

**Consolidating biodiversity occurrence data from multiple sources to assist conservation decision making**

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Scientific Services SANParks

2025 SAVANNA SCIENCE NETWORK MEETING

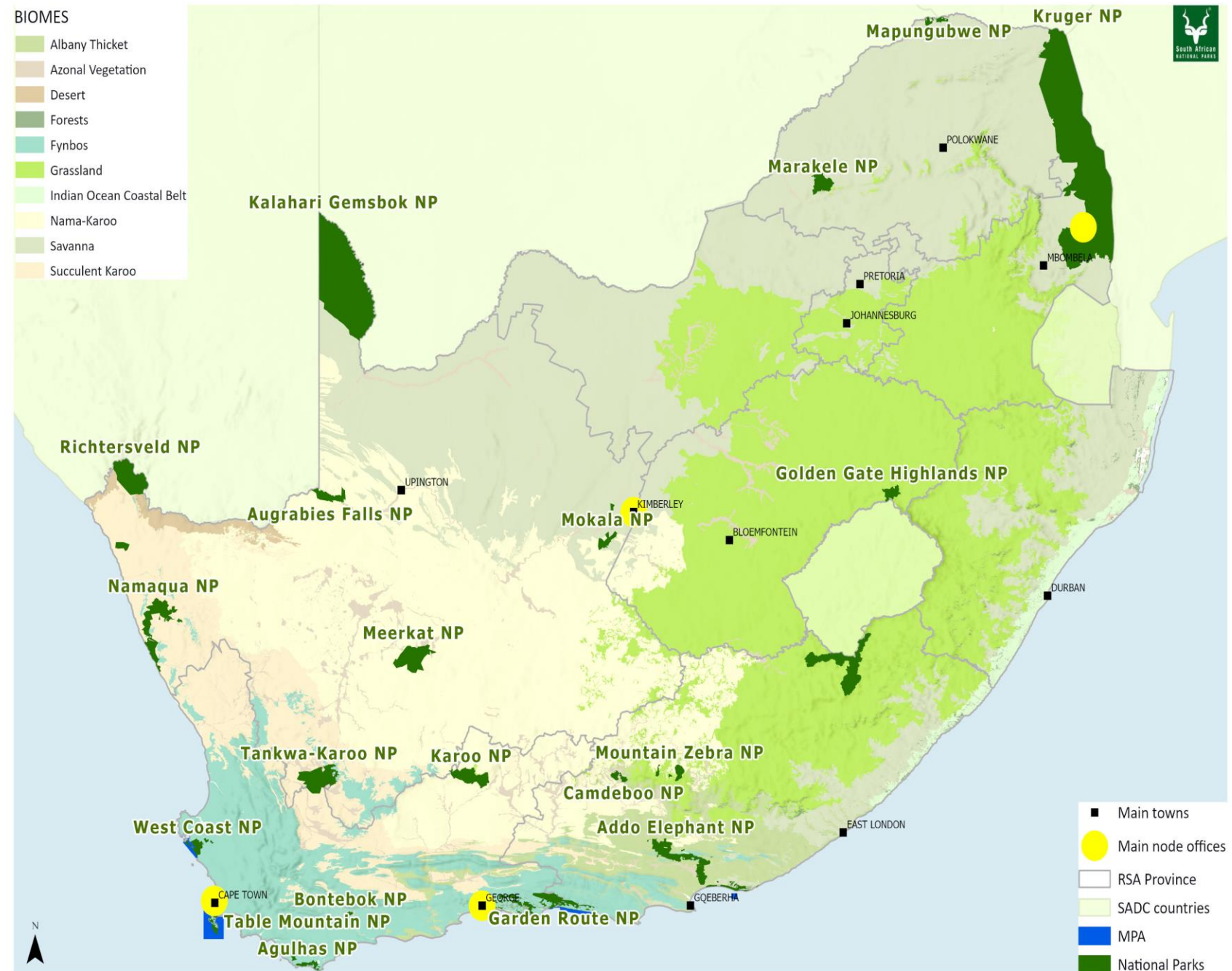


South African  
NATIONAL PARKS

- SANParks  
Manage 21 NP's  
3 World heritage sites  
10 MPA

Generating large volumes of biodiversity data

Data needs to be used to inform policy and a requirement for inclusion into our park management plans



# SANParks' Research Strategy Statement

(approved 2020)

*aims to facilitate and enable the generation, improvement and/or sharing of knowledge, information and experience*, and build organisational capacity to more effectively manage biodiversity and share appropriate opportunities and benefits in and from national parks in an ever- changing socio-ecological context.

underlies the ethos of adaptive management and encourages learning through doing by monitoring, evaluating, reflecting and reporting progress

