

COMMON PROBLEM INVASIVE PLANTS IN KLOOFENDAL NATURE RESERVE

Compiled by Karin Spottiswoode for the Friends of Kloofendal June 2014, updated July 2016

This list includes the major problematic invasive plants in Kloofendal. As there are so many, the lesser problematic invasive plants have not been included in this document. So far 64 problematic plant species in Kloofendal have been listed

This is a “working document”. The contents will need to be updated from time to time.

This document on invasive problem plants in Kloofendal is based on the list of declared alien & invasive species, published in the Alien and Invasive Species Regulations (AIS), National Environmental Management Biodiversity Act (Act no 10 of 2004) as published in the Government Gazette, 1 August 2014

REFERENCES

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KLEIN, H. & NESER, O. 2014. A field guide to the Invasive Alien Plants of the Magaliesberg. Pyramid Litho Printers, Pretoria.

VAN WYK, B & MALAN, S. 1998. Field guide to the wild flowers of the Highveld. Struik. Cape Town

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<http://www.invasives.org.za/>


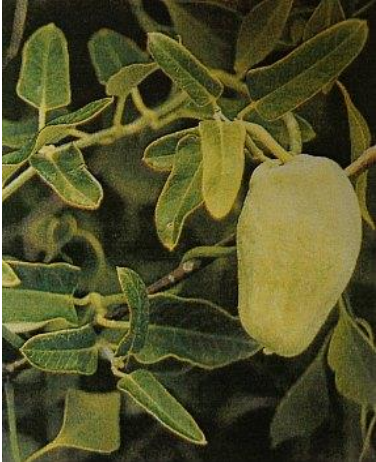

Advice on poisons can be obtained from Avoncod (2009 information)

This manual is to be used as an aid for students learning to identify invasive problem plants in Gauteng & North West Province, the practical training based in Kloofendal Nature Reserve.

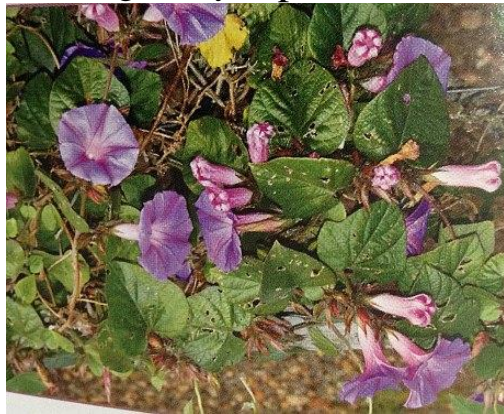
Thanks to Jörgen Hammerström, alien invasive plant control portfolio, Friends of Kloofendal Committee, and his team for their dedicated work on Invasive Alien control over many years.

LISTED INVASIVE PROBLEM PLANTS IN KLOOFENDAL RESERVE

CREEPERS & CLIMBERS

Picture	Description	Location of the weed	Action – mainly based on Wendy Carsten’s successful weed control 2015 in Melville Koppies Recommended by Clive Bromilow – see reference above Recommended by Klein, H. & Nesar, O. – see reference above
<p>Moth catcher Category 1b</p>  <p>Creeper with milky latex , white flowers & big seedpod</p>	<p>39. <i>Araujia serricifera</i> (Family: Asclepiadaceae)</p>  <p>Big seedpod</p>	<p>Amphitheatre, path towards dam and amongst riverside vegetation White flowers.</p> 	<p>Dig and pull out. Remove seed pod if accessible.</p>

Morning Glory - Ipomoea



Bromilow

179. *Ipomoea purpera*

179. *Ipomoea purpera*
(Family: Convolvulaceae)



Bromilow

178. *Ipomoea indica*


Plentiful near ex solar panel & pump, near
"Jaccuzi"



179. *Ipomoea purpera*

Bag flowers, pull out
plant

Extremely difficult to
control. Is sensitive to
hormone- type
herbicides.

<p>Japanese or Hall's honeysuckle, Japanese kanferfoelie Category 3</p>	<p>200. <i>Lonicera japonica</i> (Family: Caprifoliaceae)</p>  <p>Bromilow</p>	<p>Northern side of wetland, bordering gardens of back neighbour to the reserve. Growing rampantly</p>	<p>Pulling out entire plant & rootsystem. Systemic herbicides</p>
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HERBS & SHRUBS

1. PLANTS WITH LOTS OF TROUBLESOME SEEDS

Scotch Thistle – Category 1b



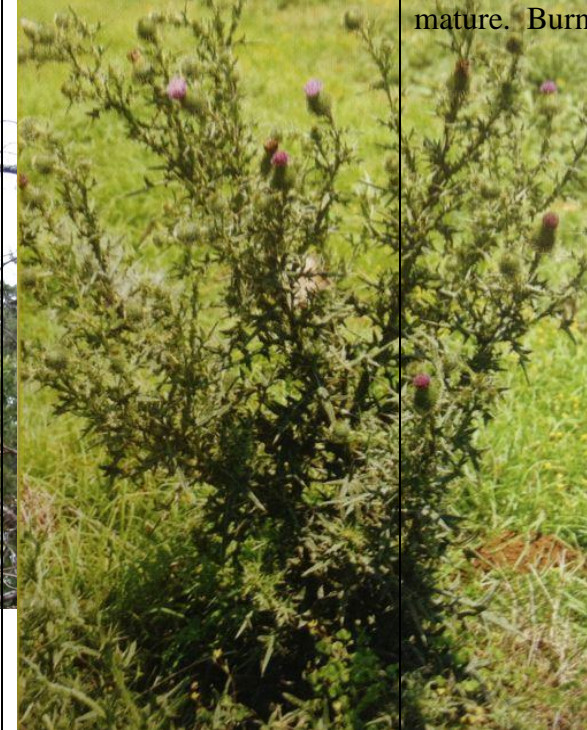
Bromilow
Flower

94. *Cirsium vulgare*
(Family: Asteraceae)



Seeds

Found in wetland



Bromilow
Flowering plant

Slash before seeds
mature. Burn seeds

Pompom Weed, **Category 1**

Bromilow

71. *Campuloclinium macrocephalum*
(Family: Asteraceae)

Next to entrance, near
Thomas' cottage, on ridge
above path to dam

Bag seeds & flowers &
pull out plants. No
slashing.

