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SAPIA NEWS

SOUTHERN AFRICAN PLANT INVADERS ATLAS

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

Weed alerts—the deceitful charmer and spiny breeches!

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Photo: Claude Moshobane



Photo: Alan Urban

The South African National Biodiversity Institute (SANBI), Directorate: Biological Invasions (DBI), has issued two new weed alerts—Red sage (*Salvia coccinea*) (photo 1) and Bear's breeches (*Acanthus polystachius*) (photo 2). The public can assist SANBI-DBI by sending locality information of these species which can help assess their invasion status.

Another torch cactus starts invading!

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invasives.co.za

Argentine giant cactus (*Trichocereus candicans* or *Echinopsis candicans*) is starting to invade the karoo around the town of Prince Albert.

Richard Dean has observed plants along fence lines, under bushes and next to boulders, indicating bird-dispersal of seed.

This species is one of a group of columnar, ribbed cacti, commonly referred to as torch cacti. It is similar to the very invasive *Trichocereus spachianus*, known simply as torch cactus in South Africa but elsewhere known as golden or white torch cactus. See pages 6–8 for more information.



Photo: Richard Dean

See it! Report it! Charm is deceitful. Behold a potential invader, Red sage (*Salvia coccinea*)

Moleseng Claude Moshobane (Directorate: Biological Invasions (DBI), South African National Biodiversity Institute (SANBI); **Nyiko Gift Mutleni** (Department of Biodiversity, University of Limpopo).

Background

Red sage belongs to the genus *Salvia* (family Lamiaceae), which has over 960 species, many of which are used as garden ornamentals and traditional medicines throughout the world (Li *et al.*, 2013). Red sage is a long-lived, erect, herbaceous plant and usually grows to about 1.5 m tall (**photo 1**). Red sage reseeds easily and thrives well in shady areas. It colonizes open woodlands, riparian vegetation, disturbed sites, waste areas, roadsides and gardens in tropical, sub-tropical and warmer temperate regions. It is distinguishable by short and long spreading hairs on its stems. It has bright red flowers (**photo 2**) which have a small upper lobe and a much larger and broader lower lobe (Starr, 1985). Horticultural varieties can have pink or white flowers. It is very attractive to birds, bees and ants, which serve as pollinators. It produces a pungent foliage which serves as an insect repellent.

Distribution

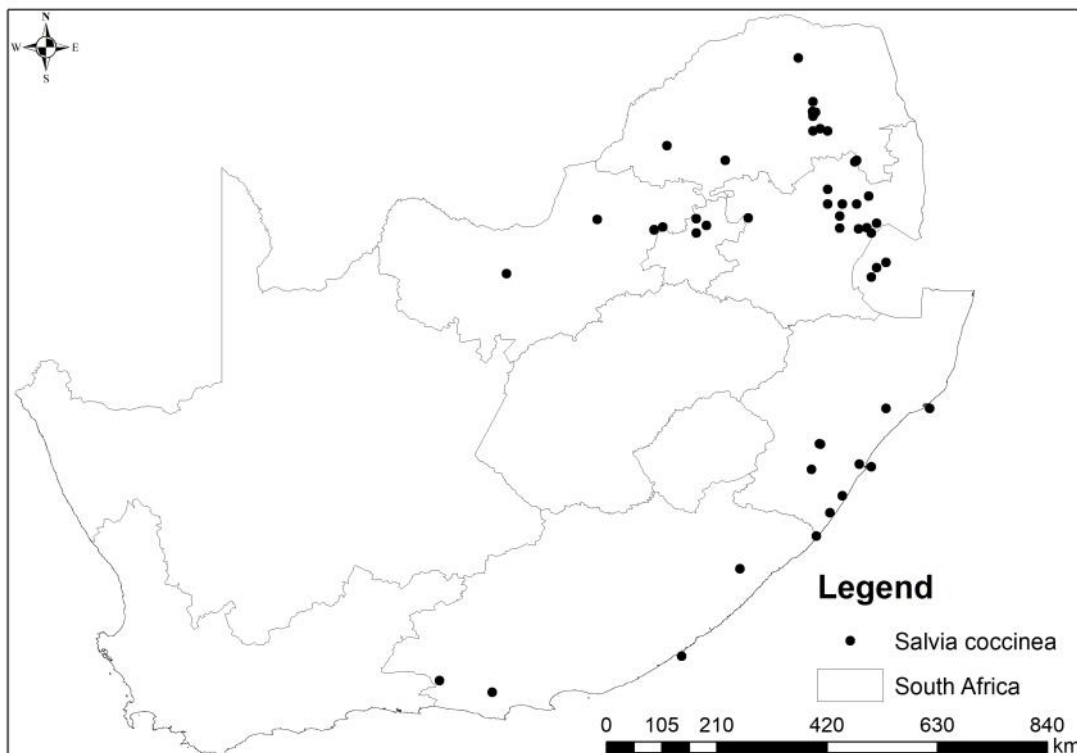
Red sage is native to Mexico and Florida but is widespread throughout the south-eastern parts of USA, Central and North Western South American countries such as Brazil, Colombia and Peru. It is naturalized in Australia, Lord Howe Island and Norfolk Island, La Réunion, Fiji, French Polynesia, Hawaii, New Caledonia, Niue, Kazakhstan, Vanuatu, Germany, Tonga, Madagascar and New Zealand (Roskov *et al.* 2017). In South Africa, it is established in six provinces, and is most abundant in Limpopo with more than seven known populations. The map shows the current known naturalized distribution in South Africa according to information from the SAPIA database and DBI surveys.



