



The IUCN Red List of Ecosystems – how does it compare to South Africa’s approach of listing threatened ecosystems in the terrestrial realm?

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Overview

- Purpose of listing threatened ecosystems
- Why do we compare the IUCN and SA ecosystem threat status assessment approaches
- Pilot study
- Way forward



Purpose of listing threatened ecosystems

- Systematic biodiversity planning
- Inform policy development, land use planning and decision
- High-level monitoring of the status of biodiversity at a national, regional and global scale



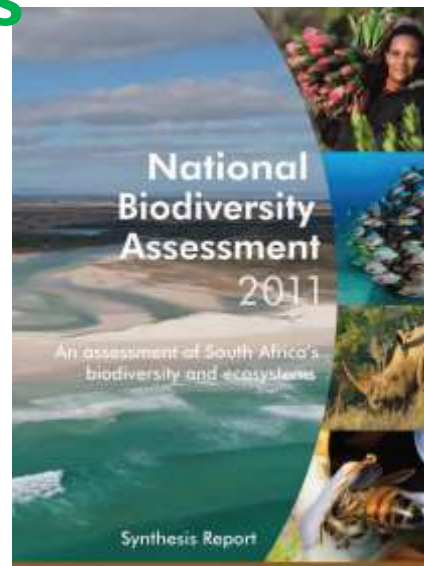
SA time frames



NSBA 2004



NEMBA (ACT NO.10 of 2004)



NBA 2011

NBA 2018 published

2004

2008

2011

2014

2015

2019

Development of IUCN RLE framework

Approval of IUCN RLE framework

IUCN RLE Guidelines published



Guidelines for the Application of IUCN Red List of Ecosystems Categories and Criteria

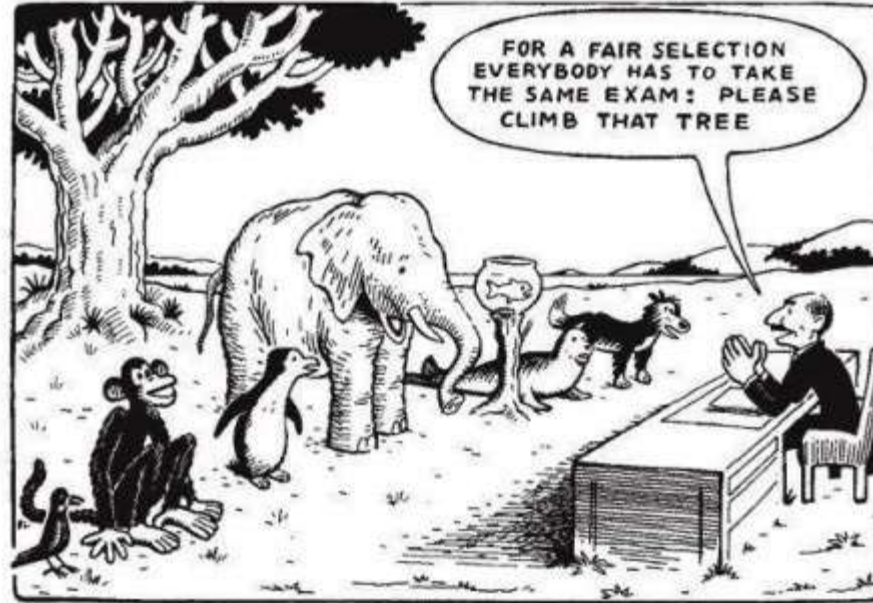
Edited by L. M. Shreef, D. A. Heath, M. J. Murray and J. P. Rodriguez

IUCN RLE time frames



Why do we compare the IUCN and SA ecosystem threat status assessment approaches?

