



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)

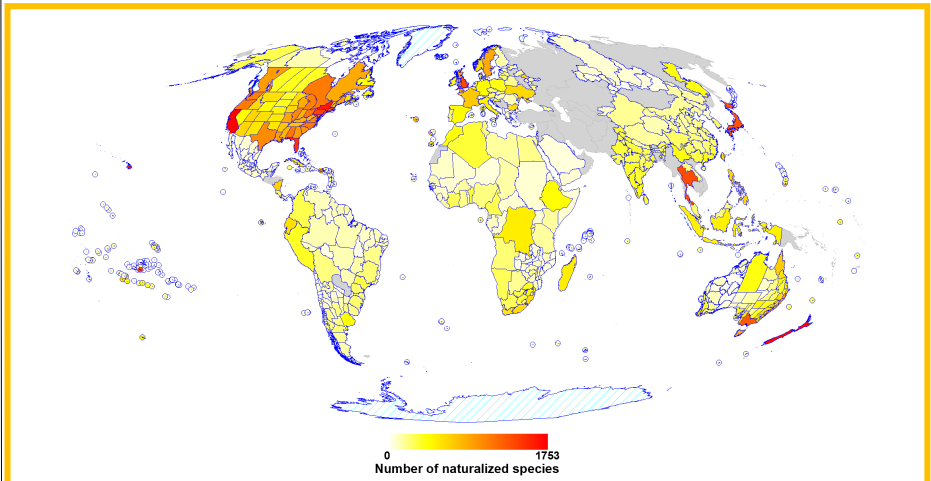


## A first Global Database of Naturalized Alien Flora

Scientists under the leadership of Dr Mark van Kleunen, of the University of Konstanz in Germany, have compiled a Global database of Naturalized Alien Flora (GloNAF) for 843 non-overlapping regions, covering 83% of the Earth's land area. In a paper on *Nature's* website (<http://dx.doi.org/10.1038/nature14910>), van Kleunen *et al* provide the first global analysis of the numbers and distributions of naturalized vascular plants and their exchange between continents.

### Inside this issue:

A first Global Database of Naturalized Alien Flora	1
WESSA facilitates NEMBA compliance	1
Global exchange and accumulation of non-native plants and a South African perspective	2
Snake cactus ( <i>Peniocereus serpentinus</i> )	3-4



At least 13 000 species of vascular plants, almost 4% of the total world flora, have become established beyond their natural ranges due to human activity. The actual total is likely to be higher and is expected to increase (van Kleunen *et al.* 2015. Global exchange and accumulation of non-native plants. *Nature* 525: 101-103).

## WESSA facilitates NEMBA compliance

A variety of workshops and training offered by the Wildlife and Environment Society of South Africa (WESSA) Ecosystem Services team are being delivered nationally.

Topics include \* NEMBA (National Environmental Management: Biodiversity Act) compliance \* permits \* declaration of invasive species \* other relevant legislation \* invasive alien plant identification \* control methods \* site auditing, reporting and client interaction \* development of management plans \* invasive alien plant portfolio development \* preparation of herbarium specimens.

Who should attend? \* Private and corporate landowners \* estate managers \* facilities managers \* landscape architects \* managing agents \* environment sector business owners \* body corporates \* reserve managers \* commercial industrial land users.

Enquiries and bookings: [stophespread@wessa.co.za](mailto:stophespread@wessa.co.za), 060 962 2061, 031 201 3126, [www.wessa.org.za](http://www.wessa.org.za)



Editor and SAPIA co-ordinator:  
Lesley Henderson  
ARC-PPRI, Weeds Research Programme  
stationed at 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

Articles and photos by Lesley Henderson  
unless otherwise acknowledged

SAPIA newsletters are posted at  
ARC website: [www.arc.agric.za](http://www.arc.agric.za) and  
Invasive Species Website: [invasives.co.za](http://invasives.co.za)

## Global exchange and accumulation of non-native plants

Major findings of the study by van Kleunen *et al* are that Europe and temperate Asia have donated the largest number of naturalized species. North America has accumulated the most naturalized species (5,958), although only 3,513 are of extra-continental origin. Europe has the next highest number of naturalized species (4,140). Australasia has received only slightly fewer extra-continental species (3,371) than N America. When an adjustment is made for land area, Australasia and the Pacific Islands have accumulated the most number of naturalized species from another continent. Africa has accumulated 3,566 naturalized species, of which 2,082 are extra-continental and 1,484 are native.