Photo: Claude Moshobane



Photo: Claude Moshobane



Red sage (*Salvia coccinea*)

Impact and potential impacts

Despite the beauty and charm of the red flowers, there are several records of poisoning from red sage in wild and domestic animals (Hindmarsh 1937; Jäger and van Staden 2000; Nagal, Gupta & Asrani 2014). Other members of this genus have also been recorded to have caused livestock deaths such as *Salvia reflexa* and *Salvia chamelaeagnea* (Jäger and van Staden 2000). However, despite the incidences of poisoning, red sage is claimed to also possess useful antioxidants and other medicinal properties (Yadav & Mukundan 2011).

Management and Research

SANBI DBI-inland region staff have surveyed the areas susceptible to invasion by red sage and monitored the spread of the known populations in Limpopo province. Three new populations of red sage have been found.

Future work

Further surveys will be conducted to determine the distribution of red sage in South Africa, which will culminate in an ecological impact assessment. Furthermore, in autumn of 2018, eradication trials will be conducted.

References

- Hindmarsh, W. L. 1937. *Salvia coccinea*. A garden escape, poisonous to stock. *N.S. Wales Res. Rept.* No. 7, p. 118.
- Jäger A.K. and van Staden J. 2000. *Salvia* in southern Africa in: S.E. Kintzios (Ed). *Sage. The genus Salvia*. Harwood academic publishers, Amsterdam.
- Li, M., Li, Q., Zhang, C., Zhang, N., Cui, Z., Huang, L. & Xiao, P. 2013. An ethnopharmacological investigation of medicinal *Salvia* plants (Lamiaceae) in China. *Acta Pharm. Sin. B* 3, 273–280.
- Nagal, K.B., Gupta, A. & Asrani, R.K. 2014. *Salvia coccinea* poisoning among migratory Gaddi goats: Evidences from mid hills of Himachal Pradesh (India). *Indian J. Anim. Sci.* 84, 37–38.
- Roskov Y., Abucay L., Orrell T., Nicolson D., Bailly N., Kirk P.M., Bourgoin T., DeWalt R.E., Decock W., De Wever A., Nieukerken E. van, Zarucchi J., Penev L., eds. 2017. *World Checklist of Lamiaceae*. Facilitated by the Royal Botanic Gardens, Kew. Published on the internet: <http://wcsp.science.kew.org> Retrieved August 2017.
- Starr, G. 1985. New World Salvias For Cultivation in Southern Arizona. *Desert plants* 7, 184.
- Yadav, S. & Mukundan, U. 2011. In Vitro Antioxidant Properties of *Salvia coccinea* Buc'hoz ex etl. *Indian J. Fundam. Appl. Life Sci.* 1, 2231–6345.

