

Faculty of Science

Discovering for tomorrow



Nelson Mandela
Metropolitan
University

for tomorrow

Ten years of Bontveld Rehabilitation

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Where are we?

Eileen Campbell

Thicket Mosaics?

- **Thicket patches** in a
- **Matrix** of a different vegetation.

(Vlok & Euston-Brown, 2002)



Bontveld?

■ Archibald (1955)

- an association (**mosaic**)
- circular clumps of **bush** (4 m \updownarrow x 10 m \ominus)
- matrix = grassland / **grass and low shrubland.**

BONTVELD



What is Bontveld?

- **Skead (1980)**
 - “A combination of bushclumps, grassveld and fynbos”
- **Acocks (1988)**
 - “where Sundays River Scrub is replaced by stunted fynbos on limestone, creating a mosaic effect”



What is Bontveld?

▪ Four communities

- **Thicket Bushclumps**
- **Shrubby Miniclumps**
- **Succulent “Rockerries”**
- **Grassy Dwarf Shrubland**



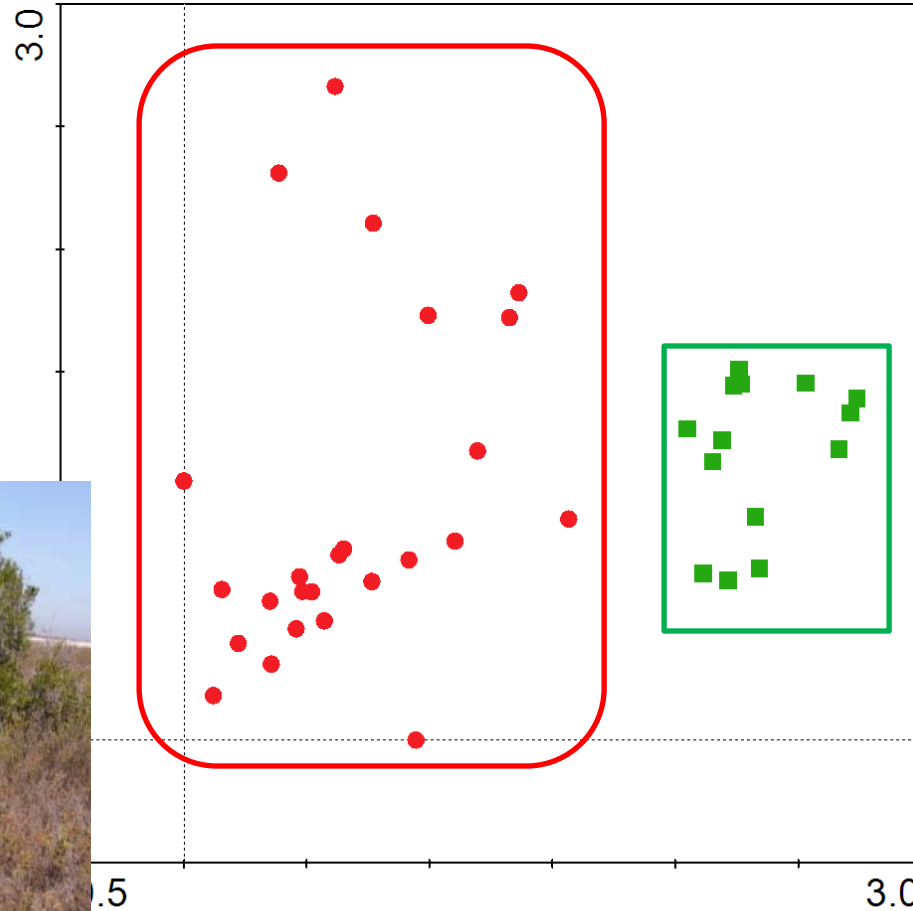
(Watson, 2002)

What is Bontveld?

