SAPIA NEWS

SOUTHERN AFRICAN PLANT INVADERS ATLAS

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Patron in Chief: Nelson Mandela

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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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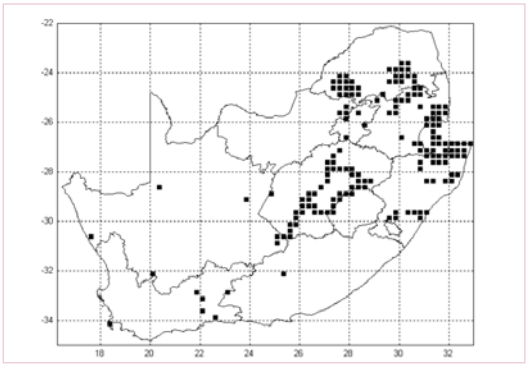
Progress with SAPIA Phase II

New surveys of invasive plants in South Africa by SAPIA coordinator, Lesley Henderson, were begun in earnest during the 2006/2007 summer season. Trips were undertaken to the Waterberg, Tzaneen and Wolkberg in Limpopo Province, Graskop and Pilgrim's Rest in Mpumalanga, as well as to the Free State. More than 3000 records were added to the SAPIA Database. Some of the findings are given on pages 3 and 4.

SAPIA II aims to make all the SAPIA information available to the broad public via the internet at the WIP website (www.agis.agric.za/wip). **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.** The AGIS developers are busy with the construction of this website. Sometimes the maps are inaccessible–we apologize and ask you to try again later.

Persons wanting to participate in SAPIA can enter records at the WIP website. The current template for entering data is temporary and will be replaced with a more user-friendly template. Progress with this facility has been extremely slow. We apologize to all users for this inconvenience.



1/4 degree square coverage since April 2005

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 update

Pompom weed (*Campuloclinium macrocephalum*) continues its spread and new infestations are reported for Limpopo, Mpumalanga and the Free State. The first record has been received for the Western Cape. Read more overleaf.

Photo: J.M. Goodall

The bright pink flowers which have been such a familiar sight over the past few months have almost disappeared and the plants have retreated underground for another season. We must not forget this weed and be lulled into complacency. On the contrary we should be planning a strategy to combat it next summer. Any sensible control plan will start with the isolated plants first and then progress towards the big stands. Containment is the first priority.

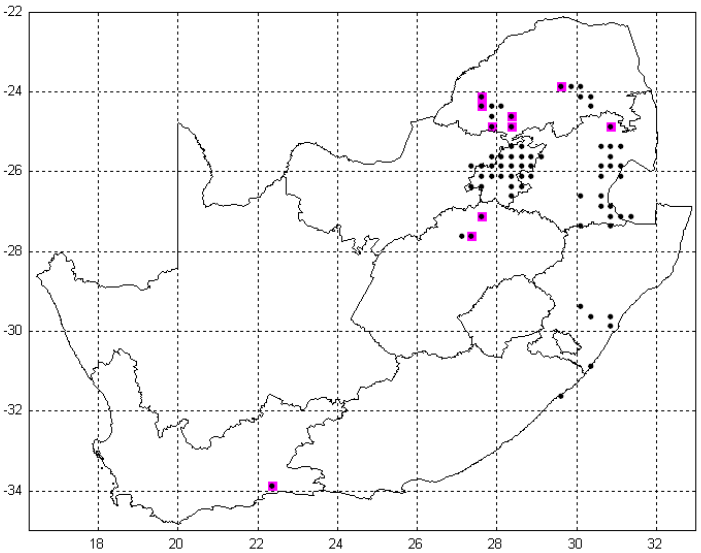
Pompom weed—new threats to grasslands

The South American Pompom weed (*Campuloclinium macrocephalum*) continues its rampant invasion of grasslands in South Africa. Surveys by Lesley Henderson and Hildegard Klein in December 2006 recorded many new sites in the Waterberg and this was reported in the previous SAPIA News. Surveys in January and February 2007 revealed new records for Polokwane, Haenertsburg, Woodbush, Duiwelskloof, Tzaneen and the Wolkberg in Limpopo, Graskop in Mpumalanga, and the N1 between Vanderbijlpark and Kroonstad in the Free State. Kasey Voges of Working for Water submitted the first record of pompom weed in the Western Cape at Witfontein in the Outeniqua Mountains near George.

