



CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

Invasive Species Unit/Green Jobs Unit

26th November 2020

Making progress possible. **Together.**

Invasive Species Unit/Green Jobs Unit

Social
Development

Biological Control of Invasive Weeds

Insect Mass Rearing Facility



No Smoking **No unauthorized access** Slippery When Wet



City of Cape Town - Invasive Species Unit - 021 712 1434



M&E



Nursery



Green Wardens



Invasive Species

Alien Species: An alien species is a plant or animal that is not native to a specific location (an Introduced species)

Invasive Species: An alien species that has a tendency to spread, which is believed to cause damage to the environment, human economy and/or human health.





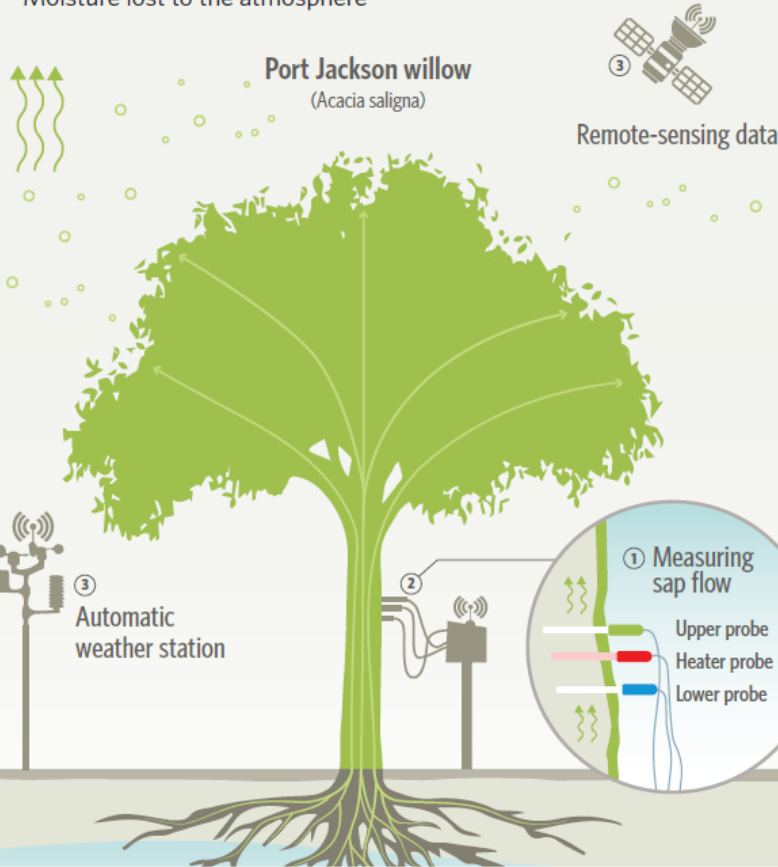
Infographic

Invasive tree sap flow study

Data collected from 1 July 2018 to 30 June 2019

EVAPOTRANSPIRATION

Moisture lost to the atmosphere



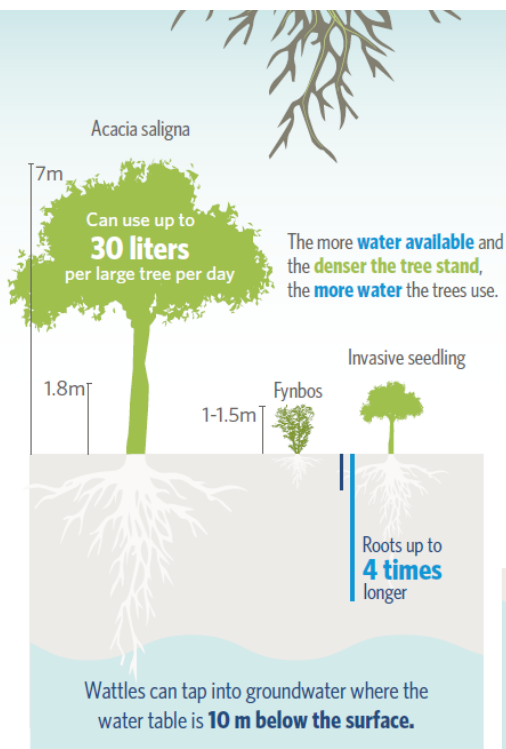
How much groundwater are we losing to invasive trees?

