



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



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### Inside this issue:

The ravages of drought and invasive plants	1
Invasive alien ornamental plants in the Northern Cape	2
Durban's weedy alien melastomes—possible invaders	1, 3–5
Pompom weed: an update on biological control	6

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Invasive Species Website: [invasives.co.za](http://invasives.co.za)

## The ravages of drought and invasive alien plants

South Africa is experiencing not only the worst drought in 30 years, but also record high temperatures. It is in times of such crisis that the negative impacts of invasive alien plants are felt the most, particularly in water catchments and river systems. In the Northern Cape, the most arid province in South Africa, *Prosopis* forms extensive, high density stands and utilizes large quantities of precious groundwater. While individual trees are still extremely valuable for their shade, shelter and nutritious pods, extensive invasions are detrimental to water resources and compete with and replace indigenous plant communities.

A recent survey of invasive alien plants in the northern Cape revealed several species of ornamental cacti, grasses and drought-hardy herbs. Beware of these plants. They need to be controlled and eradicated wherever possible. See page 2 for some of the worst offenders and newly emerging invaders.



Precious groundwater is lost to extensive *Prosopis* invasions in the Northern Cape.

## Weedy alien melastomes and indigenous look-alikes

Plants in the family Melastomataceae are herbs, climbers, shrubs and trees. They have showy, radially symmetrical flowers and distinctive leaves, usually with 3–7 longitudinal veins and interconnecting transverse veins, giving a checkerboard pattern. At least four introduced melastomes have naturalised around Durban in KwaZulu-Natal. The article by Richard Boon on pages 3 to 5 describes the weeds based on local material and points out how they differ from similar indigenous species.





## Invasive alien ornamental plants in the Northern Cape

*Pennisetum setaceum*, fountain grass (**photo 1**), is one of the most invasive grasses in South Africa and is spreading alarmingly out of Springbok and other towns in Namaqualand. The popular *Limonium sinuatum*, statice or paper flower, also uses roads to spread outwards from towns (**photo 2a & b** at Kamieskroon). Both species have been prohibited from cultivation and must be eradicated wherever possible. There is a big question mark whether so-called sterile cultivars are in fact sterile.

*Cylindropuntia fulgida* var. *mamillata*, boxing glove cactus (**photo 3a & b**), and *Tephrocactus articulatus*, pine cone cactus (**photo 4**), are very invasive. The worst infestations are seen at abandoned farmhouses. Both species are prohibited and should be eradicated wherever possible. *Echinopsis huascha*, red torch cactus (**photo 5**), is starting to invade in places and possibly qualifies as a category 1a invader under NEMBA. *Parkinsonia aculeata*, Jerusalem thorn (**photo 6**), is a leguminous ornamental tree, spreading from seed, and favouring drainage lines and watercourses. It should be eradicated.





## Durban's weedy alien melastomes—possible new invaders

Richard Boon, eThekweni Municipality, Durban, e-mail: Richard.Boon@Durban.gov.za

The Melastomataceae or melastome family is a pantropical family of about 170 genera and more than 5 000 species and is one of the 10 largest flowering plant families. The genera *Memecylon* and *Warneckea*, which are represented in southern Africa, are sometimes classified in the Memecylaceae. Excluding the Memecylaceae, three genera and six species are indigenous to South Africa.

The family is notable for the greatest diversity of hair types of all angiosperm families. The species usually have more or less four-angled twigs and simple, opposite, decussate leaves (arranged in pairs, with each pair at right angles to the next) with 2–8 sub-parallel veins diverging from the base, or just above, and converging at the apex. Primary veins tend to be connected by transverse cross veins creating a 'checkerboard' pattern. Stipules are rare. Flowers are usually radially symmetrical and showy. Stamens are often bent at a sharp angle where the filament joins the anther and appendages are frequently found at the point of attachment. Most species produce no nectar and pollination is mainly through buzz pollination by bumblebees and carpenter bees. Some species have edible fruit, others are used for lumber and a number are used in horticulture, e.g. *Tibouchina* and *Medinilla*. Melastomes can be aggressive weeds. *Miconia calvescens*, for example, is on the list of the world's 100 most noxious weeds and forms large, monospecific stands in Hawaii and Tahiti.