# Scientific Services

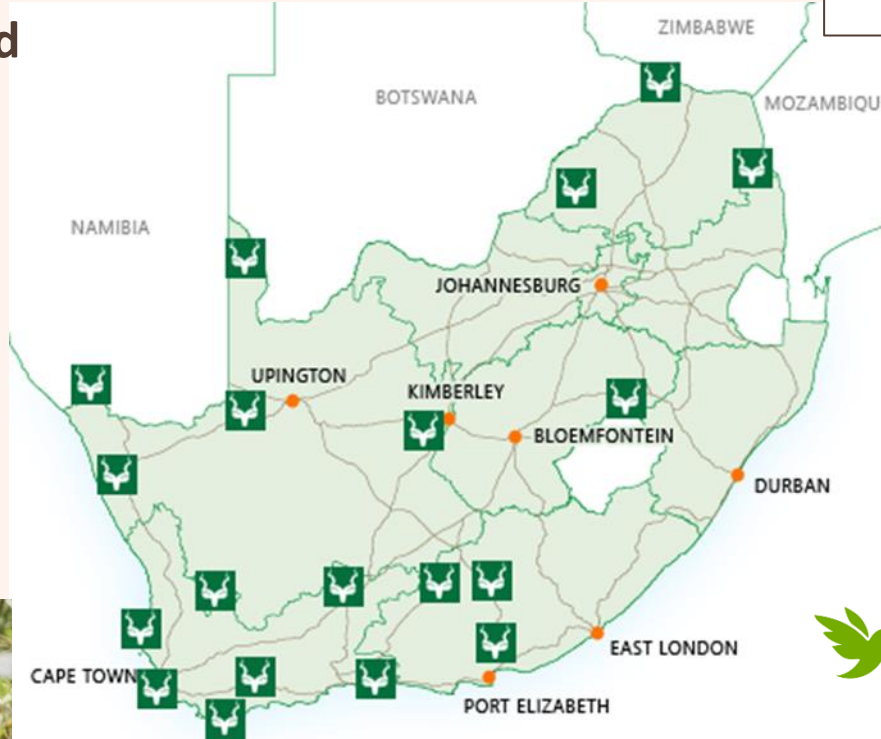
## Biodiversity Heterogenous data

Internally generated and stored data

rangers



scientific services



KOEDOE - African Protected Area Conservation and Science  
 ISSN: (Online) 2071-0771, (Print) 0075-6458  
 Page 2 of 13 Checklist

**A list of spider species found in the Addo Elephant National Park, Eastern Cape province, South Africa**

AOSIS  
 CrossMark

scientists



Other organisations incl. provincial government, e.g.



citizens

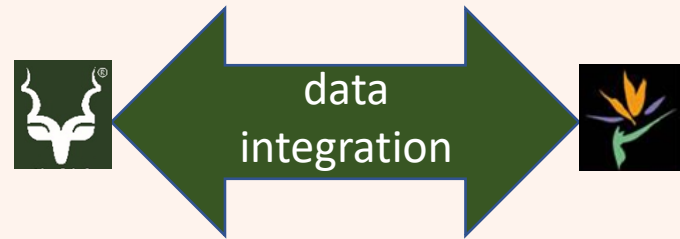


some of these data are available online

some of these data are published and some are stored on the SANParks cloud



Standards and protocols need to be implemented across SANParks for increased data usability and sharing



# How do we manage data and meet our Park Management plan requirements around species



## Appendix 4: List of species of special concern

Taxonomic group	Scientific name	Common name	IUCN category - global
Amphibian	<i>Xenopus gilli</i>	Cape platanna	Endangered
	<i>Microbatrachella capensis</i>	micro frog	Critically endangered
	<i>Sclerophrys pantherina</i>	Western leopard toad	Endangered
Birds	<i>Charadrius pallidus</i>	chestnut banded plover	Near threatened
	<i>Circus maurus</i>	black harrier	Endangered
	<i>Phoenicopterus roseus</i>	greater flamingo	Near threatened
	<i>Phoenicopterus minor</i>	lesser flamingo	Near threatened
	<i>Pelecanus onocrotalus</i>	great white pelican	Vulnerable
	<i>Sternula balaenarum</i>	damara tern	Critically endangered
	<i>Haematopus moquini</i>	African oystercatcher	Least concern
	<i>Phalacrocorax neglectus</i>	bank cormorant	Endangered
	<i>Grus paradisea</i>	blue crane	Near threatened
	<i>Neotus denhami</i>	Denham's bustard	Vulnerable
	<i>Gyps coprotheres</i>	Cape vulture	Endangered
	<i>Sarothrura affinis</i>	striped flufftail	Vulnerable
	<i>Certhilauda brevirostris</i>	Agulhas long-billed lark	Near threatened
Fish	<i>Pseudobarbus burchelli</i>	Burchell's redfin	Critically endangered
	<i>Sandelia capensis</i>	Cape kurper	Near threatened
	<i>Galaxias zebratus</i>	Cape galaxias	Near threatened
Plants	<i>Acrodon quarccicola</i>		Endangered
	<i>Acrolophia bolusii</i>		Vulnerable
	<i>Adenandra odoratissima</i>		Vulnerable
	<i>Adenandra schlechteri</i>		Endangered
	<i>Agathosma abrupta</i>		Vulnerable
	<i>Agathosma minuta</i>		Endangered
	<i>Anisodontea dissecta</i>		Critically endangered
	<i>Aristea palustris</i>		Endangered
	<i>Aristea teretifolia</i>		Endangered
	<i>Aspalathus aciloba</i>		Endangered
	<i>Aspalathus globulosa</i>		Endangered
	<i>Aspalathus prostrata</i>		Vulnerable
	<i>Berkheya angusta</i>		Vulnerable
	<i>Cliffortia curvifolia</i>		Endangered