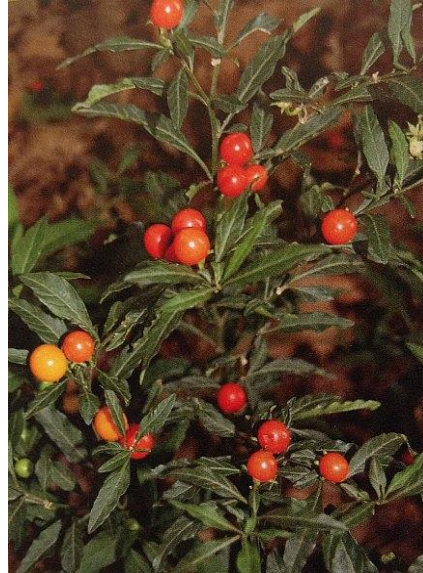
2. POISONOUS INVADERS

Jerusalem Cherry, Bosgifappel
Category 1b



Young bush

340. *Solanum pseudocapsicum*
(Family: Solanaceae)
Small bush with bright orange round
poisonous fruit



Edges of amphitheatre, northern part,
along path to dam and yellow on map



Older bush

Dig out, bag the seeds. Big bushes to
be cut below the ground level. Apply
Round-up on cut stem.



Older bush

Reference: Google:
Solanum pseudocapsicum pictures

Malpitte , Category 1b



Bromilow

118. *Datura stramonium*
(Family: Solanaceae)

Wetland

Post emergence herbicides
Bag seeds, pull out and dig out
plants.

3. TOUGH INVADERS

Inkberry, **Category 1b**



271. *Phytolacca octandra*

(Family: Phytolaccaceae)

Fruit said to be poisonous and causing skin irritations, even though in some

areas baboons eat the fruit

Red stem & autumn coloured leaves



Autumn & winter colour. Fruit turns from green to black

Found around Dassie Rock, wetland, upper ridge, little stream crossing – prolific



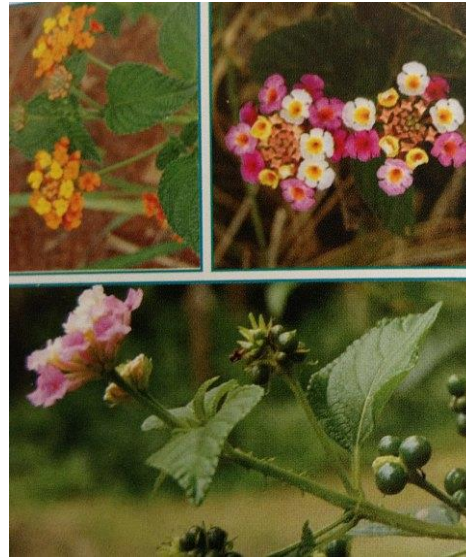
Flower & fruit

Dig out the whole plant.
Bag berries & flowers.
No poison spray

Lantana, Category 1



186. *Lantana camara*
(Family: Verbenaceae)
Can be toxic to cattle

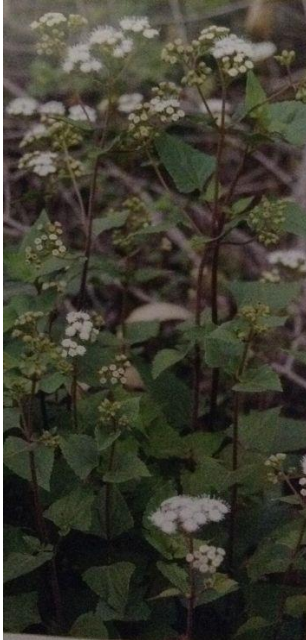


Fruit

Amongst rocks near
Thomas' cottage, higher up
in reserve amongst rocks

Bag flowers & seeds.
Dig out small plants. Big
ones cut down and spray.
No slashing!

Crofton weed, Mexican devil, Snake root -
Category 1b

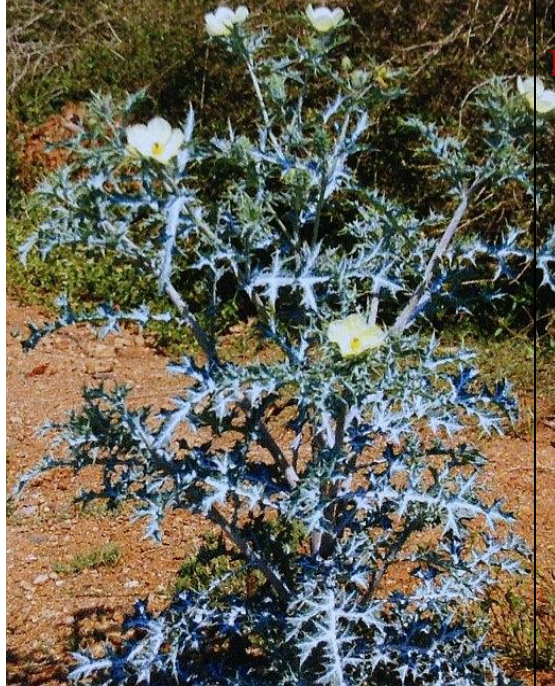


21. *Agaratina adenophora*
(*Euphatorium adenophorum*)
(Family: Asteraceae)
Unpalatable to cattle, **toxic to horses**

In Kloofendal. Abundant in
Wilgespruit stream along
Christiaan de Wet Road

Try to eradicate before
flowering. Uproot plant
by grabbing hold of base
& pulling. If it does not
come out easily, cut off
roots in soil from above,
close to base & use tool
to lever out. Roots left
behind will not grow
again, but stems will.
Discard on dry rock
away from stream far
enough from stream so
that plant cannot be
swept back into stream.

4. PRICKLY INVADERS

Mexican Poppy, **Category 1b**

Bromilow

42. *Argemone Mexicana*

Family: Papaveraceae)

Poisonous!

