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EGI SEA: Terrestrial Biodiversity Assessment Results

ERG Meeting

21 July 2015

environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

Eskom

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Biodiversity for Life
South African National Biodiversity Institute

Terrestrial Biodiversity Assessment:
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The aim of the assessment is to:

1. Understand the potential impacts and identify sensitive features that may be affected by power lines (construction and maintenance)

2. Delineate the corridor areas according to differing levels of sensitivity.

3. Develop a consolidated terrestrial biodiversity sensitivity map for each corridor.

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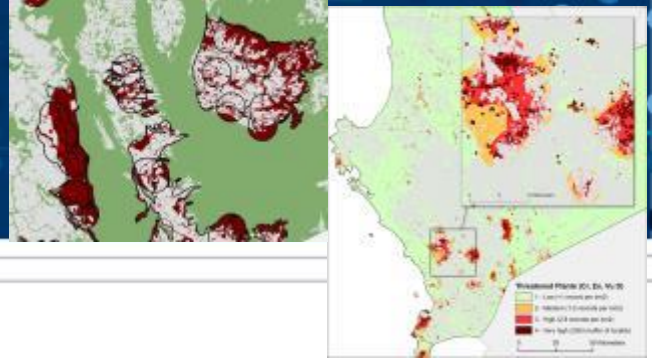
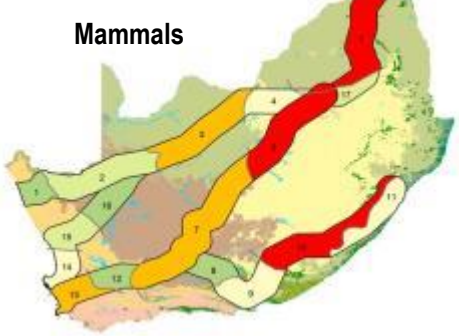
Analysis and Approach

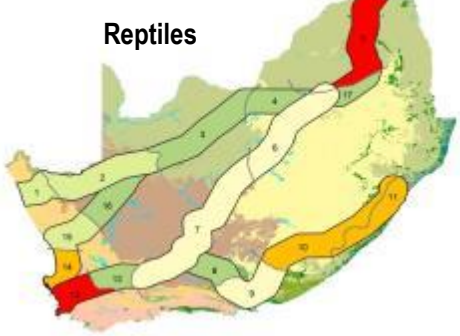


- Data supplemented with finer scale data where available or edited for improved data quality
- Data sets with different sources for the same features were cross walked
- Data sensitivity was scored based on impact of EGI on the feature
- Assessment of sensitivity in the case of no veg clearing assigned
- Species data with good level of data confidence used in sensitivity analysis