# Generating species lists for Park Management Plans



The checklist creation process has four main steps:

1. Occurrence record data needs to be obtained from all available sources and put into the same format.
2. Accepted names need to be assigned to all of the occurrence records.
3. A checklist needs to be made of accepted names and their associated synonyms for which there is occurrence data.
4. Additional information can be appended, such as Red List status and year of most recent record.

# Automating species lists from multiple taxa while managing specie data

## BIODIVERSITY OCCURRENCE RECORDS



Sponges

**585** Records  
**103** Sites



Tunicates

**370** Records  
**150** Sites



Worms

**475** Records  
**241** Sites



Bryozoans

**127** Records  
**58** Sites



Hemichordates

**0** Records  
**0** Sites



Xenacoelomorpha

**0** Records  
**0** Sites

### LAYER SELECTOR

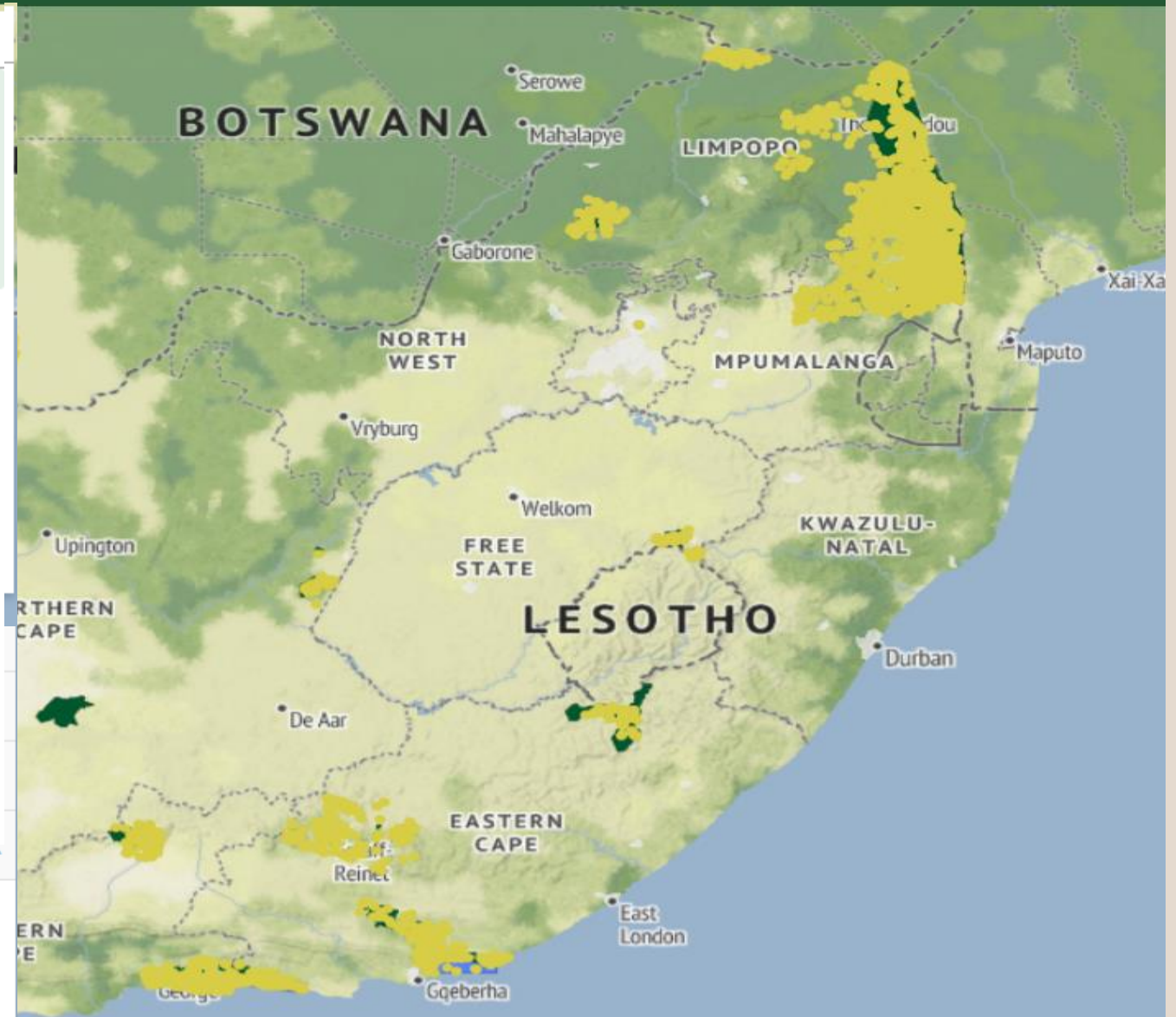
Search

- Sites
- Park Boundaries
- Sections
- SANParks buffer zones
- SA Provinces and SADC boundaries
- SA VegMap Bioregions

STUDY REFERENCE

Choose a reference...

OWNER



[HTTPS://BIMS.SANPARKS.ORG/](https://bims.sanparks.org/)

# How does the system automate the checklist process Using Table Mountain as an example

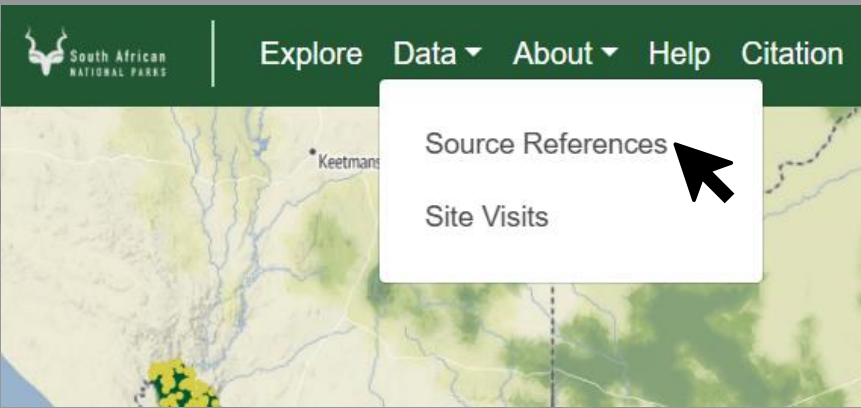
## Manual



## Automated through BIMS

All GBIF data extracted monthly using an API

SANParks staff clean and upload data from other sources



EXPLORE SOURCE REFERENCES | 69 RESULTS

Search

**Type**



















- Unpublished 11
- Database 21
- Published book, report or thesis 10
- Peer-reviewed scientific article 27

**Author(s)**

• **References added so far:**