Align our national assessment approach with the IUCN RLE **or even** participate in future refinement of the globally adopted IUCN RLE framework



SA threat status assessment framework

- Biodiversity thresholds

IUCN RLE framework

- Biodiversity thresholds

- Key definitions
- Assessment process
- Threatened categories
- SA sub-criterion A1 & IUCN sub-criterion A3

Key definitions

SA Ecosystem threat status assessment	IUCN RLE assessment
<p>Ecosystem: It is defined as a dynamic complex of animal, plant and micro-organism communities and their non-living environment interacting as a functional unit¹.</p>	<p>Ecosystem : is the assessment units that represent unique complexes of organisms and their natural environment².</p>
<p>Irreversible loss: is defined as a stage that occurs when vegetation cover decreases below an ecological degradation threshold³.</p>	<p>Ecosystem collapse: is a transition beyond bounded theoretical threshold in variables that define the identity of the ecosystem⁴.</p>

¹ Biodiversity Act no. 10 of 2004

³ Gao *et al.*, 2011

² Keith *et al.*, 2013

⁴ Bland *et al.*, 2015

Assessment process

Criteria and categories

- An ecosystem type is assessed against a set of qualitative criteria and quantitative thresholds

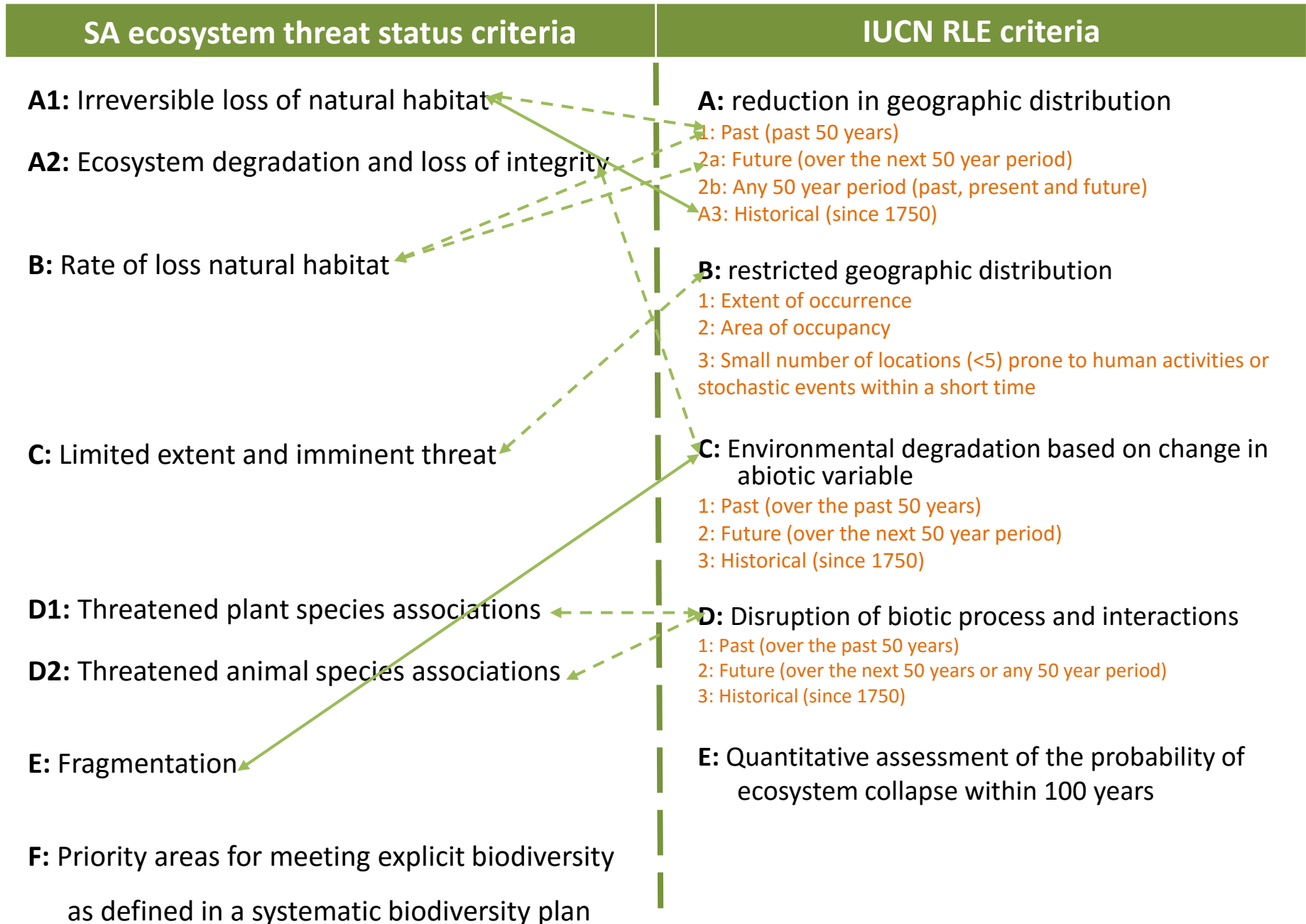
Categorization

- If it meets any of the listed set of criteria, it is then categorized as threatened.

Ecosystem threat status

- The overall threat status assigned to an ecosystem type is the highest ranked category (CR, EN, or VU).

Illustration of the complexity of cross-walking South Africa and IUCN RLE criteria