Grassridge

DCA

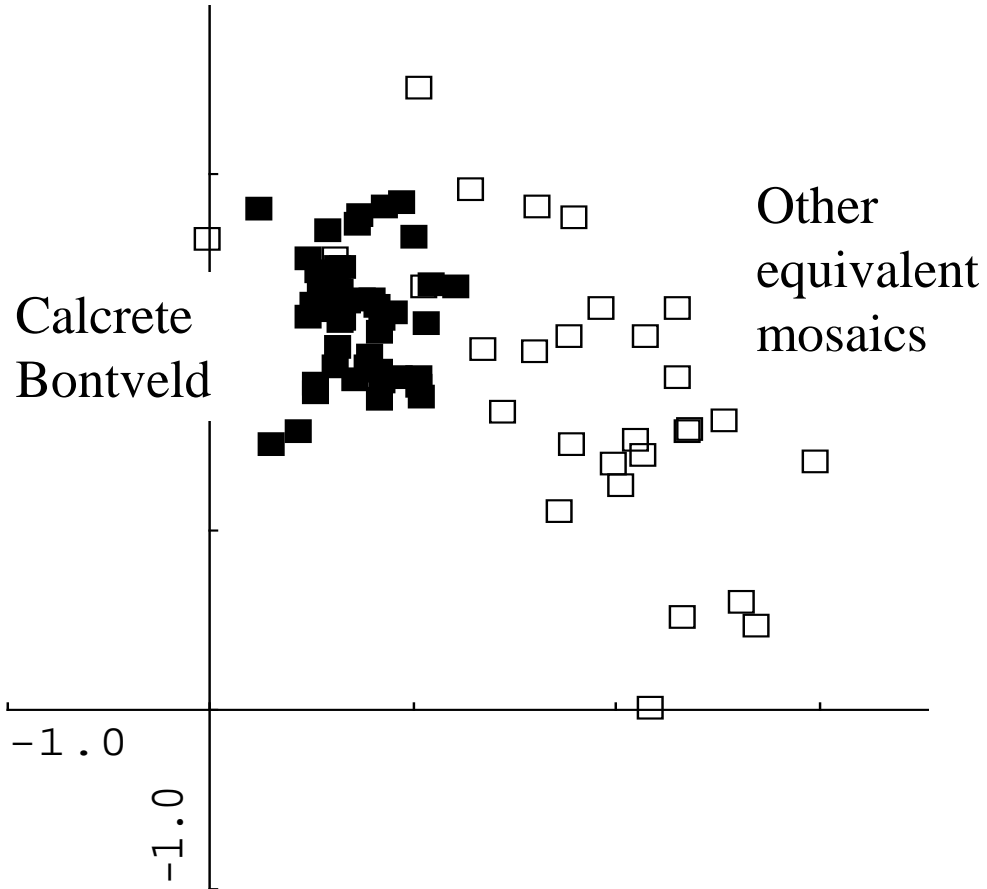
- Bushclumps
- Thicket



Watson, 2002

Sum of all eigenvalues = 3.612; Cumulative variance of species = 22.9%

Calcrete Bontveld



Andrew Hall, Wendy Todkill and others...