### A South African perspective:

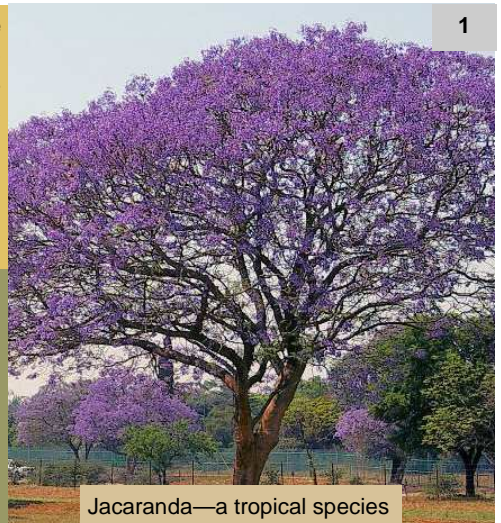
South Africa has accumulated at least 1,000 naturalized species, amounting to ~ 28.5% of the total naturalized species in Africa. The island of Madeira off the African mainland has the most naturalized species (789). KwaZulu-Natal, as a region on its own, tops the list of naturalized species on the African mainland with at least 600 species. South Africa as a whole has the most recorded naturalized species in Africa.

While GloNAP shows that at a global level, northern temperate regions have been the major source of naturalized species, in South Africa, the tropics and southern temperate regions have also been major sources of naturalized plants.

An analysis by Henderson (2006) of 233 declared invasive plants in South Africa, which included all the major environmental weeds, showed that almost as many species originated in the tropics as in temperate regions. Most southern temperate species came from Australia, most tropical species from tropical America, and most northern temperate species from Europe and Asia.

Most tropical species are concentrated along the eastern seaboard and north-eastern interior or the greater part of the Savanna Biome e.g. *Jacaranda mimosifolia*, jacaranda (**photo 1**), most northern temperate species are concentrated in the cold, high interior or Grassland Biome, e.g. *Pyracantha angustifolia*, firethorn (**photo 2**); most southern temperate species are concentrated along the southern and south-western seaboard or Fynbos and Forest Biomes e.g. *Acacia saligna*, Port Jackson (**photo 3**).

Reference: Henderson, L. 2006. Comparisons of invasive plants in southern Africa originating from southern temperate, northern temperate and tropical regions. *Bothalia* 36: 201–222.