- Adamson, R.S. and Salter, T.M. eds., 1950. *Flora of the Cape Peninsula* (pp. 828-9). Cape Town: Juta.
- Best, L. N., Attwood, C. G., da Silva, C., & Lamberth, S. J. (2013). Chondrichthyan occurrence and abundance trends in False Bay, South Africa, spanning a century of catch and survey records. *African Zoology*, 48(2), 201–227. <https://doi.org/10.1080/15627020.2013.11407587>
- Bennett, B., Griffiths, CL & Penrith, M. L. (1983). The diets of littoral fish from the Cape Peninsula. *African Zoology*, 18(4), 343-352.
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- Zsilavec, G. (2005). Coastal fishes of the Cape Peninsula and False Bay: a divers' identification guide. Southern Underwater Research Group.
- Bennett, B. A. (1993). The fishery for white steenbras *Lithognathus lithognathus* off the Cape coast, South Africa, with some considerations for its management. *South African Journal of Marine Science*, 13(1), 1-14.
- Table Mountain National Park Marine Protected Area Mono-BRUV Survey
- Table Mountain National Park Bird Checklist 2004
- Table Mountain National Park: Cape of Good Hope Bird Checklist 2012

# Automated through BIMS













- 
**Mammals** 
  
681 Validated
   
[Remove All](#)
- 
**Plants** 
  
24141 Validated
   
[Remove All](#)
- 
**Birds** 
  
2853 Validated
   
[Remove All](#)
- 
**Reptiles** 
  
634 Validated
   
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- 
**Amphibians** 
  
310 Validated
   
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**Fish** 
  
2425 Validated
   
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**Lancelets** 
  
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**Insects** 
  
10929 Validated
   
[Remove All](#)
- 
**Arachnids** 
  
1169 Validated
   
[Remove All](#)

