



environmental affairs

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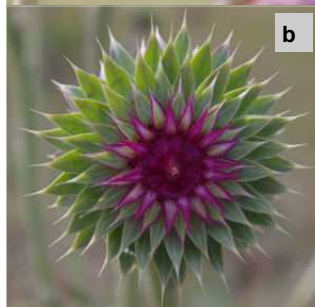
Articles and photos by Lesley Henderson
unless otherwise acknowledged

Emerging Invasive Alien Plants in the Eastern Cape

This special issue of SAPIA News has been prompted by a SAPIA survey of invasive alien plants in the Eastern Cape during October. The region surveyed stretched from Venterstad in the north to Cradock, Somerset East, Fort Beaufort, Hogsback, Grahamstown, Port Alfred, Kenton on Sea and Alexandria.

The diversity of the indigenous vegetation, which includes the Grassland, Nama-Karoo, Savanna, Thicket and Fynbos biomes, is matched by the vast array of alien plant species that have become invasive or naturalised.

This SAPIA News will focus mainly on the emerging invaders, which without intervention are likely to expand and could become major invaders.



Nodding thistle, *Carduus nutans* (= *C. macrocephalus*), a very prickly, aggressive invader, is a threat to agriculture in the E Cape. Nodding mature inflorescence (photo a), immature inflorescence (photo b) and plant up to 2 m tall (photo c).

Nodding thistle is native to Europe, North Africa and Western Asia. It has become invasive in the USA—where it is a declared noxious weed in 22 states, Canada, Australia and New Zealand. It forms dense stands particularly in disturbed and overgrazed sites; there is some evidence of allelopathy—the chemical inhibition of the growth of other plants, and development of resistance to herbicides. In South Africa this weed appears to be restricted to the Grahamstown, Albany and Alexandria magisterial districts. It is adapted to a wide range of environmental conditions and has the potential to greatly expand its distribution. Please send records of this invader to Lesley Henderson.

Nama-Karoo & Dry Grassland

This is the vegetation of the dry interior characterised by dwarf shrubs and grasses. Towns include Venterstad, Cradock and Hofmeyr. Common invaders include: white-flowered Mexican poppy (*Argemone ochroleuca*) and sweet prickly pear (*Opuntia ficus-indica*) (under biocontrol)

Nierembergia (*Nierembergia hippomanica*) (photo 1) is an ornamental plant, toxic to livestock, that has become naturalised in several parts of South Africa. During the recent SAPIA survey it was seen at the Mountain Zebra National Park where it has escaped from cultivation. Fountain grass (*Pennisetum setaceum*) (photo 2) is spreading alarmingly along roadsides. Torch cactus (*Echinopsis spachiana*) (photo 3), is an ornamental and low hedge plant, that reproduces from seed spread by birds, monkeys and possibly other animals. This cactus is a category 1 invader and should be eradicated wherever possible. Pepper tree (*Schinus molle*) (photo 4) is a popular ornamental and shade tree that reproduces and spreads from seed spread by birds, particularly along watercourses and around farmsteads.



1



2

Categ 1 CARA



3

Categ 1 CARA



4



5

Categ 1 proposed

Broadleaf or Dalmatian toadflax (*Linaria dalmatica*) (photo 5) is an ornamental cut flower plant, poisonous to livestock, and can be seen invading disturbed sites at Adelaide. Sheathed chollas (*Cylindropuntia pallida*, with pink flowers and *C. tunicata* with yellowish-green flowers) (photo 6), have the potential to become very serious invaders; they are exceptionally spiny, and their spines are covered with barbed sheaths. These cacti should be eradicated wherever possible.



6

Categ 1 proposed



7

Proposed Categ 1 except N Cape where categ 2

Mesquite or prosopis (*Prosopis* spp.) (photo 7), whose pods are used for fodder, can form impenetrable thorny thickets, particularly on the most fertile soils and along drainage lines (e.g at Hofmeyr).