Bromilow

Inlet of dam

Partially controlled (2016)




Bag seeds & flowers &
pull out plants. No
slashing.



Dense-thorned bitter apple
Category 1b

342. *Solanum sisymbriifolium*
(Family: Solanaceae)
Very prickly weed



Pull out & dig out
Herbicide (expensive),
biocontrol with minimal
success so far

<p>Wild verbena, Blouwaterbossie Category 1b</p>  <p>Bromilow</p>	<p>371. <i>Verbena bonariensis</i>* (Family: Verbenaceae)</p>  <p>Van Wyk, J. Imaged list of Wild Flowers of Kloofendal Nature Reserve. 2015 Erect, robust, sparsely branched annual on floodplains, in grassland, in disturbed areas. Stems crosscut square, rough like sandpaper</p>	<p>Wetland</p>	<p>Bag seeds & flowers & pull out plants. No slashing.</p> <p>Control by cultivation and broadleaved weed herbicide</p>
	<p><i>Verbena brasiliensis</i>* (Family: Verbenaceae)</p>  <p>Van Wyk, J. Imaged list of Wild Flowers of Kloofendal Nature Reserve. 2015</p>		<p>Bag seeds & flowers & pull out plants. No slashing.</p> <p>Control by cultivation and broadleaved weed herbicide</p>

<p>Lantana, Category 1</p> 	<p>186. <i>Lantana camara</i> (Family: Verbenaceae) Can be toxic to cattle</p>  <p>Fruit</p>	<p>Amongst rocks near Thomas' cottage, higher up in reserve amongst rocks</p>	<p>Bag flowers & seeds. Dig out small plants. Big ones cut down and spray. No slashing!</p>
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INVADERS

Four O clock **Category 1b**



Bromilow

214. *Mirabilis jalapa*
(Family: Nyctaginaceae)



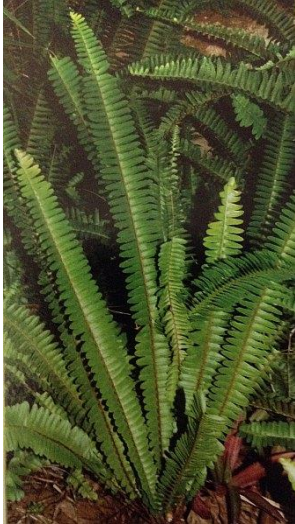


Bromilow

On top of ridge above the Rocky Ridge Trail

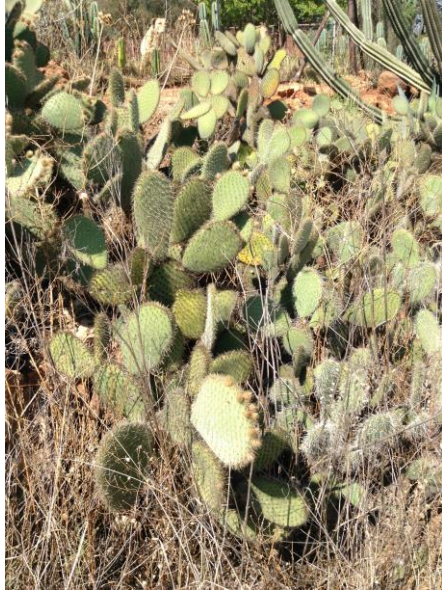
Dig out. Spray before flowering. Spot spray on leaves

Can be removed y or sprayed with a herbicide

INVADERS IN AMPHITHEATRE AREA			
<p>Canna, Indian shot – Category 1b</p> 	<p>72. <i>Canna indica</i> (Family: Cannaceae)</p>  <p>Strong rhizomatous root, difficult to eradicate</p>	<p>In flower bed in amphitheatre area</p>	<p>Dig out & remove rhizomes.</p>
<p>Sword Fern - Category 3</p>	<p>228. <i>Nephrolepis exaltata</i> (Family: Nephrolepidaceae)</p>  <p>Bromilow</p>	<p>In flowerbedS in amphitheatre area</p>	<p>Hand pulling is possible but make sure all parts of the plant are removed</p>

SUCCULENTS

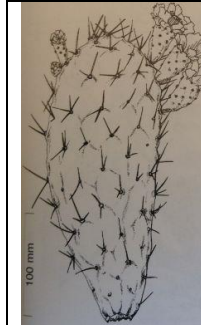
Sweet prickly pear, boereturksvy
 Category 1b



239. *Opuntia ficus-indica*
 (Family: Cactaceae)
 Aggressive invader. Propagates easily from leaf-pads or cladodes, even from small piece lying on ground

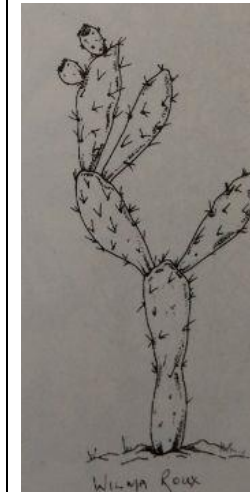


Southern border of reserve, adjacent to neighbouring gardens, also on eastern border of reserve



Chemical control possible with various herbicides
 Biological (cochineal bug) control very successful
 See Bromilow, C. "Problem plants & alien weeds of South Africa."

Small leaf piece lying on ground can produce roots & flourish.