## PLANTS

Search
Filters ▾

Add A Taxon
Download

25 entries per page

Taxon	Author(s)	Family	Status	Accepted Taxon	Biographic distributions	Rank	Tags
							
▶  <i>Abutilon angulatum</i>	Malvaceae	Abutilon	angulatum	ACCEPTED	(Guill. & Perr.) Mast.		SPECIES
▶  <i>Abutilon angulatum angulatum</i>	Malvaceae	Abutilon	angulatum	ACCEPTED			VARIETY
▶  <i>Abutilon angulatum macrophyllum</i>	Malvaceae	Abutilon	angulatum	ACCEPTED	(Hils. & Bojer ex Baill.) Hochr.		VARIETY
▶  <i>Abutilon austroafricanum</i>	Malvaceae	Abutilon	austroafricanum	ACCEPTED	Hochr.		SPECIES
▶  <i>Abutilon dinteri</i>	Malvaceae	Abutilon	dinteri	ACCEPTED	Ulbr.		SPECIES
▶  <i>Abutilon flanaganii</i>	Malvaceae	Abutilon	flanaganii	ACCEPTED			SPECIES
▶  <i>Abutilon fruticosum</i>	Malvaceae	Abutilon	fruticosum	ACCEPTED	Guill. & Perr.		SPECIES
▶  <i>Abutilon galpinii</i>			<i>Abutilon galpinii</i>	ACCEPTED	A.Meeuse		SPECIES
▶  <i>Abutilon grandiflorum</i>	Malvaceae	Abutilon	grandiflorum	ACCEPTED	G.Don		SPECIES
▶  <i>Abutilon grandifolium</i>	Malvaceae	Abutilon	grandifolium	ACCEPTED	(Willd.) Sweet		SPECIES
▶  <i>Abutilon grantii</i>	Malvaceae	Abutilon	grantii	ACCEPTED	A.Meeuse		SPECIES



**CREATE CHECKLIST OF ACCEPTED NAMES**

**3 CREATE CHECKLIST**

6. Create CHECKLIST of ACCEPTED NAMES with SOURCES  
use r code or pivot table, sort, autofill, concatenate etc. in MS Excel

7. Add SYNONYMS with observations  
use INDEX and MATCH functions in MS Excel or r code



**ADD CONSERVATION STATUS ETC.**

**4 ADD RELEVANT INFO**

8. Add CONSERVATION STATUS  
9. Add anything else e.g. most recent year recorded (max year)  
use INDEX and MATCH functions in MS Excel or r code

# SEARCH RESULT



116,880 records

Sort by : Name : Ascending



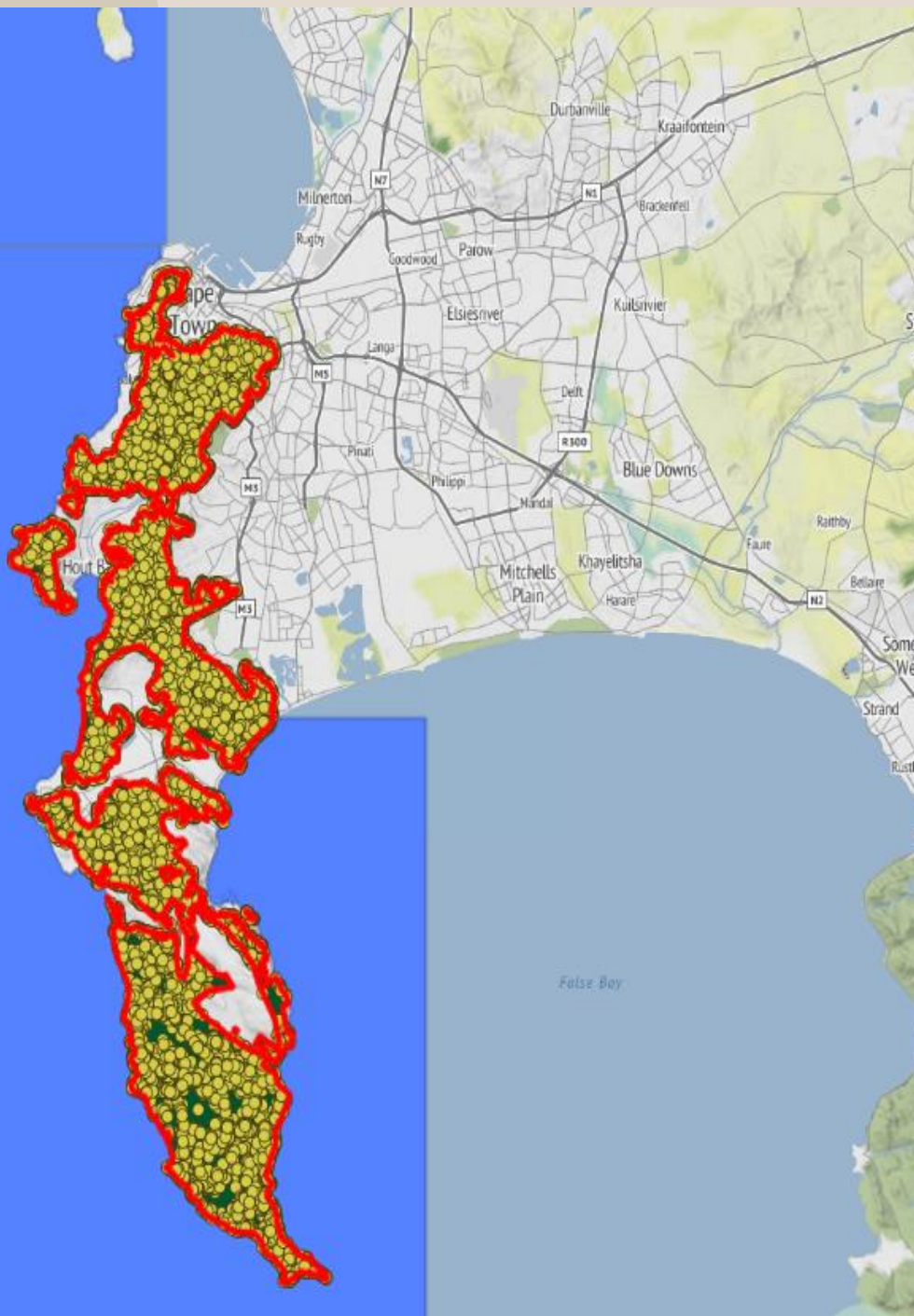
Select an item to find more detailed information.