Calcrete Bontveld

Non-transitional, shallow-soil Thicket mosaic

■ Calcrete Bontveld

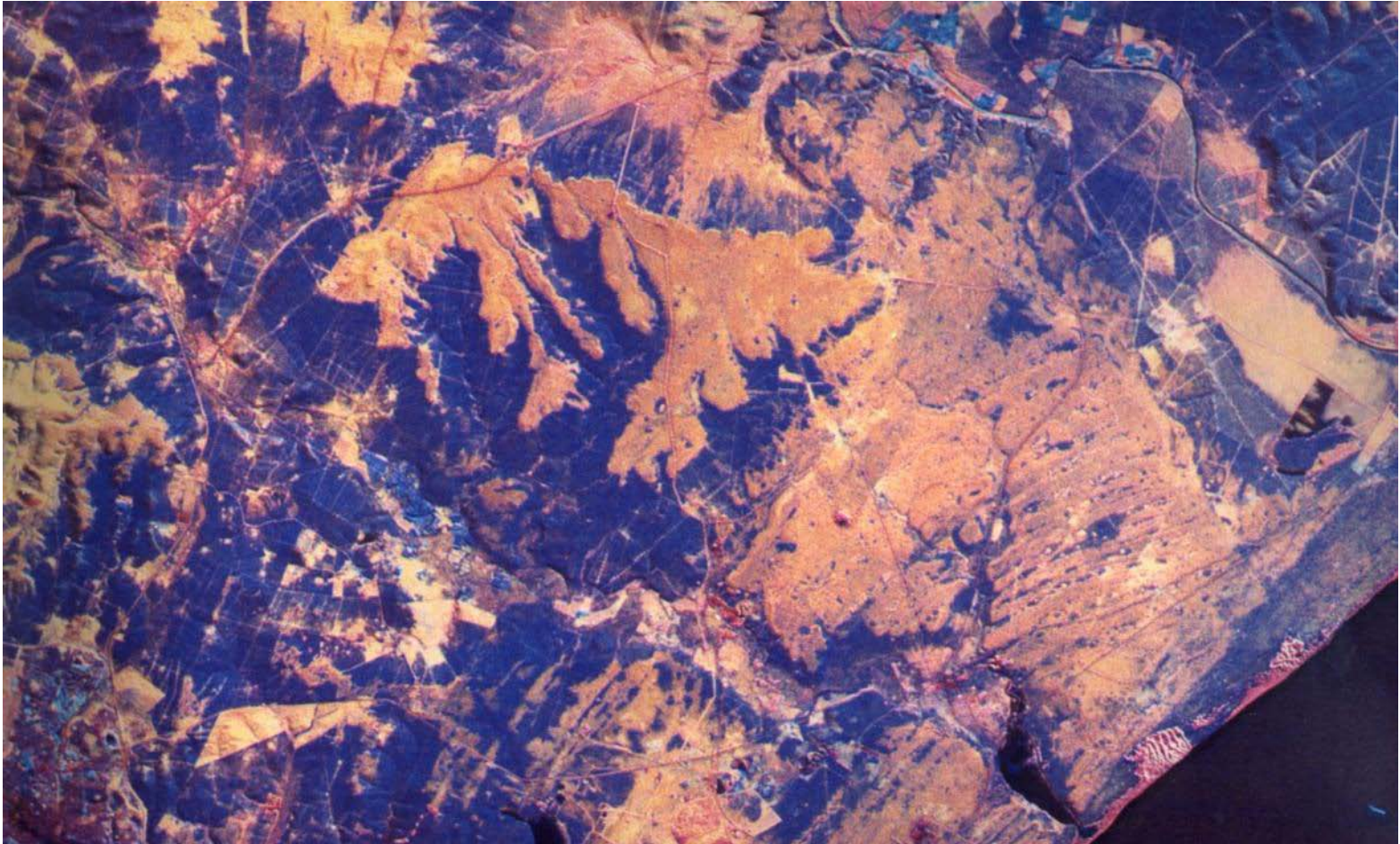


Key Environmental Factor

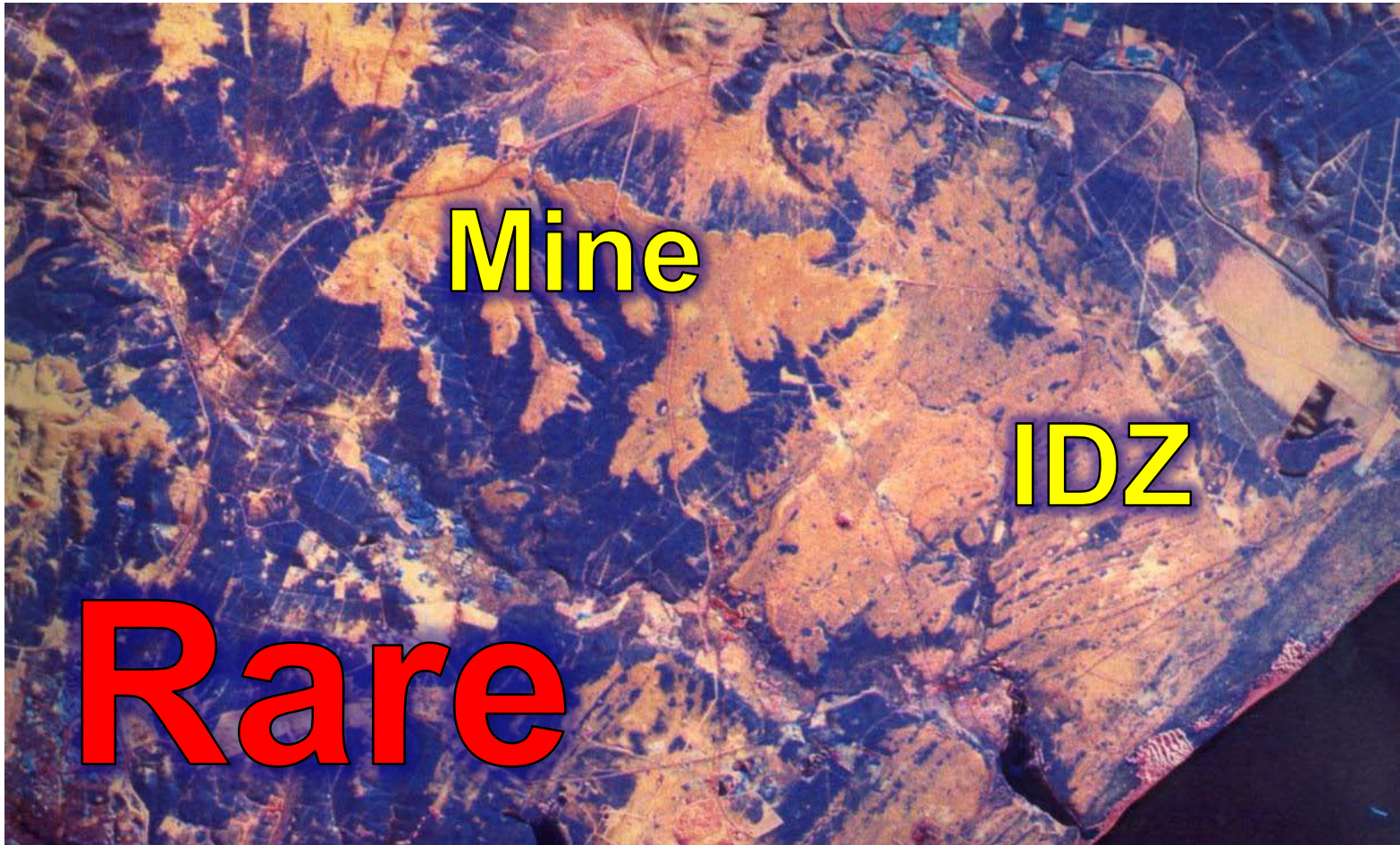
- Calcrete Bontveld



Calcrete Bontveld



Calcrete Bontveld



Rare

Still only listed as Vulnerable...

■ Calcrete Bontveld



Mining



PPC

CEMENT

Mining



PPC
CEMENT

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Mining



Trial Mine



Thicket clumps?



Thicket clumps?

Rehabilitation methods

1. Translocate Termitaria
2. Initiate Dolines
3. Translocate Bushclumps
4. Mine around the Bushclumps



Thicket clumps?