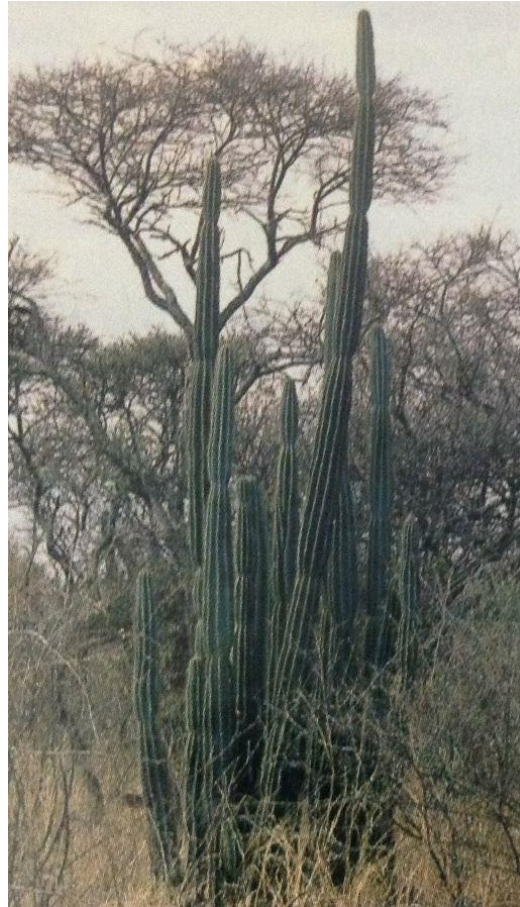


Queen of the night, Nagblom



Bromilow

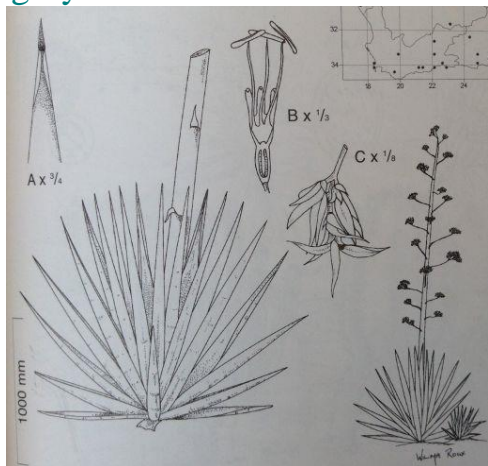
85. *Cereus jamacaru*
(Family: Cactaceae)



Bromilow

Southern border of reserve,
adjacent to neighbouring gardens

Sisal
Category 2



20. *Agave sisalana*
(Family: Agavaceae)



Bromilow

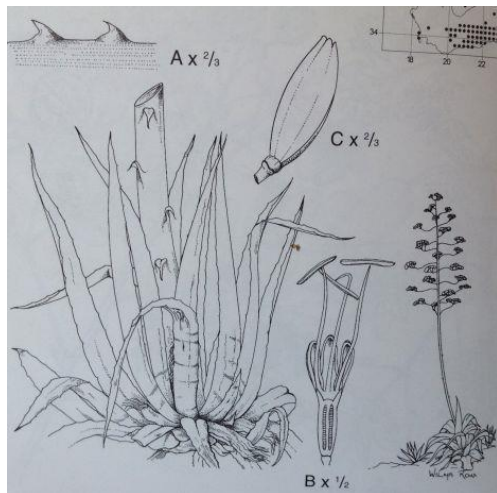
Southern border of reserve,
adjacent to neighbouring
gardens

Also planted in garden in
parking lot (2015).

A. Sisaliana can be
controlled with the
direct injection of
concentrated MSMA
into sisal bole. When
plants have died and
dried out, the area can
be cleared by fire.
Physical removal is
almost restricted to the
use of bulldozers
(Bromilow, C.2010)



American agave, garingboom
Category 2



19. *Agave Americana*
(Family: Agavaceae)



Still harvested in the Karoo
for production of an alcoholic
drink similar to Tequila



Sap & spines
can irritate
skin

FLAT GROWING HERBSPink knotweed - **Category 1b**268. *Persicaria capitata*
Polygonum capitatum(Family: Polygonaceae)
Streambed above dam

Pull out

Wandering Jew, Alien invasive weed. Category 1b



366. *Tradescantia fluminensi*
(Family: Commelinaceae)



Bromilow

Wetland, stream
above dam,
border of dam
near birdhide

Foliage is easy to
remove, but must be
done repeatedly

Greater Periwinkle,
Category 1b

374. *Vinca major*
(Family: Apocynaceae)



Bromilow

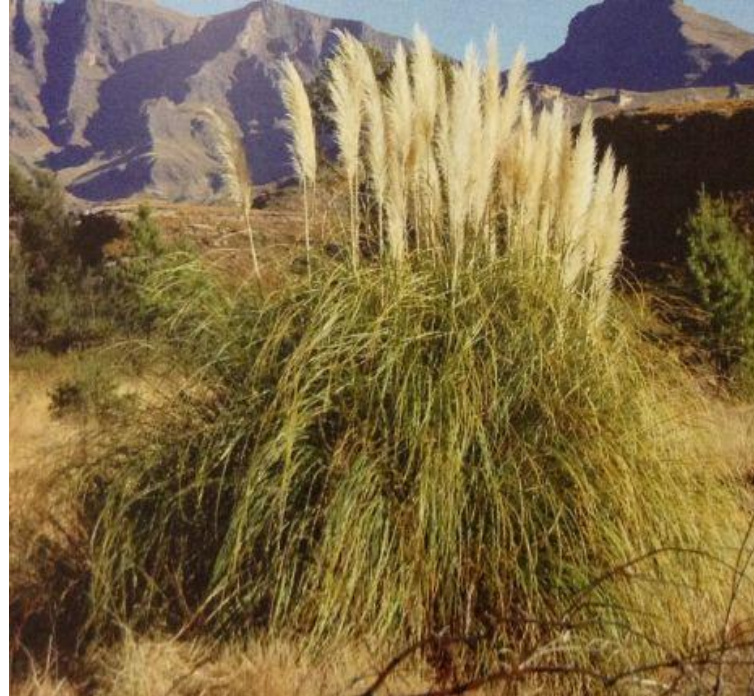
In streambed above dam

Pull out

GRASS

Pampas Grass, **Category 1b**

97. *Cortaderia jubata*
(Family: Poaceae)



Bromilow

In mine –has been removed. In wetland – removed but good chance of regrowth

Cut off flowers before seeding, burn them, and dig out stumps Spray if regrowth

No work has been done on invasive, problem and/ or alien grasses, except for Pampas grass

WATER WEEDS

Watercress, Sterkkos

Category 2



226. *Nasturtium officinale*
(*Rorippa nasturtium-aquaticum*)



Not in Kloofendal yet, abundant in
Crocodile river in Walter Sisulu
National Botanical Gardens — grows
in water.

