



SAPIA NEWS

SOUTHERN AFRICAN PLANT INVADERS ATLAS

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ARC-Plant Protection Research Institute

No. 4



Progress with WIP

SAPIA II aims to make all the SAPIA information available to the broad public via the internet at the WIP website. **Information currently available includes distribution maps, species descriptions, species photos and ID expert. There is the option to view species distributions in relation to climate, soil types, vegetation (biomes, and Acocks Veld Types), land use and other variables.**

You can now participate in SAPIA by entering records at the WIP website www.agis.agric.za/wip

A user-friendly template has been designed for entering records—under 'Add invader locality'.

Please test this template and send any suggestions for improvement to Lesley Henderson.

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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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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.

Pompom weed webpage

Pompom weed (*Campuloclinium macrocephalum*) has retreated underground for the winter season. As part of an ongoing effort to combat this weed a webpage is under construction to create awareness of pompom weed and to assist the public in identifying and controlling the weed. The webpage will soon appear under the list of Quick links at the ARC homepage (www.arc.agric.za).

The webpage will provide assistance in distinguishing pompom weed from similar-looking indigenous and alien plants, information on chemical control, progress with biological control, contacts in the national Department of Agriculture for law enforcement, research projects and current distribution of the weed. The public is urged to submit new localities of the weed.



The indigenous *Vernonia centaureoides* (left, photo G.R. Nichols) and Pompom weed (right).

Revised CARA legislation almost ready for public comment

The regulations under the Conservation of Agricultural Resources Act, Act 43 of 1983 (CARA), have been revised and will be published in the Government Gazette shortly. The public will have a 60 day period in which to make comments. The revised regulations will be made available at the Department of Agriculture's website (www.nda.agric.za).

The revised regulations lists 345 species of invasive plants in four categories:

1a, high priority emerging species that must be eradicated or strictly controlled;

1b, widespread species that require a management plan;

2, commercial and utility species that may be grown under permit conditions in a demarcated area;

3, ornamental and other species that are permitted on a property but may no longer be planted or sold

A further 100 species that have been proposed under CARA but which need further investigation before they can be listed or removed from consideration are listed in Table X/Surveillance species. **Surveillance species** are not listed in the regulations but will be posted at the WIP website. Some of the surveillance species have been prioritized for investigation—these include various horticultural cultivars and fodder and lawn grasses.

What is new in the regulations?

An additional 47 listed invasive species;

Category 1a top priority species;

Category 1b species (equivalent to the old category 1) are acknowledged as problem plants whose effective control is generally not possible by individuals, and that require an integrated control programme under the management of a local, provincial or national authority;

Restrictions on the disposal and acquisition of movable and immovable property containing the listed species;

CARA lists 243 Prohibited species that may not be brought into South Africa; these species will automatically be categorized 1a should they be found in the country;

A national strategy for listed invasive plant species, control programmes and status reports;

"Green-flag" registered traders who will prevent the propagation, sale and distribution of listed invasive species



Prohibited

Anchored water hyacinth (*Eichhornia azurea*)
photo: C.J. Cilliers



1a Purple loosestrife
(*Lythrum salicaria*) photo:
S.E. Chadwick



1b Lantana
(*Lantana camara*)



2 Cluster pine
(*Pinus pinaster*)



3 Chinese maple
(*Acer buergerianum*)

What has happened to the NEMBA legislation?

Drafting of regulations under the National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004) (NEMBA) has still not been finalized. Professor Brian Huntley, former SANBI CEO, has taken leadership of the drafting of regulations on invasive species.



Surveillance plant
Australian water-pear
(*Syzygium paniculatum*)

Emerging weeds

Mother of millions

Mother of millions or chandelier plant (*Bryophyllum delagoense*) (= *Kalanchoe delagoense*; *K. tubiflora*) is a succulent herb or shrublet 0.2–1.2 m high native to Madagascar. It is a member of the crassula family, Crassulaceae.

Leaves are cylindric in shape; grey-green and mottled with darker green to reddish spots. Minute plantlets are produced at the leaf tips. The flowers are pale orange to deep magenta, 30–40 mm long, produced in broad clusters up to 150 mm wide.

Mother of millions is a popular ornamental plant that multiplies rapidly from the small plantlets produced at the leaf tips and also from seed. It can form dense stands and is

very difficult to eradicate once it is established.

It is extremely poisonous to livestock causing paralysis and death.

Legislation: It is a proposed category 1b plant. No new planting, trade or propagation is permitted. It should be controlled under a management plan.

NB: go to the WIP website for a full description, more photos and distribution map of this species .



Photos: GR Nichols

Green mother of millions

Green mother of millions or blooming boxes (*Bryophyllum proliferum*) (= *Kalanchoe proliferum*) is a succulent shrublet up to 2 m high and is native to Madagascar. Its stems are erect, 4-angled, unbranched, offsetting only at the base.

Its leaves are green, simple, but deeply divided into segments 30–50 mm long. The calyx is green, but the corolla (petals) may be green or pink. Corolla length is less than 30 mm long. Compare with the next species.

The box-shaped flowers have given rise to the common name 'blooming boxes' in some countries.

Adventitious plantlets are produced on the mature inflorescence—the flowers being replaced by a proliferation of plantlets, hence the name 'proliferum'.

It has been cultivated for ornament but is starting to establish outside of cultivation.

It is poisonous like mother of millions.

Legislation: It is a proposed category 1b plant.



Photos: GR Nichols

Cathedral bells

Cathedral bells (*Bryophyllum pinnatum*) (= *Kalanchoe pinnata*) is a succulent shrublet up to 1.5 m high and is native to Madagascar.

The leaves are green, simple at the base, becoming 3–5 foliate on the upper parts. Leaves are scalloped and produce numerous small plantlets in the leaf notches.

The calyx can be green or reddish and the corolla is reddish. The corolla measures 30–40 mm long and the corolla lobes are partly recurved.

Cathedral bells has been cultivated for or-

namment and has escaped from cultivation in coastal KwaZulu-Natal. It is poisonous.

Legislation: It is a proposed category 1b plant. No new planting, trade or propagation is permitted.

Alternative indigenous plants for all three species featured here include: *Aloe greatheadii* (veld aloë), *A. striata* (coral aloë), *Crassula multicava* (fairy crassula), *C. perfoliata* (sickle crassula) and *Cotyledon orbiculata* (pig's ears).



Photos: GR Nichols

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We are on the Web:

www.arc.agric.za

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

Biological control of invasive plants



**Salvinia (*Salvinia molesta*)
before and after biocontrol
with the weevil *Cyrtobagous
salviniae***

Photos: C.J. Cilliers

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 re-

lease 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.