Unpacking the science

A recent study¹ measured how much water is lost to invasive trees. The study was conducted in the Atlantis Aquifer region, approximately 50km north of Cape Town.

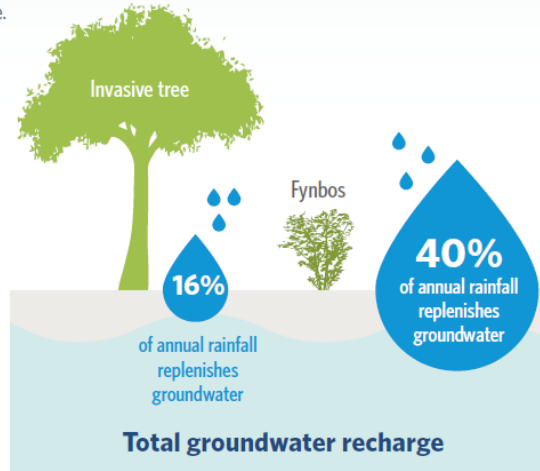
How the data was collected

- 1 The scientists conducted sap flow measurements to quantify plant water use.
- 2 They inserted sap flow sensors into the xylem vessels of tree stems. The probes tracked the movement of water through the trees by using heat as a tracer.
- 3 Remote-sensing and an automatic weather station provided more data.



Atlantis Aquifer

What the science tells us Thirsty invaders vs water wise fynbos



Atlantis Aquifer

2 RECLAIM UP TO **million liters** per hectare per year

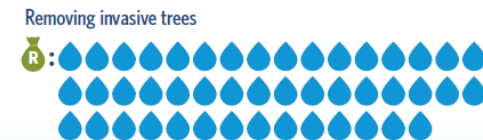


Findings

An invasive Port Jackson willow tree uses up to **8 000m³ of water per hectare, per year** in high density stands with access to groundwater.

Removing invasive plants and restoring indigenous fynbos could result in the reclaiming of between **830 000 litres per hectare** and **2 million litres per hectare, per year.**