Rehabilitation methods

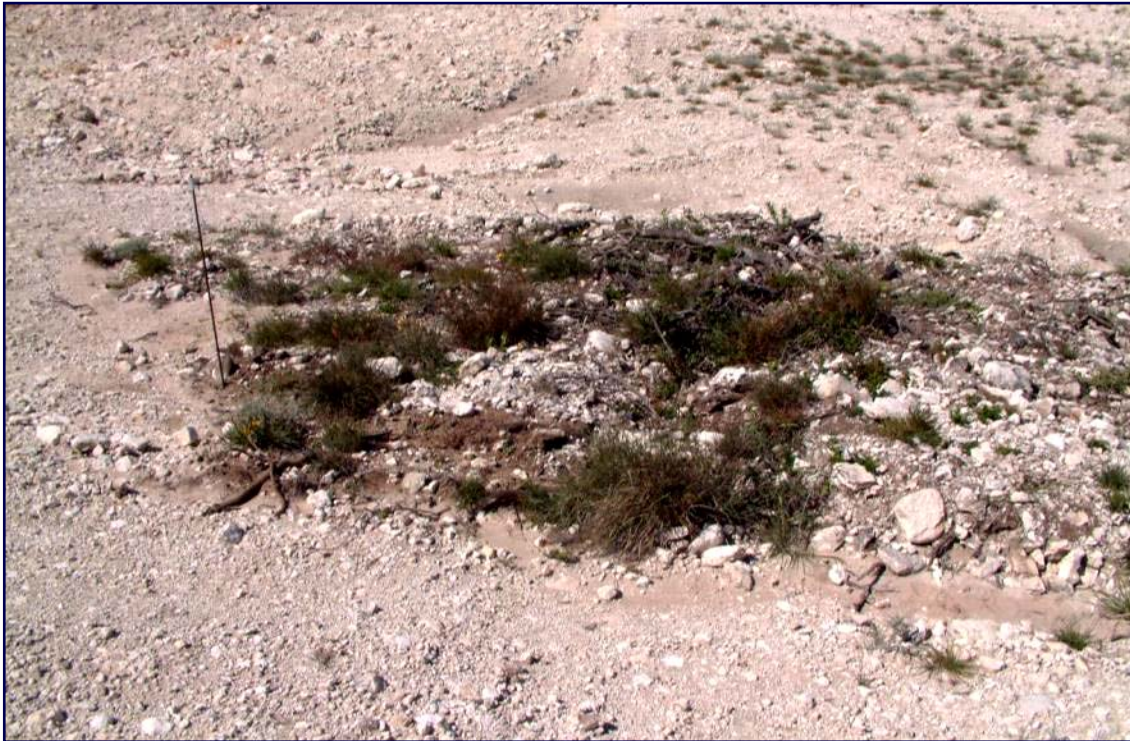
Translocate Termitaria



Thicket clumps?

Rehabilitation methods

Initiate Dolines



Thicket clumps?

Rehabilitation methods

Translocate Bushclumps



Thicket clumps?

