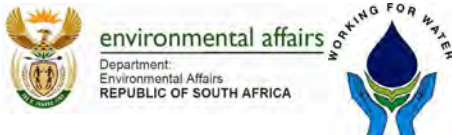




Newsletter of the Southern African Plant Invaders Atlas, an initiative of the Weeds Programme of the Plant Protection Research Institute, within the Agricultural Research Council (ARC)



Invasive Alien Succulents and Grasses in the Karoo

As we celebrate 100 years of biological control of invasive plants in South Africa, we are facing a whole new suite of invasive plants. This issue of SAPIA News focuses on invasive succulents, mainly cacti, and grasses in the Karoo and in particular those that were noted during a recent survey in the districts of Prince Albert, Oudtshoorn, Calitzdorp and Ladismith, which fall largely within the area known as the Little Karoo.

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Municipalities need to STOP the cultivation of declared invaders. This charming little town of Prince Albert is a hotspot for invasive cacti and a source of invasive plants that are harmful to the environment and a threat to biodiversity.

NEMBA: Interim Alien & Invasive species regulations published

On the 19th July 2013 interim regulations and invasive species lists were published under the National Environmental Management: Biodiversity Act, Act 10 of 2004. The species lists fall far short of the proposed lists of April 2009 mainly because amendments are required to the Act before a full listing can be made. The July list of invasive plants excludes all species listed under the Conservation of Agricultural Resources (CARA), all category 2 and 3 plants, and all newly proposed category 1 plants that are not declared for the whole country. Finalization of the revised Act, Regulations and lists are expected in April 2014. Until such time, the only operative legislation is that under CARA, as amended in 2001. Go to www.invasives.org.za for the July 2013 NEMBA regulations, invasive species lists and for any updates.

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

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.

Invasive cacti and other succulents in the Little Karoo

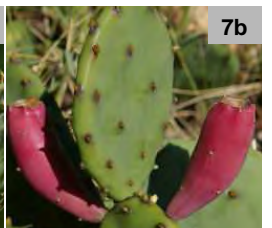
Apart from sweet prickly pear (*Opuntia ficus-indica*) (1) with its edible fruit, blue-leaf cactus (*Opuntia robusta*) (2) and American agave (*Agave americana*) (3) which provide fodder, the remaining invasive succulents are ornamentals with no value to agriculture or to the environment. On the contrary they pose a huge threat to grazing land and biodiversity. Dense infestations of cacti exclude native vegetation and their spines cause harm to both domestic and wild animals.



Cacti which have long been declared invaders under CARA and must be eradicated wherever possible, include torch cactus (*Echinopsis schickendantzii*) (previously *E. spachiana*) (4), long-spine cactus (*Austrocylindropuntia subulata*) (= *Opuntia exaltata*) (5), Australian pest pear (*Opuntia stricta*) (6), creeping prickly pear (*Opuntia humifusa*) (7a,b), imbricate cactus (*Cylindropuntia imbricata*) (= *Opuntia imbricata*) (8), queen of the night (*Cereus jamacaru*) (9), and small, round-leaved prickly pear (*Opuntia engelmannii*) (= *O. lindheimeri*) (10).



Requires urgent control!
No biocontrol available.
Seed spread by birds and probably monkeys.



Emerging invasive cacti and other succulents in the Little Karoo

History is repeating itself in the Karoo with the emergence of new invasive cacti that have the potential to cause much harm to agriculture and the environment. But this is preventable! Municipalities and landowners need to adhere to the legislation that prohibits the cultivation and spread of listed invasive plants. The Government in turn, needs to enforce the legislation and to prevent further invasions by regularly revising the lists of declared species. Landowners need to be more discerning in their choice of ornamental plants and to encourage nurseries to provide more indigenous species. It is a sad state of affairs when towns in the Little Karoo, which is renowned for its indigenous succulent flora, choose alien cacti to beautify their gardens and streets!



1

Prince Albert

Emerging invasive species that have not yet been declared as invaders, include teddy bear cactus (*Opuntia microdasys*) (1), pine cone cactus (*Tephrocactus articulatus*) (2a,b,c), boxing glove cactus (*Cylindropuntia fulgida* var. *mamillata* forma *monstrosa*) (3), bilberry cactus (*Myrtillocactus geometrizans*) (4), and pink-flowered sheathed cholla (*Cylindropuntia pallida*) (5). All these cacti spread from detached stem segments. Pine cone cactus produces a dry-walled fruit (2c) which is corky and can be dispersed by water; it has invaded drainage channels and dry veld at Prince Albert. The other cacti produce fleshy fruits which can detach and grow into new plants. The fleshy fruit of bilberry cactus is eaten by birds and new plants are seen coming up under trees and bushes. Boxing glove cactus has short spines and gets its name from the distorted segments that resemble boxing gloves. Pink-flowered sheathed cholla, also known as thistle cholla, is viciously spiny—its spines are covered in barbed, white papery sheaths. Teddy bear cactus has no spines but is densely covered in rusty-coloured spiny bristles, called glochids, which readily detach and pierce the skin of animals and humans.

From the rockery to the veld! Most cactus invasions start as ornamental rockery plants at farmhouses and in towns. Infestations of jointed cactus, the most expensive and damaging cactus invader in South Africa for many years, can be traced back to ornamental rockery plantings and graveyards in the Eastern Cape.



2a

Prince Albert



2b



2c



3

Prince Albert



4

Prince Albert



5

If you have seen any of these cactus species on your property, or elsewhere, please get in touch with SANBI's Early Detection and Rapid Response programme at alienplants@sanbi.org.za. Awareness pamphlets are available for distribution. See SAPIA News No. 25 for more information on cacti and a key to the identification of species.