How can you assist?

Please report sightings of red sage (*Salvia coccinea*) to Moleseng Claude Moshobane, SANBI-DBI, Limpopo, Inland region:

Tel 078 516 8933 and e-mail: m.moshobane@sanbi.org.za.

If possible, provide a locality description, photo, and GPS co-ordinates.

Beyond the looks. Bear's breeches (*Acanthus polystachius*), a potential invader

Mukundi Mukundamago (Department of Ecology and Resource Management, University of Venda); **Samuel Adu-Acheampong** (Department of Ecology and Resource Management, University of Venda); **Moleseng Claude Moshobane** (Directorate: Biological Invasions (DBI), South African National Biodiversity Institute (SANBI)); **Daisy Ramantshwane** (Department of Environmental, Water and Earth Sciences, Tshwane University of Technology (TUT)).

Background

Bear's breeches is a shrub that grows to several metres in height (**photo 1**). The plant has large, wavy-toothed leaves with sharp spines. It has flower spikes bearing bright pink flowers (**photo 2**). It is one of 29 species in the genus *Acanthus* and originates from the northern and eastern parts of Africa. Countries where it is native include Burundi, Eritrea, Ethiopia, Sudan, Somalia, D.R. Congo, Uganda, Kenya, Rwanda and Tanzania. In South Africa, it was first spotted growing outside of cultivation in Bluegumspoort, Limpopo province by van Wyk, A.E. in 1974 (Pretoria National Herbarium), and later spotted in Gauteng and Mpumalanga Provinces (SAPIA database). It prefers disturbed areas and forest margins. The map shows the current known naturalized distribution of this species in South Africa.



Photos by Alan Urban at Protea Park, Groenkloof in Gauteng



Bear's breeches (*Acanthus polystachius*)

The problem

Bear's breeches is adapted to thrive under low sunlight conditions with tough leaves that degrade slowly and with spines that deter browsers. It can form impenetrable dense stands at forest margins. Under favourable conditions it can grow to 6 metres high (Vollesen 2007).

Bear's breeches tolerates disturbance and recovers rapidly after fire. It is also reported to flourish as a weed in disturbed vegetation. It is thought to contain insect repellent properties (Meragiaw & Asfaw 2014). Furthermore, it is the most widespread species of the genus *Acanthus* (Giday *et al.* 2007; Vollesen, 2007). Taken together these characteristics suggest that bear's breeches has the potential to become invasive.

Management and Research

SANBI DBI inland region staff, together with researchers at the University of Venda and Tshwane University of Technology, are monitoring the population at Bluegumspoort outside of Makhado town, Limpopo Province and Protea Park in Groenkloof, Pretoria. There is a thriving population of bear's breeches in Bluegumspoort (**photo 3**) and in a recent survey a total of 23 knee-high seedlings were recorded. A survey done in Protea Park in Groenkloof recorded 19 mature plants and seedlings of this species (**photo 4**).

Future plans

In January and February 2018, a total plant count will be conducted, and further studies done to assess the impact of this species.



Photo: Claude Moshobane



Photo: Njabulo Thorakgale

References

- Giday, M., Teklehaymanot, T., Animut, A. & Mekonnen, Y. 2007. Medicinal plants of the Shinasha, Agew-awi and Amhara peoples in northwest Ethiopia. *J. Ethnopharmacol.* **110**, 516–525.
- Meragiaw, M. & Asfaw, Z. 2014. Review of Antimalarial, Pesticidal and Repellent Plants in The Ethiopian Traditional Herbal Medicine. *Res. Rev. J. Herb. Sci.* **3**, 21–45.
- Vollesen, K. 2007. Synopsis of the species of *Acanthus* (Acanthaceae) in tropical East and Northeast Africa and in tropical Arabia. *Kew Bull.* **62**, 233–249.

