SANBI
Biodiversity for Life
South African National Biodiversity Institute

C·I·B
Centre for
INVASION
BIOLOGY

Stellenbosch
UNIVERSITY
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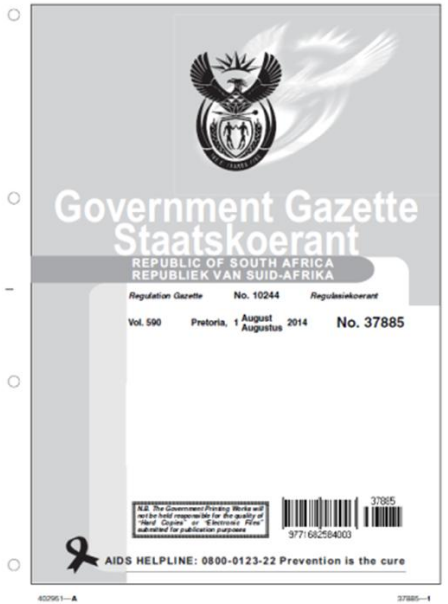
# The Status of Biological Invasions and their Management in South Africa

# Talk content

1. Mandate, rationale, and function of the report
2. Key findings in the last report
3. Structure and content of the next report

# Mandate, rationale, and function of the report

# National mandate

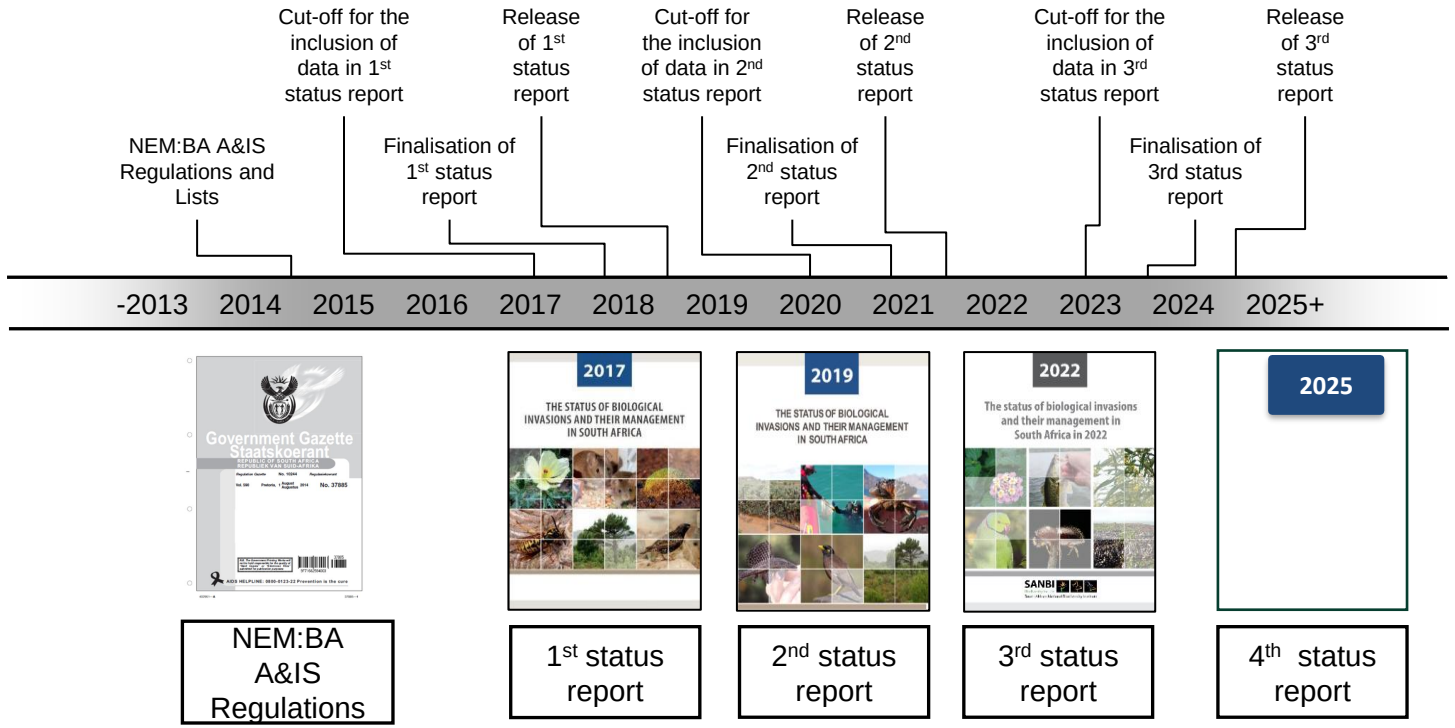



The Institute [i.e. SANBI] …….. must ….. submit a report on the status of listed invasive species ……. within three years after these regulations come into effect, and every three years thereafter

The report …. must contain a summary and assessment of:

the status of listed invasive species; and

the effectiveness of these regulations and control measures


Cut-off for the inclusion of data in 1st status report
Release of 1st status report
Cut-off for the inclusion of data in 2nd status report
Release of 2nd status report
Cut-off for the inclusion of data in 3rd status report
Release of 3rd status report
NEM:BA A&IS Regulations and Lists
Finalisation of 1st status report
Finalisation of 2nd status report
Finalisation of 3rd status report
-2013
2014
2015
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2017
2018
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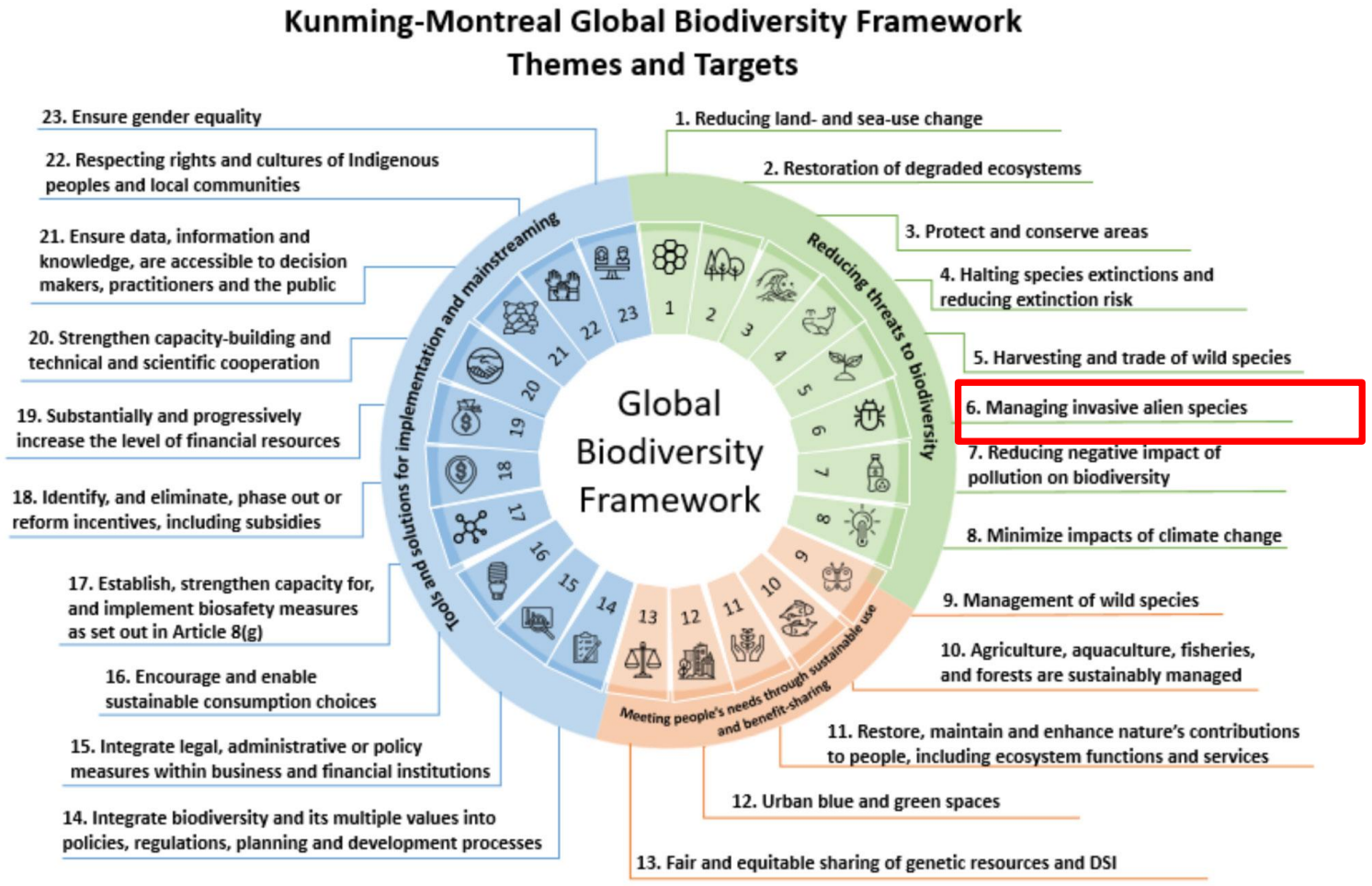
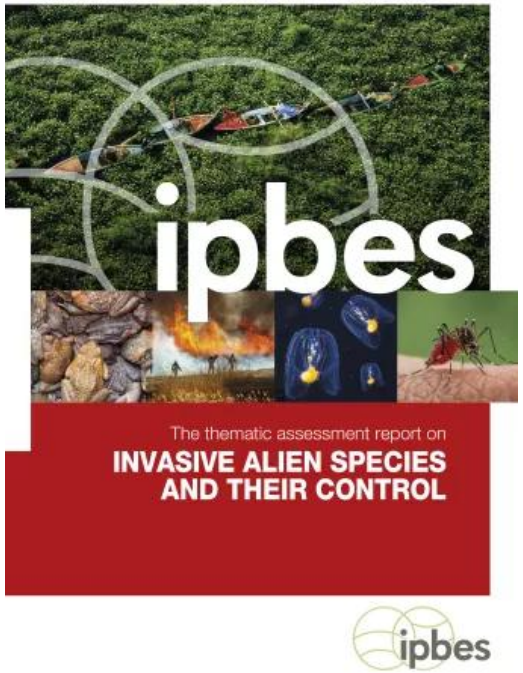
2020
2021
2022
2023
2024
2025+
Government Gazette
Staatskoerant
2017
THE STATUS OF BIOLOGICAL INVASIONS AND THEIR MANAGEMENT IN SOUTH AFRICA
2019
THE STATUS OF BIOLOGICAL INVASIONS AND THEIR MANAGEMENT IN SOUTH AFRICA
2022
The status of biological invasions and their management in South Africa in 2022
SANBI
2025
NEM:BA A&IS Regulations
1st status report
2nd status report
3rd status report
4th status report

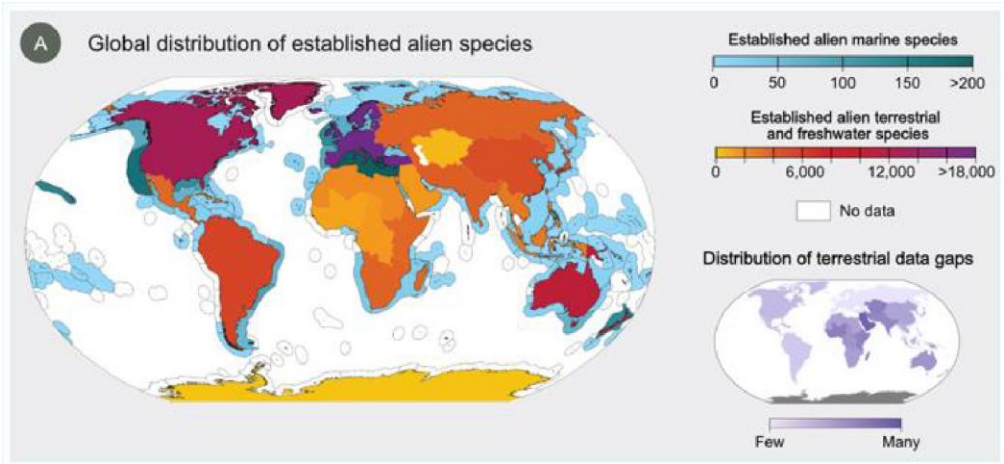
# Why are biological invasions a problem?