Assessment sub-criterion

SA ecosystem threat status criteria

- A1:** Irreversible loss of natural habitat
- A2:** Ecosystem degradation and loss of integrity
- B:** Rate of loss natural habitat
- C:** Limited extent and imminent threat
- D1:** Threatened plant species associations
- D2:** Threatened animal species associations
- E:** Fragmentation
- F:** Priority areas for meeting explicit biodiversity as defined in a systematic biodiversity plan

IUCN RLE criteria

- A:** reduction in geographic distribution
 - 1: Past (past 50 years)
 - 2a: Future (over the next 50 year period)
 - 2b: Any 50 year period (past, present and future)
 - A3: Historical (since 1750)**
- B:** restricted geographic distribution
 - 1: Extent of occurrence
 - 2: Area of occupancy
 - 3: Small number of locations (<5) prone to human activities or stochastic events within a short time
- C:** Environmental degradation based on change in abiotic variable
 - 1: Past (over the past 50 years)
 - 2: Future (over the next 50 year period)
 - 3: Historical (since 1750)
- D:** Disruption of biotic process and interactions
 - 1: Past (over the past 50 years)
 - 2: Future (over the next 50 years or any 50 year period)
 - 3: Historical (since 1750)
- E:** Quantitative assessment of the probability of ecosystem collapse within 100 years

Sub-criterion

Assessment scale	Sub-criteria	CR	EN	VU
IUCN RLE	A: reduction in geographic distribution			
	A3: Historic decline (since 1750)	≤ 10% natural habitat remaining	11% to 30% natural habitat remaining	31 to 50% natural habitat remaining