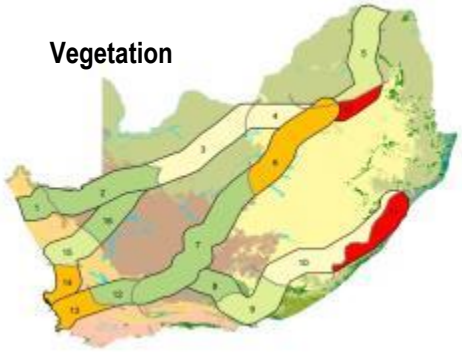
Mammals



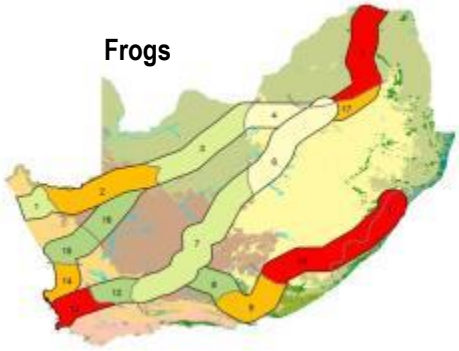
Reptiles



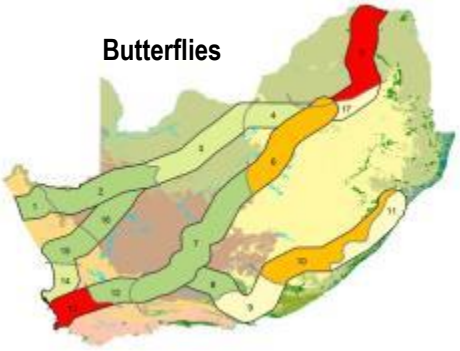
Vegetation



Frogs



Butterflies

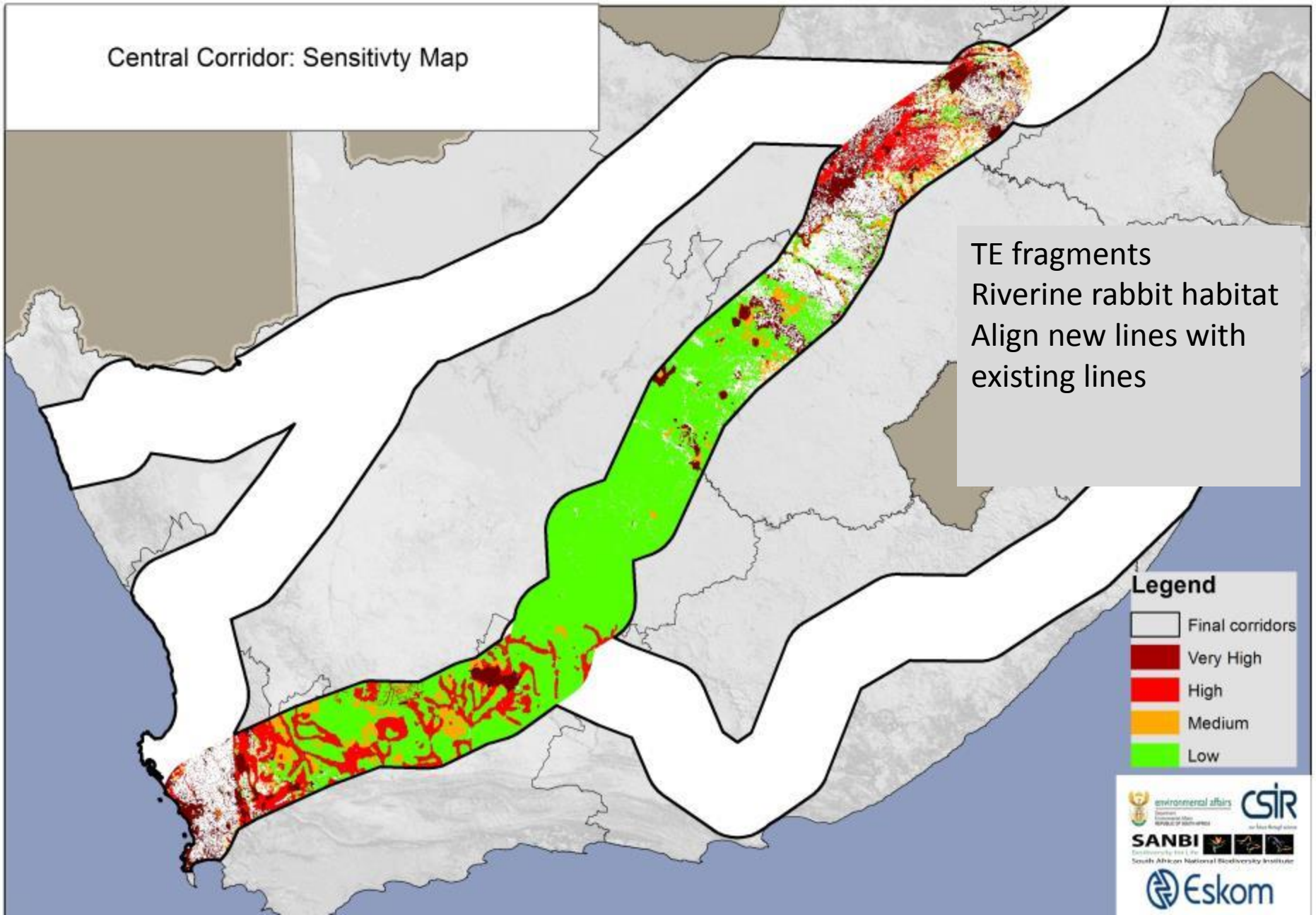


Datasets	Feature type	Buffer (m)	EGI Biodiversity sensitivity	Downrated Sens if NO CLEARING
Best available Cons status (excluding Criterion D1): • Western Cape - Pence 2013 A1 criterion assessment from compiled landcover • Rest of SA - 2011 Gazetted Threatened Ecosystems	Critically Endangered Any natural	0	Very high	Very high
	Any ecosystem status CBA Irreplaceable(CBA 1)	0	Very high	Very high
	Endangered CBA best design (CBA 2) or unknown	0	Very high	Very high
	Endangered ESA / E.Cape CBA best design CBAs / other natural	0	Very high	High
	Vulnerable and Least Threatened CBA best design (CBA 2) or unknown		High	Medium
All reliable provincial and district CBA maps.	Vulnerable and Least Threatened ESA / E.Cape CBA best design CBAs / other natural	0	Low	Low