Rehabilitation methods

Mine around the Bushclumps

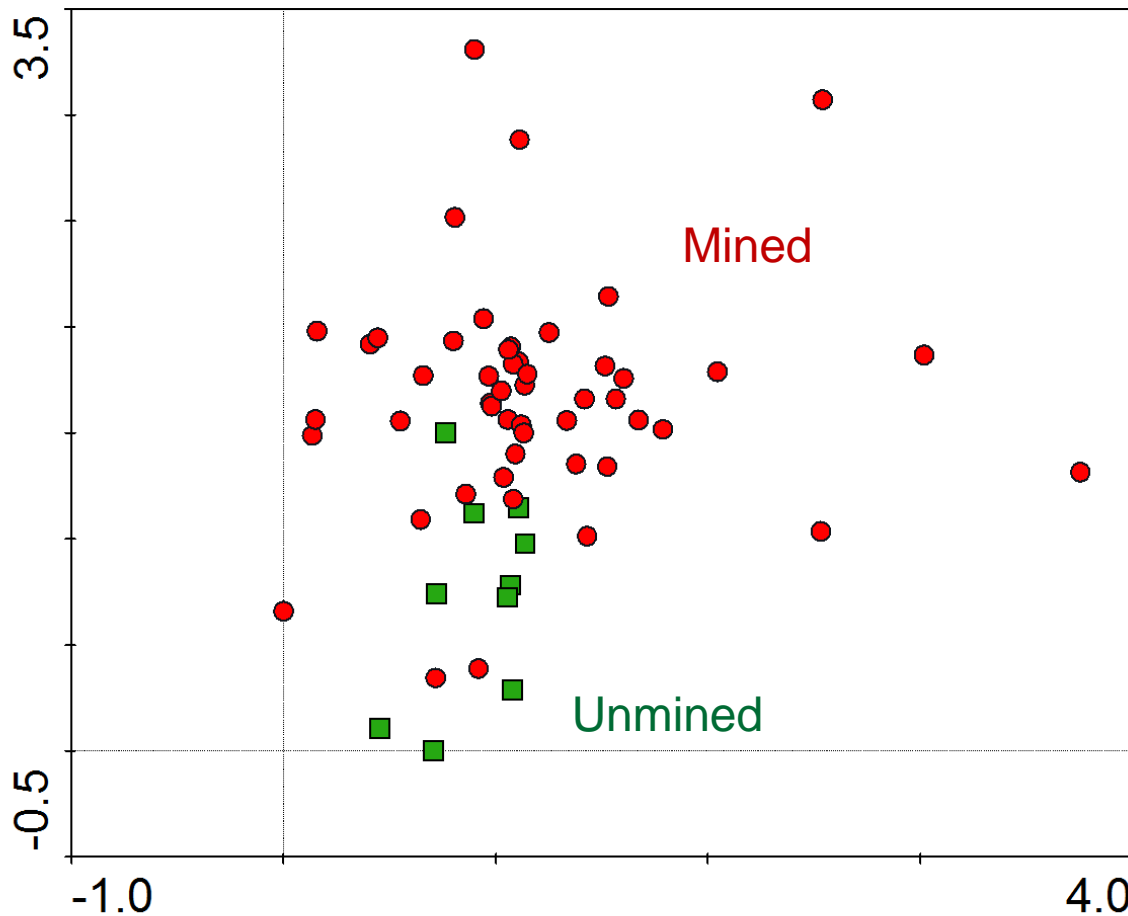


2-3 m

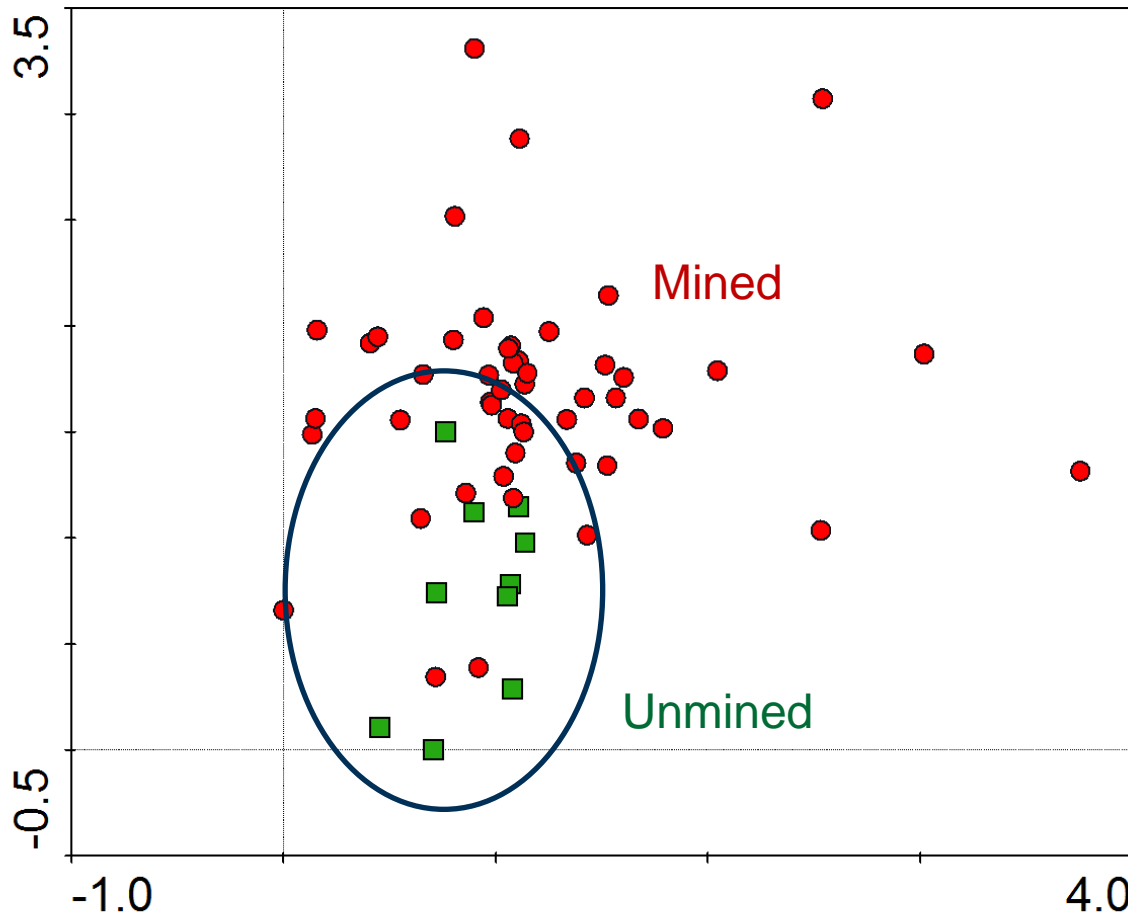
+ 10 years



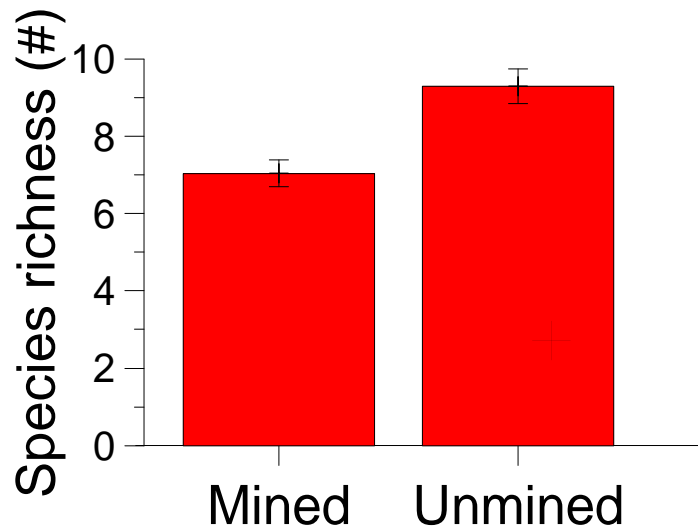
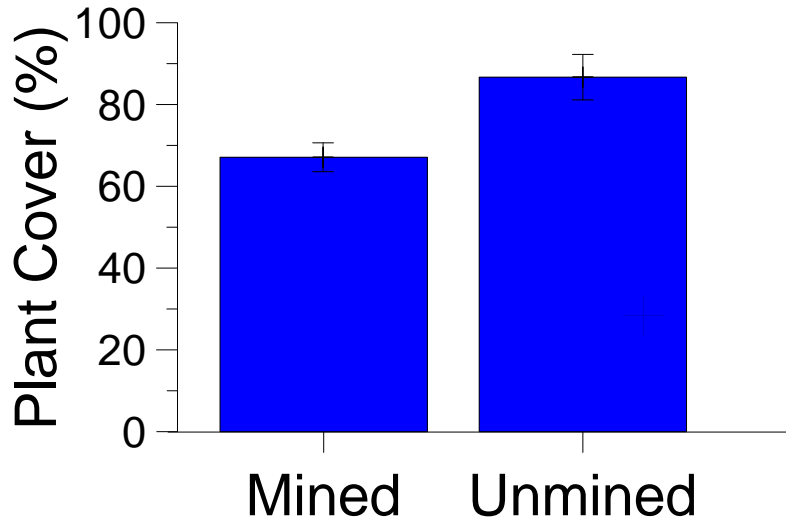
Grassy Dwarf Shrubland



