

SAPIA NEWS

SOUTHERN AFRICAN PLANT INVADERS ATLAS

April 2009 ARC-Plant Protection Research Institute **No. 11**

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You are invited to participate in the SAPIA phase II project.

Submit records online at :
Weeds and Invasive Plants website
www.agis.agric.za/wip

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NEMBA regulations published for public comment

On 03 April 2009, the Minister of Environmental Affairs and Tourism, Mr Marthinus van Schalkwyk, published the 2nd draft of Alien and Invasive Species Regulations under section 97 and 98 of the National Environmental Management: Biodiversity Act, 2004 (Act No.10 of 2004) as well as draft lists of categories of species exempted in terms of section 66, prohibited alien species under section 67 and invasive species under section 70 for public comment in Gazette No. 32090.

Any person who wishes to submit written representations and/or objections to the proposed regulations is invited to do so within 30 days of the publication of the notice in Gazette No. 32090. For a copy of the draft lists and the draft regulations visit http://www.environment.gov.za/HotIssues/2009/invsvSpecies/alienInvsvSpecs.html

SAPIA needs your support!

Please submit records to the Weeds and Invasive Plants website www.agis.agric.za/wip

Public participation is vital to the SAPIA II project. If you should have any trouble in submitting records at the WIP site then rather e-mail them to Lesley Henderson at Henderson@sanbi.org

All the SAPIA Newsletters are posted at WIP and can be downloaded free of charge

Pompom weed update

Pompom weed continues to spread and expand its distribution range. New localities have been reported from Gauteng, Limpopo Province (confirmed for Marakele National Park), North West and KwaZulu-Natal.

The good news is that to date no confirmed records of pompom weed have been received from the Eastern Cape. A survey in January along major routes in the north eastern Cape and former Transkei, down to East London, revealed no pompom weed. An earlier record of pompom weed at Port St Johns was incorrect—confirmation from University of Transkei Herbarium.

More good news is that the rust fungus is having a negative impact on seedling recruitment and is shortening the growing period of pompom weed. However, the shortened growth period means a smaller window of opportunity for herbicide treatment.

Invasive hedge plants in the former Transkei

The majority of invasive alien trees and shrubs in the former Transkei are utility species, particularly hedge and woodlot plants. The hedge plants have been selected for their unpalatability to livestock. They are described here:

Mauritius or Mysore thorn (*Caesalpinia decapetala*) (**photo 1**), native to Asia, is an extremely thorny, scrambling shrub that forms impenetrable thickets. The woody pods produce hard seeds that are swept by run-off water down hillsides into the valleys.

Lantana (*Lantana camara* hort.) (**photo 2**) is an extremely toxic shrub that causes photosensitization and death to domestic livestock. It has been dispersed far and wide by birds and now occupies vast tracts of land, forming almost pure stands in places.

Woolly plectranthus (*Plectranthus comosus*) (**photo 3**) possibly native to India, is a shrub with spikes of blue flowers and densely woolly stems and leaves. Most spread occurs close to plantings.

Red sesbania (*Sesbania punicea*) (**photo 4**), is a poisonous leguminous shrub that spreads into river valleys.

Giant devil's fig (*Solanum chrysotrichum*) (**photo 5**) is a tree similar in size to bug weed, but has thorny, rusty-hairy stems and leaves and white flowers.

Morning-glory bush (*Ipomoea carnea* subsp. *fistulosa*) (**photo 6**) is a shrub, woody-stemmed at the base, with pink flowers. It is poisonous to goats and causes irreversible brain damage and death. It has a very wide ecological tolerance, from dry roadsides to swamps.

Peanut butter cassia (*Senna didymobotrya*) (**photo 7**) is a shrub, possibly native to tropical Africa, that spreads along roadsides and watercourses. The foliage is poisonous.

Photo: G R Nichols

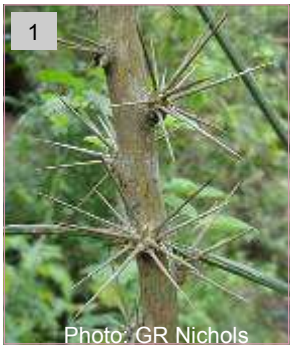
Port St Johns threatened by invasive alien plants

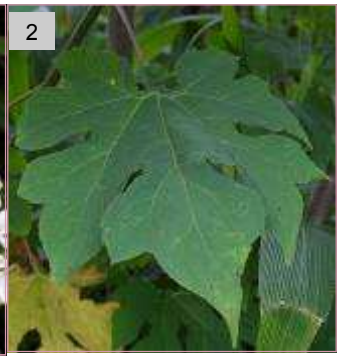
Port St Johns has the largest number of invasive alien species recorded anywhere in the Transkei —with 100 species in the SAPIA database. For the complete list of species and details of their localities go to the WIP website and see the mini report for the quarter degree square 3129DA. The majority of species have been used for ornament and hedging, and are invading forest, forest edges and gaps, disturbed savanna, watercourses, roadsides and around human habitation.

Species include:

Pereskia (*Pereskia aculeata*) (**photo 1**) which is a climbing cactus and invades forest.

Tree daisy (*Montanoa hibiscifolia*) (**photo 2**), with its white clusters of daisy flowers and large, palmately divided leaves. It invades forest edges.





Balloon vine (*Cardiospermum grandiflorum*) (**photo 3**), is an ornamental climber that smothers forest trees on the edges of suburban Port St Johns.

Yellow bells (*Tecoma stans*), coral bush (*Ardisia crenata*) (see page 4), sword ferns (*Nephrolepis* spp.), Australian silky oak (*Grevillea robusta*), African flame tree (*Spathodea campanulata*), ginger-lilies (*Hedychium* spp.) (**photo 4**) and morning-glory (*Ipomoea indica*) (**photo 5**).