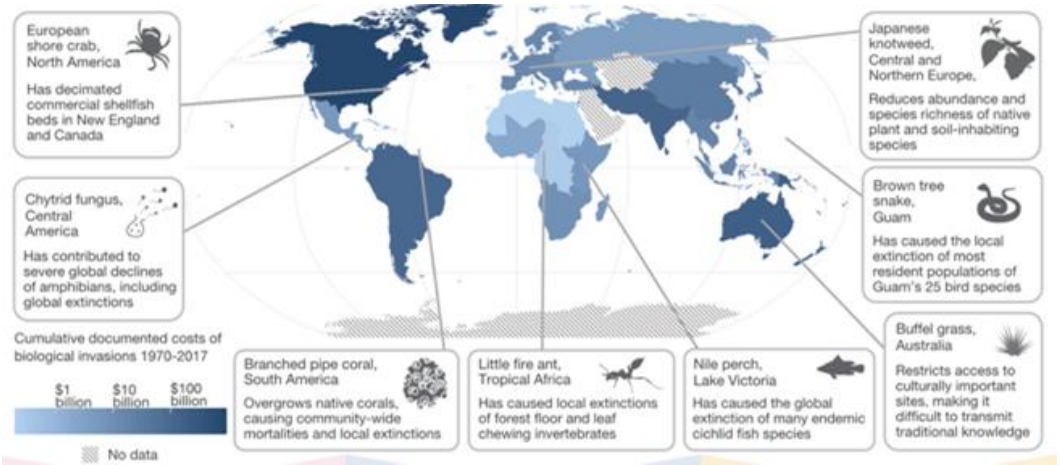
THE BIODIVERSITY PLAN
For Life on Earth

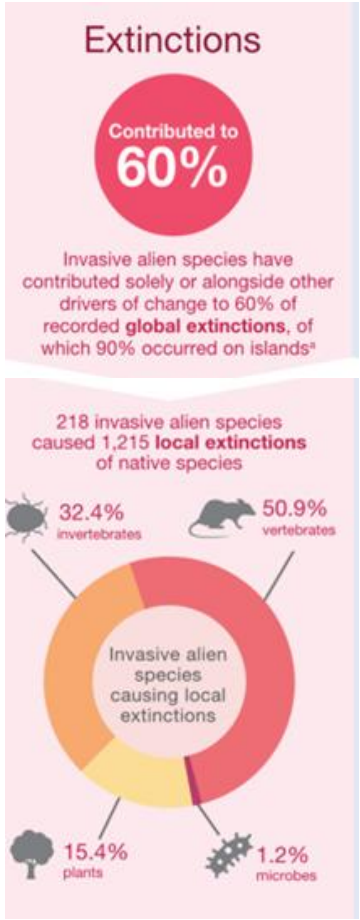


# Why are biological invasions a problem?

