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Plant Protection Research

SAPIA NEWS

SOUTHERN AFRICAN PLANT INVADERS ATLAS

October 2016

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Newsletter of the Southern African Plant Invaders Atlas, an initiative of the Weeds Programme of Plant Protection Research, an institute within the Agricultural Research Council (ARC)

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Inside this issue:

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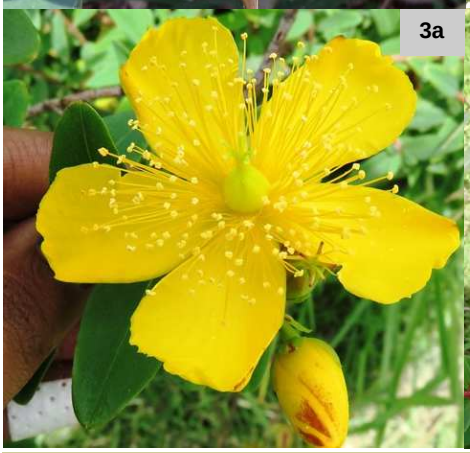
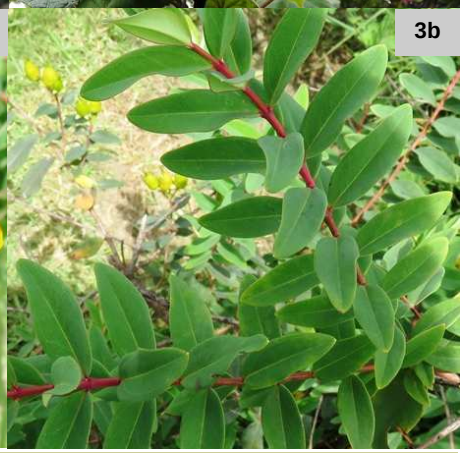
SAPIA newsletters are posted at ARC website: www.arc.agric.za and Invasive Species Website: invasives.co.za

Three weed alerts from the SANBI* Invasive Species Programme (SANBI ISP) in KwaZulu-Natal

The SANBI ISP has a mandate under the National Environmental Management: Biodiversity Act (NEM:BA) to undertake invasive species detection, assessment and eradication planning (Wilson *et al*., 2013), and operates on a species-specific rationale. There are a number of target species (including "suspect" species not listed under NEM:BA) that are being investigated by the KwaZulu-Natal (KZN) regional unit.





This newsletter highlights three species—*Clusia rosea* (pitch apple) (**photo 1**), *Paulownia tomentosa* (empress tree) (**photo 2**) and *Hypericum pseudohenryi* (Henry's St. John's wort) (misidentified as *H. patulum* in SAPIA News No. 14) (**photos 3a & 3b**).

All articles in this edition have been compiled by Reshnee Lalla and Michael Cheek of the KZN unit of the SANBI ISP.

The public can assist the SANBI ISP by sending locality information of these species which will help assess their invasion risk.

Weed alert: *Clusia rosea* (pitch apple, autograph tree) Family Clusiaceae

Legal status: **Not listed under NEM:BA**

***Background*:**

This semi-succulent shrub to large tree is indigenous to Central America. It is a popular garden ornamental and landscaping plant in the subtropics because it is a successful container plant. It can grow as an epiphyte that strangles host trees through the production of aerial roots, and is recorded as invasive in Hawai'i and Maui.


1

SANBI ISP efforts thus far:

We were alerted to this species by a spotter on the KZN south coast a few years ago. Since then, we have created awareness about this species via several avenues (*e.g.* added to the Durban Invasive Species website in 2015 (www.durbaninvasives.org), conducted site visits to known localities and collected data to assess its invasive risk. We are in the process of writing up a publication. Known populations are currently restricted to specific sites in central and southern coastal KZN, and we will continue to gather data on this species, and attempt control initiatives in the near future. Our efforts and results thereof, could lead to a listing of this species under NEM:BA.