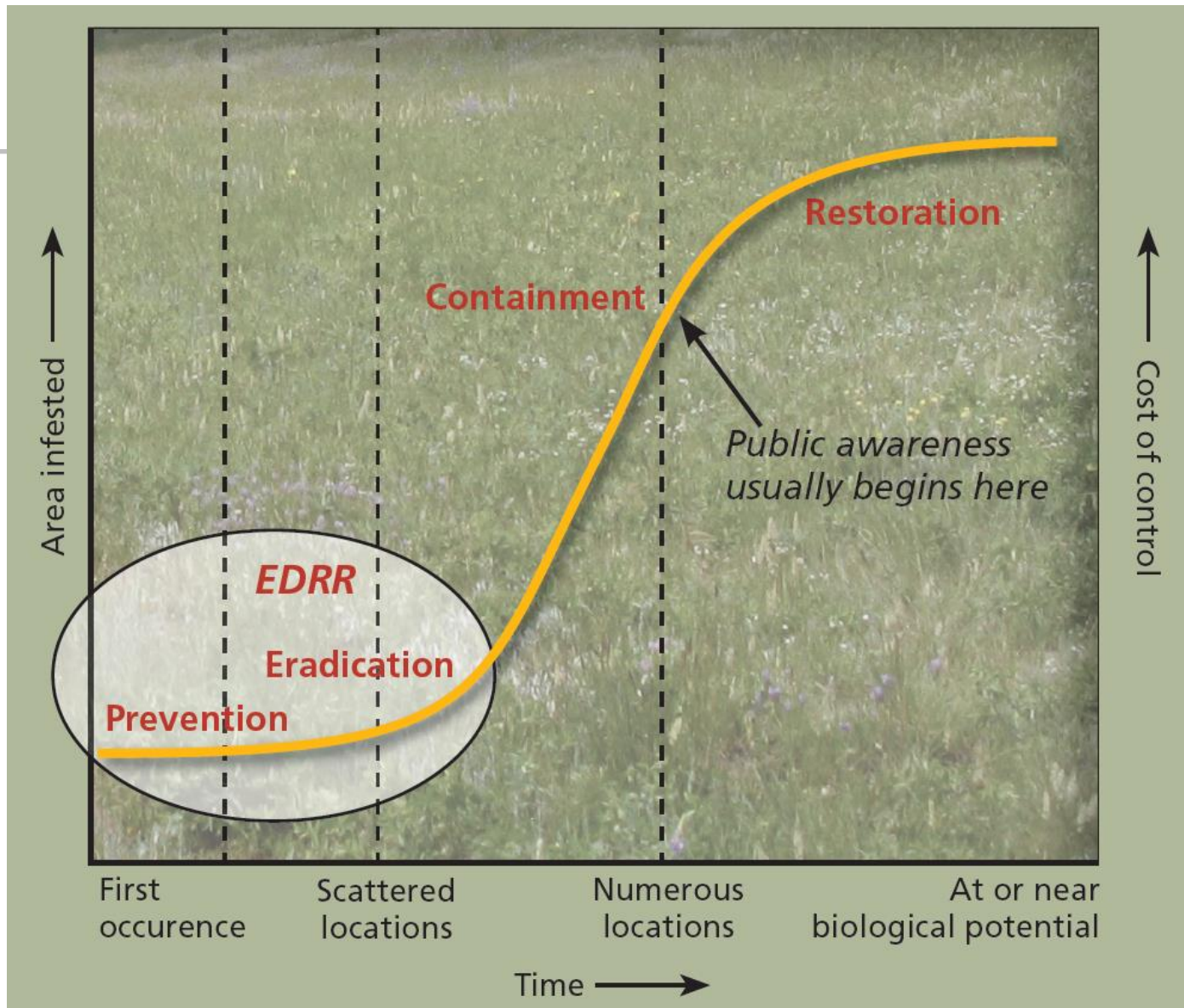
Cost vs groundwater gains ratio for the Greater Cape Town region²



1. Bugan, R. et al. (2019). Assessing water losses as a result of invasive alien plants in the Atlantis Aquifer. Report No ECHS092, CSIR Smart Places, Report prepared for The Nature Conservancy. September 2019.

2. Stafford, L. et al (2018). The Greater Cape Town Water Fund. Assessing the return on investment for ecological infrastructure restoration. Business case. Report prepared for The Nature Conservancy. November 2018.

Clearing invasive trees will yield more groundwater at a lower cost.



Prevention - First Line of Defence



**STOP AQUATIC
HITCHHIKERS!™**



**STOP
the invasion**

DON'T MOVE A MUSSEL



Quagga Mussels Have Invaded Arizona

Before leaving any lake, please:

- **DRAIN** the water from the boat, livewell and the lower unit
- **CLEAN** the hull and remove all plant and animal material
- **DRY** the boat and **INSPECT** all exposed surfaces

After you visit a lake or other body of water, the Arizona Game and Fish Department asks you to take a few minutes to clean your boat. This period will aid in preventing the spread of hitchhikers on your boat, such as quagga larvae.

