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Early detection of invasive plants: how can you help?

Do you care about the native biodiversity of South Africa? There is a lot that the ordinary person can do to help conserve this biodiversity and to protect it from invasive alien species. The majority of invasive alien plants in South Africa are ornamentals, and the first step in preventing invasions is to cultivate indigenous and non-invasive plants. The public can also play a crucial role in assisting with the early detection of an invasive species before it establishes a wild population.

This edition of SAPIA News features early detection of two potentially invasive species, yellow Himalayan raspberry (*Rubus ellipticus*) and fringed wattle (*Acacia fimbriata*), and the follow-up actions of SANBI's Invasive Species Programme.



Photo: Geoff Nichols



Photo: Wally Menne

Yellow Himalayan raspberry (*Rubus ellipticus*) was recorded for the first time in South Africa, in August 2013, in the Hillcrest area of KwaZulu-Natal, by two observant members of the public—Geoff Nichols and Wally Menne. SANBI's Invasive Species Programme investigates further—see page 2.

NEMBA: progress with comprehensive regulations and lists of invasive species

On 24 July 2013 amendments were made to the National Environmental Management: Biodiversity Act (NEMBA) which allowed for the development of comprehensive regulations and invasive species lists. These regulations and lists are expected to be published in the Government Gazette for public comment during February 2014. Check the following website for announcements: www.invasives.org.za

Fact sheets with descriptions and photos of about 600 plant species can be found at the Weeds and Invasive Plants website: www.agis.agric.za/wip. 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.

Weed alert: Yellow Himalayan raspberry (*Rubus ellipticus*) detected in KwaZulu-Natal

Reshnee Lalla and Michael Cheek, Invasive Species Programme: EDRR, SANBI, KwaZulu-Natal

The American bramble (*Rubus cuneifolius*) is a well-known and established invasive plant in KwaZulu-Natal and is often encountered during fieldwork. This year however, the KZN offices of the Invasive Species Programme: EDRR received our first report of another *Rubus* species detected in the Hillcrest area - suspected to be its notorious cousin: yellow Himalayan raspberry (*Rubus ellipticus*) which is listed as a prohibited species under NEMBA.

Awareness about this potentially new invader was raised at the provincial IAS forum and via the Google Invasives Chat group. Site visits to the reported localities were undertaken in collaboration with a local resident, and staff from Working for Water and WESSA/Working for Ecosystems. Specimens collected from five localities were positively identified as *R. ellipticus*.

The species... Yellow Himalayan raspberry, native to southern Asia, is a robust shrub (< 7m tall), with stems and branches covered with dense bristles and scattered thorns. It is noted for its capacity to regenerate from cuttings as well as from plentiful seeds dispersed by birds and other animals. Research has suggested the possibility of a long-term, viable soil seed bank (Stratton, 1996). It has the ability to outcompete indigenous species by forming dense thickets (Funk, 2008) and can significantly impact on species diversity in understorey vegetation (Stratton, 1996). Not surprisingly, it is listed as one of the world's 100 worst invasive alien species (Lowe et al., 2000).

How to recognise it... It has scrambling arching branches (photo 1), and due to its stout robust stems, plants can grow much taller than other *Rubus* species.



Mature plant with stout, arching branches



Young plant with red bristles on stems



Leaves are darkish-green, trifoliate (photo 5), with elliptic to circular leaflets with serrated edges (photo 6).

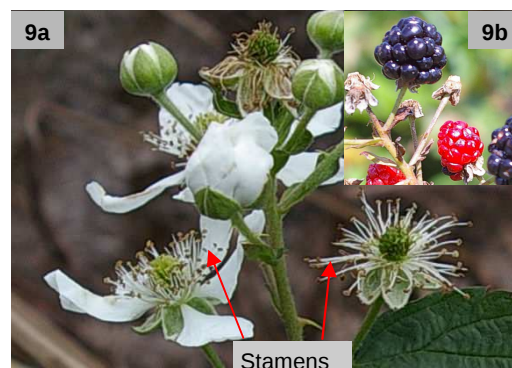
Weed alert: Yellow Himalayan raspberry (*Rubus ellipticus*) detected in KwaZulu-Natal

Yellow Himalayan raspberry



Flowers are predominantly white; **stamens with broad, flattened filaments, in a compact circular arrangement (photo 7)**. Raspberry-type fruits are **yellow** when mature (photo 8).

American bramble



Flowers are predominantly white; **stamens with narrow, rounded filaments, in a loose arrangement (photo 9a)**. Fruits are **red turning black** when mature (photo 9b)

Some differences between yellow Himalayan raspberry and American bramble

Yellow Himalayan raspberry (<i>R. ellipticus</i>)	American bramble (<i>R. cuneifolius</i>)
Stems covered in red bristles. These bristles persist, but fade to more brownish-grey colour on older stems	Stems without bristles
Leaflet shape varies from roundish to elliptic	Leaflet shape varies from narrow, tapering at both ends to inverted egg shaped with the narrow end attached
Mature fruit yellow	Mature fruit red turning black
Plant height: up to 7m	Plant height: up to 2m
Petals white (sometimes yellow)	Petals white (sometimes pink)
Stamens with broad, flattened filaments	Stamens with narrow, rounded filaments

The Way forward... SANBI ISP will continue to raise awareness around the threat of this species especially in and around the target area, conduct detailed surveys of roads interlinking known populations which may result in the detection of more populations, investigate suitable control options, conduct risk assessments and investigate whether it should be listed under NEMBA as category 1a or 1b.