SITES (59,269)

[Sites overview](#)



TAXA (3,042)



## Multi-Site Overview



### Filter History



Category	Selection
Data Source	GBIF, SANPARKS
Spatial filter	SANParks and MPAs : Table Mountain National Park

### Biodiversity Data



- | Occurrences | Origin       | Endemism    | Cons. Status (National)                      | Number of Taxa |
|-------------|--------------|-------------|--|----------------|
|             | ■ Non-Native | ■ undefined | ■ Critically Endangered                      |                |
|             | ■ Native     |             | ■ Data Deficient                             |                |
|             | ■ Unknown    |             | ■ Data Deficient - Insufficient Information  |                |
|             | ■ undefined  |             | ■ Data Deficient - Taxonomically Problematic |                |
|             |              |             | ■ Endangered                                 |                |
|             |              |             | ■ Extinct in the Wild                        |                |
|             |              |             | ■ Extinct                                    |                |
|             |              |             | ■ Least Concern                              |                |
|             |              |             | ■ Not Evaluated                              |                |
|             |              |             | ■ Near Threatened                            |                |
|             |              |             | ■ Rare                                       |                |
|             |              |             | ■ Regionally Extinct                         |                |
|             |              |             | ■ Vulnerable                                 |                |



0

0

[Dashboard](#)