Orange tuna (*Opuntia elata*) (1) is named after its orange to golden flowers. Serpent cactus (*Peniocereus serpentinus*) (2) resembles torch cactus but has taller, more slender stems, and flowers are tinged red on the outside. Agave (*Agave vivipara*) (3) produces lots of bulbils (small plants) on the inflorescence and has the potential to become a pest. Mother-of-millions (*Bryophyllum delagoense*) (4) produces plantlets at the leaf tips; it is highly toxic. An unidentified harrisia (*Harrisia* sp.) (5) at Prince Albert has the potential to become a pest and should be eradicated. Pencil cactus (*Cylindropuntia leptocaulis*) (6) has very narrow stem segments, sheathed spines and small reddish fruits.

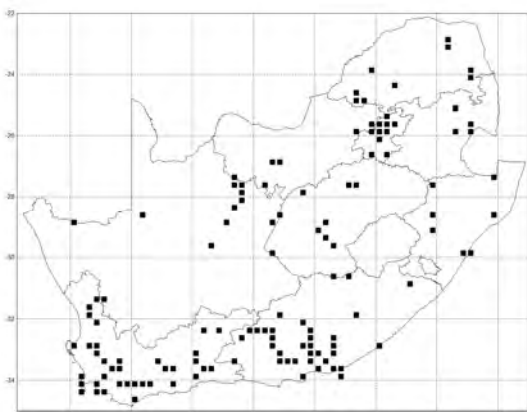
Between 300 and 400 species of cacti have been introduced into South Africa. How many of these cacti will become major pests in the future? The Cactus Working Group is currently compiling a list of the most dangerous species that should not be cultivated in South Africa and hope to liaise with retail nurseries and other distributors not to trade in these species.

Invasive Fountain Grass

Fountain grass (*Pennisetum setaceum*) is an ornamental, perennial, tussock-forming grass with bristly spike-like inflorescences. It is a category 1 declared invader under CARA. Its cultivation is prohibited and it must be controlled or eradicated where possible. Seed is spread by wind, motor vehicles, animals and water; it invades roadsides, road cuttings, railwaylines, drainage lines, dry watercourses and where there is disturbance. It is adapted to fire, raising fuel loads which increases the intensity and spread of fire which can result in severe damage to less fire-tolerant plant communities, such as the Karoo.



The so-called sterile cultivars of fountain grass need urgent investigation before they contribute to the growing menace of this species. Are the cultivars sterile in the presence of the normal variety? Can the cultivars be cross-pollinated with the normal variety to produce normal offspring?



Fountain grass has invaded every province in South Africa. Its main pathway of invasion is along roads and railway lines and then it penetrates natural veld along drainage lines and watercourses.

Summary of contents: SAPIA News Nos. 1–30

SAPIA phase II:

Launch (1), achievements of first 5 years and plans for next 5 years (15)

Weeds and Invasive Plants (WIP) website:

Progress and available information (4), more reports available (8), extension to rest of Africa (8), problems (17)

SANBI'S Early Detection and Rapid Response (EDRR) programme:

Launch (9), Cactus Working Group (25)

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Pompom weed (*Campuloclinium macrocephalum*):

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Guides to identification:

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SANBI'S EDRR alerts:

Ant tree (*Triplaris americana*) (author: R. Lalla) (15), silver vine (*Epipremnum aureum*) (author: H. Sithole) (23), water poppy (*Hydrocleys nymphoides*) (author: H. Sithole) (27), Mauritius hemp (*Furcraea foetida*) (author: R. Lalla) (27)

More alerts:

Nassella tussock threatens you! (*Nassella trichotoma*) (16), small salvinia (*Salvinia minima*)—a new aquatic invader (24), the search is on for mistflower (*Ageratina riparia*) (author: A. Wood) (13), invasive fountain grass (*Pennisetum setaceum*) (30)

Ornamentals and gardening:

Gardener's guide to selecting non-invasive ornamental plants (10), common misconceptions: cultivars and sterile plants (10), lantana 'sundancer' stocks destroyed (12), tree wisteria (*Bolusanthus speciosus*) - proudly South African and non-invasive; a replacement for the invasive jacaranda (13), special warnings: chandelier plant (*Bryophyllum delagoense*), lantana 'sundancer' and golden dewdrop (*Duranta repens*) (28)

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Stop alien plant invasion in the Waterberg (28), bush encroachers and alien invaders—what is the difference? (28)

Lantana control recommendations (author: A.J. Urban) (16)

Evergreen forests and management (author: C.J. Geldenhuys) (18)

Tribute to Michael John Wells of SANBI (16)

Tribute to Lynne Thompson of 'Stop-the-Spread', WESSA, KZN (27) and invasive plants stop with you! (27)

Biological control:

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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

We are on the Web:

www.arc.agric.za

Quick link:

Invasive alien plants

see Plant Protection News
 for current news from the
 Weeds Research
 Programme

ARC-PPRI Fact Sheets on Invasive Alien Plants and their Control:
<http://www.arc.agric.za/home.asp?pid=6979>

Fact sheets are available for the following cacti:

- Australian pest pear (*Opuntia stricta*),
- Chain-fruit cholla (*Cylindropuntia fulgida* var. *fulgida*),
- Harrisia cactus (*Harrisia martinii*),
- Queen of the night (*Cereus jamacaru*),
- Sweet prickly pear (*Opuntia ficus-indica*),