If you see this species, please report localities to the ISP: EDRR at invasivespecies@sanbi.org.za (Tel: 031 207 6480/2)

ACKNOWLEDGEMENTS:

Geoff Nichols, Jenny Loughlin, Karen Hope, Lesley Henderson, Lindelani Zuke, Wally Menne

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REPUBLIC OF SOUTH AFRICA



Fringed wattle (*Acacia fimbriata*): managing the only known population in South Africa

Kanyisa Jama, Invasive Species Programme: EDRR, SANBI, Eastern Cape

Acacia species have been introduced to countries worldwide because of their economic benefits which include agroforestry, wood production, ornamental displays, source of fuel and soil stabilisation. Unfortunately some of these species have become highly invasive and the subsequent costs of the management of these invasions may outweigh the economic benefit. To date many millions of Rand have been invested in managing widespread invasive *Acacia* species in South Africa. This motivates the need for the detection of naturalised and potentially invasive *Acacia* species in order to prevent further widespread invasions.

The problem: a naturalised population of fringed wattle, originally from eastern Australia, was discovered in Grahamstown in the Eastern Cape. Like other acacias this species is a prolific seeder, with a fast growth rate, and has the potential to out-compete native species. It has not been declared as an invasive species under South African law but it is a target for further investigation by SANBI's Invasive Species Programme which will assess whether its eradication is feasible.

Description: fringed wattle is a small tree or shrub that grows up to 7 m high. Leaves (phyllodes) are undivided, very narrow (2–5 mm wide) with a prominent midvein, straight or slightly curved, 2–5 cm long (**photo 1**). Leaf margins and branchlets usually fringed with hairs. Flowerheads are yellow, globular, in clusters of 8–25 per axil (**photo 2**). Pods are straight to slightly curved, often irregularly and more deeply constricted between seeds.

Population survey: the species was reported to the Invasive Species programme: EDRR in 2011, on Mountain Drive, Grahamstown. Population surveys by Rhodes University estimated a total of 200 adult trees with many uncounted seedlings covering an area of about 1.4 hectares. One small population of three trees was also discovered near Gray Dam, Grahamstown.

EDRR clearing operations: from January to March 2013, 5.3 hectares around the highly infested 1.4 hectares were examined for fringed wattle and all plants were mapped. A contractor was appointed to clear the population, and 18 local people were employed on a temporary basis for 11 days. Chainsaw cut-stump clearing method was used and stumps were treated with Garlon herbicide. (**photo 3**)

Future plans:

Management: biannual site visits are in progress to search for seedlings and saplings which will be removed before they start to produce seed. Seed bank studies, in collaboration with Rhodes University, are being conducted to guide the management process.

Finding new populations: a national communication strategy will be implemented to raise awareness about this species. The aim is to locate all populations of fringed wattle in South Africa.



How can you assist?

Please report sightings of fringed wattle to Kanyisa Jama of the Invasive Species Programme: EDRR: k.jama@sanbi.org.za



Pompom weed (*Campuloclinium macrocephalum*): release of first insect biological control agent

Dr Andrew McConnachie, ARC-PPRI Cedara, KwaZulu-Natal

On 18 June 2013, permission was granted by the South African Department of Agriculture, Forestry & Fisheries (DAFF) to release the stem- and leaf-deforming thrips (*Liothrips tractabilis*) from quarantine at ARC-PPRI Cedara, for the biological control of pompom weed (*Campuloclinium macrocephalum*). The thrips, which originates from Argentina, was first imported into quarantine in March 2005. Over the years the thrips was tested by staff at Cedara for specificity and damage to pompom weed. Adult and nymphal stages of the thrips (**photo 1**) feed on pompom stems and leaves, which in turn drastically deforms plant growth (**photos 2 & 3**), so reducing flowering. After seven years of research, a release application was submitted to DAFF in June 2012.

On 23 October 2013, the thrips finally tasted freedom when the first field releases were made in Pretoria at Rietveld Nature Reserve. Additional releases were made a month later at Swartkop Airforce Base, Rietondale (ARC-PPRI research farm) and Roodeplaat Nature Reserve. At the beginning of December, releases were made at a further six sites around Pretoria. Further releases are planned for January and February 2014 in Gauteng, Mpumalanga, Limpopo, Free State and KZN.

The pompom thrips, in conjunction with the pompom rust (*Puccinia eupatorii*), chemical control and remedial land management approaches, will reduce the spread and impact of this invasive plant going forward. Thanks must go to the Working for Water Programme for funding this programme since inception.



Liothrips tractabilis adults (black) and nymphs (red)



Release of thrips at Marakele National Park, Limpopo

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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

Quick link:

Invasive alien plants

see Plant Protection News

for current news from the
Weeds Research
Programme