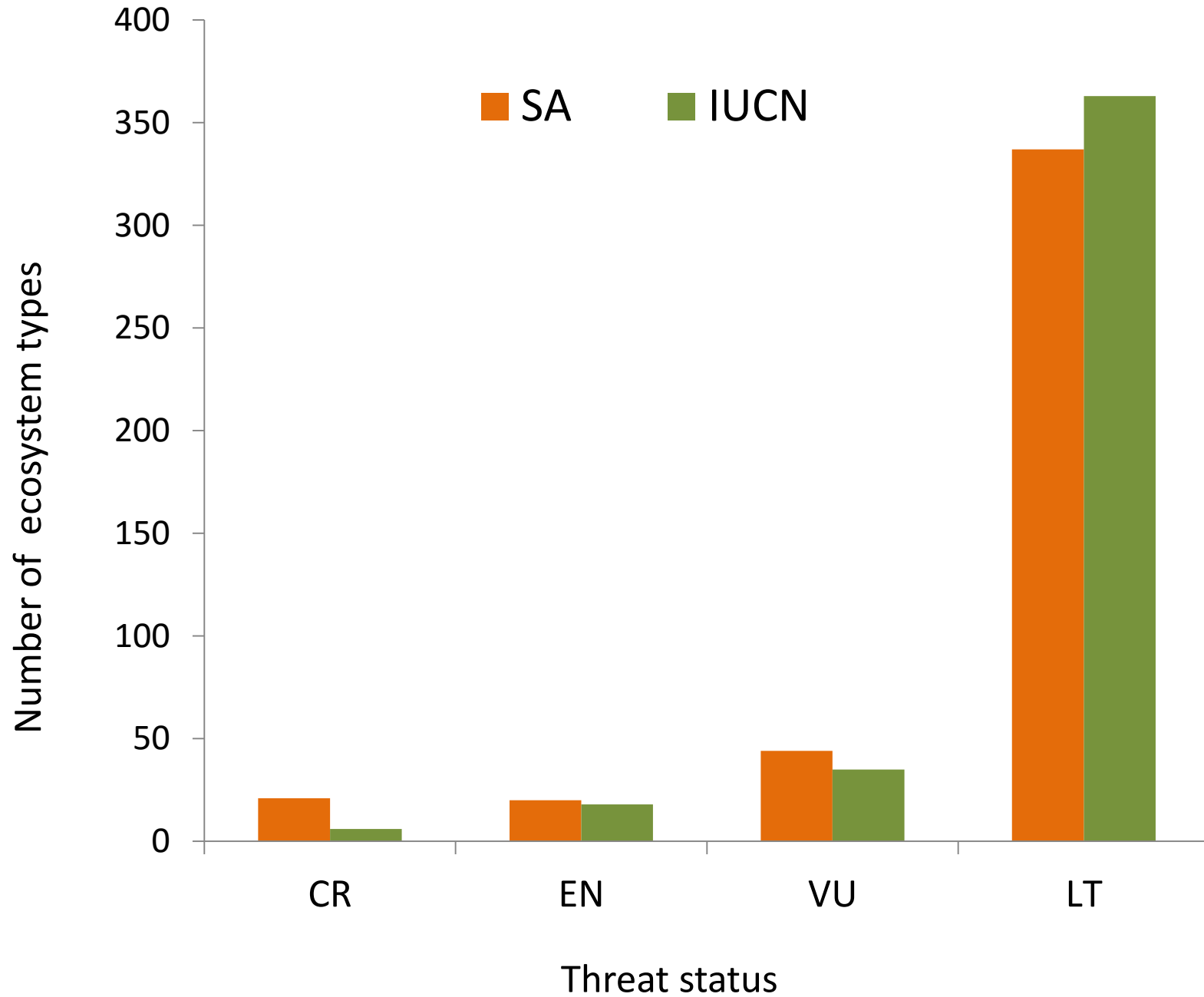
Ecosystem type that is undergoing decline in area (all spatial occurrences of an ecosystem type) or is likely to decline in the near future.