How can you assist?

Please report sightings of these plants to Moleseng Claude Moshobane, SANBI DBI, Limpopo SANBI Directorate of Biological Invasion (DBI), Limpopo, Inland region: Tel 078 516 8933 email: m.moshobane@sanbi.org.za.

If possible, provide us with locality description, a photo and GPS co-ordinates.

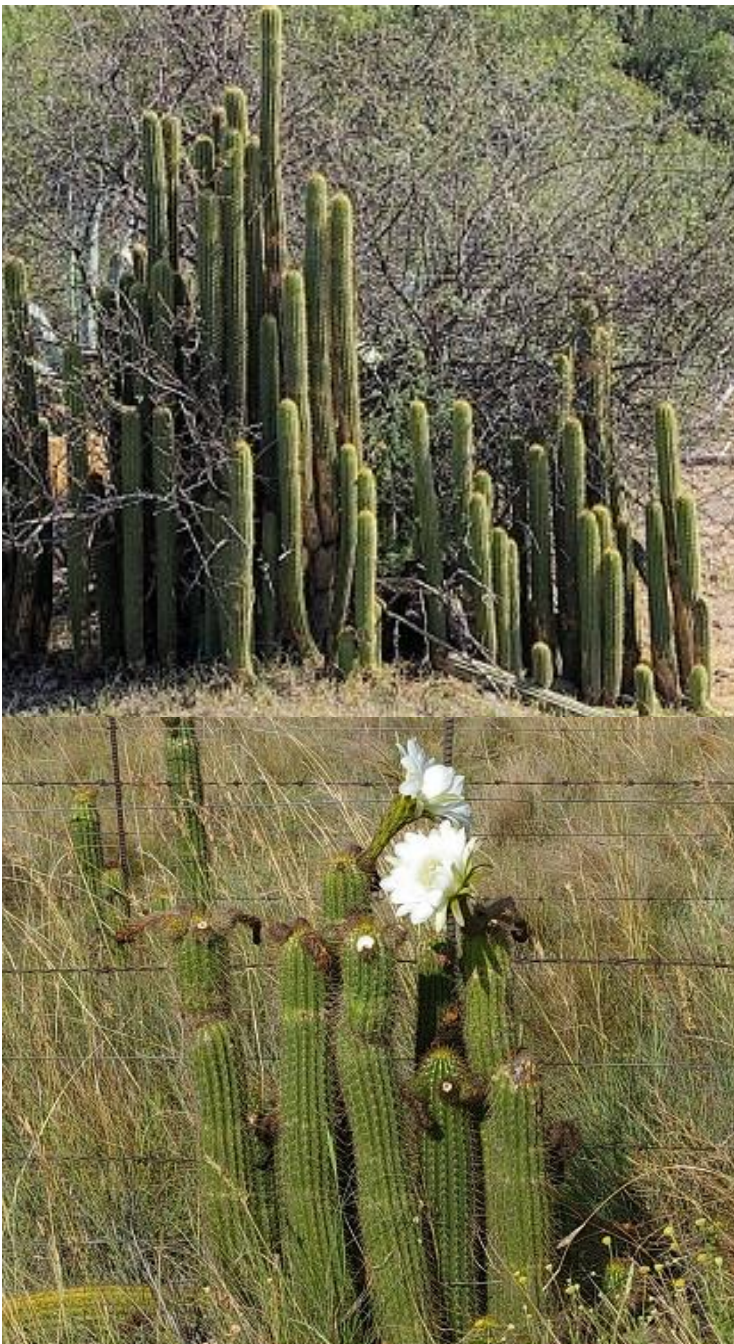
Invasive torch cactus and look-alikes in South Africa

Torch cactus and several other closely related species are naturalized and invasive in South Africa. These species belong to the genera *Trichocereus*, *Echinopsis* and *Nyctocereus*.