At least four introduced melastomes have naturalised in Durban's coastal hinterland, e.g. at New Germany, Kloof and Hillcrest, and other parts of coastal KwaZulu-Natal, particularly the South Coast. They spread by seed and vegetatively. This article describes the weeds and points out how they differ from the relatively similar indigenous *Antherotoma phaeotricha* and *Dissotis canescens* and *D. princeps*.

### ***Heterocentron subtriplinervium* (= *H. macrostachyum*; *H. roseum*) pearl flower**

This species comes from Guatemala and southern Mexico. It is a soft, lax shrub to 1.8 m and has distinctly square stems with winged margins (photo 1). Leaves are dark green with pinnate veins, which are depressed above and raised below (photo 2). The dorsal surface has hairs on small, raised bumps. The margin is often pinkish-red. Leaves are soft with a slightly rough texture, elliptic to slightly ovate and reach about 70 x 30 mm. The blade runs into a short petiole. The plants flower in autumn and the flowers are smaller than other local melastome weeds. They range from white to pink or magenta and have four rounded petals (photo 3). Plants grow in moist, sunny and shady places. The pearl flower is naturalised in KwaZulu-Natal and Mpumalanga. In Durban it is known only from a few sites where it may grow in dense, localised stands. It is invasive in Hawaii. The indigenous herb *Antherotoma phaeotricha* (dwarf Dissotis) (photo 4) is superficially similar, but is smaller and has leaves with 5–7 semi-parallel veins. *Dissotis canescens* (pink marsh Dissotis) (photo 5) is also similar. It is a more erect plant with cerise pink flowers with five petals and leaves with 5–7 semi-parallel veins. *H. macrostachyum* is probably a regional variant of *H. subtriplinervium*.