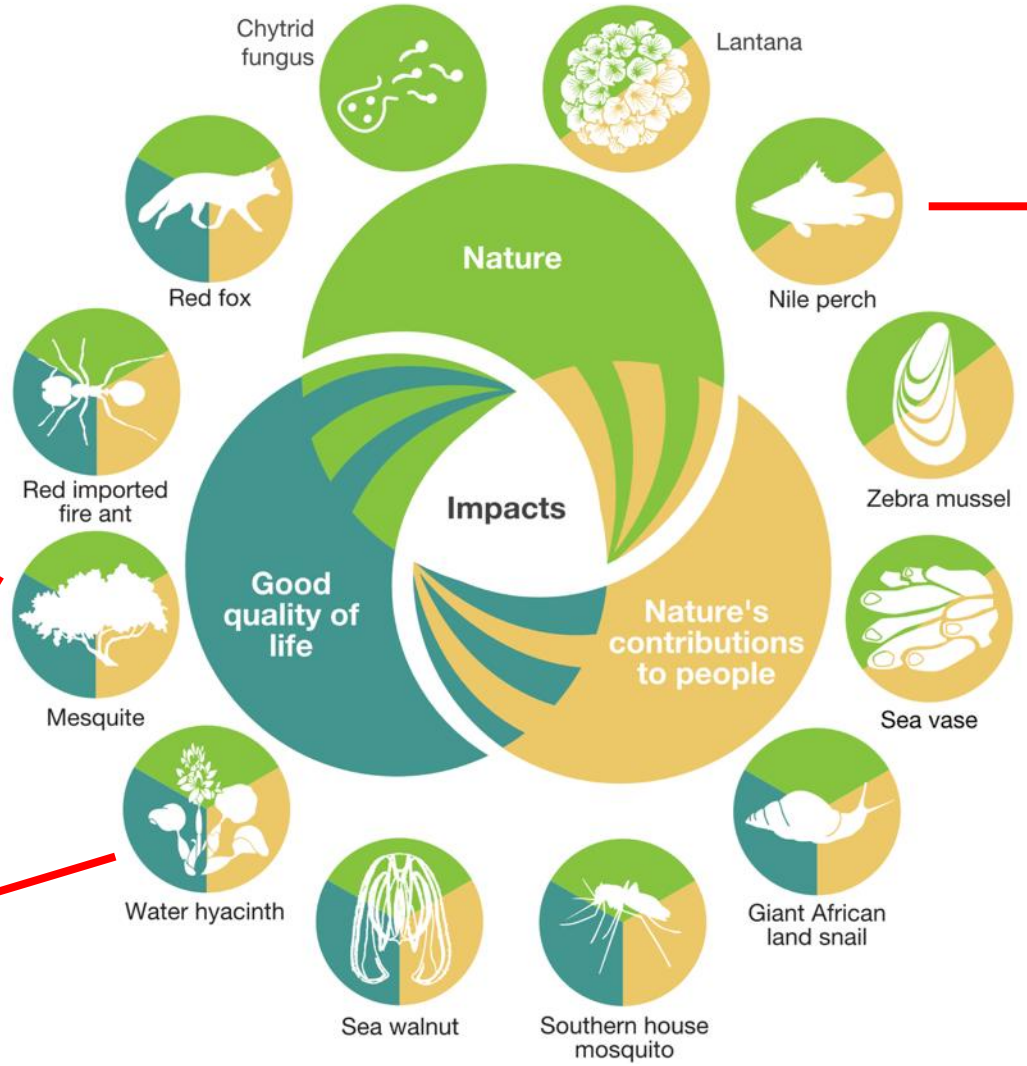


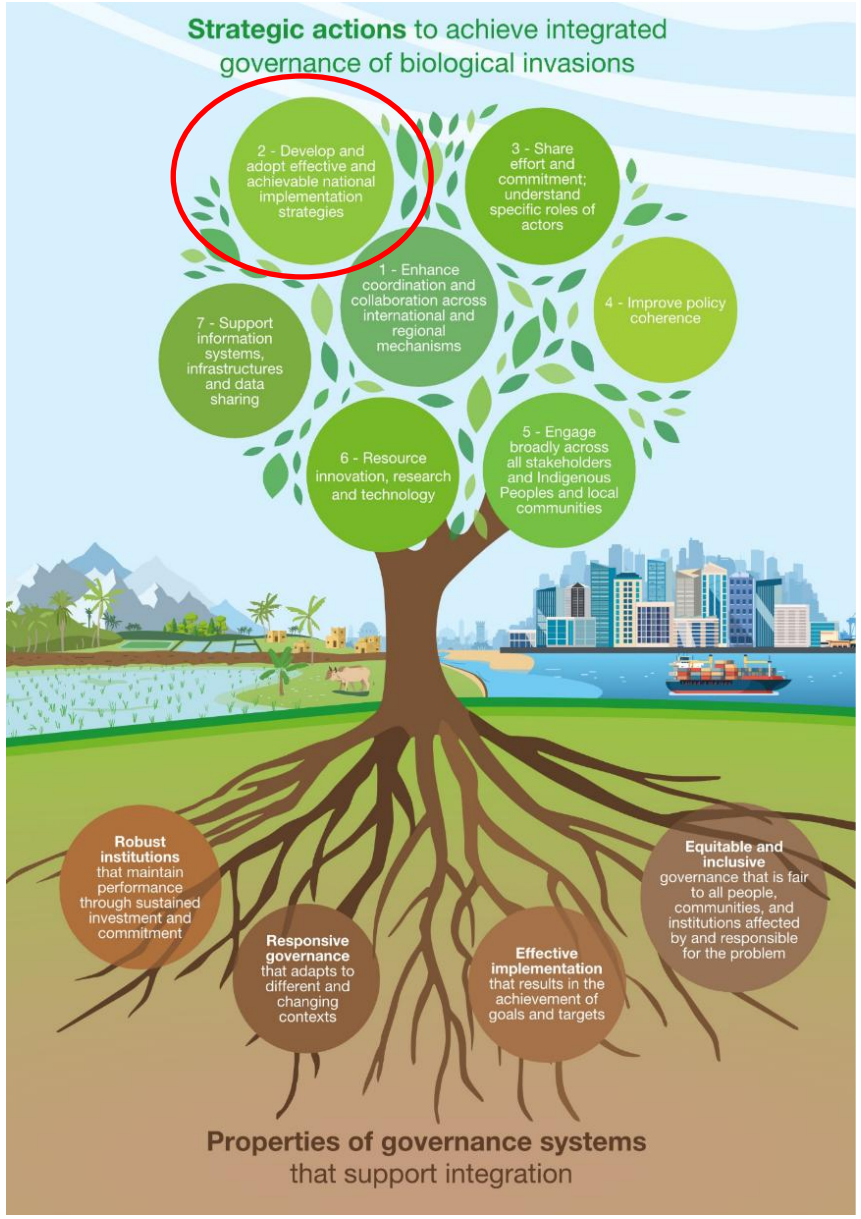



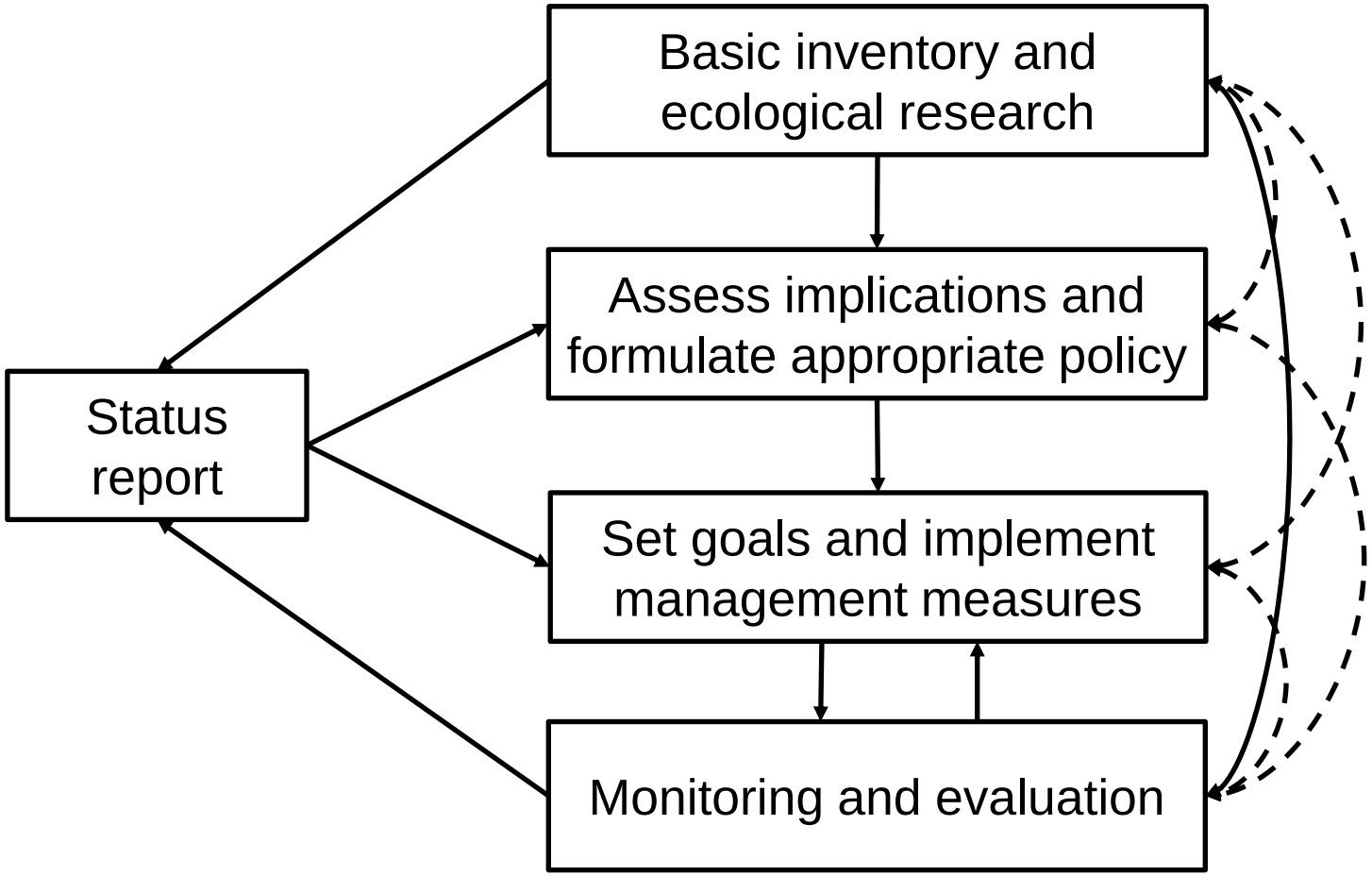
# Impacts are varied and affect different sectors of society