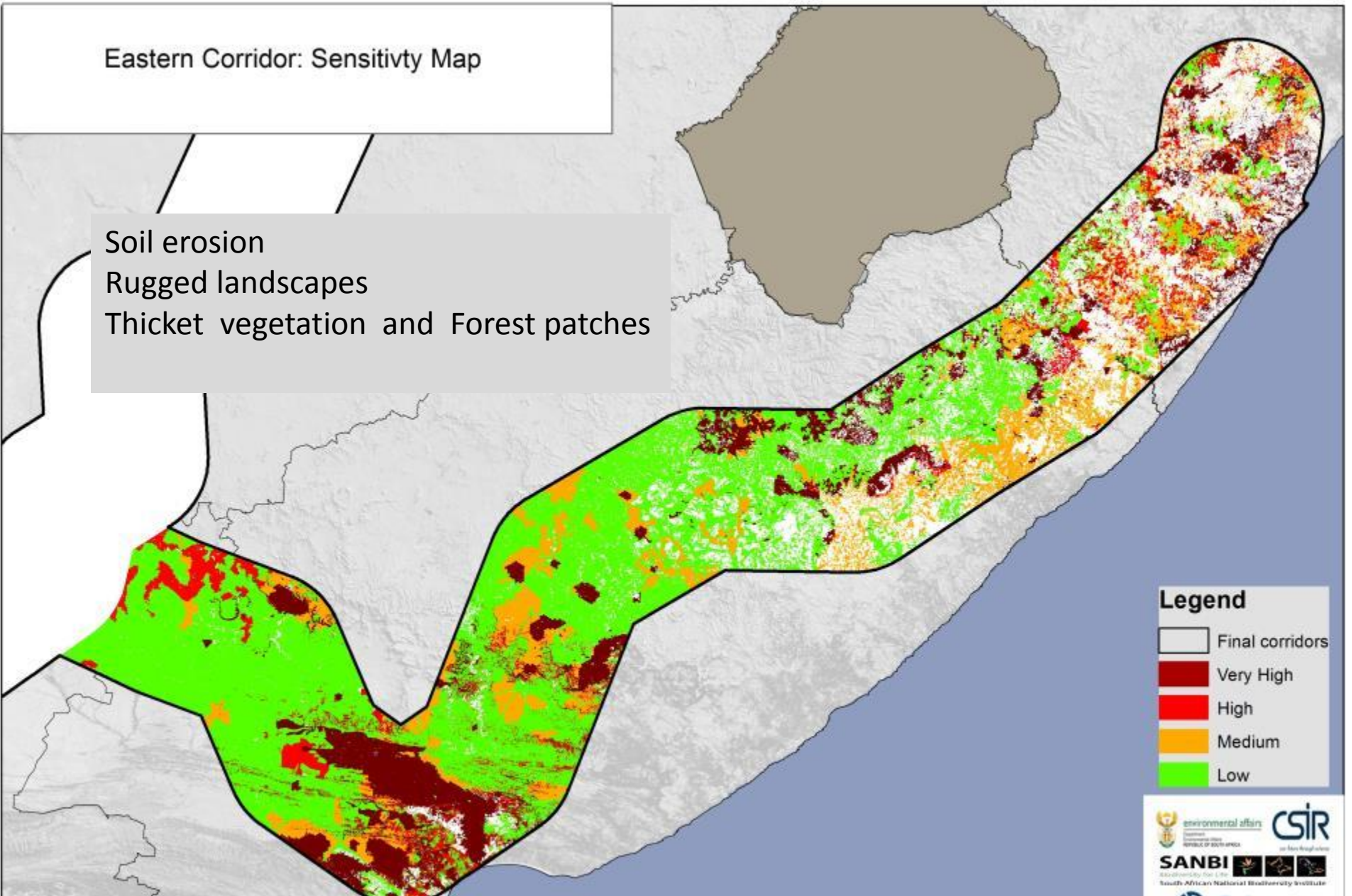
Data Sets Used

Data set	Feature type	Sensitivity
Protected Areas	National Parks and Nature Reserves	Very High
	Mountain Catchment Areas	High
	Protected Environments	High
	Private Nature Reserves Pre 2008	Medium
	Private Nature Reserves After 2008	High
NPAES 2010	Focus areas for PAE	Medium
Critical Biodiversty Areas and TEs	CBA 1 and CR ecosystems	Very High
	Endangered Ecos in CBA 2	Very High
	Endangered Ecos in ESA	Very High
	VU or LT Ecos in CBA2	High
	VU or LT ecos	Low
	Degraded and No Natural areas	Low
Threatened Species Data	Plants	L, M, H, VH
	Reptiles	Very High
	Bats	
	Invertebrates	
Slope	Slopes of >30° (>58%)	Very High
	Slopes of 20° - 30° (36 - 58%)	High
	Slopes of 10° - 20° (18 - 36%)	Medium
	Slopes of 0° - 10° (0 - 18%)	Low
Forests	Natural Forests	Very High
Thicket	Pristine Thicket	Very High