The Downs, Lekgalameetse Nature Reserve, Wolkberg

The survey of Tzaneen and its surroundings revealed that pompom weed is present along all the major routes around Tzaneen and that the most extensive invasion is in the Lekgalameetse Nature Reserve in the Wolkberg to the south east of Tzaneen. Pompom weed forms extensive stands on 'The Downs', a grassy plateau at the top of the Orrie Baragwanath Pass—an area previously inhabited and under potato cultivation. Pompom weed has been present in Lekgalameetse since at least the mid 1980s. Since 1997 there has been a dramatic increase in abundance of the weed on 'The Downs', similar to the sudden and rapid explosion seen in the Pretoria area of Gauteng since the early 2000s. This large infestation of pompom weed at 'The Downs' is a huge seed source for invasion of the pristine higher altitude grasslands of the Wolkberg. Already in 2004 pompom weed, which is wind-dispersed, was reported by a hiker in the remote Trichardt's Pass area.

The Department of Water Affairs and Forestry's Working for Water programme (WfW) is currently clearing triffid weed (*Chromolaena odorata*), a close relative of pompom weed, in Lekgalameetse. Hopefully WfW will be able to combine these efforts with the control of pompom weed.



Distribution of pompom weed in South Africa with new sites in pink

Pompom weed has been recorded at only three sites in the Free State, along the N1 between Vanderbijlpark and Kroonstad and south of Kroonstad on the road to Odendaalsrus. The latter site, at the turnoff to Bothaville, has been known since 2001 when only a few plants were seen. Currently there are many plants at this site and if left unchecked could undergo a rapid expansion like that seen in Gauteng. There is clearly an urgent need for these plants to be eradicated.

Good news from KZN: all known pompom weed sites were treated with herbicide and will be followed up next year (news from Michael Braack, Invasive Alien Species Control Programme, Department of Agriculture & Environment Affairs, KwaZulu-Natal).

Any new sightings of pompom weed can be sent to Lesley Henderson at: Henderson@sanbi.org or entered at the WIP website. Include date, GPS or approximate locality, habitat and abundance.

What has happened to the proposed legislation?

Nothing has changed. The revision of the regulations on weeds and invasive plants under the Conservation of Agricultural Resources Act, 1983 (Act No 43 of 1983) (CARA) has yet to be published for public comment.

Drafting of new legislation under the National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004) (NEMBA) has still not been finalized.

CARA
(Department of Agriculture)
and
NEMBA
(Department of Environmental Affairs and Tourism)

Emerging weeds

Eglantine

Eglantine or sweetbriar (*Rosa rubiginosa*) is a deciduous shrub 1–2 m high and is native to Europe and Asia. It is a member of the Rose family, Rosaceae. Stems are armed with stout hooked thorns interspersed with rusty, glandular hairs and bristles. The leaves are pinnate with 5–7(–9) leaflets, glandular-hairy and resinous beneath and very aromatic.

The pink flowers measuring about 35 mm across are replaced with orange-red fleshy fruits called hips that measure about 20 mm long. It has been cultivated for ornament and as a hedge plant. In Lesotho its fruits are harvested for the extraction of juice.

Eglantine invades high altitude grassland, especially moist valleys, edges of streams, rocky ridges, roadsides, fence lines and overgrazed land around human habitation. It is spread by birds and probably also rodents, baboons, goats, horses and people.

Eglantine is not strictly speaking an emerging weed since it is already very widespread in the eastern Free State and north-eastern Cape. However, it has much potential for further spread and densification.

Legislation: It is a category 1 plant according to CARA. It is illegal to harbour, plant, propagate or sell eglantine. Landowners are compelled to control the plants.