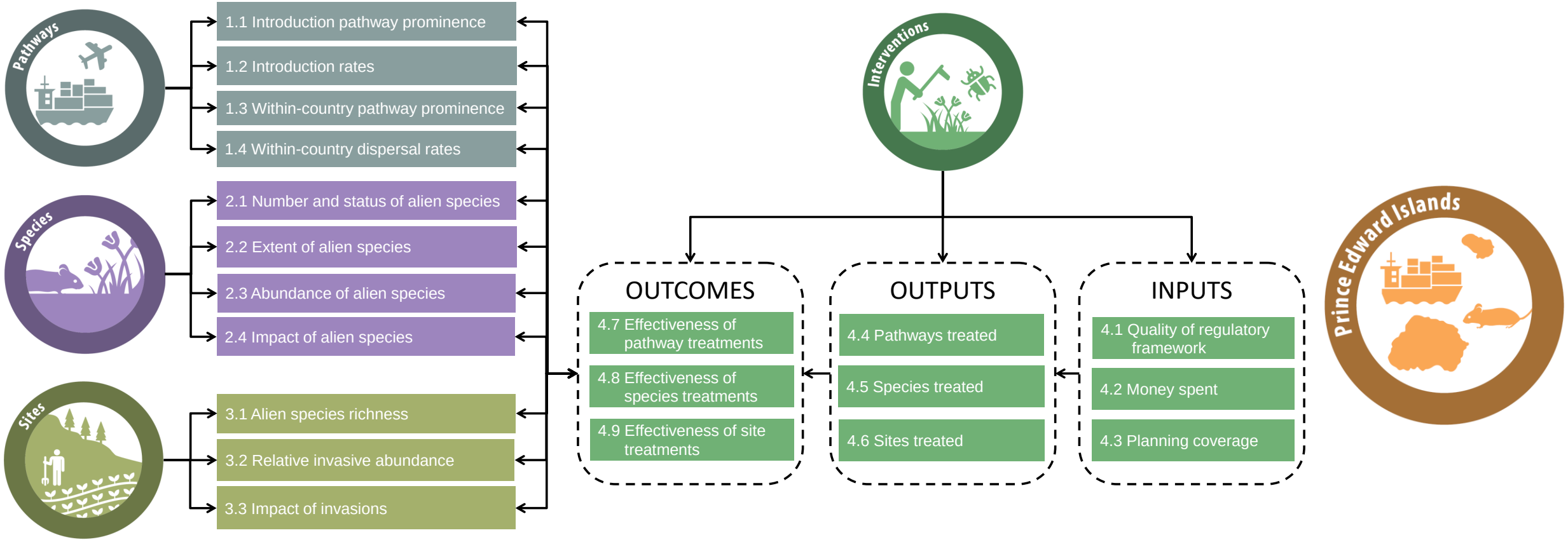

# But can be managed with integrated governance



# Why is a report needed?



# Structure




1. Rate of unregulated introduction of new species
2. Number of invasive species that have 'Major' impacts
3. Extent of area that suffers 'Major' impacts from invasions
4. Level of success in managing invasions

# Key findings in the last report

# Key messages


A1: New alien species continue to arrive in South Africa every year through several different pathways
A2: Native and alien species are spread by humans around South Africa
A3: Intentional legal introductions are well regulated; the new National Border Management Authority promises to improve the prevention of illegal and accidental introductions


D2: South Africa has an innovative regulatory system to address biological invasions; this has been revised and decisions are now more directly informed by the available scientific evidence
D3: Biological invasions have been successfully managed in some cases, particularly through biological control; planning and monitoring is needed for these successes to be replicated
D4: With judicious investment and integrated governance, the impact of invasions on South African society can be reduced


B1: The process of documenting alien species in the country has been substantially improved and is now transparent
B2: Knowledge of the distribution of alien species has been improved by citizen science and the digitization of historical records
B3: Invasive species, in particular trees and freshwater fishes, have 'Major' negative impacts on people and nature across the country


C1: Invasions are distributed across the country including in protected areas
C2: The impact of invasions on a water resources, rangeland productivity, and biodiversity is severe
D1: The South African government invested over 1.5 billion Rand to address biological invasions between 2020-2022; and there are several major privately-funded initiatives


E1: Invasive species are devastating the unique and sensitive biodiversity of the Prince Edward Islands
E2: Biological invasions are being addressed through effective biosecurity and on-island management—these processes could be strengthened by focussing on regulations and planning specific to the PEIs
E3: Bold plans to eradicate the house mouse promise to save Marion Island's seabirds


# Some examples

**Intentional legal introductions are well regulated; the new National Border Management Authority promises to improve the prevention of illegal and accidental introductions**

All legal introductions of new alien taxa require import permits, with permits issued only if the risks are demonstrated to be sufficiently low.

Illegal and accidental introductions are, however, continuing. For example, phytosanitary inspections of agricultural goods regularly intercept alien species not known to be present in the country.

The National Border Management Authority (BMA) was established in 2020 and became fully operational in 2023. The BMA promises to improve the prevention of illegal and accidental introductions.

BMA
BORDER • MANAGEMENT • AUTHORITY

# Some examples

Pine trees

DAMAGE

Prosopis trees

DAMAGE

Parthenium weed

DAMAGE

Alien freshwater fish

DAMAGE

Invasive species, in particular trees and freshwater fishes, have ‘Major’ negative impacts on people and nature across the country

36 species were formally assessed using EICAT, of which 19 species (mostly trees and fishes) have ‘Major’ or ‘Massive’ negative impacts at a national level.