Chromolaena (*Chromolaena odorata*) (**photo 6**), lantana (*Lantana camara* hort.), and inkberry (*Cestrum laevigatum*) (**photo 7**) are extremely abundant.

Guava (*Psidium guajava*) (**photo 8**) and bug weed (*Solanum mauritianum*) (**photo 9**) are widespread and abundant in places.

Emerging ornamental weeds

Coral bush

Coral bush (*Ardisia crenata*) is an evergreen glabrous shrub up to 2 m tall. It is native to Asia from north eastern India to Japan and is a member of the family Myrsinaceae.

Leaves are bright green, with 12–18 pairs of indistinct lateral veins, margins minutely wavy and toothed. The flowers are white or pink, ± 6 mm long, in clusters at the tips of axillary branches, from June to January. The fruits are coral-red, one-seeded drupes, ± 6 mm across, long-lasting, in drooping clusters.

Coral bush is cultivated as an ornamental and is a popular pot plant. It invades forest margins and understories, and riverbanks in swamp forest. It is an emerging weed in KwaZulu-Natal and Eastern Cape.

Legislation: It is a proposed category 1b (prohibited) invader under the revised CARA and NEMBA.

Tall kangaroo paw

Tall kangaroo paw (*Aniganthos flavidus*) is a perennial, rhizomatous, clump-forming herbaceous plant 0.5 to 3 m high. It is native to south western Australia and is in the family Haemodoraceae.

Its leaves are evergreen, to 1 m long and 20 mm wide. The tubular flowers are typically greenish-yellow, but can be yellow, green, brown or red. The flowers occur in clusters on tall, branched stems, in late spring to mid summer.

Plants reproduce from seed as well as vegetatively from the underground rhizome. The rhizome allows the plant to regenerate after drought and fire.

Tall kangaroo paw has been cultivated as an ornamental plant, particularly in the Western Cape. It has started spreading in moist sites in the Kleinmond area.

It is adapted to a wide range of soil and moisture conditions. In its native range it occurs on roadsides, river banks, swamps, shallow water and in open forests. It is likely to invade the same habitats in the Western Cape.

Legislation: It has not yet been listed as an invasive plant under CARA or NEMBA.

Photos: Tessa Oliver

Australian crimson oak

Australian crimson oak or red silky oak (*Grevillea banksii*) is an evergreen, spreading shrub or small tree growing to a height of about 3 m. It is native to north eastern Australia and belongs to the family Proteaceae.

It has silvery-green, deeply divided foliage with segments measuring 50–100 mm long and 10 mm wide, with curled-back margins. The flowers are bright red, pink or creamy white in clusters up to 150 mm long, flowering for most of the year but usually in winter and spring. Fruit is a brown, leathery, densely hairy follicle, containing flat winged seeds.

It is cultivated for ornament and is naturalised in coastal KwaZulu-Natal. A very serious invasion is taking place near Port Edward on an area known as the Red Desert. Here, the plants are forming impenetrable thickets and invading pristine grassland.

Legislation: It is a proposed category 1b (prohibited) invader under the revised CARA and NEMBA.

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The Weeds Research Division of the 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

see PPRI Newsletter

for current news from the Weeds Research Division

Read PPRI Newsletter No. 79 for the following news from the Weeds Research Division:

Biocontrol of invasive cactus (*Opuntia fulgida*) exceeds all expectations

Water hyacinth grasshopper (*Cornops aquaticum*) shows promise as a biocontrol agent for water hyacinth (*Eichhornia crassipes*)

A promising potential biocontrol agent for yellow bells (*Tecoma stans*) in South Africa

Role of fungal endophytes in promoting invasiveness of Australian *Acacia* species in South Africa

Biological control of invasive plants

Lantana (*Lantana camara* hort.) and feeding marks of the herringbone miner (*Ophiomyia camarae*) Photos: L. Henderson and H. Klein

Biological weed control is the use of natural enemies to reduce the vigour or reproductive potential of an invasive alien plant. The principle is that plants often become invasive when they are introduced to a new region without any of their natural enemies. The alien plants therefore gain a competitive advantage over the indigenous vegetation, because all indigenous plants have their own natural enemies that feed on them or cause them to develop diseases. Biological control is an attempt to introduce the alien plant's natural enemies to its new habitat, with the assumption that these natural enemies will remove the plant's competitive advantage until its vigour is reduced to a level comparable to that of the natural vegetation. Natural enemies that are used for biological control are called biocontrol agents.

The potential risk posed by a candidate biocontrol agent is determined by biocontrol researchers through extensive host range studies (specificity tests) that are carried out in a quarantine facility. These trials determine the range of plants that a potential biocontrol agent is able to use as host plants throughout its life cycle, as well as its host plant preferences. Permission to release a biocontrol agent will be sought only if the host-specificity tests prove without doubt that the potential agent is sufficiently host-specific for release in this country. To be regarded as sufficiently host-specific, the candidate agent must be either monophagous (i.e. the insect feeds on only one plant species, the target weed in this case) or it could have a slightly wider host range, provided that none of the additional host plants occur in South Africa or surrounding countries, either as indigenous or introduced crop plants.

South Africa is regarded as one of the world leaders in the field of biological control of invasive alien plants. Since the 1930s we have brought 27 invasive alien plant species under biological control. In the process, 99 species or biotypes of natural enemies were released, 74 of which became established. Remarkable successes have been achieved with either controlling or reducing the invasive potential of many invasive plants including cacti, aquatic weeds, Australian wattles, chromolaena and lantana. Seed feeders feature strongly in many of our projects. Tested and safe biocontrol agents are distributed in co-operation with the *Working for Water* Programme of the Department of Water Affairs and Forestry.