Distinguishing characteristics:

- Opposite dark green obovate leaves **(photo 1)**
- All parts of the plant contain a milky yellow-white latex (reported as poisonous)
- Light pink to white flowers with up to six petals, usually produced after rain **(photo 2)**
- Capsular fruit, which on maturity splits open from the apex to form a star shape exposing the many small seeds embedded in orange-red flesh **(photo 3)**

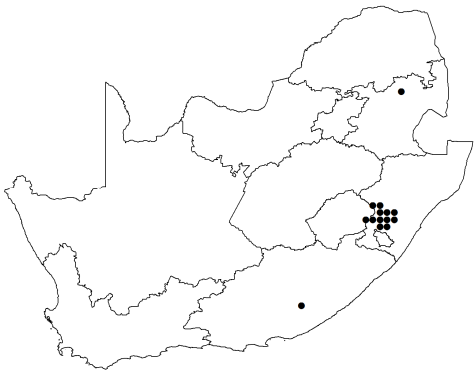

2


3

Weed alert: *Hypericum pseudohenryi* (Henry's St. John's wort) Family Clusiaceae

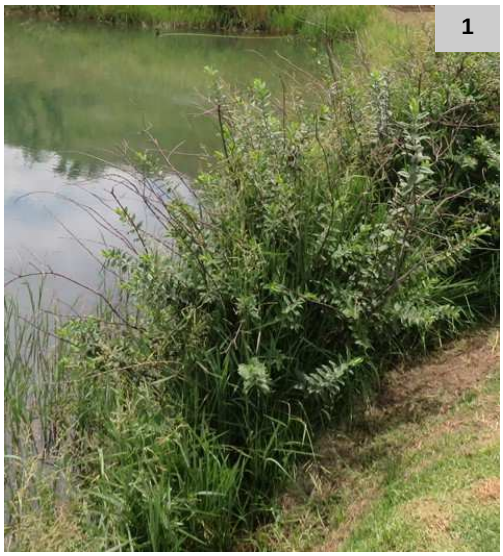
Legal status: **Not listed under NEM:BA**

Background:



This hardy, evergreen large shrub to small tree (< 7m) is native to China. Inflorescences have up to seven bright yellow flowers, producing fruit that are often reddish when young. Many, tiny seeds are produced per capsule. Seeds are dispersed by water and wind; the plants are self-compatible so seed set can occur in the absence of pollinators. It has naturalized in riverside woodlands in Ireland. It can be confused with the indigenous *H. revolutum* which also grows in KZN, however *H. revolutum* has one flower per inflorescence, and narrower leaves with recurved margins. *H. roeperianum*, another indigenous species, but not occurring as far south as KZN, has recurved leaf margins, yellow petals sometimes tinged red, and fused styles in contrast to *H. pseudohenryi* where styles are free and outcurved towards the apex.

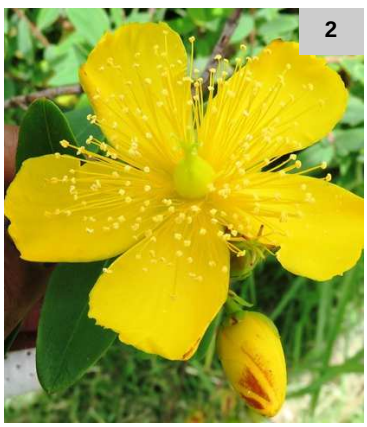
SANBI ISP efforts thus far:


1

Concerns about this species were first raised by Ezemvelo KZN Wildlife staff well before the inception of the SANBI ISP in 2008. Plants were seen invading stream beds and undisturbed grassland habitats particularly in the KZN midlands (including Drakensberg) region. Today, we are also aware of populations in the Hogsback region of the Eastern Cape, and in the Lydenburg district of Mpumalanga (see map). This species prefers a riparian/wetland habitat, and can establish in close proximity to a water source (e.g. along drainage lines, streams, streambeds and dams (**photo 1**)), but it can also grow on road verges. We have created awareness via several avenues (e.g. pamphlets, oral and poster presentations at conferences), and conducted site visits to known localities. In 2013, we funded a student research project focussing on the reproductive mechanisms of this species. We undertook and facilitated clearing operations in and around protected areas (particularly the uKhahlamba-Drakensberg Park World Heritage Site). We will continue to control and collect data on this species to feed into a formal risk assessment, which would inform a recommendation for listing and categorization of this species under NEM:BA.