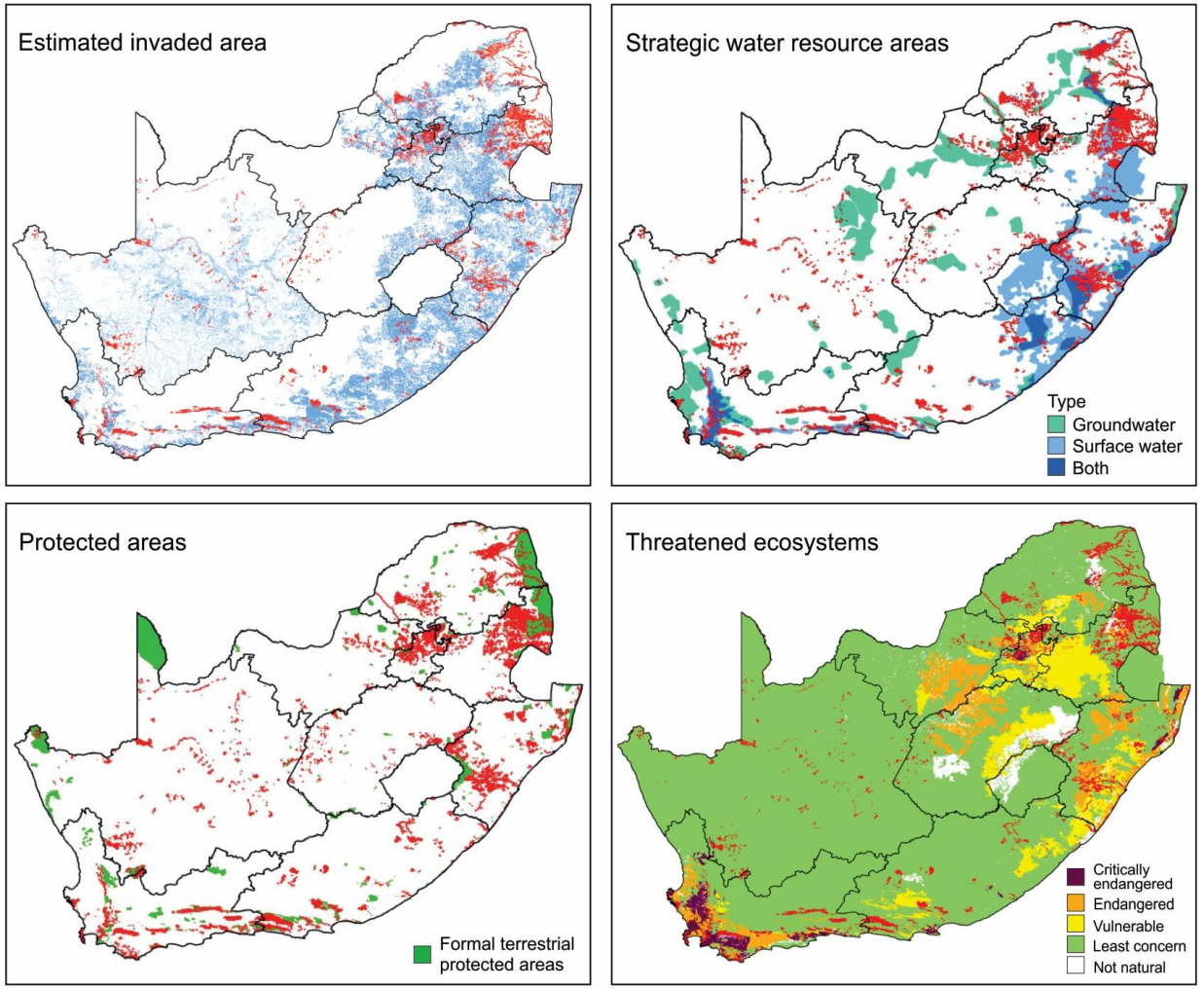
There is a need for more studies and assessments on the impact of invasive species in South Africa.

Information on impacts will help inform the interventions required to protect biodiversity and ensure that ecosystem services essential to human wellbeing are maintained.

# Some examples

**The impact of invasions on a water resources, rangeland productivity, and biodiversity is severe**

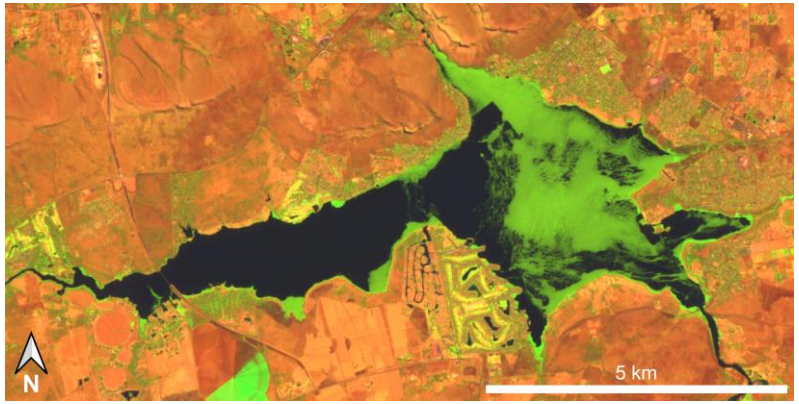
There is a need to update these pivotal studies and develop improved workflows to track these impacts and facilitate prioritization of interventions



# Some examples

Biological invasions have been successfully managed in some cases, particularly through biological control; planning and monitoring is needed for these successes to be replicated

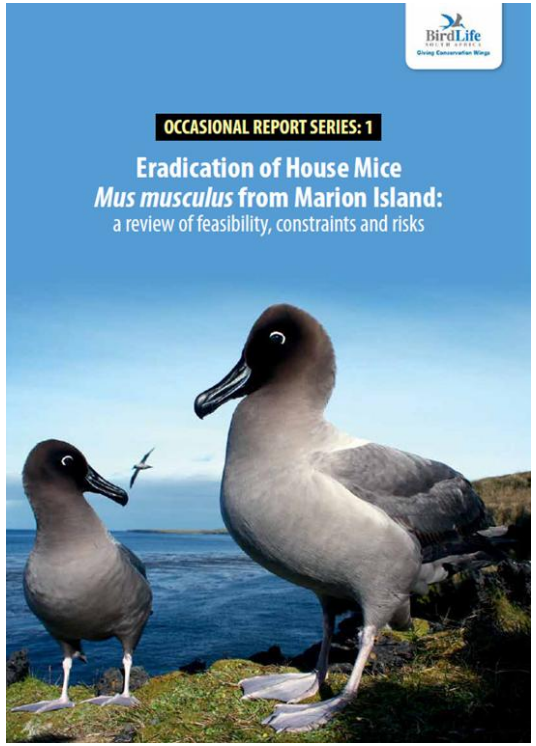
Before




*Megamelus scutellaris*
(water hyacinth planthopper)

After

# Some examples




## Bold plans to eradicate the house mouse promise to save Marion Island's seabirds

The house mouse is the most harmful alien species on Marion Island.