Prickly pears in the Eastern Cape and how to distinguish them:

Spineless blue-leaf cactus (*Opuntia robusta* cultivar) (photo 8) has been planted for fodder, often in large plantations, in the Karoo. There is considerable spread of plants away from plantings. Note that spiny forms of sweet prickly pear (photo 9) are category 1 declared invaders. Landowners should be on the lookout for spiny forms of blue-leaf cactus as these are likely to become invasive as they will not be browsed by livestock and have been proposed as category 1 under CARA .

Blue-leaf cactus (*O. robusta* cultivar) (photo 8) has yellow flowers and bluish, ~ round cladodes; sweet prickly pear (*Opuntia ficus-indica*) (photo 9) has deep orange flowers and cladodes longer than broad; small round-leaved prickly pear (*O. engelmannii*) (photo 10) has orange flowers and ~ round cladodes; spines usually single and curved. Drooping prickly pear (*O. monacantha*) (photo 11) has yellow petals with red stripes and shiny cladodes—and only occurs in coastal areas



8



9

Categ 1 CARA



10

Categ 1 CARA



11

Categ 1 CARA

All these species develop trunks, becoming tree-like, except small, round-leaved prickly pear

CARA = Conservation of Agricultural Resources Act; NEMBA = National Environmental Management: Biodiversity Act: categ 1= prohibited & must be eradicated where possible or controlled; categ 2 = permitted in demarcated areas; categ 3 = no more trade or cultivation & must be prevented from spreading

Albany Thicket & Savanna

Albany thicket is the vegetation along the coast and river valleys. It includes the towns of Bathurst, Port Alfred and Kenton on Sea. Savanna comprises the Bhisho thornveld near Fort Beaufort, Alice and the valleys below Grahamstown. Major invaders are rooikrans (*Acacia cyclops*), lantana (*Lantana camara* hybrid complex), small round-leaved prickly pear (*Opuntia engelmannii*), sweet prickly pear (*O. ficus-indica*), Aleppo pine (*Pinus halepensis*), guajava (*Psidium guajava*) and inkberry (*Cestrum laevigatum*).



Veined verbena (*Verbena rigida*) (photo 2) can invade undisturbed grassland; it has a woody rootstock and rhizomes.

Nodding thistle (*Carduus nutans*) (photo 1a & 1b) can lead to severe degradation of natural grasslands and pastures because grazing animals focus on native vegetation giving the invasive thistles a competitive advantage. Seed is dispersed by wind, animals, machinery and as a contaminant of crop seed and in hay.



The ornamental groundcovers—white- (photo 3) and purple- (photo 4) flowered wandering Jews and creeping inch plants (photo 5) invade the understorey of thicket and forest. Bloodberry (*Rivina humilis*) (photo 6) invades forest margins. Belhambra (*Phytolacca dioica*) (photo 7) is a very large tree that reproduces from seed spread by birds. Mauritius hemp (*Furcraea foetida*) (photo 8) invades rocky cliffs (e.g. at Port Alfred); it reproduces from bulbils and by suckering.



Night-blooming cactus (*Hylocereus undatus*) (photo 9) is a climbing cactus that spreads vegetatively from stem fragments and from seed. Madeira vine (*Anredera cordifolia*) (photo 10) is a very aggressive climber with succulent leaves that smothers other plants; it reproduces from aerial tubers produced in the axils of the leaves. Pereskia (*Pereskia aculeata*) (photo 11), sometimes known as Barbados gooseberry because of its gooseberry-like ripe fruits, is a very spiny and aggressive climbing cactus. It is already a pest in places such as Bathurst and Port Alfred but will spread much more if not contained.



Amathole Grassland & Forest

This is the moist mountain and mistbelt grassland, with forest patches, in the Amathole Mountains: towns include Hogsback. The major invaders are black wattle (*Acacia mearnsii*), Australian blackwood (*A. melanoxylon*), grey poplar (*Populus xcanescens*), pines, brambles (*Rubus cuneifolius* and apparent hybrids between the indigenous *R. rigidus* and *R. cuneifolius* and *R. fruticosus*). Only some of the emerging species are illustrated here.

