



# SAPIA NEWS

SOUTHERN AFRICAN PLANT INVADERS ATLAS

April 2013

ARC-Plant Protection Research Institute

No. 28



**environmental affairs**

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA

## Stop alien plant invasion in the Waterberg!

The Waterberg Biosphere Reserve, registered with UNESCO in 2001, and situated in south-western Limpopo Province, is a rugged mountainous area with vast tracts of undisturbed natural vegetation, watercourses and wetlands. But beware! Alien plant invasion is a serious threat to the biodiversity of this reserve and cultivated alien plants in towns, at entrance gates to reserves and around homesteads, are the biggest source of invasive plants.

More than 100 naturalised alien plant species have been recorded in the Waterberg and the great majority are ornamentals. The most widespread invasive species are jacaranda (*Jacaranda mimosifolia*), seringa (*Melia azedarach*), queen of the night cactus (*Cereus jamacaru*) and lantana (*Lantana camara*).

Many species which have become troublesome invaders in other parts of the country and which by law must be eradicated or controlled, are still largely confined to cultivation in the Waterberg. These species must be eradicated now! Landowners in the core and buffer areas of the reserve should be strongly discouraged from cultivating any alien plants.

### Inside this issue:

Stop alien plant invasion in the Waterberg!	1
Bush encroachers and invaders	2
Well established invasive species that are declared under CARA and proposed under NEMBA	3 & 4
Emerging invasive species which should be eradicated!	5
Special warnings	6

Editor and SAPIA co-ordinator:  
Lesley Henderson  
ARC-PPRI, Weeds Research Programme  
c/o SANBI  
Private Bag X101  
Pretoria  
0001  
South Africa

e-mail: [L.Henderson@sanbi.org.za](mailto:L.Henderson@sanbi.org.za)  
Tel: 012 843 5035  
Fax: 012 804 3211  
website:

Articles and photos by Lesley Henderson unless otherwise acknowledged

[www.agis.agric.za/wip](http://www.agis.agric.za/wip)  
SAPIA newsletters are posted at the ARC website: [www.arc.agric.za](http://www.arc.agric.za)



Marakele National Park

The pristine Waterberg—with vast stretches of grasslands, savanna and forest patches—is one of South Africa's precious natural assets and should be guarded against invasive alien plants. Landowners have the most important role to play—firstly by not cultivating invasive or potentially invasive alien plants and secondly by controlling, or eradicating wherever possible, existing invasive alien plants on their properties.

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](mailto:L.Henderson@sanbi.org.za). Descriptions and photos of most of the species mentioned in this newsletter can be found at the Weeds and Invasive Plants website: [www.agis.agric.za/wip](http://www.agis.agric.za/wip)

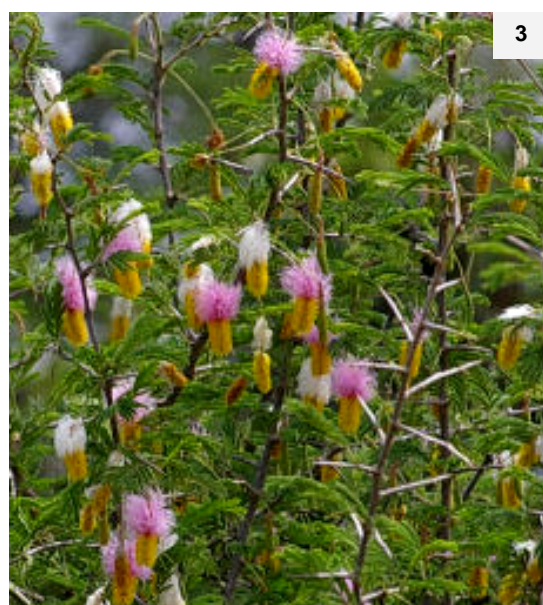
## Indigenous bush encroachers and alien invaders—what is the difference?

