptostegia madagascariensis</i>
◆ Flowers pale pink, 5–6(–7) cm long	◆ Flowers bright pink or purple, 3–4(–6) cm, long
◆ Coronal filaments bilobed	◆ Coronal filaments entire
◆ Midribs and petioles of young leaves pinkish	◆ Midribs and petioles of young leaves white or yellow
◆ Midribs and petioles of older leaves white or yellow	◆ Midribs and petioles of older leaves white or yellow
◆ Stem lenticels many, small	◆ Stem lenticels few, wart-like
◆ Follicles (fruits) often > 10 cm long	◆ Follicles (fruits) < 10 cm long

References: Klackenberg (2001), Marohasy & Forster (1991) and personal communication from Faiz Bebawi (DAFF volunteer, Queensland, Australia).

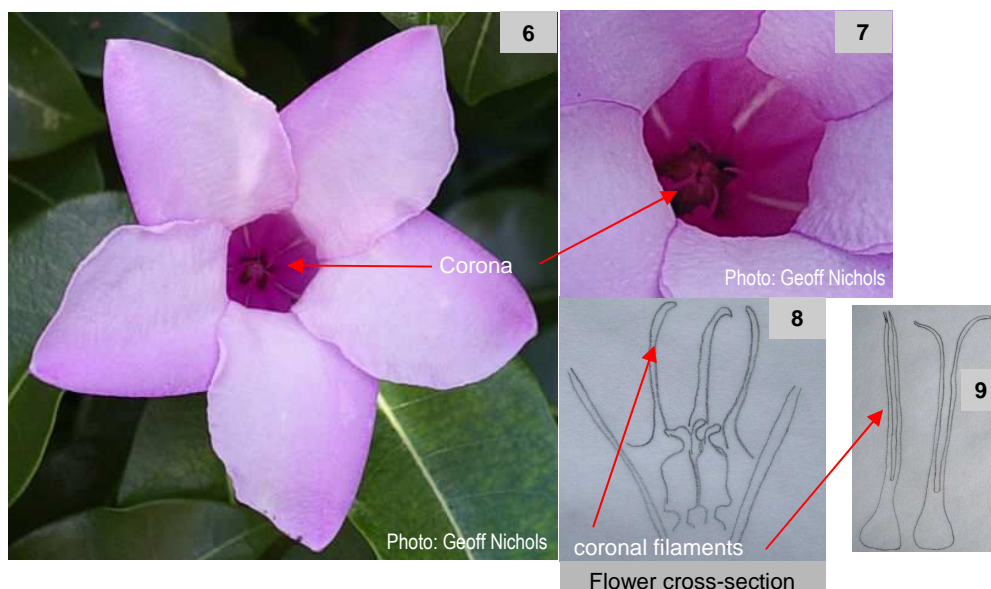
Comparison of rubber vines



The corona or crown, is a ring-like structure located deep inside the throat of the flower (photos 6 & 7). In *Cryptostegia* the corona has 5 filamentous lobes which are either entire/undivided or bilobed/divided.

C. madagascariensis (photos 6, 7 & 8) has entire coronal filaments which measure 6–9 mm long.

C. grandiflora (photo 9) has bilobed coronal filaments which measure ~ 10 mm long.



Control of rubber vine: South Africa can learn much about the management of rubber vine from extensive research in Australia where control options include fire, mechanical, chemical and biological methods. Two biological control agents, a rust fungus and moth, have assisted in reducing the health and spread of rubber vine (Moor *et al.* 2003; Palmer & Vogler 2012).

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Please report any natural spread of either of these species of rubber vine to L.Henderson@sanbi.org.za and copy to SANBI's ISP: EDRR: Mr Peter Shisani P.Shisani@sanbi.org.za (Limpopo, North West) and Mr Bongani Mashele B.Mashele@sanbi.org.za (Mpumalanga)

Biological control of Lantana by a flower-galling mite

Lantana (*Lantana camara* complex) is an ornamental plant that has become one of the worst invaders throughout the subtropics and tropics of the world, including South Africa. In some parts of its range, the expense of mechanical and chemical control exceeds the value of the land. Biological control would seem to be the only solution but despite the best efforts over the past 50 years, Lantana biocontrol has been largely ineffective especially in the frost-prone inland areas. The problem is exacerbated by the many different varieties of Lantana which make up a huge hybrid complex and the biocontrol agents may only be effective on some varieties. Of all the established agents, the flower-galling mite is showing the most promising results. The mite causes Lantana to form vegetative galls instead of flowers, thus reducing seed production and further spread of the weed. Since its release in 2008 the mite has established in Gauteng, Limpopo, Mpumalanga, KwaZulu-Natal and Eastern Cape, at altitudes ranging from 10 to 1400 m.

The flower-galling mite has spread significantly along the KZN coast and has caused up to 90% reduction in flowering at some sites such as Tzaneen (Limpopo), Empangeni (KZN) and Pretoria (Gauteng).

Observations so far indicate that the mite prefers the lighter pink and orange-red varieties.

Healthy plant with flowers and fruits (**photo 1**). Plants infested with the mite have galls formed of tiny deformed leaflets instead of flowers. (**photos 2 & 3**) (in the Pretoria National Botanical Garden)



References

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The Weeds Research Programme of the ARC-Plant Protection Research Institute is responsible for research on the ecology and control of invasive alien plants in South Africa. These plants were introduced either intentionally (e.g. for ornamental use or agroforestry purposes), or accidentally (e.g. in livestock feed) and now threaten biodiversity and agriculture. In addition, they reduce run-off from water catchments, thus diminishing flow in streams, and adversely affect the quality of life of communities.

- Biological control
- Chemical control
- Bioherbicides
- Integrated control
- Monitoring the emergence and spread of invasive alien plants

Weeds Research URL:

<http://www.arc.agric.za/arc-ppri/Pages/Weeds%20Research/Weeds-Research.aspx>

see Plant Protection News

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