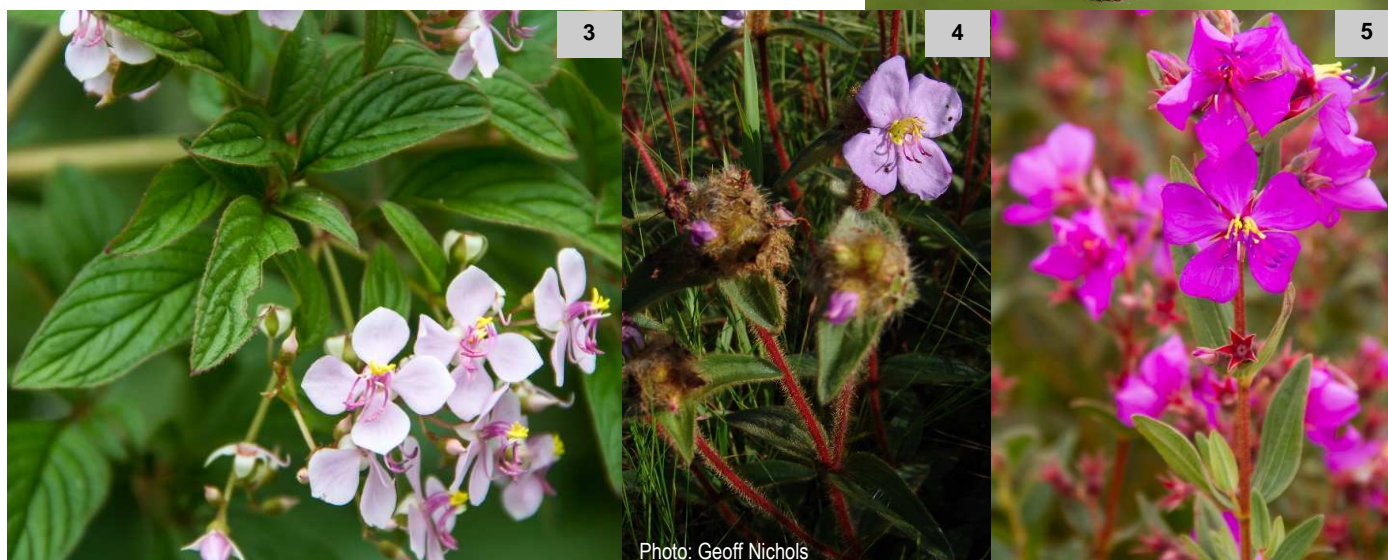


Photo: Geoff Nichols



## Weedy alien melastomes continued

### *Melastoma candidum* (= *M. septemnerium* an illegitimate name) Asian melastome

Some references include *M. candidum* as part of a variable *M. malabathricum* (Malabar melastome) while others treat them as separate species. Local plants are tentatively identified as *M. candidum*.

*M. candidum* originates from Asia and is a woody shrub that reaches about 2 m in height. Twigs on the current season's growth are green and round. Branchlets are mid-brown and indistinctly ridged longitudinally. Branches and petioles are densely covered with pinkish-red scales (photo 1), some of which have long hair-like extensions. Leaves (**photo 2**) are ovate to elliptic, taper to an acute apex and rounded base, dark green, slightly shiny above and below and reach about 110 x 50 mm. The five semi-parallel main veins and two finer sub-marginal veins diverge at the leaf base and converge at the apex. The main veins are sunken above and raised below and on the ventral surface they are pinkish-red, especially towards the leaf base. Transverse veins are not visible on the dorsal surface, but are fairly distinct below. Leaves are leathery and slightly rough. The upper surface is covered in raised bumps with short hairs. The lower surface is sparsely covered with longer, straw-coloured hairs. The petiole is pinkish-red and up to 20 mm long. Flowers are large and showy and the five petals are lilac (photo 3). The hypanthium is covered in thick, long, straw-coloured hairs. The Asian melastome grows in moist grassland and forest margins in full sun or partial shade. Most species of *Melastoma* are pioneers and spread by birds. *M. candidum* is locally abundant and invasive in the state of Hawaii and has been declared a noxious weed in the United States. It has naturalised at a number of places locally and shows potential to be quite invasive under the right conditions, e.g. at Pennington and in the New Germany Nature Reserve. *Dissotis princeps* (royal Dissotis) (**photo 4**) is a native shrub of similar size and has soft, velvety foliage and more purple flowers.



### *Tibouchina mutabilis*

This Brazilian shrub or tree grows to about 15 m tall. Twigs are mid-brown and square, with a slight wing on the ridges. Young parts are densely covered with brown hairs. Leaves (**photo 5**) are dark green and matt above and paler and slightly glossy below. They are elliptic, taper to the base and apex, and reach about 110 x 50 mm. There are five semi-parallel main veins diverging at the base and converging at the apex. The main veins are sunken above and raised below. The transverse veins are indistinct. Leaves are leathery and mostly smooth, although some specimens feel slightly rough especially when dry. Hairs are fairly sparse, with white hairs on the leaf underside and longer brown hairs on the main veins. The petiole reaches about 20 mm, is channelled above and is covered in fairly dense, long, brown hairs.



The flowers (**photo 6**) are large and showy and appear in summer. They open white to pale purple and age to pale magenta. *T. mutabilis* grows in wet places in sun and shade including wetland margins and riverine forest. The species shows potential to be quite invasive and is known from at least four sites in Hillcrest where it is being controlled.