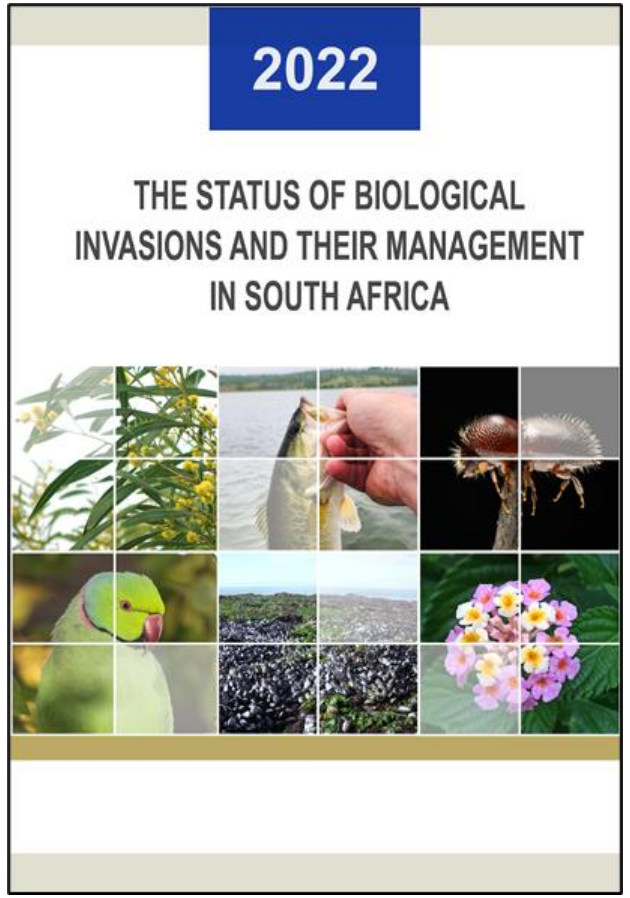
A bold plan to eradicate the house mouse from Marion Island ('Mouse-Free Marion') has been developed and is due to be implemented.

The eradication of mice from Marion Island is essential if the unique biodiversity of the island is to be preserved.

# Conclusions from the report

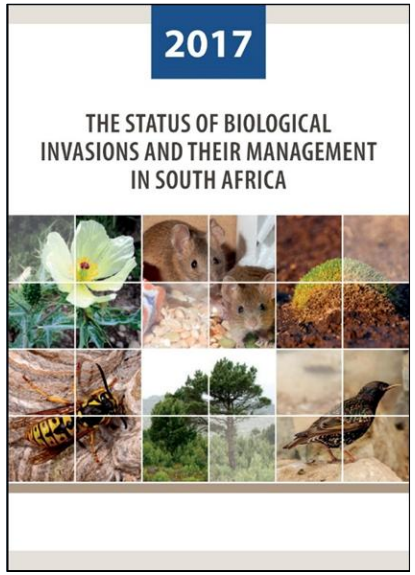
- Biological invasions
  - have had severe impacts on all sectors of society;
  - are a major threat to South Africa's biodiversity, economy, and sustainable development; but
  - can be dealt with if effective control measures are implemented

- This report is one of many initiatives to improve how South Africa responds to this challenge

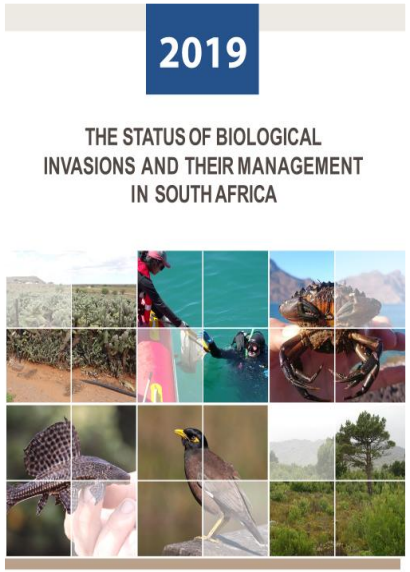


# Structure and content of the next report

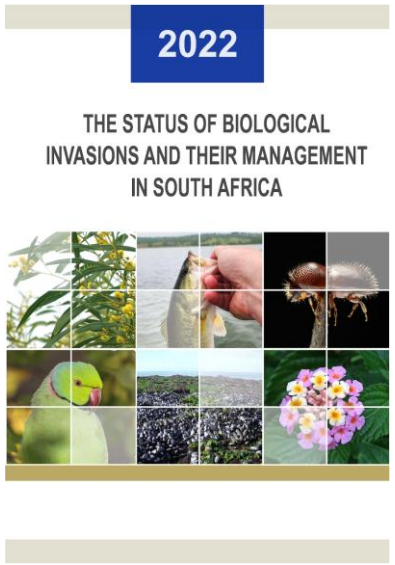
# Key goals of previous reports




- ✓ Initiate process of compiling the report
- ✓ Pilot indicators and test fit for the purpose
- ✓ Initiate process for sourcing information and engaging specialist contributors




- ✓ Data curation
- ✓ Adjustments to the indicators/protocols
- ✓ Proposal to track change
- ○ Testing the indicators
- ○ Efforts to access data