Distinguishing characteristics:

- Large bright yellow flowers (~4 cm diameter), are produced individually or in bunches of up to seven, between October and May in South Africa (**photo 2**)
- Fruits are ovoid capsules (<1.7cm long) yellow when immature (**photo 3**), that turn brown with age and split open (**photo 4**) releasing small orange-brown seeds
- Leaves are opposite, arranged at an alternating 90 degree angle (**photo 5**)
- Young twigs are generally red (**photo 5**)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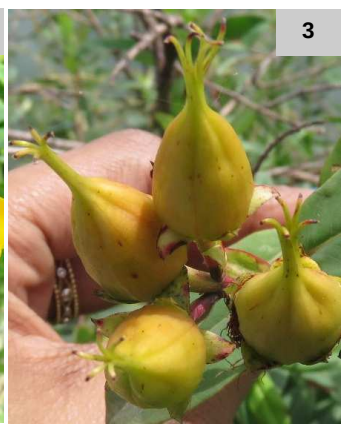
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Weed alert: *Paulownia tomentosa* (empress tree, princess tree) Family Scrophulariaceae

Legal status: Category 1a under NEM:BA (priority for control)

Background:

This large tree, indigenous to China, Korea and Indochina, can grow up to 25m tall. It is fast growing and often used as a feature plant in landscaping, popular even when not in flower due to its grey bark and large, heart-shaped leaves. It has a high seed production and seeds can germinate and grow in poor soils with a low pH. As an early-successional species, with vigorous resprouting ability, it can establish itself easily in fire-prone ecosystems. This species has become naturalized in a number of states in the U.S.A.

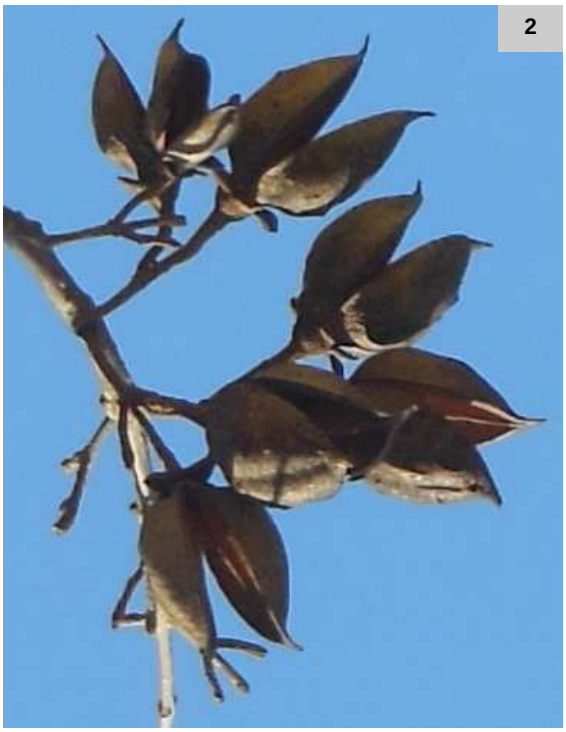

1

SANBI ISP efforts thus far:

Our efforts thus far have been focussed on creating awareness about this species, particularly in the KZN midlands region where it is known to occur as a garden ornamental. Thus far, we have limited locality data and evidence for naturalization, and have not yet attempted control of this species ourselves, however we did facilitate the removal of the only naturalized population that we were aware of in early 2014. Going forward, we aim to work closely with the Department of Agriculture, Forestry and Fisheries (DAFF), to implement chemical control of this species, and gather sufficient evidence for a formal risk assessment.