Members of the rose family, Rosaceae, are prominent. These include: black cherry (*Prunus serotina*) (photo 1), a large tree with cylindrical, pendent inflorescences and small black mature fruits; American dewberry (*Rubus flagellaris*) (photo 2), a trailing shrub with slender stems and very large white flowers; firethorns (*Pyracantha* spp.) (photo 3), cotoneasters (photo 4), eglantine rose (*Rosa rubiginosa*) (photo 5). These species reproduce from seed spread by birds and are invading grasslands and forest margins



Categ 1 proposed



Categ 1 proposed



Categ 3 CARA but proposed categ 1



Categ 3 CARA but proposed categ 1



Categ 1 CARA

Willow hakea (*Hakea salicifolia*) (photo 6), commonly cultivated as a hedge or screen plant, invades moist sites. European gorse (*Ulex europaeus*) (photo 7), and Scotch broom (*Cytisus scoparius*) (photo 8), are ornamental shrubs that have long been prohibited under CARA.

Chinese maple (*Acer buergerianum*) (photo 9), is a prolific seeder and invades moist sites; Japanese or Hall's honeysuckle (*Lonicera japonica* 'Halliana') (photo 10), is a climber that can smother other vegetation; blue periwinkle (*Vinca major*) (photo 11), is a scrambling perennial groundcover that forms extensive mats along forest margins; ginger-lilies (*Hedychium* spp.) (photo 12), invade forest understoreys; Mexican daisy (*Erigeron karvinskianus*) (photo 13), a sprawling perennial that is spreading along roadsides and forest margins; and Canary Ivy (photo 14), a rampant climber that smothers other vegetation.



Categ 1 CARA



Categ 1 CARA



Proposed Categ 3 –urban; categ 1 non-urban



Categ 3 proposed



Categ 1 proposed



Categ 1 CARA



Categ 3 proposed

Fynbos

This is the vegetation on the mountains around Grahamstown. Major invaders are cluster pine (*Pinus pinaster*), radiata pine (*P. radiata*), Aleppo pine (*P. halepensis*), black wattle (*Acacia mearnsii*), Port Jackson (*Acacia saligna*) (under biocontrol), long-leaved wattle (*Acacia longifolia*) (under biocontrol).

Sugar gum (*Eucalyptus cladocalyx*) (**photo 1**), is a useful tree that is permitted under controlled conditions; the proposal under NEMBA and the revised CARA, is that it may not be cultivated within 50 m of fire-prone vegetation, and that it be prohibited in riparian areas, wetlands, declared mountain catchment areas and protected areas.



1

Categ 2 CARA



2

Stiff-leaved bottlebrush (*Callistemon rigidus*) (**photo 2**), is an evergreen, stiff, erect shrub 2–3 m tall. Its leaves are long and narrow, with thickened margins. It has the potential to become a major invader, especially of moist sites. It has been proposed as a category 1 invader under NEMBA.

Categ 1 proposed



3a

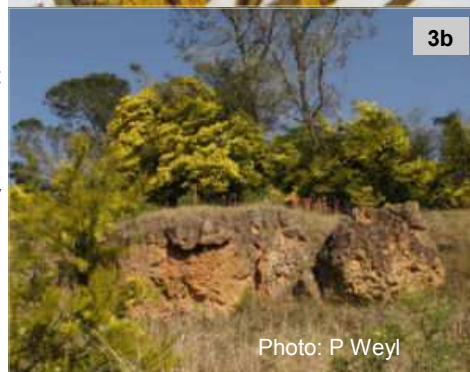
Fringed wattle (*Acacia fimbriata*) (**photos 3a & 3b**), can be distinguished by its very narrow leaves (1–5 mm wide), and leaf margins and branchlets fringed with hairs.



4

Spanish broom (*Spartium junceum*) (**photo 4**), is an ornamental, almost rush-like shrub with yellow flowers in terminal racemes. It is already a prominent invader in the Western Cape Fynbos and is likely to become equally invasive in the Eastern Cape.

Categ 1 CARA



3b

Photo: P Weyl

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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. .

- Biological control
- Chemical control
- Bioherbicides
- Integrated control



We are on the Web:

www.arc.agric.za

see Plant Protection News

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Weeds Research Programme