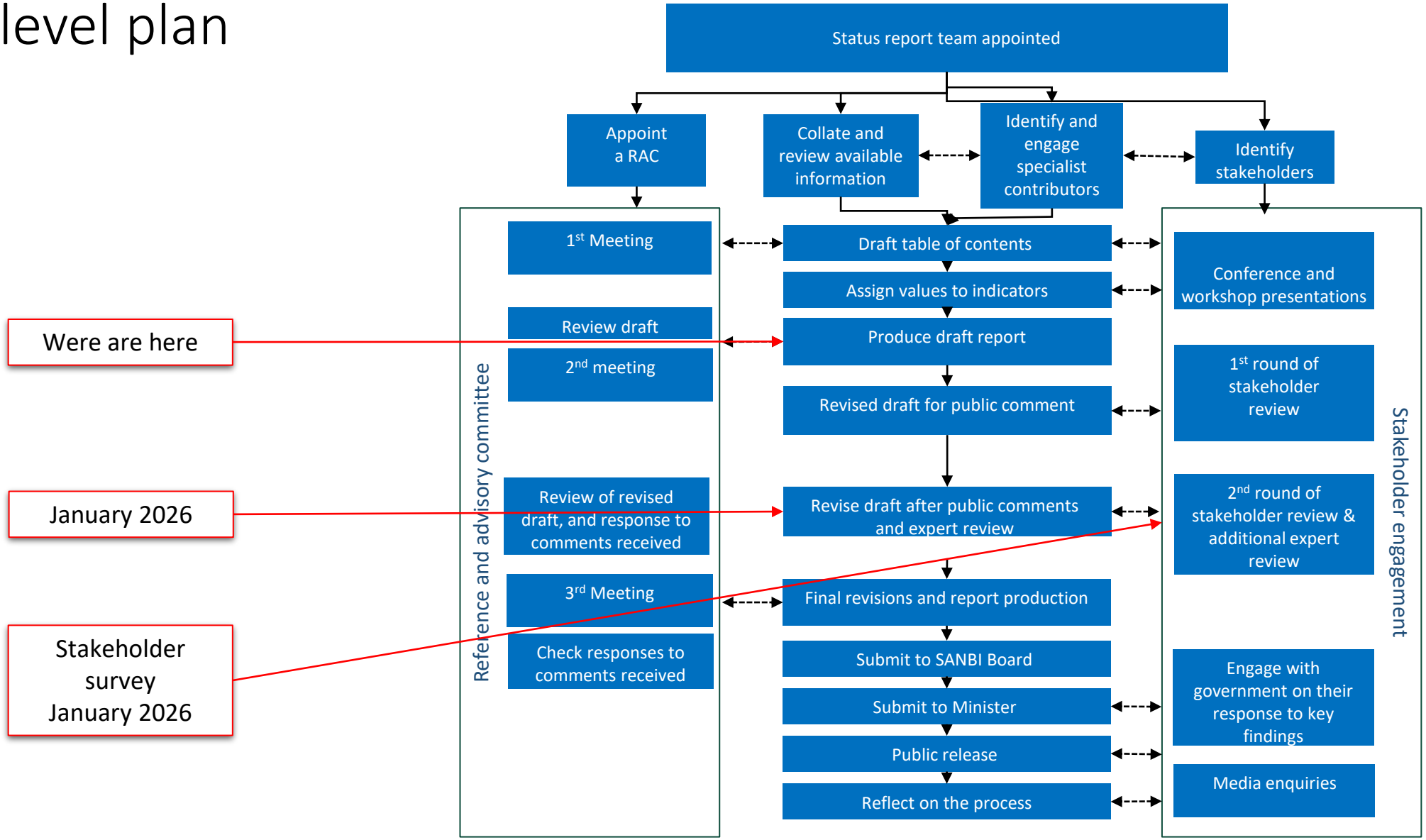



- ✓ Defensible species list
- ○ Processes in place to work on impacts on sites
- ○ Processes in place to get estimates for effectiveness of management
- ✓ Pilot indicators for selected case studies
- ✓ Contribute to National Strategy on Biological Invasions
- ○ Impacts assessed for key taxa

# Key goals of this report

- Review of indicators nationally and globally (post the publication of the IPBES IAS Assessment)
- Review of gaps identified as part of IPBES IAS Assessment
- Stakeholder consultation to identify topics that should be the focus of future reports
- Review and update species list (taxonomy and nomenclature)
- Develop workflows for selected indicators
- Implement pipelines from the B Cubed project to improve the integration of biodiversity data into report processes

# High-level plan



# Who is involved

# Developing lists of alien taxa in the Global South: workflows, protocols, processes, and experiences

- Papers that outline workflows and protocols needed to compile lists
- Papers documenting the processes and experiences of developing lists
- Analyses of how particular issues (e.g., conflicts of interest) were addressed
- Assessments of the benefits of published lists
- Data papers with lists

A peer-reviewed open-access journal
NeoBiota
Advancing research on alien species and biological invasions

SANBI Biodiversity for Life
South African National Biodiversity Institute
AFRICAN Biodiversity & Conservation

Revista Bioinvasiones

Paper on the process

Special Issue papers

A poster

**Editors of the special issues**

Aníbal Pauchard
Barbara Langdon
Hanno Seebens
John Wilson
Katelyn T. Faulkner
Michele de Sá Dechoum
Shyama Pagad
Silvía Ziller
Tsungai Zengeya

**South Africa's list**

Asive Sifuba
Brian van Wilgen
Emily McCulloch-Jones
John Wilson
Katelyn Faulkner
Laura Fernández Winzer
Promise Mtileni
Sabrina Kumschick
Siya Miza-Tshangana
Tammy Robinson
Tsungai Zengeya
Whitney Engelbrecht
+ lots of contributors!

Paper on the list

RSA's list of alien taxa

Metadata for the list

# Standardising biodiversity data for improved policymaking:

## Introducing the B-Cubed project

BIODIVERSITY BUILDING BLOCKS FOR POLICY

https://b-cubed.eu/

## Aim

B-Cubed is **standardising access to biodiversity data**, empowering policymakers to address the impacts of biodiversity change.

## Solutions & Activities

**Policy alignment** to enhance the use of biodiversity indicators in policy decisions

**Evidence base** to provide fast access to up-to-date biodiversity data for policy

**Automated workflows** to facilitate automated data aggregation and output

**Cloud computing** to enable models of biodiversity at high resolution and frequency

**Capacity building** to train in biodiversity informatics and cloud computing

**Case studies** to test solutions' applicability and unite biodiversity informaticians

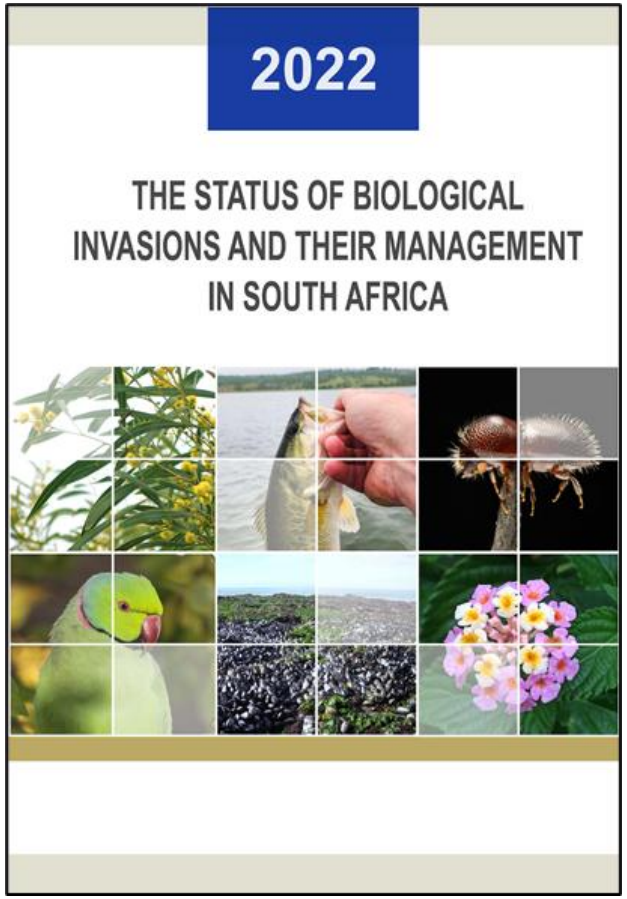
Funded by the European Union

SANBI Biodiversity for Life
South African National Biodiversity Institute

# Links to the reports

For more information and links to the reports see: http://iasreport.sanbi.org.za

Copies also available on: https://zenodo.org/records/8217182



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Thank you!