South Africa

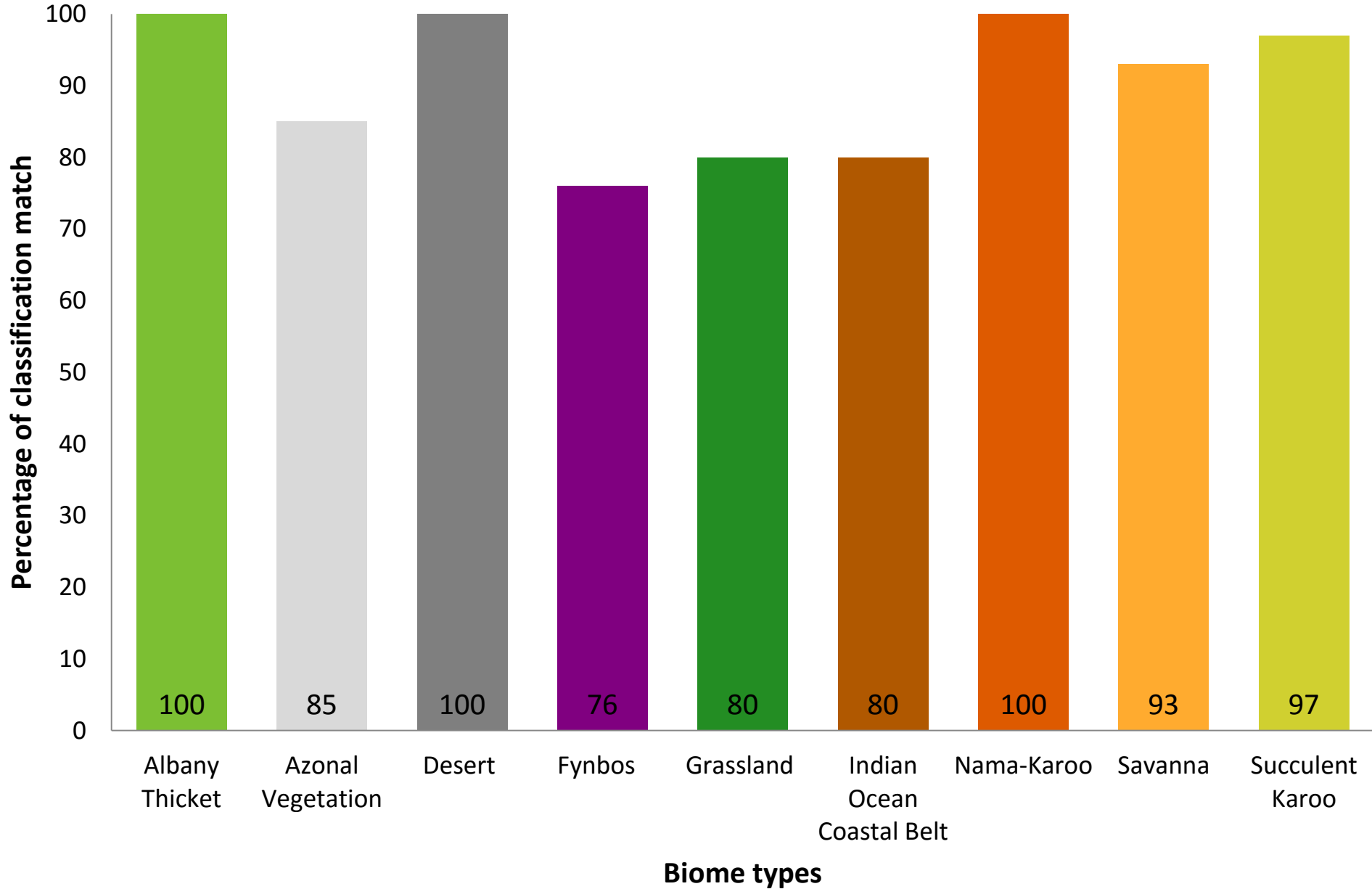
A1: Irreversible loss of natural habitat	Remaining natural habitat ≤ biodiversity target	Remaining natural habitat ≤ (biodiversity target + 15%)	Remaining natural habitat ≤ 60% of the original extent
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Ecosystem types that have undergone habitat loss, impacting on habitat structure, function and composition.

Threatened and non-threatened ecosystems types



Alignment of the SA and IUCN



Way forward

- Future studies will focus on the full range of criteria considered in the South Africa and IUCN red-list methodologies.
- Can South Africa comply and align its future ecosystem threat status assessments with IUCN RLE framework?



Thank you !