Remove by hand

TREES**European elder, Category 1b**

323. *Sambucus nigra*
(Family: Caprifoliaceae)

Wetland



Cut down and
remove

Pepper tree wattle, **Category 1b**

6. *Acacia elata*
(Family: Fabaceae)



In riverbed, also on ridge on west side of reserve

Cut low & spray stump

Black Wattle – Category 2



10. *Acacia mearnsii*
(Family: Fabaceae)

All over the reserve in small
infestations, including big trees

Cut low & spray stump

Pearl Acacia, Vaal
mimosa – Category 1b

13. *Acacia podalyriifolia*
(Family: Fabaceae)

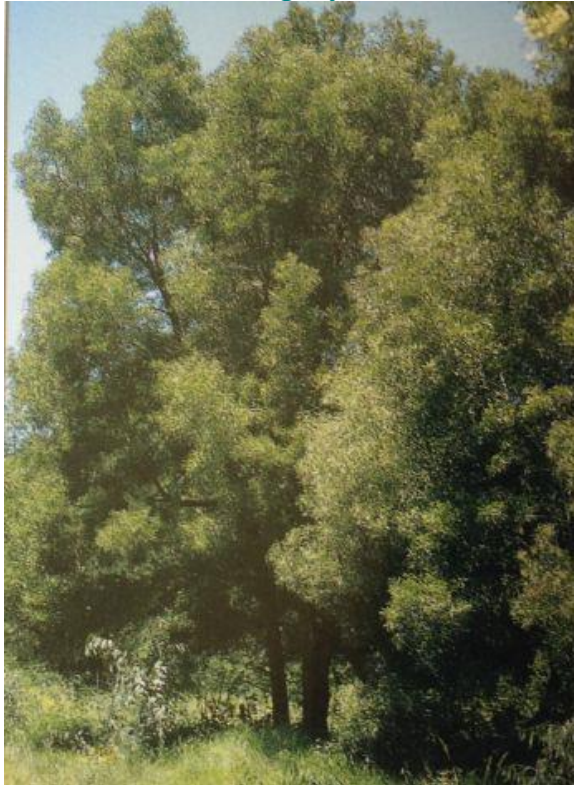


Bromilow

Top of reserve

Cut low & spray
stump

Black Wood, Category 2



Leaves of this tree are usually bright green and may have shiny appearance from a distance.

11. *Acacia melanoxylon* (Family: Fabaceae)

Young leaves may be bipinnately compound whereas adult leaves are simple.

Tends to become a forest. Trees become very tall



Young leaves may be bipinnately compound. Adult leaves are simple

Few biggish ones seen from paths near dam wall, in between *Protea roupelliaes* on hill side north of the dam and other places. Small, youngish infestations all over the reserve, particularly on path under the power lines from Topaz gate north westerly direction

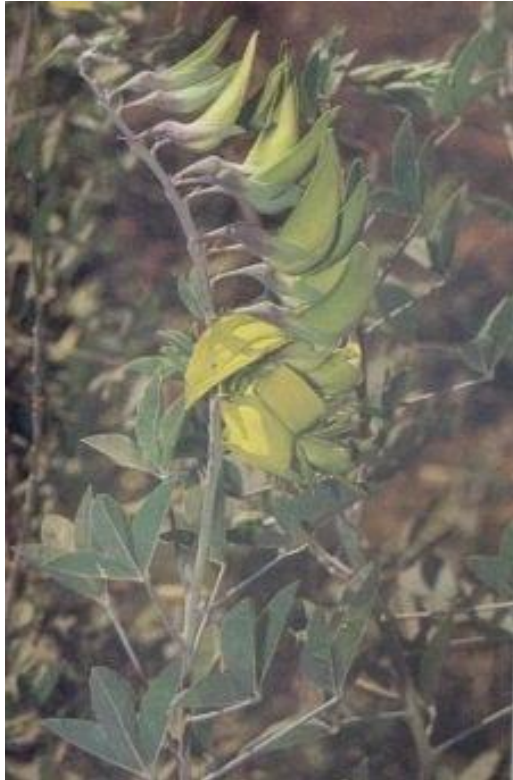
Cut & poison stumps

Spray Garlon poison mixed with dieseline onto bark of tree



Creamy pompom flowers, with firm leaves sticking out in between

Bird flower

104. *Crotalaria agatiflora*
(Family: Fabaceae)Stream bed
above the damCut down to 1 meter
above ground, debark
& poison

Yellow Bells, [category 1b](#)358. *Tecoma stans*
(Family: Fabaceae)

Streambed



Remove physically, take care to remove all seeds. Area inspected regularly to manage regrowth

False Acacia, category 1b



Flowers



Simple leaves & compound leaves on the same bush

305. *Robinia pseudoacacia*
(Family: Fabaceae)






In young *Robinia pseudoacacia* the leaves are simple. Thorns already very vicious looking, coming out in pairs



In older *Robinia pseudoacacia* the leaves are compound, thorns vicious even on stem. Infestation found on north eastern border of reserve, bordering on neighbouring garden(s)

Low cut, insert horizontal cuts in stump, spray poison.
Follow up

<http://www.invasives.org.za/>
Bromilow: "Physical removal requires care and persistence."

<p>Tipu tree, Tipoeboom Category 3</p>	<p>361. <i>Tipuana tipu</i> (<i>T. speciosa</i>) (Family: Fabaceae)</p>	<p>Eastern part of reserve</p>	<p>Remove non-intended plants. Declared invader so should be removed if possible.</p>
			

Syringa, Category 1b



Young leaves are serrated

211. *Melia azedarach*
 (Family: Meliaceae)
 Yellow, toxic berries



Flowers with pleasant, quite strong smell, yellow fruit

Wetland, Southern side of reserve, near fence.
 Various places – next to paths, in riverbed



Young leaves, serrated

Debark & spray

Tree to be cut down below ground level Triclopyr mixed with Diesel oil painted onto the stem immediately after cutting