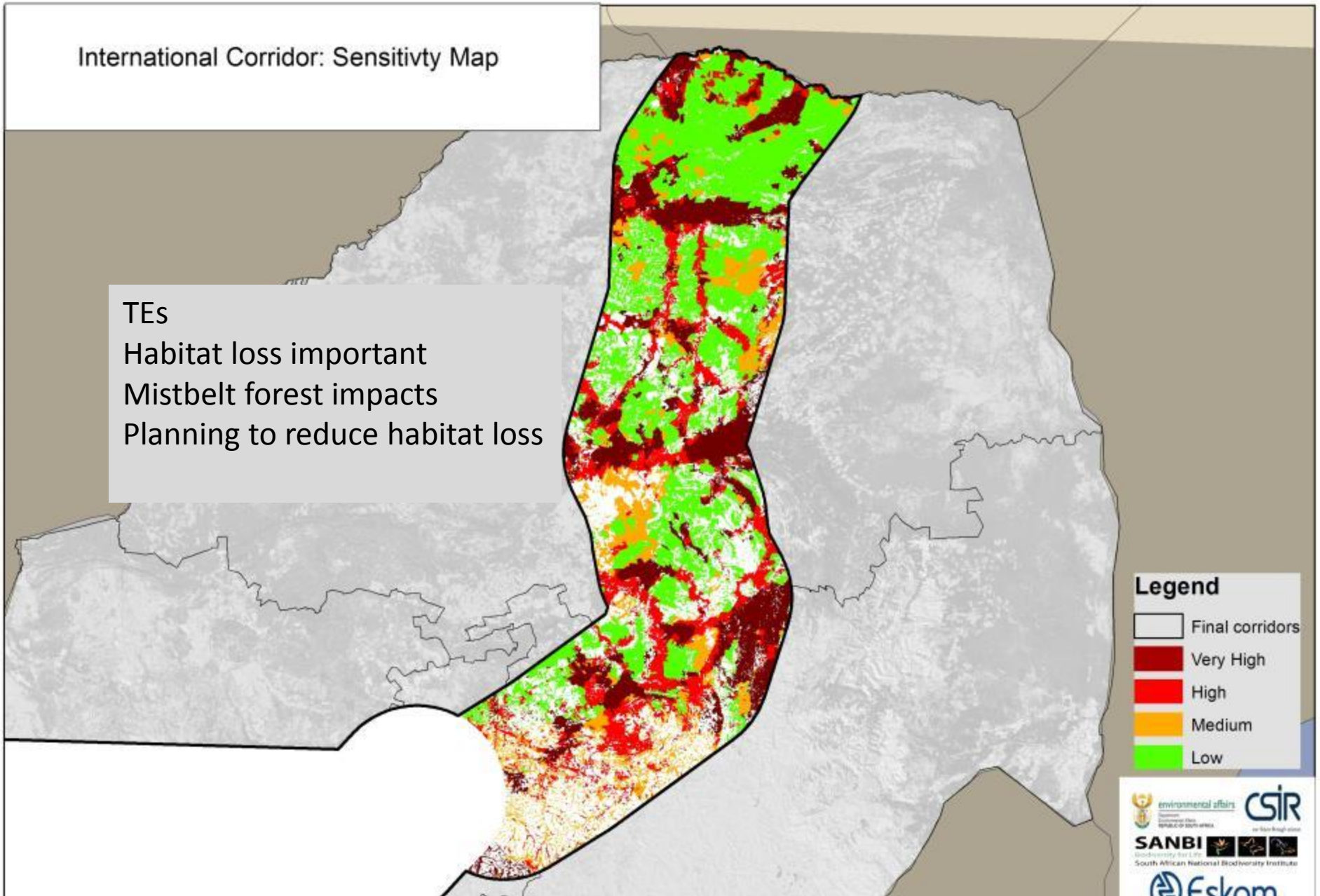
Results: Central Corridor