Jacaranda—a tropical species

1



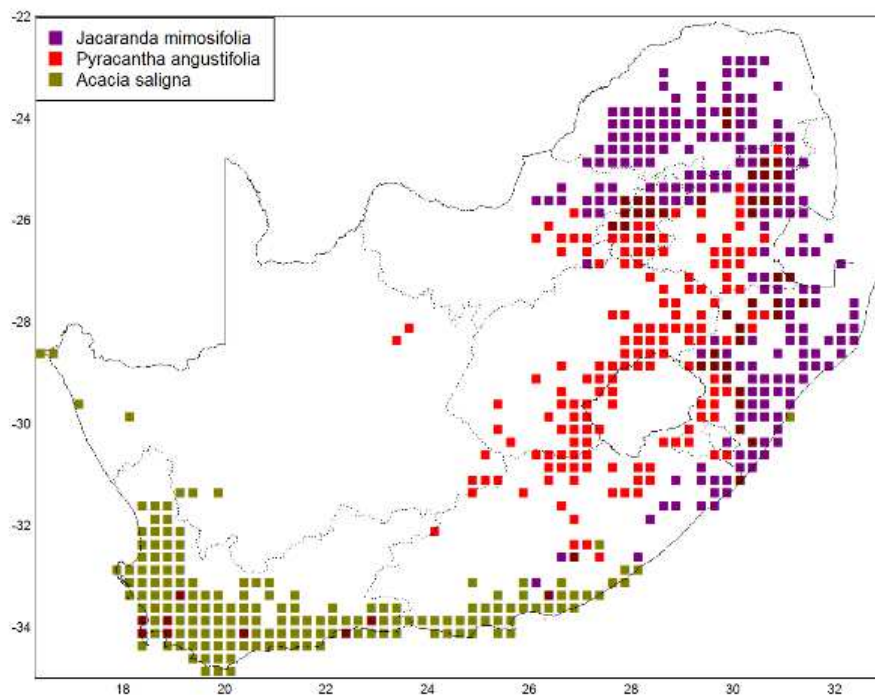
Firethorn—a northern temperate species

2



Port Jackson—a southern temperate species

3



## Snake cactus (*Peniocereus serpentinus*)

Peter Shisani, Invasive Species Programme: EDRR, SANBI, Limpopo and North West Regional Co-ordinator

**Description.....***Peniocereus serpentinus* is a cactus species with slender stems (**photo 1a next to Aloe**) which are snake-like, dark green in colour, cylindrical in shape, 2 to 3 meters long, sometimes arching or creeping (**photo 1b**) and 3 to 5 cm in diameter. It has clusters of 9 to 14 needle-like spines (**photo 2**), whitish to reddish when young, with darker tips, 1 to 3 cm long. There are 10 to 17 ribs that are rounded in shape.

Its areoles are white in colour (an areole, which is a distinguishing organ universal to the entire cactus family, is a condensed lateral shoot from which originate flowers, branches and spines).

Fruits (**photo 3**) are 4 to 6 cm long, red when mature, egg-shaped, with spines that fall when it is ripe. Seeds are black, 5 mm long. The flowers (**photo 4**) are large, nocturnal, funnel-shaped, white with pinkish outer segments, 15 to 20 cm long and 15 cm in diameter, scattered along the length of the stem; floral tube covered with white hairs and bristles.

**Where does it originate?.....**Southern Mexico (Mexico state—Mexico, Michoacan, Morelos, Oaxaca)

**Where does it occur in South Africa?.....**It has been recently detected on two farms—Adam's Apple Hotel and Conferences and the Gedeelte Farm near Makhado (Louis Trichardt) in Limpopo. According to the SAPIA database it was previously detected in the Weenen area of KwaZulu-Natal, between Dendron and Legkraal in Limpopo, and between Herbertsdale and Mossel Bay along the R327 road.

**What does the law say?.....***Peniocereus serpentinus* is listed as a category 1b invasive plant under NEMBA and must be controlled or eradicated where possible.

### How can you assist?:

SANBI-ISP is taking a precautionary approach and encouraging the reporting of its presence in South Africa. Reports of new localities will enable the Invasive Species Programme to institute appropriate action before it becomes widespread. Please do not remove any parts of the plant, to avoid further spread.

If possible provide a locality description, photo of the plant and a GPS co-ordinate to: Mr Peter Shisani, Tel 012 843 5013/5000, Cell: 072 551 3528, E-mail: P.shisani@sanbi.org.za



1a

Photo: L Henderson



2

Photo: L Henderson



1b



3

## Snake cactus and similar cacti



### How does snake cactus differ from similar species?

Torch cactus (*Echinopsis schickendantzii*) (photo 5) can be distinguished by its thicker stems, flowers restricted to the top 10 cm of the stems, floral tubes covered with black hairs, fruits green when mature and covered with black hairs.

Bolivian cactus (*Cleistocactus samaipatanus*) (photo 6) can be distinguished by its bright red flowers, fruits less than 1 cm long, and pale yellow spines on young growth.

The ISP:EDRR is based within the South African National Biodiversity Institute and is funded by the Department of Environmental Affairs.



environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA



EXPANDED PUBLIC WORKS PROGRAMME  
CONTRIBUTING TO A NATION AT WORK

## ARC-PPRI, WEEDS RESEARCH PROGRAMME

### Plant Protection Research Institute

Weeds Research Programme  
Private Bag X134  
Queenswood  
0121  
South Africa

Fax: +27 (0)12 329 3278

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

### Weeds Research URL:

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

see Plant Protection News

for current news from the  
Weeds Research  
Programme