Distinguishing characteristics:

- Flowers are fragrant, tubular to funnel-shaped and lilac (**photo 1**)
- Fruits are relatively large (ca. 4.5cm long), ovoid, woody capsules with four compartments each containing many winged seeds (**photo 2**)
- Leaves are often hairy (**photo 3**)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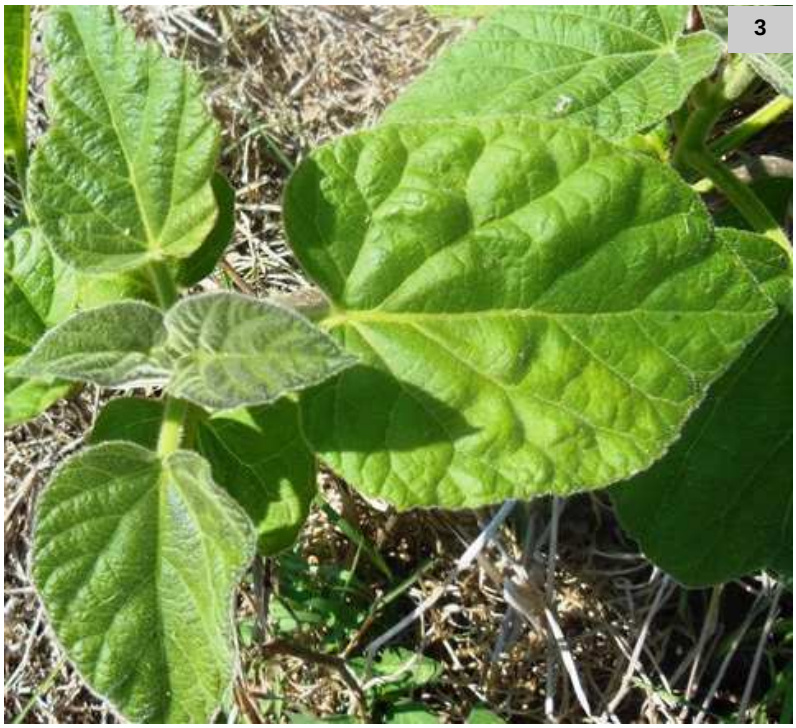
3

Further reading

Christina A, Longbrake W & McCarthy BC (2001) Biomass allocation and resprouting ability of Princess Tree (*Paulownia tomentosa*: Scrophulariaceae) across a light gradient, Am. Midl. Nat., **146 (2):** 388-403

Fact sheet on the Princess Tree, sourced from http://www.nps.gov/plants/alien/

Gilman, E.F. & Watson, D.G. (1993) *Clusia rosea*. Fact sheet ST-172, Institute of Food and Agricultural Sciences, University of Florida.

Hypericum Online: a site dedicated to *Hypericum* – the St. John's worts. (2013) *Hypericum pseudohenryi*. Department of Life Sciences, Natural History Museum. http://hypericum.myspecies.info/taxonomy/term/599

Li, X.-W. & Robson, N.K.B. (2007) *Hypericum*. Flora of China. www.efloras.org

Robson, N.K.B. (1985) Studies in the genus *Hypericum* L. (Guttiferae) 3. Sections 1. *Campylosporus* to 6a. *Umbraculoides*. Bull. Br. Mus. nat. Hist. (Bot.) 12(4): 163 – 325.

Wilson, J.R.U. *et al.* (2013) A new national unit for invasive species detection, assessment and eradication planning. S. Afr. J. Sci. **109 (5/6)**, Art. #0111, 13 pages.

How can you assist?

Report sightings of the three species highlighted in this newsletter to: Reshnee Lalla (R.Lalla@sanbi.org.za) or Michael Cheek (M.Cheek@sanbi.org.za) or Tel: 031 207 6480 or invasivespecies@sanbi.org.za
and provide exact locality (landmarks and GPS co-ordinates if possible)

**The South African National Biodiversity Institute (SANBI) is mandated to conserve South Africa's rich biodiversity. Its Invasive Species Programme, funded by the Department of Environmental Affairs, Natural Resources Division, aims to reduce the threat of biological invasions through detection, identification, assessment and management of invasive species that may be contained or eradicated.*

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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

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