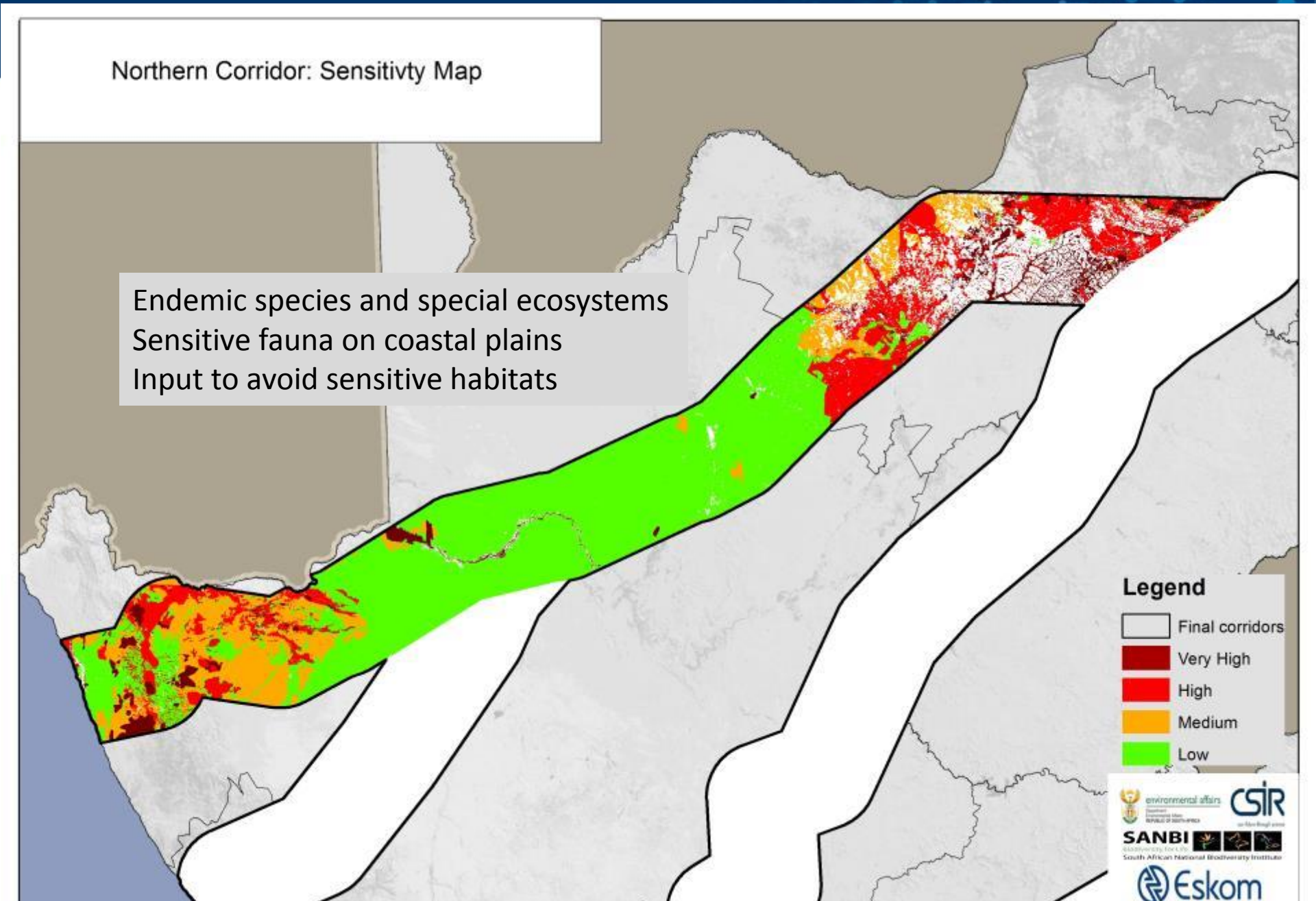
Results: Eastern Corridor