Some landowners in the Waterberg are more concerned about indigenous bush encroachment than alien plant invasion, e.g. problems caused by lopholaena or pluibossie (*Lopholaena coriifolia*) (**photo 1**), bankrupt bush or slangbos (*Seriphium plumosum*) (previously known as *Stoebe vulgaris*) (**photo 2**), and sickle bush (*Dichrostachys cinerea*) (**photo 3**). Although bush encroachment is a serious problem, alien plant invaders must not be ignored as over the long term they cause not only the same problems as bush encroachers but also additional ones.



Indigenous bush encroachment—is the increase in density, cover and biomass of indigenous woody species in relation to herbaceous species. The driving forces behind bush encroachment are not well understood but are often associated with overgrazing. Other factors include increased rainfall, fire suppression, soil characteristics and increased levels of atmospheric carbon dioxide. Bush encroachment results in the suppression of herbaceous species leading to loss of biodiversity, reduced grazing capacity and degradation of the natural resources.

Alien plant invasion—is the establishment and spread of non-indigenous plants in disturbed or natural vegetation at the expense of indigenous species. The driving forces behind alien plant invasion are many: the introduction of alien plants and their propagules, disturbance and fragmentation of the indigenous vegetation are key factors in allowing for invasion. The absence of natural enemies, such as parasites and predators, gives a competitive advantage to the introduced species over indigenous species (biological control attempts to redress this imbalance). Alien plant invasion can transform whole ecosystems, resulting not only in biodiversity loss and loss of grazing, but also to a breakdown in ecosystem services which are critical for human survival such as water and food production and nutrient cycling. Ecotourism, which is so important in the Waterberg, will be adversely affected.



### Indigenous bush encroachers

- ◆ South African plants that cause problems within their natural or extended distribution ranges
- ◆ prevention through good veld management practices
- ◆ resolved through veld management practices, mechanical and chemical control methods.

### Alien invasive plants

- ◆ Non-indigenous plants, usually from other continents, that cause problems in South Africa
- ◆ prevention through stopping the introduction of potentially invasive species and their propagules; and maintaining the natural vegetation in a healthy state
- ◆ resolved through mechanical and chemical control methods. In some cases biological control, using imported natural enemies, is an option.

## Well established invasive species that are declared under CARA

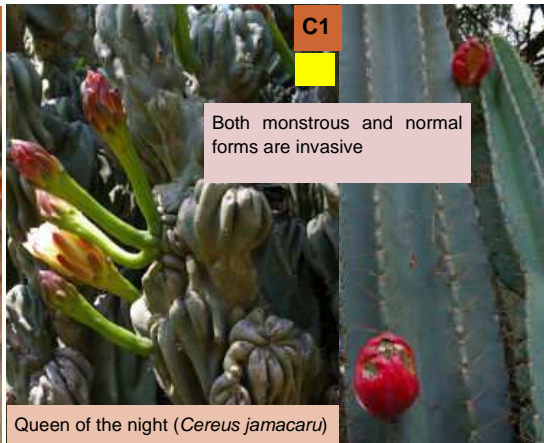
CARA (Conservation of Agricultural Resources Act, Act 43 of 1983), amended in 2001:

**C1:** category 1: prohibited; no trade or cultivation permitted

**C2:** category 2: allowed in demarcated areas; permit required;

**C3:** category 3: no more trade or cultivation of new plants

At least 100 species of alien plants are naturalised in the Waterberg. Other widespread declared species not illustrated here include: thorn apples (*Datura* spp.) (C1), white-flowered Mexican poppy (*Argemone ochroleuca*) (C1), large cocklebur (*Xanthium strumarium*) (C1) and sisal (*Agave sisalana*) (C2).