## Weedy alien melastomes continued

### *Tibouchina urvilleana* (*T. semidecandra* is a misapplied name) purple glory bush

The purple glory bush occurs naturally in southern Brazil. It is a sprawling shrub to small tree to about 4 m. Young stems are square and green and become pale brown as they mature. Leaves (photo 1) are soft and velvety and dull mid to dark green. They are more or less broadly ovate and have a pointed apex and rounded base. They grow to about 140 x 70 mm. There are five longitudinal, semi-parallel veins plus two finer sub-marginal veins. The veins on the upper surface are slightly sunken and the transverse veins are indistinct. The veins on the lower surface are pale and raised. The branchlets and leaf undersides are densely covered with long white hairs giving them a silvery appearance. The petiole reaches about 25 mm and is densely hairy. Flowers are borne in summer and autumn and are large, with five broad, deep purple petals and dark stamens (photo 2). The species is invasive in New Zealand, New Caledonia, Samoa, La Réunion and on a number of islands in Hawaii. Locally it is occasionally found in wet habitats where it may form dense stands (photo 3). It grows in sun and fairly dense shade. *Dissotis princeps* (royal Dissotis) (photo 4), which is indigenous, also has soft, velvety foliage, but it is a smaller shrub and the flowers are a paler shade of purple.



#### Acknowledgements

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#### References

Global invasive species database: <http://interface.creative.auckland.ac.nz/database/welcome/>

Melastomataceae of the world: [www.melastomes.com](http://www.melastomes.com)

Meyer, K. 2001. Revision of the southeast Asian genus *Melastoma* (Melastomataceae). *Blumea* 46: 351–398.

Plants of southern Africa online (POSA): <http://posa.sanbi.org/searchsp.php>

Pooley, E. 1998. A field guide to the wildflowers of *KwaZulu-Natal and the eastern region*. Natal Flora Publications Trust, Durban.

The plant list: a working list of all plant species: <http://www.theplantlist.org/>

#### Have you seen any alien melastomes growing outside of cultivation in South Africa?

Report your observations to Lesley Henderson for inclusion in the SAPIA database, e-mail: [L.Henderson@sanbi.org.za](mailto:L.Henderson@sanbi.org.za), tel: 012 843 5035.

Where possible please provide the locality (GPS coordinates or distinguishing landmarks), a description of the habitat, and estimated number of plants. Photos of leaves, stems and flowers would be helpful.



## Pompom weed: an update on biological control

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Since the initial release of the stem- and leaf-deforming thrips (*Liothrips tractabilis*) on pompom weed (*Campuloclinium macrocephalum*) in October 2013 at Rietvlei Nature Reserve (**photo 1**) (see SAPIA News No. 31 and 35), an estimated 200 000 thrips have been released in Gauteng, North West, Limpopo and Mpumalanga provinces. Proportionally, the most releases have been made in Gauteng (56%) and Mpumalanga (21%).

It is still too early to confirm establishment at all sites, but preliminary data indicate an establishment rate of 48%. Dispersal of the thrips after release is slow, but steady, with the impact on infected plants becoming more noticeable over a period of 3–5 seasons following the initial release. Establishment on mature and reproductive plants is less successful. Therefore the window period at the start of the growing season should be targeted and landowners should try to familiarise themselves with the very young, vegetative growth form of the pompom weed (**photo 2**). When in flower a number of pompom plants can be tagged and revisited during the new growth season. This will assist landowners in identifying the young, vegetative growth form.

Through planned mass-rearing it is hoped that a large number of insects will be made available early in the season to drastically increase the distribution and optimise establishment of the biological control agent.



## ARC-PPRI, WEEDS RESEARCH PROGRAMME

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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>



New fact sheets on invasive ornamental plants by Lin Sztob and Lesley Henderson (at <http://www.arc.agric.za/arc-ppri/Pages/Weeds%20Research/Fact-Sheets-on-Invasive-Alien-Plants-and-their-Biological-Control-Agents.aspx>)

Belhambra (*Phytolacca dioica*), Chilean inkberry (*Cestrum parqui*), Goosefoot (*Syngonium podophyllum*), Madagascar/purple rubber vine (*Cryptostegia madagascariensis*), Rubber vine (*Cryptostegia grandiflora*), Queensland umbrella tree (*Schefflera actinophylla*), Sword fern (*Nephrolepis cordifolia*), and in preparation: Coreopsis (*Coreopsis lanceolata*), Fountain grass (*Pennisetum setaceum*), Mother-of-millions (*Bryophyllum delagoense*), Singapore daisy (*Sphagneticola trilobata*)