The delineation of genera and species within the family Cactaceae has been the topic of much debate and disagreement over the years. Some authorities maintain that *Trichocereus* and *Echinopsis* should be recognized as separate genera while others maintain they should be merged under *Echinopsis*. In this article the genera are recognized as separate following Hunt *et al* (2013) based on the molecular research by Schlumberger & Renner (2012) and personal communication with Roberto Kiesling (Kiesling 1978). The reader should, however, refer to Hunt (2016) in the CITES Cactaceae checklist where 'alternative names' are provided.

Stems columnar, unsegmented and ribbed.

Stems usually erect, branching vertically from the base



White or golden torch cactus

Trichocereus spachianus (= *Echinopsis spachiana*)

Shrub 1–2 m high; stems 8–10 cm wide; spines numerous, amber-coloured, turning grey; central spine longer than radials. Flowers white, night-blooming, up to 20 cm long; floral tube and fruits covered with long black hairs; fruits green, white inside with small black seeds.

Native to Argentina. Very widely invasive in South Africa. Cultivated for ornament and hedging. Seeds dispersed by birds and mammals.

Invasive torch cactus and look-alikes in South Africa

Stems very slender, first erect, then clambering



Photo: Peter Shisani



Snake cactus

Nyctocereus serpentinus (= *Peniocereus serpentinus*).

Shrub 2–3 m high with tuberous roots; stems slender, 3–5 cm wide; flowers white, tinged red outside, night-blooming, up to 25 cm long; floral tube covered with white hairs and bristles; fruit red with deciduous spines. Seeds black, amongst the largest in the Cactaceae, 5 mm long.

Native to Mexico. Cultivated for ornament. Naturalized and invasive in several parts of South Africa; forming extensive stands in some localities.

Stems usually low, growing horizontally before turning upwards



Photos



Richard Dean

Argentine giant cactus

Trichocereus candicans (= *Echinopsis candicans*)

Shrub, clump-forming, up to 1 m high and a spread of 1–3 m across. Stems 12–18 cm wide. Similar to torch cactus but not as tall and not as straight; the stems leaning to one side. Flowers white, night-blooming, up to 25 cm long; floral tube and fruits covered with long brown hairs. Fruits red; white inside with small black seeds.

A variable species with a wide natural range in Argentina. This species was recently reported as spreading from cultivation in the karoo region around Prince Albert by Richard Dean. The identification was confirmed from photos by Roberto Kiesling in Argentina (Kiesling 1978).



Invasive torch cactus and look-alikes in South Africa

Red torch cactus

Trichocereus huascha (= *Echinopsis huascha*)

Shrub, clump-forming; up to 90 cm high and 2 m across; stems 5–10 cm wide; spines yellowish to brownish, up to 5 cm long. Flowers red, yellow or orange, up to 10 cm long; day-blooming.; floral tube and fruits covered with brown hairs. Fruits yellowish or reddish.

Native to Argentina. Cultivated in South Africa as an ornamental. Currently there is only one record of plants growing outside of cultivation in the Graaff Reinet area.



Stems globular, unsegmented and ribbed.

Easter lily cactus

Echinopsis oxygona

Clump-forming; up to 30 cm high; stems globose, usually 10–15 cm across. Flowers pink, night-blooming. Floral tube with sparse hairs.

Native to South America, from Bolivia to southern Brazil and Argentina. It is found mostly on cultivated and neglected rockeries, dumping sites and occasionally in the natural veld but so far it has not been seen spreading far from human habitation.



References

- Hunt, D. *et al.* 2013. *The New Cactus Lexicon Illustrations*, dh books, Milborne Port.
- Hunt, D. 2016. *CITES Cactaceae Checklist*, third edition. Compiled with financial assistance of the Royal Botanic Gardens Kew. Printed in England.
- Kiesling, R. 1978. El género *Trichocereus* (Cactaceae): I. Las especies de la Rep. Argentina. *Darwiniana* Tomo 21, No. 2–4, 263–330.
- Schlumpberger, B.O. & Renner, S.S. 2012. Molecular phylogenetics of *Echinopsis* polyphyly at all levels and convergent evolution of pollination modes and growth forms. *Amer. J. Bot.* 99(8): 1335–1349.