\*Several species have been upgraded from category 3 or 2 to Category 1 under the revised CARA which has not yet been promulgated; \*\*mulberry may be upgraded to category 2 under the revised CARA;

Effective biological control available

## More widespread invasive species declared under CARA and proposed under NEMBA\* (National Environmental Biodiversity Act)



C1

Pompom weed (*Campuloclinium macrocephalum*)



N1\*

Purple top (*Verbena bonariensis*)

Pompom weed initially establishes on disturbed sites, particularly roadsides, abandoned fields and urban open space and then invades grasslands, open savanna and wetlands. Purple top has similar habitat preferences and is a good indicator of suitable habitat for pompom weed. Both species have rootstocks which must be dug out when controlled by mechanical means. Herbicides have been registered for the chemical control of both species. Biological control of pompom weed is under investigation and is very promising.



C1

Giant reed (*Arundo donax*)



C1

Castor-oil (*Ricinus communis*)



C1

Red sesbania (*Sesbania punicea*)



C1

Bug weed (*Solanum mauritianum*)



C2

Guava (*Psidium guajava*)



C1

Yellow bells (*Tecoma stans*)



C3\*

Pearl acacia (*Acacia podalyriifolia*)



C2

Black wattle (*Acacia mearnsii*)



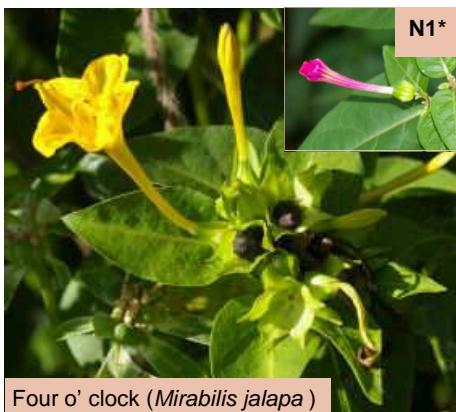
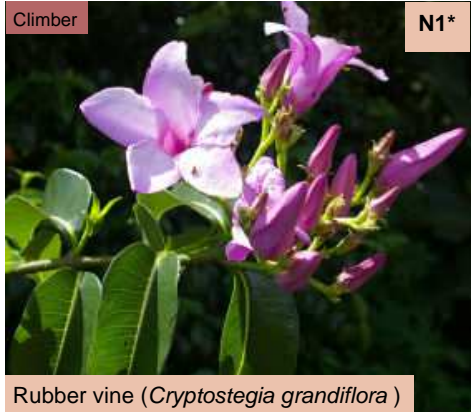
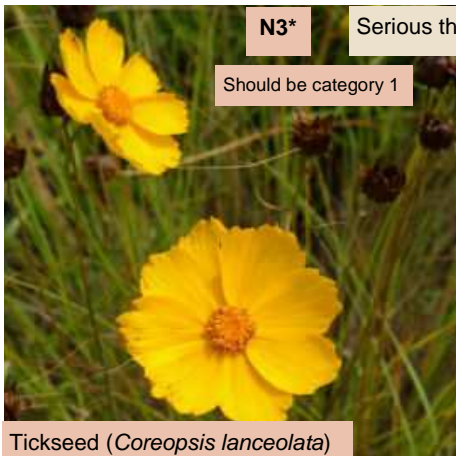
C2

Weeping willow (*Salix babylonica*)

\* upgraded to Category 1 under the revised CARA;