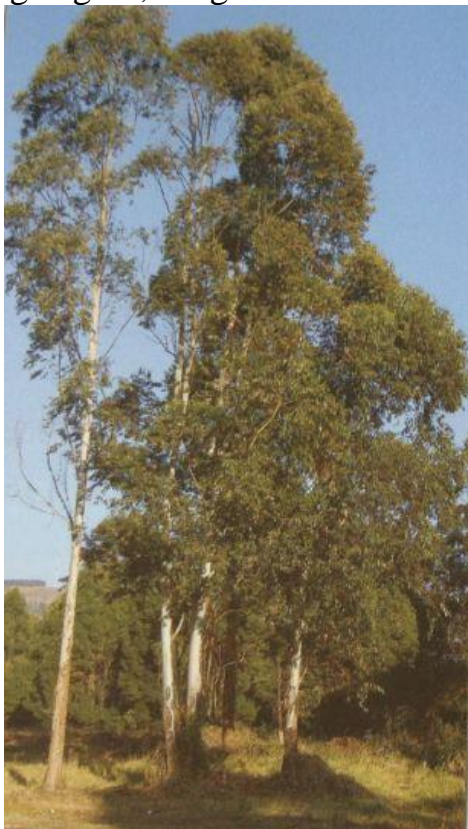
Older leaves with slightly serrated or smooth margins

Weeping bottlebrush
Category 3 in Gauteng

69. *Callistemon viminalis*
(Family: Myrtaceae)



Saligna gum, salignabloekom

138. *Eucalyptus grandis*
(Family: Myrtaceae)

On ridge southern part of reserve
and western boundary

Debark from 1 meter down
to below ground. No
poison

Cut trees should cut,
stumps treated with
suitable herbicide. Also
soil, foliar, frill and aerial
applications Seedlings
sprayed or removed by
hand, also susceptible to
fire

Australian crimson oak, Red
flowering silky oak
Category 1b

152. *Grevillea banksia*
(Family: Proteaceae)



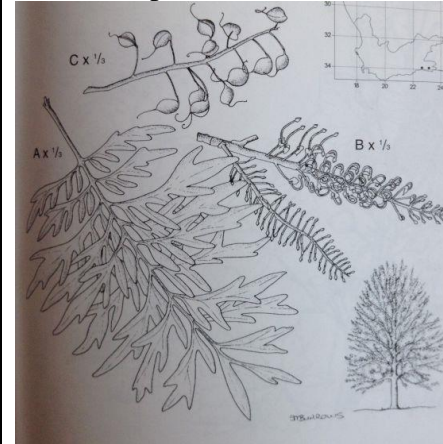
Australian silky oak
Category 3



153. *Grevillea robusta*
(Family: Proteaceae)



Western top part of reserve, also
south east part of reserve



Common privet, **Category 1b**



192. *Ligustrum ovalifolium*
(Family: Oleaceae)








North eastern side of Amphitheatre
area, wetland, stream bed –



Bag fruit, cut down to 1
meter above ground,
debark & poison

Cut, poison stump, follow
up as seeds stay viable for
many years

<p>Pine trees Category 2</p>	<p>275. <i>Pinus patula</i> & hybrids, varieties & selections (Family: Pinaceae)</p>	<p>Western boundary</p>	<p>Debark from 1 meter down to below ground. No poison Large plants can be ringbarked or felled and tebuthiuron is registered for application to the soil. Seedlings and sapplings can be uprooted when the soil is moist or treated with a herbicide</p>
<p>Silverleaf Cotoneaster Category 1b</p> 	<p>99. <i>Cotoneaster franchetii</i> (Family: Rosaceae)</p>  <p>flowers</p>	<p>Next to path by dam wall and below dam wall</p>  <p>fruit</p>	<p>Bag fruit, cut & poison Pull out young plants. No slashing.</p>
<p>Black cherry, Category 1b</p>	<p>291. <i>Prunus serotina</i> (Family: Rosaceae)</p>	<p>In reserve, next to northern gate from amphitheatre into reserve</p>	
<p>Yellow fire thorn, geel brandoringbos Category 1b</p>	<p>297. <i>Paracantha angustifolia</i> (Family: Rosaceae)</p>	<p>Next to path to dam</p>	

<p>Cestrum - Category 1b Inkberry = bad name as <i>Phytolacca octandra</i> is also Inkberry, so we refer to this tree as “Cestrum”</p> 	<p>88. <i>Cestrum laevigatum</i> (Family: Solanaceae) Unripe berries and young shoots very poisonous!</p>  <p>Smelly leaves</p>	<p>Above little stream in forest above dam. Lots near fence at southern part of reserve. In forest along south-eastern part of Dassie Trail. Also in Solar Panel forest – near “Jacuzzi”. Also in main stream bed above dam and in wetland</p>	<p>Debark before cutting. Spray cut stump at ground level</p> <p>Herbicide is best method. Physical total removal of entire plant on account of vigorous regrowth</p>
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Bug weed, Category 1b

339. *Solanum mauritianum*
(Family: Solanaceae)

Very smelly leaves










Northern part of amphitheatre, wetland area, in the reserve adjacent to (coming from) private residences.

Bag fruit & seed
Cut down to ground level, debark
With axe & spray
Pull out if plant is young

NON LISTED INVASIVE PROBLEM PLANTS IN KLOOFENDAL RESERVE

CREEPERS & CLIMBERS

<p>Zimbabwe creeper</p>  <p>Not a declared invasive weed, yet it is alien and very invasive, overrunning vegetation</p>	<p><i>Podranea ricasoliana</i> Family: Boraginaceae <i>Podranea ricasoliana</i> has glossy foliage and large bunches of fragrant lilac-pink, trumpet-shaped flowers.</p>	<p>The name Podranea is an anagram of Pandorea, a closely related Australian genus, in which Podranea was first classified. Pandora means all-gifted. She was the first woman of Greek mythology and was given the box that contained all man's ills. When she opened it, they all flew out.</p> <p>Creeper on northern side of wetland, bordering on gardens of neighbouring houses</p>	<p>Pull out, dig out</p>
<p>Red /Climbing Sorrel, Climbing dock, Creeping dock, Rambling dock, Turkey rhubarb, Arrowhead vine, Potato vine,. Status: Not declared invader, but it smothers native plants. http://www.terrain.net.nz/friends-of-te-henui-group/weeds/climbing-dock.html</p>	<p><i>Rumex saggitatus/</i> <i>Acetosa sagittata.</i> (Family: Polyganaceae) Climbing dock is a low climbing or scrambling herb which scrambles quickly over most plants to 3+ m high. It has a tuberous woody rootstock with extensive rhizomes.. Seeds are dispersed by the wind but <i>R. saggitatus</i> also spreads locally by creeping, rooting stems & extensive tubers.</p>	<p>Creeper near Thomas cottage & next to path towards dam. Covers other plants.</p>  <p>Fat tuber & rhizomes</p>	<p>Bag seed & dig out tubers Foliar spray – 2% solution Round-up or One shot (generic) – not to use near water</p>