Grassy Dwarf Shrubland



Grassy Dwarf Shrubland



$t = 2.975; p < 0.001$

$t = 3.983; p < 0.001$

d.f. = 22

Thicket clumps?

Rehabilitation methods

Translocate Termitaria



Thicket clumps?

Rehabilitation methods

Initiate Dolines



Thicket clumps?

Rehabilitation methods

Translocate Bushclumps



Translocated clumps?

1



3



7



10

Translocated clumps?

1



3

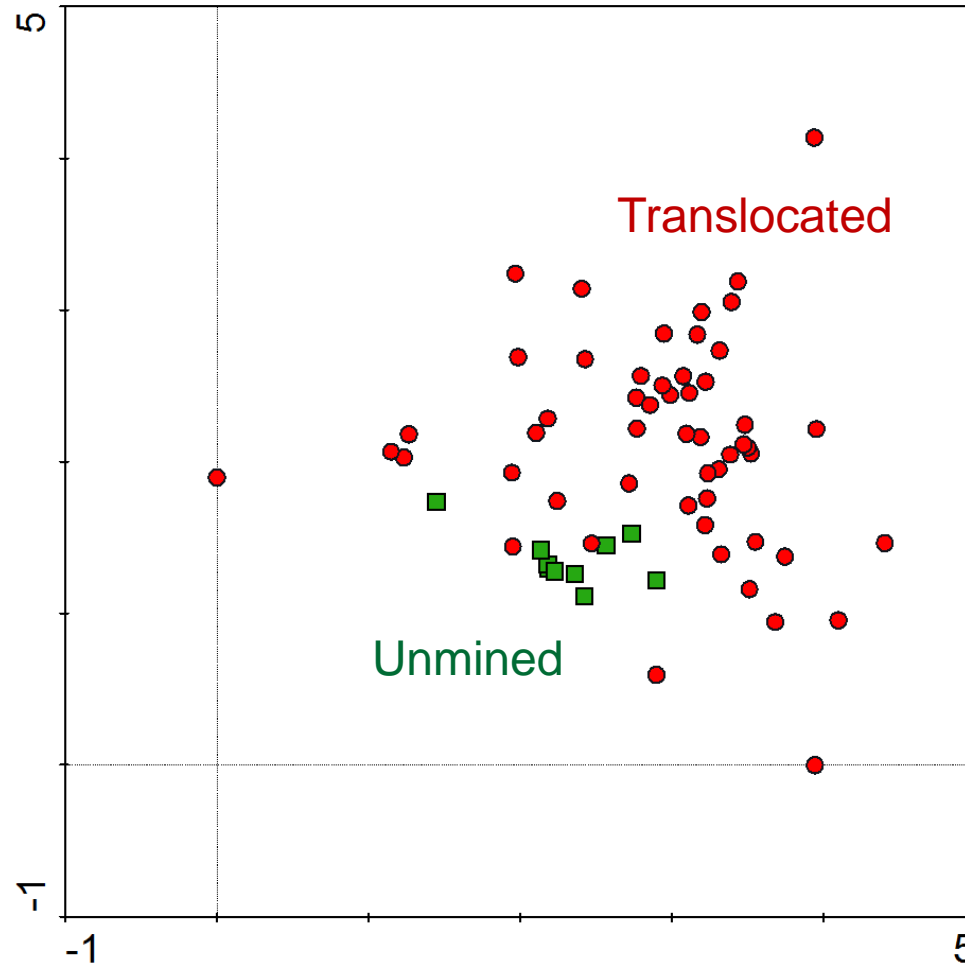


7



10

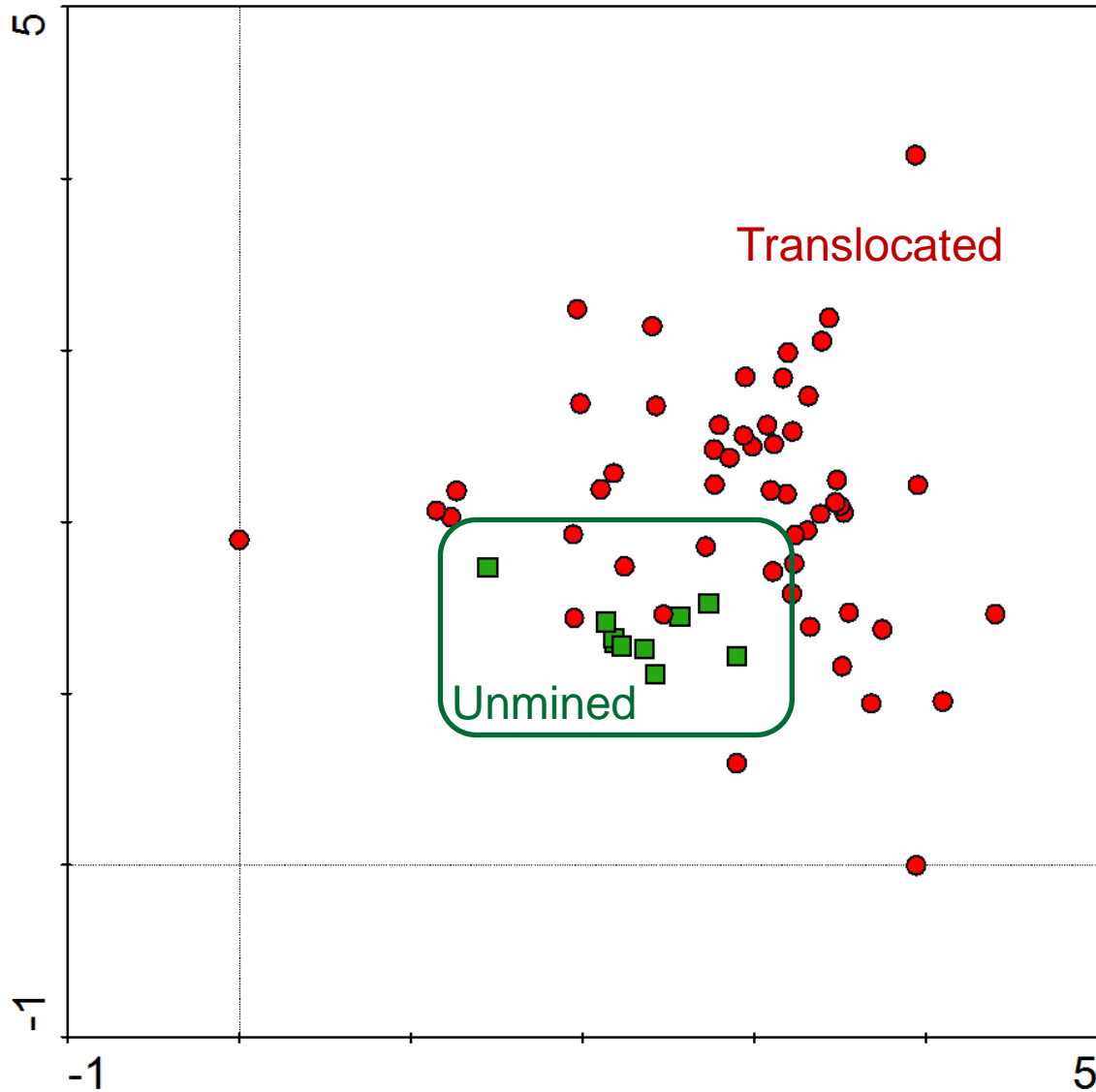
Translocated clumps?



Sum of eigenvalues = 7.565

Cumulative variance of species data = 12.5%

Translocated clumps?



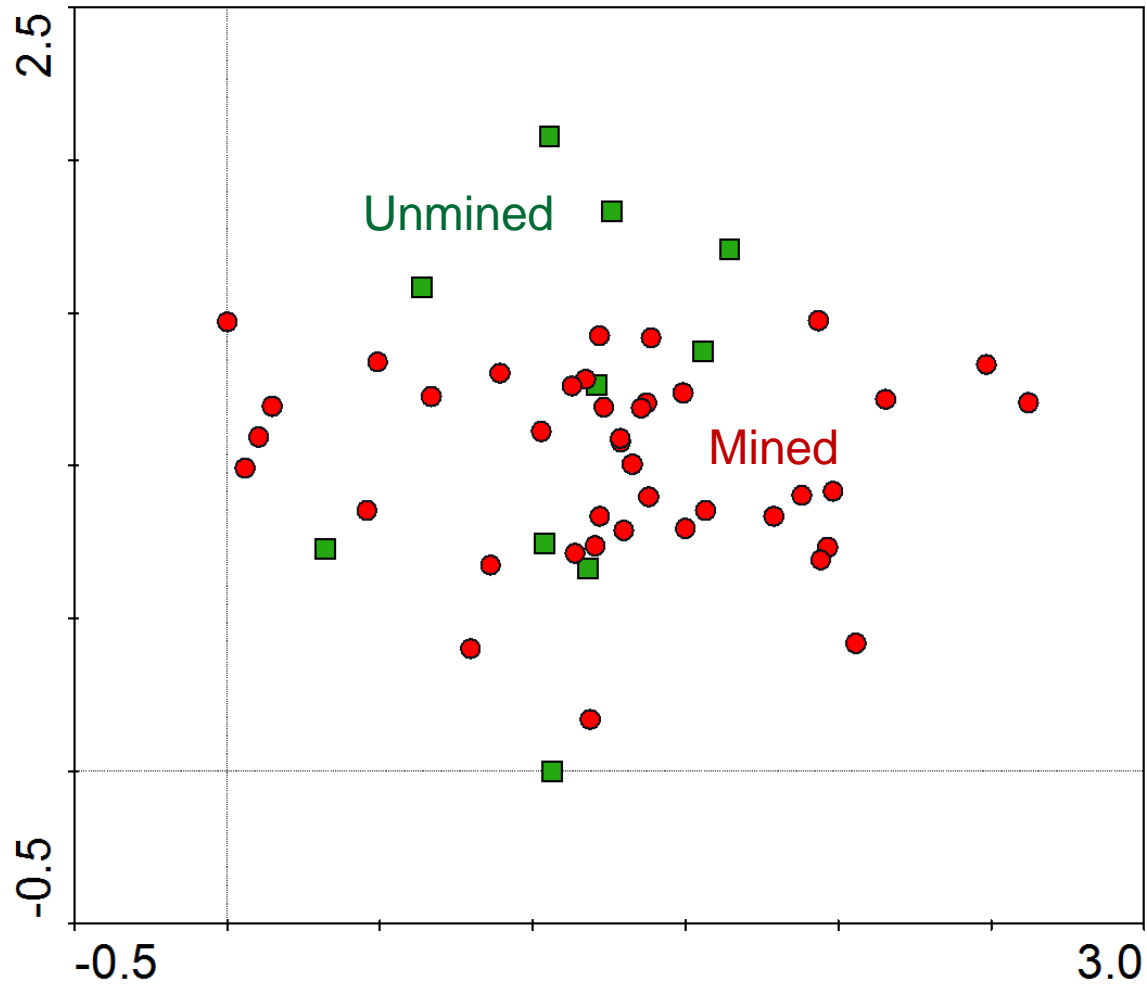
Mine around Thicket clumps?