NOW IT'S THE LAW

Protect Your Boat | Protect The Environment

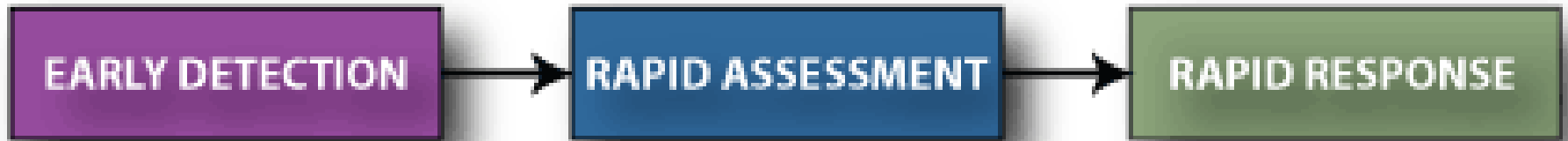


For more information visit www.azgfd.gov/mussels
Arizona Game and Fish Department



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Early Detection, Rapid Response (EDRR)



EDD **MapS**
Early Detection & Distribution Mapping System



FLOWERS:

- Appear above leaves in the middle of the plant
- Silvery-white to pink in colour
- Flowers year-round



SEEDS:

- Tiny wind-blown seeds fall from old flower stalks
- Flowers appear white when full of mature seeds



GIANT GRASS:

- Fountain-like growth up to 2m high
- Grows up to 4m, including flowering stalks



STEM:

- Reed-like stem
- Brittle with age



LEAVES:

- Long, narrow, V-shaped in cross-section
- Curving upward from the base, then curving downwards at the ends
- Greyish or bluish-green
- Margins sharp, cutting

Cape Town Weed Alert

Pampas grass

(*Cortaderia selloana*)



Please report all sightings of pampas grass to
www.capetowninvasives.org.za

Target Species Plant Species & EDRR

22 Plant Species

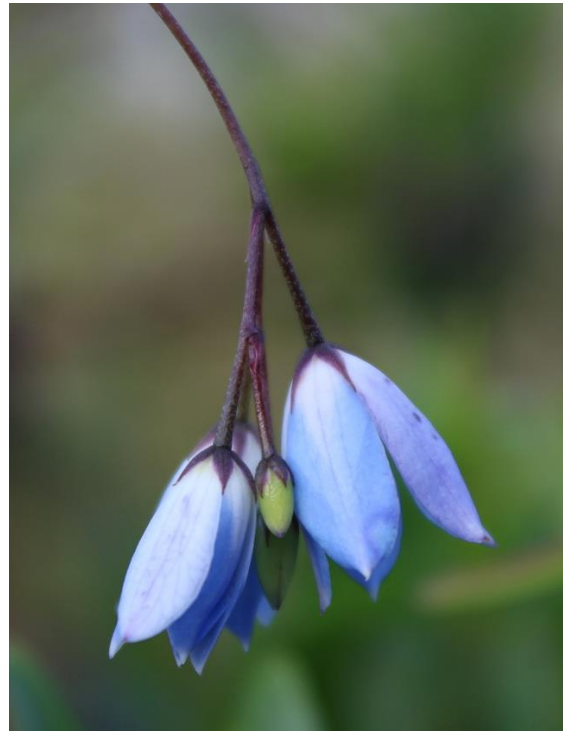
French/Montpellier Broom
(*Genista monspessulana*)



Pampas grass
(*Cortaderia selloana*)



Devil's Beard (*Centranthus ruber*)



Bluebell creeper
(*Billardiera heterophylla*)



Spanish Broom (*Spartium junceum*)

Biocontrol



What is Biocontrol?