	 <p style="text-align: center;">Seeds</p>		
<p>Virginia creeper, Victoria creeper, five-leaved ivy, or five-finger Not a declared invasive weed, yet it is alien (native to USA). and very invasive, overrunning indigenous vegetation</p>  <p>Flowers</p>	<p><i>Parthenocissus quinquefolia</i> Family: Vitaceae Creeper <i>Parthenocissus</i> from Greek meaning "virgin ivy" - <i>inquifolia</i> means "five-leaved". <i>P. quinquefolia</i> is a vigorous large deciduous climber. Leaves with five ovate leaflets, turning bright red and orange in autumn. Flowers inconspicuous; berries blue-black.</p>	<p>Virginia creeper is smothering the big indigenous <i>Leucosidea sericea</i> On north eastern border of reserve, below wetland</p> 	<p>Pull out, poison regrowth</p>  <p>Autumn it loses its leaves in winter</p>

HERBS & SHRUBS

1. PLANTS WITH LOTS OF TROUBLESOME SEEDS

Forget-me-not

Invasive problem weed- big problem in KD!



Cynoglossum lanceolatum

(Family: Boraginaceae)

ID by Dr J. van Wyk from internet



Wetland –. Indigenous, but extremely invasive


Once burs are there, bag seeds & flowers & pull out plants. No slashing.


Cut off flowers before seeds/ burs appear
Foliar spray on leaves



Van Wyk, J

Little blue flowers in summer, followed by horrible burs (=fruits & seed)

<p>Ronde klits – Burr weed An indigenous perennial weed with burs that contaminate hair & wool of animals with consequent downgrading (Bromilow 1995) Very invasive bur in KD</p>	<p><i>Cyathula uncinulata</i> (Family:Amaranthaceae)</p> 	<p>In the wetland, below Dassie Rock, in the forest</p>	<p>Bag seeds, <u>dig out</u> plants. Spray No slashing.</p>
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<p><i>Chaff flower, burweed grootklits, langklitskafblom</i> <i>Perennial weed, unwanted plant (Bromilow 2010)</i></p>	<p><i>Achyranthus aspera</i> (Family: <i>Amaranthaceae</i>)</p> 	<p>Next to path at north-eastern entrance into reserve, in wetland</p>	<p>Pull out – easy. Put seeds in bag</p>
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Cyathula cylindrical var. *cylindrica*
(Family:Amaranthaceae)



Van Wyk, J. Imaged list of Wild Flowers of Kloofendal Nature Reserve. 2015

Bag seeds, dig
out plants.
Spray
No slashing.

<p>Blackjacks Invasive alien weed</p> 	<p><i>Bidens pilosa</i> (Family: Asteraceae) Yellow flowers, prickly seeds which cling onto socks & clothes. Troublesome weed – can host a fungus disease which can attack several crop plants</p>		<p>Bag seeds & flowers & pull out plants. No slashing.</p>
<p>Flax-leaf fleabane Invasive alien annual weed from America with lots of seed</p>	<p><i>Conyza bonariensis</i> (Family: Asteraceae)</p>	<p>In grassland near Thomas' cottage & in wetland</p>	<p>Bag seeds & pull out. No slashing</p>



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PLENTIFUL INVADERS

Khakibos
Invasive alien weed

Tagetes minuta
(Family: Asteraceae)





Bromilow


Any disturbed area,
usually together with
Black jacks. It has a
distinctive, strong
smell

Bag seeds & flowers &
pull out plants. No
slashing.



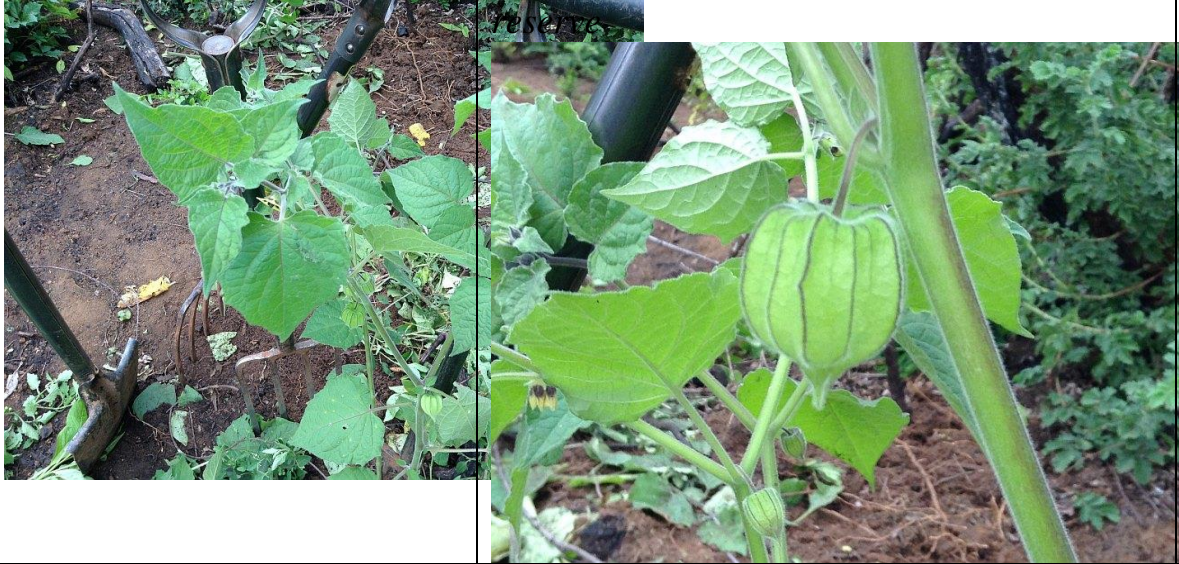
<p>Klein kakibos, Dwarf marigold Weed from South America – imported in fodder from South America for British soldiers. Taints milk of cattle who have eaten it.</p>	<p><i>Schkuhria pinnata</i> (Family: Asteraceae)</p>  <p>Bromilow</p>	<p>Open area, previously slashed, at entrance into wetland</p>	<p>Pull out Herbicides</p>
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	<p><i>Salvia tiliifolia</i> (Family: <i>Lamiaceae</i>)</p>	<p>Very common in disturbed areas. Low growing forb. Leaf margins finely serrated. Similar to <i>Plectranthus hereroensis</i>, which has far more coarsely serrated leaf margins and grows as a higher forb</p>  <p>Van Wyk, J. Imaged list of Wild Flowers of Kloofendal Nature Reserve. 2015</p>	<p>To be carefully identified and removed by pulling out</p>
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<p>Spotted Knotweed Widespread naturalised weed, originally from Europe</p>	<p><i>Polygonum lapathifolium/ Persicaria lapathifolia</i> (Family:Polygonaceae)</p> 	<p>In the dam growing from edges inwards, in wetland</p>	<p>To remove manually</p>
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Cape Gooseberry,
Invasive alien weed
from Peru (South America)
Bromilow