116880



3042

**13**  
[Dashboard](#)

# Occurrence Data

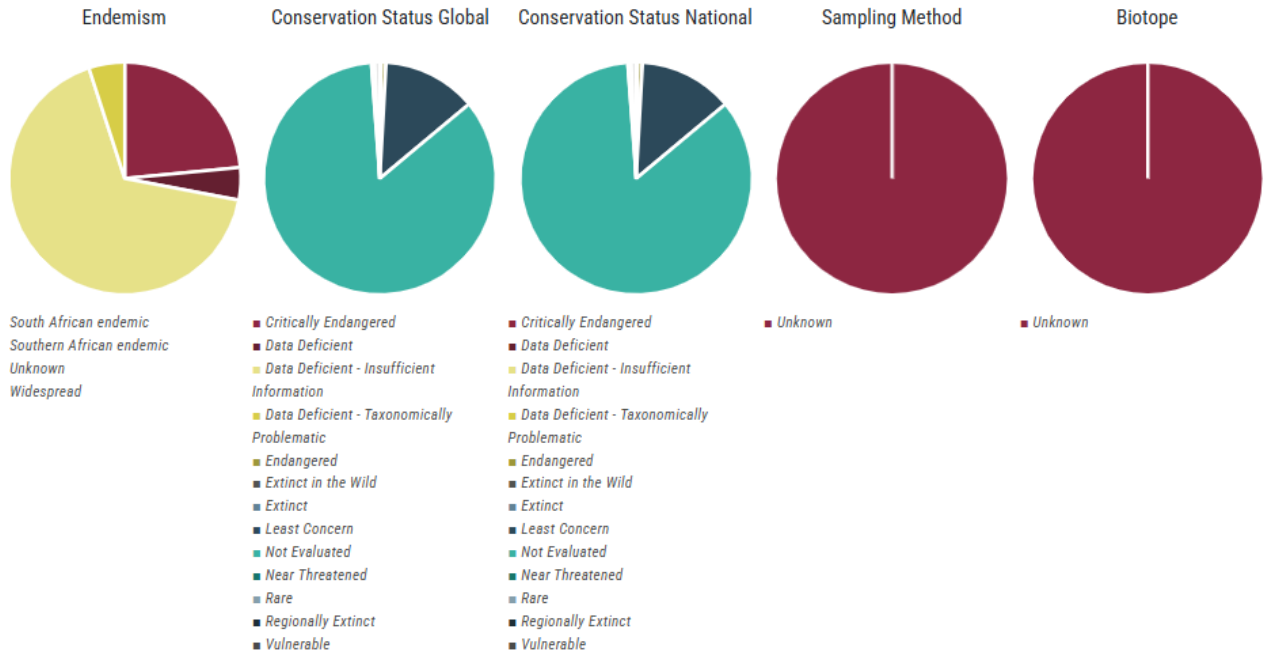


Taxon	Occurrences	Origin	Endemism	Cons. Status (Global)
Acacia acinacea Lindl.	4	Unknown	Unknown	Not Evaluated
Acacia baileyana F.Muell.	7	Non-Native	Unknown	Not Evaluated
Acacia binervata DC.	8	Unknown	Unknown	Least Concern
Acacia crassiuscula H.L.Wendl.	6	Non-Native	Widespread	Least Concern
Acacia cyclops A.Cunn. ex G.Don	585	Non-Native	Unknown	Least Concern
Acacia dealbata Link	4	Non-Native	Unknown	Least Concern
Acacia decurrens Willd.	23	Non-Native	Unknown	Not Evaluated
Acacia elata A.Cunn. ex Benth.	69	Non-Native	Unknown	Not Evaluated