- Insects
- Diseases/Fungi
- From country of origin
- Tested under quarantine
- Released and monitored



Biological Control of Invasive Weeds

Insect Mass Rearing Facility



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No unauthorized access



Slippery When Wet

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environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA



EXPANDED PUBLIC WORKS PROGRAMME
CONTRIBUTING TO A NATION AT WORK



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RHODES UNIVERSITY
Where leaders learn



December 2014

Dreyersdal farm



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January 2015

Invasive Plant Control



Manual



Mechanical



Fire



Biological

Hand pulling

- Young plants
- Soft soil
- Shallow root system

Protective Clothing

Grip close to the base

Don't let the plant break off





Mechanical

Chainsaw



Controlling invasive species
Petersburg National Battlefield



Chemical

Foliar application

- Wind still conditions
- No rain
- Don't spray above head height
- Protective clothing
- Training





Herbicide after cut stump, frilling or ring barking



Clearing Methods

- Cut low
- Good vs bad clearing
- Importance of good clearing methods – saves time and money



NEM:BA

Government Gazette Staatskoerant

REPUBLIC OF SOUTH AFRICA
REPUBLIEK VAN SUID-AFRIKA

Regulation Gazette

No. 10244

Regulasiekoerant

Vol. 590

Pretoria, 1 August
Augustus 2014

No. 37885

NATIONAL ENVIRONMENTAL MANAGEMENT: BIODIVERSITY ACT 2004 (ACT NO. 10 OF 2004)

ALIEN AND INVASIVE SPECIES REGULATIONS, 2014

Do the NEMBA regulations affect you?

- Invasive species are controlled by the National Environmental Management Biodiversity Act (NEMBA) (Act 10 of 2004) – Alien and Invasive Species (AIS) regulations, which were gazetted on 1 August 2014 and became law on 1 October 2014.
- SPECIES: 559 invaders in 4 categories
- The AIS Regulations list 4 different categories of invasive species that must be managed, controlled or eradicated from areas where they may cause harm to the environment, or that are prohibited to be brought into South Africa
- National List of Invasive Species which need to be controlled inside South Africa: Plants (**383**), mammals (41), birds (24), reptiles (35), amphibians (7), fresh-water fish (15), terrestrial invertebrates (23), fresh-water invertebrates (8), marine invertebrates (16) and
- microbial species (7). **Total: 559 species**

Invasive Species Categories

Category 1a Listed Invasive Species

- Take immediate steps to combat, or eradicate where possible.

Category 1b Listed Invasive Species

- Control the listed invasive species.

Category 2 Listed Invasive Species

- Utilization allowed under Permit conditions.
- Control outside of the Permit conditions.

Category 3 Listed Invasive Species

- Subject to certain prohibitions (e.g. sell)
- Category 3 plant specimens in riparian areas are treated as Category 1b.