Physalis peruviana
(Family: Solanaceae)
*Invasive creeper, which does not belong on
the Highveld – should not be in a nature*



Pull out





<p>Bankrupt bush, slangbos Not listed in South Africa's National Listed Invasive Species. Bromilow described Bankrupt bush being a huge problem if it invades arid and semi-arid grasslands as it is unpalatable and reduces the carrying capacity there</p>	<p><i>Seriphium plumosum/ Stoebe vulgaris</i> (Family: Asteraceae)</p> 	<p>Scattered throughout reserve. Was abundant in south-eastern part of the reserve. EPWP workers have recently physically removed many bushes there (September 2015)</p>	<p>Selective soil and foliar spray can be used during the active growth period (October to April). Salt can also be sprinkled at the base of each stem; it alters the salinity enough to inhibit growth. Thick infestations can be burned, regrowth sprayed and slashed. Follow-up treatments and the adoption of proper land management practices are critical factors for long-term control.</p>
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<p>Zinnia – exotic annual weed</p> 	<p><i>Zinnia peruviana</i> (Family: Asteraceae)</p>	<p>Along path in western lower part of reserve</p>	<p>Pull out & bag seeds Susceptible to conventional herbicides and cultivation during seedling stage.</p>
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<p>Tropical <i>Richardia</i>, Alien invasive weed – can totally replace grass over large areas as is happening in KD amphitheatre lawn</p>	<p><i>Richardia braziliensis</i> (Family: Rubiaceae) Creeper amongst the grass Different common names, e.g. paper thorn, Khaki weed, creeping chafweed</p>	<p>Amphitheatre lawn and paths leading away from the amphitheatre Pull out, dig out, use many “diggers” Dave Kirkby: (i)Fertilise lawn to give grass strength to compete against weed</p>	<p>(ii)Watering when needed (iii) Set lawnmower higher to allow grass to retain its nutrients (iv)Broadleaf herbicide</p>
			

Prostrate globe amaranth	<i>Gomphrena celosioides</i> Family: <i>Amaranthaceae</i> Weak competitor, rarely requires chemical control	Kloofendal lawn	Seedlings easy to remove. Systemic herbicide once well established
Wonderlawn/ wonder grasperk	<i>Dichondra micrantha</i> Family: <i>Convolvulaceae</i>	Kloofendal lawn	Selective herbicides for use on lawns/ thorough continuous cultivation – remove all rhizomes
Paperthorn/ khakiweed/ kakiedubbeltjie	<i>Alternanthera pungens</i> Family: <i>Amaranthaceae</i>	Kloofendal lawn	

Red milkweed/ rooimelkkruid	<i>Euphorbia hirta</i>	Kloofendal lawn	Easy to remove with cultivation & is susceptible to conventional herbicides
Carrotweed	<i>Guilleminea densa</i> Family: <i>Amaranthaceae</i>	Kloofendal lawn	Difficult to remove by hand as it will regrow from roots left behind. Fertilise, then poison
Smooth creeping milkweed/ gladde kruipmelkkruid	<i>Euphorbia inaequilatera</i> <i>Spreads to bare ground</i>	Kloofendal lawn	Easy to remove by cultivation susceptible to conventional herbicides

<p>Plantago / buckhorn plantain/ smalweëblaar</p> 	<p><i>Plantago lanceolata</i> (Family: <i>Plantaginaceae</i>)</p> 	<p>Kloofendal lawn</p> 	<p>Bag flowers, seeds. Dig out. Early stage can be sprayed</p>
<p>Florist's gum, Penny gum</p>	<p><i>Eucalyptus cinerea</i> (Family: <i>Myrtaceae</i>)</p> 	<p>Western side of reserve amongst <i>Eucalyptus grandis</i>, also on top part of reserve</p>	<p>As for <i>E. grandis</i></p>

NEMBA- ALIEN AND INVASIVE SPECIES REGULATIONS (AIS) REGULATIONS

published in the *Government Gazette*, 1 August 2014

SOUTH AFRICA'S NATIONAL LISTED INVASIVE SPECIES

Category 1a: Invasive species which must be combatted and eradicated. Any form of trade or planting is strictly prohibited.

Category 1b: Invasive species which must be controlled and wherever possible, removed and destroyed. Any form of trade or planting is strictly prohibited

Category 2: invasive species, or species deemed to be potentially invasive, in that a permit is required to carry out a restricted activity. Category 2 species include commercially important species such as pine, wattle and gum trees. Plants in riparian areas are Cat. 1b.

Category 3: Invasive species which may remain in prescribed areas or provinces. Further planting, propagation or trade, is however prohibited. Plants in a riparian area are Cat 1b