Download data

Download checklist

Download GBIF ids



Annually



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
1	Kingdom	Phylum	Class	Order	Family	Accepted & Synonyms	Rank	Common name	Most recent	Origin	Endemism	Invasion	Global conservation	National conservation	Sources	CITES listing	Confidence	Park or MP	Creation date	Occurrence records		
2	Plantae	Tracheoph	Magnoliop	Fabales	Fabaceae	Acacia acinacea Lindl	SPECIES	gold-dust ac	2021	Unknown	Unknown		NE		iNat, BODATSA			-	06/02/2025	4		
3	Plantae	Tracheoph	Magnoliop	Fabales	Fabaceae	Acacia baileyana F.M.	SPECIES	Bailey's ac	2024	Non-Native		Category 3	NE	NE	Spear et al. 2011, iNat		High	Table Moun	06/02/2025	7		
4	Plantae	Tracheoph	Magnoliop	Fabales	Fabaceae	Acacia binervata DC.	SPECIES	two-vein-h	2023	Unknown	Unknown		LC		iNat			-	06/02/2025	8		
5	Plantae	Tracheoph	Magnoliop	Fabales	Fabaceae	Acacia crassiuscula H	SPECIES		2020	Non-Native	Widespread		LC		RBGKew, iNat, BODATSA			-	06/02/2025	6		
6	Plantae	Tracheoph	Magnoliop	Fabales	Fabaceae	Acacia cyclops A.Cun	SPECIES	Coastal wa	2024	Non-Native		Category 1	LC	NE	WIMS Database, Spear et al. 20		High	Table Moun	06/02/2025	585		
7	Plantae	Tracheoph	Magnoliop	Fabales	Fabaceae	Acacia dealbata Link	SPECIES	Silver wattl	2021	Non-Native	Unknown	Category 2	LC	NE	Spear et al. 2011, iNat		High	Table Moun	06/02/2025	4		
8	Plantae	Tracheoph	Magnoliop	Fabales	Fabaceae	Acacia decurrens Will	SPECIES	black wattl	2024	Non-Native	Unknown	Category 2	NE	NE	iNat			-	06/02/2025	23		
9	Plantae	Tracheoph	Magnoliop	Fabales	Fabaceae	Acacia elata A.Cunn.	SPECIES	Cedar wattl	2024	Non-Native		Category 1	NE	NE	Spear et al. 2011, CIB_TPO, BOI		High	Table Moun	06/02/2025	69		
0	Plantae	Tracheoph	Magnoliop	Fabales	Fabaceae	Acacia falciformis DC	SPECIES	hickory wa	2024	Non-Native	Widespread		LC		iNat, BODATSA			-	06/02/2025	56		
1	Plantae	Tracheoph	Magnoliop	Fabales	Fabaceae	Acacia implexa Benth	SPECIES	black wattl	2024	Non-Native	Unknown	Category 1	LC	NE	Spear et al. 2011, iNat		High	Table Moun	06/02/2025	113		
2	Plantae	Tracheoph	Magnoliop	Fabales	Fabaceae	Acacia longifolia (And	SPECIES	Sydney gol	2024	Non-Native		Category 1	LC	NE	Spear et al. 2011, PNet_AI, CIB_		High	Table Moun	06/02/2025	742		
3	Plantae	Tracheoph	Magnoliop	Fabales	Fabaceae	Acacia mearnsii De W	SPECIES	Black wattl	2024	Non-Native		Category 2	NE	NE	WIMS Database, Spear et al. 20		High	Table Moun	06/02/2025	478		
4	Plantae	Tracheoph	Magnoliop	Fabales	Fabaceae	Acacia melanoxylon R	SPECIES	Australian	2024	Non-Native		Category 2	NE	NE	Spear et al. 2011, WIMS Databa		High	Table Moun	06/02/2025	667		
5	Plantae	Tracheoph	Magnoliop	Fabales	Fabaceae	Acacia paradoxa DC.	SPECIES	Paradox ac	2024	Non-Native	Unknown	Category 1	LC		AVH, Spear et al. 2011, iNat, BC		High	Table Moun	06/02/2025	36		
6	Plantae	Tracheoph	Magnoliop	Fabales	Fabaceae	Acacia piligera A.Cum	SPECIES	Unknown	2023	Unknown	Unknown		NE		iNat			-	06/02/2025	12		
7	Plantae	Tracheoph	Magnoliop	Fabales	Fabaceae	Acacia podalyriifolia A	SPECIES	Mt. Morgar	2024	Non-Native		Category 1	LC	NE	WIMS Database, Spear et al. 20		High	Table Moun	06/02/2025	82		
8	Plantae	Tracheoph	Magnoliop	Fabales	Fabaceae	Acacia provincialis A.	SPECIES		2021	Non-Native	Widespread		NE		iNat			-	06/02/2025	3		
9	Plantae	Tracheoph	Magnoliop	Fabales	Fabaceae	Acacia pycnantha Ber	SPECIES	broadleaf v	2024	Non-Native		Category 1	LC	NE	WIMS Database, Spear et al. 20		High	Table Moun	06/02/2025	250		
0	Plantae	Tracheoph	Magnoliop	Fabales	Fabaceae	Acacia saligna (Labill.	SPECIES	Golden wre	2024	Non-Native		Category 1	LC	NE	WIMS Database, MeiseBG, Spe		High	Table Moun	06/02/2025	1075		
1	Plantae	Tracheoph	Magnoliop	Fabales	Fabaceae	Acacia schinoides Bei	SPECIES		2023	Non-Native	Widespread		NE	NE	iNat			-	06/02/2025	2		
2	Plantae	Tracheoph	Magnoliop	Fabales	Fabaceae	Acacia ulicifolia (Salis	SPECIES	juniper wat	2022	Unknown	Unknown		LC		iNat, BODATSA			-	06/02/2025	6		
3	Plantae	Tracheoph	Magnoliop	Fabales	Fabaceae	Acacia viscidula Benti	SPECIES	Sticky Wat	2024	Non-Native	Widespread		LC	NE	ALA, iNat, BODATSA			-	06/02/2025	18		
4	Plantae	Tracheoph	Magnoliop	Lamiales	Acanthace	Acanthus mollis L.	SPECIES	Bear's bree	2024	Non-Native	Unknown		NE		Spear et al. 2011, iNat		High	Table Moun	06/02/2025	20		
5	Plantae	Tracheoph	Magnoliop	Sapindales	Sapindace	Acer negundo L.	SPECIES	Ashleaf Ma	2024	Non-Native	Unknown	Category 3	LC		Spear et al. 2011, iNat, CIB_TPC		High	Table Moun	06/02/2025	25		
6	Plantae	Tracheoph	Magnoliop	Caryophyll	Amaranth	Achyranthes aspera L	SPECIES	Devil's hor	2024	Native	Unknown		NE		Spear et al. 2011, iNat		High	Table Moun	06/02/2025	41		
7	Plantae	Tracheoph	Magnoliop	Caryophyll	Amaranth	Achyranthes sicula (L.	SPECIES		1875	Native	Unknown		NE		MeiseBG			-	06/02/2025	1		
8	Plantae	Tracheoph	Magnoliop	Caryophyll	Aizoaceae	Acrosanthes teretifoli	SPECIES		2024	Native	South African endemic		NE	LC	Natgucker, iNat, BODATSA			-	06/02/2025	15		

## Final takeaways

- System launched in November still busy refining taxon management as well as uploading data
- We need to integrate data captured through other systems like EarthRanger, Cybertracker, Movebank, etc
- Addition development for features and additional modules

Thank You

## Internal Core Team

**JRS** Biodiversity  
Foundation



Funder and Developers



Nazley Liddle

Biodiversity Data Technicians



Kylen Brown

Explore data or sign up at  
<https://bims.sanparks.org/>