Project Boundary



Management Units



**Baviaans River
2020**

Projection: Transverse Mercator
Datum: WGS 1984

Mapped by:
O. Khunyeli
November 2020



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NEMBA Species Present

Project	Department	Erf # / MU	Size (Ha)	Stage (e.g. 2nd Follow up)	Scientific name	Common name	Seedlings (D < 1cm; H < 40cm)	Young (D 1 - 5cm; H 40 cm - 1m)	Mature (D > 5cm; H > 1m)	Estimated % density cover	NEMBA Category
South	City Parks	SkuiFFE Greenbelt		4.72nd follow up	Acacia saligna	Port jackson		1%		1%	1b
				4.72nd follow up	Hypericum perforatum	St johns wort	1%	1%		2%	2
				4.72nd follow up	Populus alba	White poplar	3%	1%	1%	5%	2
				4.72nd follow up	Verbena bonariensis	Purple top			1%	1%	1b
				4.72nd follow up	Acacia cyclops	Rooi krans			1%	1%	1b
				4.72nd follow up	Ageratina adenophora	Crofton weed			1%	1%	1b
				4.72nd follow up	Schinus terebinthifolius	Brazilian pepper			1%	1%	3
				4.72nd follow up	Arundo donax	Giant reed		1%		1%	1b
				4.72nd follow up	Rubus cuneifolius	American bramble			2%	2%	1b
				4.72nd follow up	Echium plantagenium	Purple echium		1%	1%	2%	1b
				4.72nd follow up	Centranthus ruber	devils beard			1%	1%	1a
				4.72nd follow up	Cestrum laevigatum	Ink-berry	1%	1%		2%	1b
				4.72nd follow up	Agave sisalana	Agave		1%	1%	2%	2
				4.72nd follow up	Acacia melanoxylon	Black wood	1%			1%	2
				4.72nd follow up	Myoporum tenuifolium	Manitoka		1%		1%	3
				4.72nd follow up	Echium plantagineum	Purple echium		1%	2%	3%	1b
				4.72nd follow up	Homalanthus populifolius	Bleeding Heart		1%		1%	1b
				4.72nd follow up	Tradescantia fluminensis	Wandering Jew			4%	4%	1b
				4.72nd follow up	Pinus elliotti Engelm. and hybrids, varieties and selections	Pine			1%	1%	1b
				4.72nd follow up	Eriobotrya japonica	Louquat			1%	1%	1b
				4.72nd follow up	Robinia pseudoacacia L.	Black Locust Tree		2%	3%	5%	1b
				4.72nd follow up	Ipomoea indica	Morning Glory			3%	3%	1b
				4.72nd follow up	Iris pseudacorus L.	Yellow Flag Iris			1%	1%	1a
				4.72nd follow up	Opuntia monacantha	Bunny ears Cactus			1%	1%	1b
				4.72nd follow up	Paraserianthes lophantha	Stink Bean			1%	1%	1b
				4.72nd follow up	Ricinus communis L.	Castor Oil			1%	1%	2
				4.72nd follow up	Solanum mauritanium Scop.	Bugweed	1%		1%	2%	1b
				4.72nd follow up	Syzygium jambos (L.) Alston	Eugenia/Rose Apple		2%	2%	4%	3
				4.72nd follow up	Hedychium coccineum	Wild Ginger			1%	1%	1b
				4.72nd follow up	Hedera helix	English Ivy		1%	2%	3%	3
	4.72nd follow up	Pittosporum undulatum	Australian Cheesewood	1%		2%	3%	1b			
	4.72nd follow up	Plectranthus barbatus var. grandis (= P. comosus Sims)	Wooly Plectranthus			1%	1%	1b			
	4.72nd follow up	Acacia Longifolia	Long leaf wattle	1%	1%	3%	5%	1b			
	4.72nd follow up	Eucalyptus tereticornis	Forest red gum			1%	1%	1b			
	4.72nd follow up	Sesbania punicea	Red sesbania			1%	1%	1b			
	4.72nd follow up	Lanтана camara	Lantana	1%	3%	2%	6%	1b			



Types of interventions





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Kirstenhof



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Become a spotter

capetowninvasives.org.za/plant

Invasive Target Plants Reporting Tool

This page is for residents of the City of Cape Town to report sightings of 24 targeted invasive plants

Report the location of 24 Invasive Target Plants

Become a Cape Town spotter. Take a good look at the City of Cape Town's targeted invasive plants.

There are 365 listed invasive plants. The City is asking residents, hikers and spotters to ONLY 'spot' 24 designated - invasive target plants.

Report their location, upload images and gather information for the Invasive Species Unit (ISU) - Early Detection and Rapid Response (EDRR) teams.

Start by registering as a user. Then fill in a Target Plant Reporting Form, every time you spot one of the 24 target invasive plants.

ID Kits - Target Plant Species >

REGISTER TO BECOME A SPOTTER

REPORT YOUR - INVASIVE TARGET PLANT - SIGHTING HERE

VIEW LIST OF SIGHTINGS

Pepper tree wattle Acacia elata	Screw Pod Wattle Acacia implexa	Kangaroo wattle Acacia paradoxa	Pearl acacia Acacia podalyriifolia
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Thank You!



Cape Town Invasive Species

Invasive.Species@capetown.gov.za

www.capetowninvasives.org.za