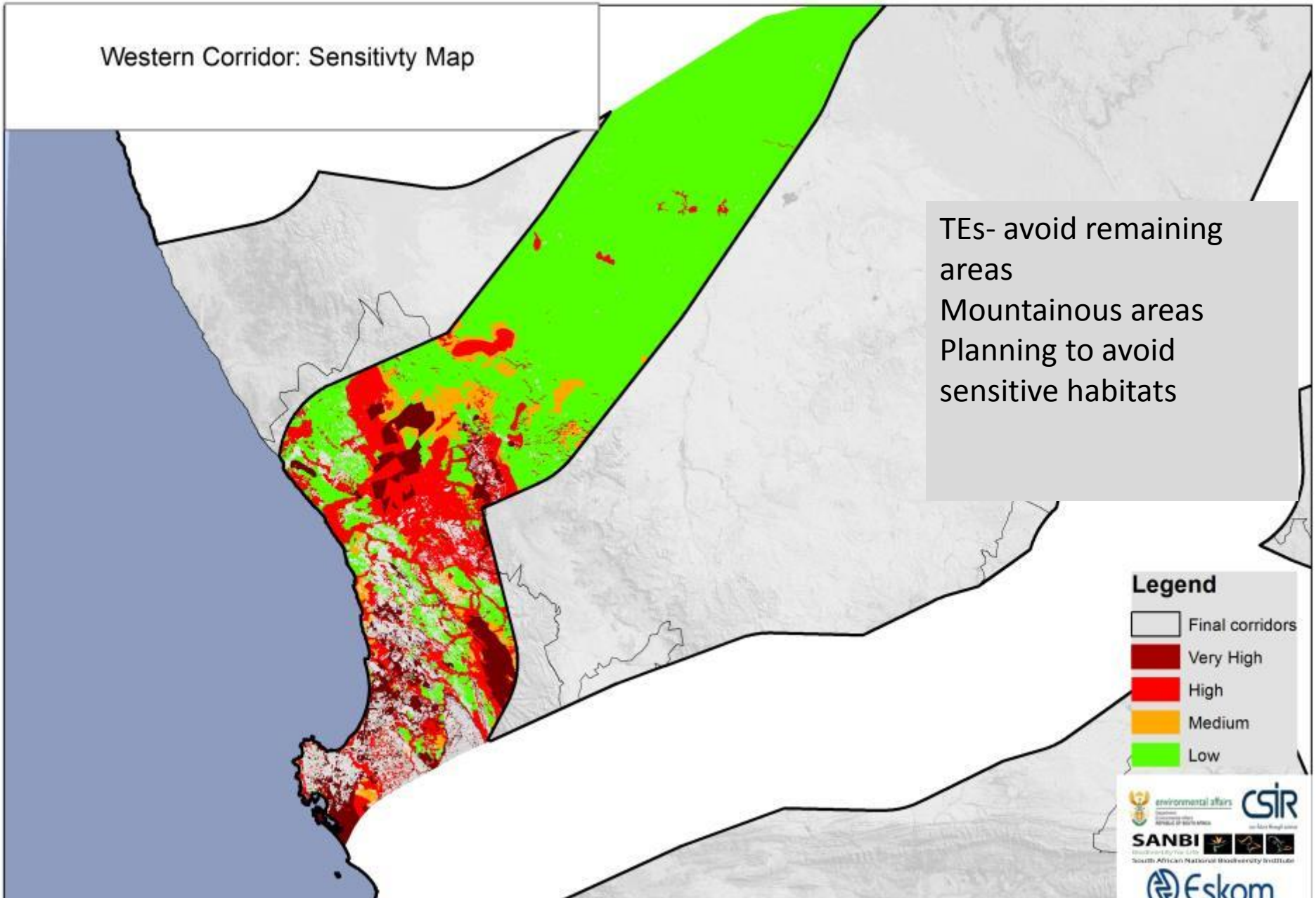
Results: International Corridor