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IUCN RLE criteria

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B: Rate of loss natural habitat

C: Limited extent and imminent threat

D1: Threatened plant species associations

D2: Threatened animal species associations

E: Fragmentation

F: Priority areas for meeting explicit biodiversity
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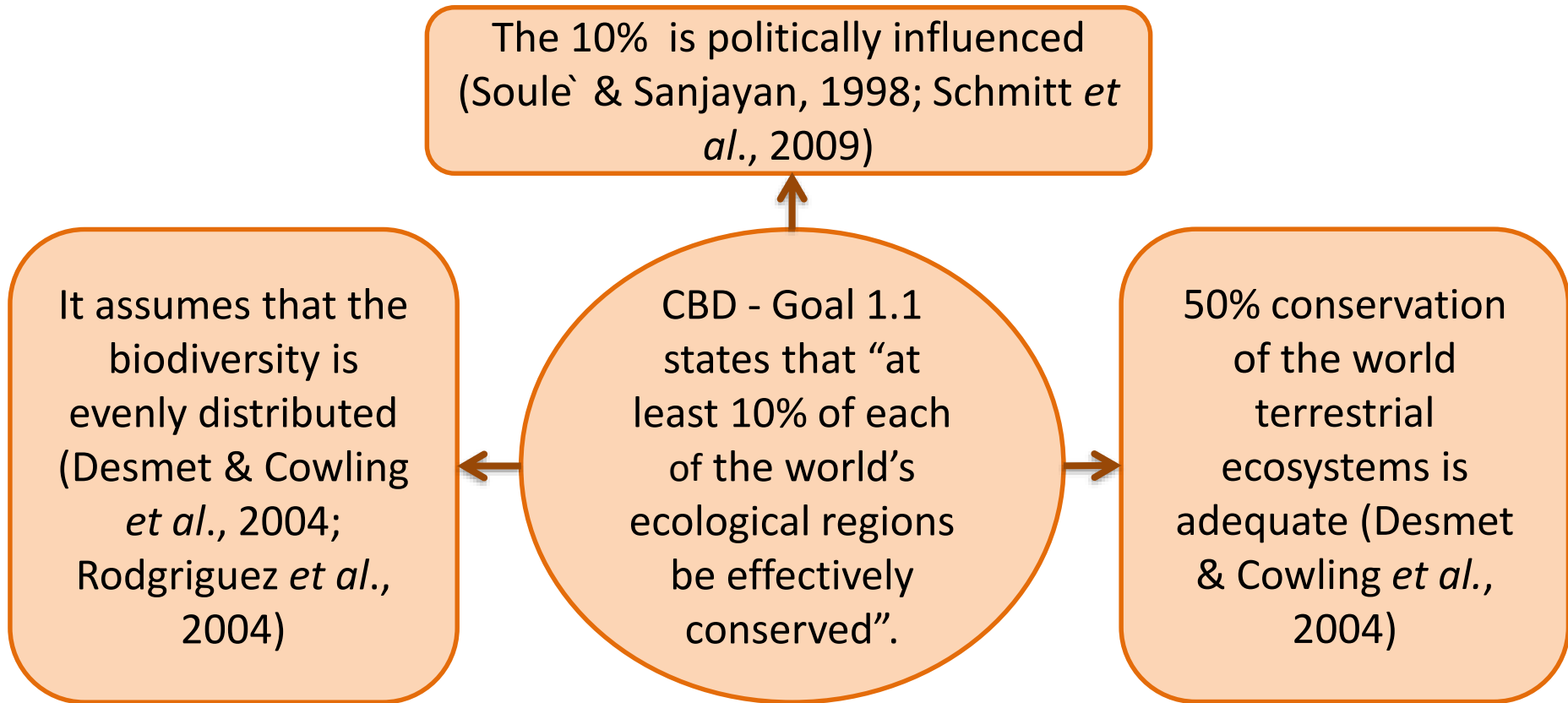
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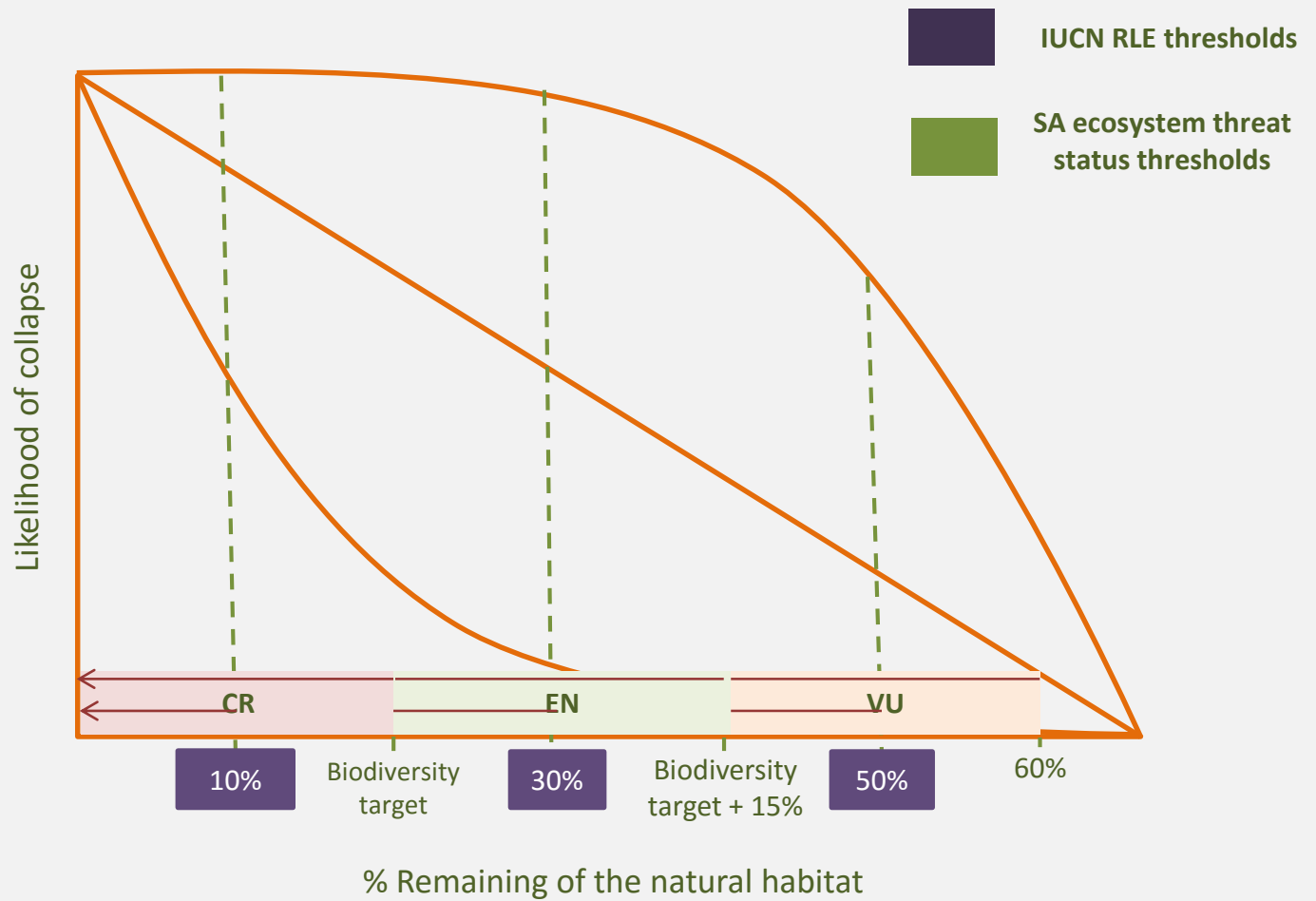
3: Historical (since 1750)

E: Quantitative assessment of the probability of ecosystem collapse within 100 years

Criticism of the adopted IUCN RLE conservation target



Biodiversity thresholds



Magnitude of threatened ecosystem types