1

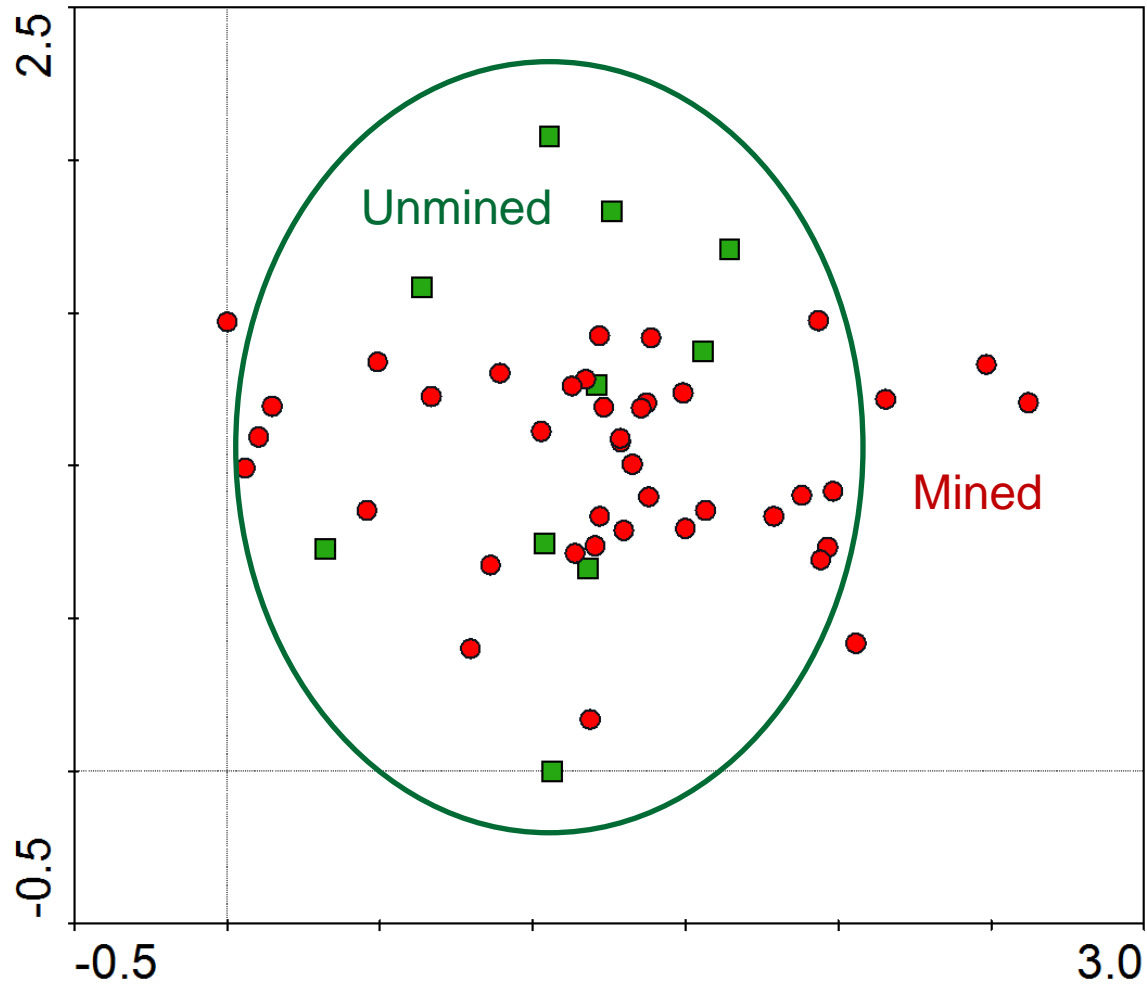


10

Mine around Thicket clumps?



Mine around Thicket clumps?



Thicket clumps?

Rehabilitation methods

1. Translocate Termitaria ✘
2. Initiate Dolines ✘
3. Translocate Bushclumps ✘
4. Mine around the Bushclumps ✓?

Rehabilitate Bontveld?

Limited success

Conserve!



Acknowledgements