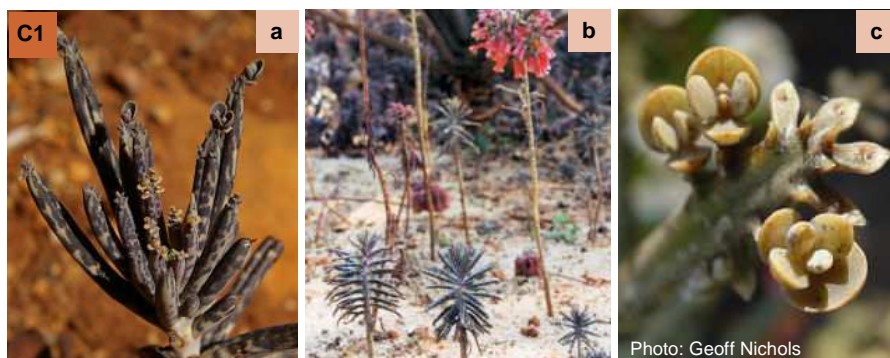
Effective biological control available

## Emerging invasive species which should be eradicated!

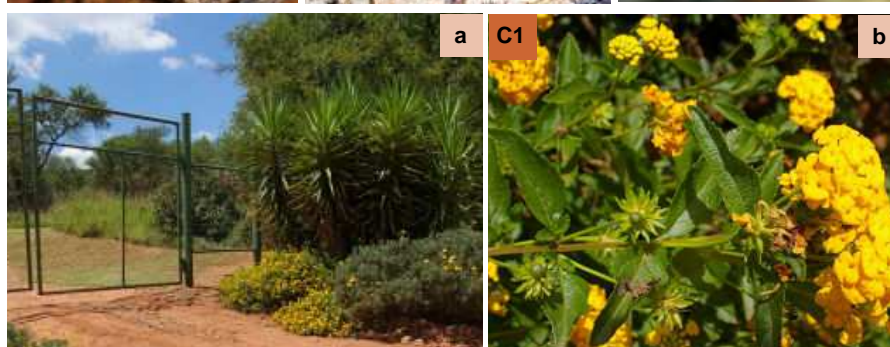


Others include: Dutchman's pipe (*Aristolochia elegans*), orchid tree (*Bauhinia variegata*), garden canna (*Canna x generalis*), Madagascan periwinkle (*Catharanthus roseus*), water hyacinth (*Eichhornia crassipes*), parrot's feather (*Myriophyllum aquaticum*), cigarette bush (*Cuphea micropetala*), hardy cassava (*Manihot grahamii*), rambling senna (*Senna pendula*), tipuana (*Tipuana tipu*), yellow and orange Mexican sunflowers (*Tithonia diversifolia*, *T. rotundifolia*), toon tree (*Toona ciliata*), morning glory (*Ipomoea purpurea*).

## Special warnings



Chandelier plant, also known as mother of millions (*Bryophyllum delagoense*), is a succulent ornamental from Madagascar with tubular leaves (a) and bright orange or reddish flowers (b). It is extremely toxic to livestock and humans and almost certainly to wildlife. It spreads from seed and small plantlets produced at the tips of the leaves (c). Care must be taken not to dislodge these plantlets when removing the plants. The same warnings apply to several closely related species



Alien ornamentals planted at entrance gates to reserves (a) are not only out of place in a biosphere reserve but promote invasion. Here amongst several alien species, is the creeping yellow lantana 'sundancer', a cultivar of *L. montevidensis*, but partly *L. camara*. This cultivar is not sterile as it can cross-pollinate with weedy lantana, producing fruit (b), as was witnessed at this site. All seed-producing alien lantanas are category 1 invaders under CARA



Golden dewdrop, or pigeon berry (*Duranta erecta*), has blue to white flowers in spikes (a), and orange-yellow, beaked, fleshy fruits (b). This popular ornamental is spread by birds and is a widespread invader of natural vegetation in the Waterberg. Leaves, bark and berries are toxic to mammals. It has been proposed as a declared invader under NEMBA and this includes all cultivars, such as Duranta Gold, unless they can be proven to be sterile.

See SAPIA News No. 10 (Jan 2009) for 'Gardener's guide to selecting non-invasive plants' and 'Common misconceptions: cultivars and sterile plants'.

## ARC-PPRI, WEEDS RESEARCH PROGRAMME

### ARC-Plant Protection Research Institute

Weeds Research Programme  
Private Bag X134  
Queenswood  
0121  
South Africa

Phone: +27 (0)12 356 9840  
Fax: +27 (0)12 356 9852

Contact: Acting Programme Manager:  
Dr Roger Price  
e-mail: PriceR@arc.agric.za

General enquiries: Mrs Hildegard Klein  
e-mail: KleinH@arc.agric.za



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](http://www.arc.agric.za)

Quick link:

**Invasive alien plants**

see Plant Protection News

for current news from the  
Weeds Research  
Programme