Himalayan firethorn

Himalayan firethorn (*Pyracantha crenulata*) is an evergreen shrub 2–3 m high and is indigenous in China and the Himalayas. It is a member of the Rose family, Rosaceae. Stems are armed with sharp-pointed, leaf-bearing, woody spines. It can be distinguished from other firethorns by having glabrous (without hairs or down) leaves, calyx, flowering and fruiting stalks. The leaves are bright glossy green above, duller below, margins shallowly toothed and tips rounded. The fruits are orange-red berries, borne on long, slender stalks.

It has been cultivated for ornament and as a hedge. It is invading high altitude grassland, rocky ridges and the edges of streams. It is most invasive in the eastern Free State but has the potential for much more spread and densification. Like eglantine it is spread by birds and probably other animals.

Legislation: It is a category 3 plant. No new planting, trade or propagation is permitted. It should be controlled.

Alternative indigenous plants include Kei apple (*Dovyalis caffra*), puzzle bush (*Ehretia rigida*) and lemon thorn (*Cassinopsis ilicifolia*).

NB: go to the WIP website for a full description and more photos of the species featured on this page.

Formosa lily

Formosa lily (*Lilium formosanum*) is a bulbous herb with a stem 1.5–2 m high. It is indigenous in Taiwan (previously Formosa) where it grows abundantly in grasslands from sea level to more than 3000 m.

Its stems are purplish-brown towards the base and usually rough-hairy. Leaves are narrow, 5(–10) mm wide. Flowers are white, flushed with reddish-purple outside (rarely pure white), funnel-shaped 120–200 mm long and fragrant.

It is often confused with *Lilium longiflorum* and both species have been called St Joseph's or trumpet lily. *L. longiflorum* is usually shorter, 0.3–1.0 m, with pure white flowers, broader leaves 10–15 mm wide and with green, hairless stems.

Formosa lily has been cultivated for ornament. It is rumoured to have been deliberately spread along tourist routes in an attempt to beautify the countryside. It invades grassland, wetlands, plantation edges and roadsides.

Legislation: It is a category 3 plant. No new planting, trade or propagation is permitted. It should be controlled.

More emerging weeds

A very alarming discovery was made in the Woodbush Forestry area near Haenertsburg—an invasive *Crocosmia* cultivar (**photo 1**) that forms impenetrable stands up to 1.8 m high under pines, along roadsides and in firebreaks between the pines. According to Iridaceae expert Dr John Manning at Kirstenbosch it is a form of the indigenous *C. paniculata* that appears to have escaped from cultivation but its origin remains unclear. It grows together with the wild form of *C. paniculata* (which has longer, more orange flowers) around Graskop, where it is common along the edges of plantations. It is widespread, along roadsides and in old gardens, through northern KwaZulu-Natal as well. It has been assumed that it was selected in the United Kingdom some time ago and then reintroduced from gardens. It has not been seen in pristine vegetation.

Oenothera spp. (evening-primroses) are all native to North and South America; fourteen species are naturalised in South Africa. *O. glazioviana* pictured here (**photo 2**) is one of four species that have large yellow flowers and stems can exceed 1 m in height. These species invade moist places, riverbanks, roadsides, edges of railway lines and waste places.

Ulmus parvifolia (Chinese Elm) (**photo 3**) is becoming increasingly visible in sites away from cultivation such as roadsides and streambanks, in Gauteng and eastern Free State.

Acer buergerianum (Chinese maple) (**photo 4**), has been recorded as an escape from cultivation in the Haenertsburg area, Pilgrim's Rest and Gauteng. It prefers moist sites.

Acer negundo (ash-leaved maple) (**photo 5**), is naturalised in many parts of South Africa, from Pilgrim's Rest in the north, to Gauteng, Richmond in KwaZulu-Natal, eastern Free State and Newlands Forest in Cape Town.

Fraxinus spp. (ashes) often confused with the *Acer* spp. (maples) have been recorded as escapes from cultivation in many parts of South Africa. **Photo 6** shows *Fraxinus* sp. possibly *pennsylvanica* (green ash) which is frequently seen along roadsides and streambanks in the eastern Free State.

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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

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 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.