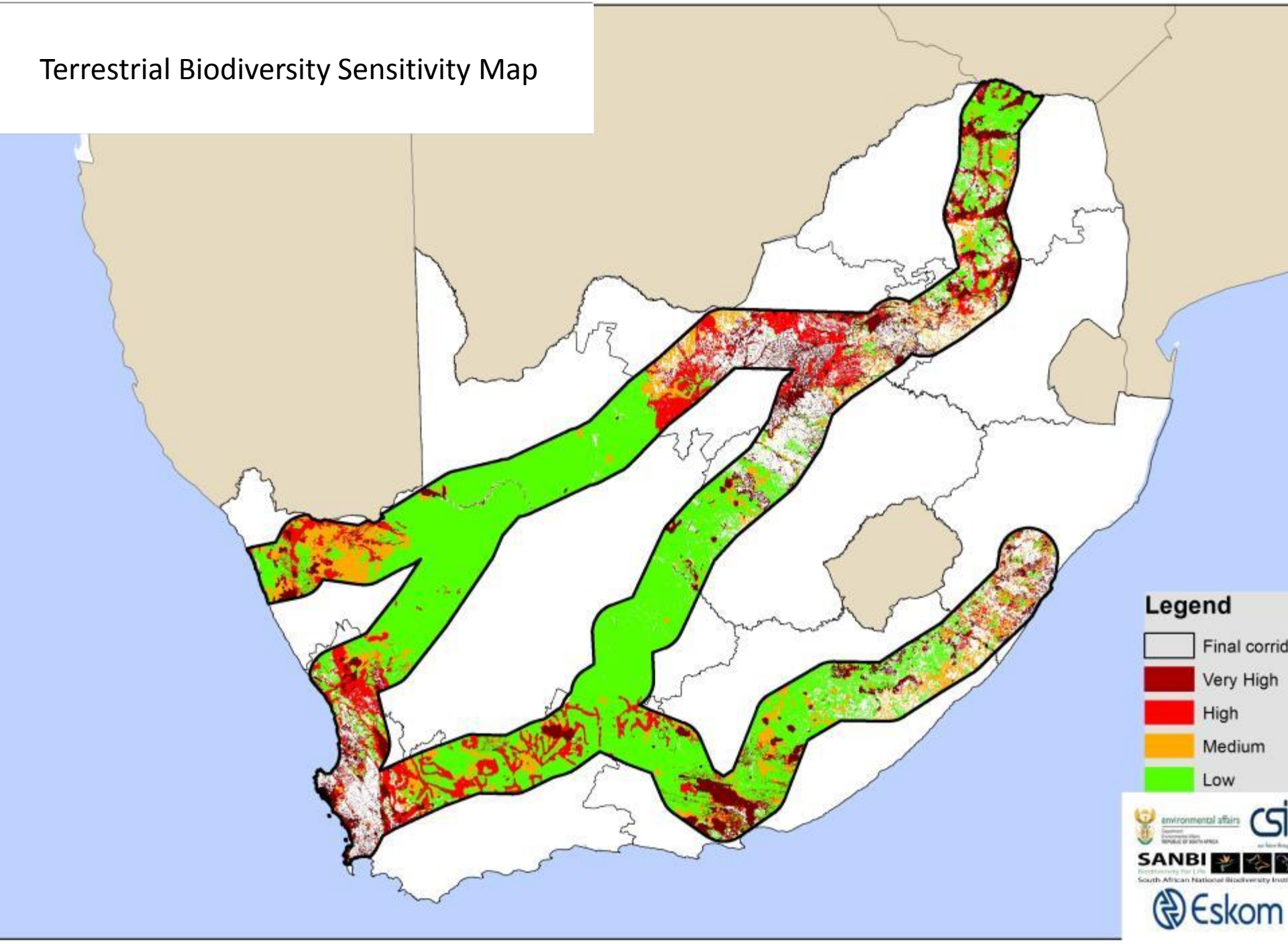
Results: Northern Corridor

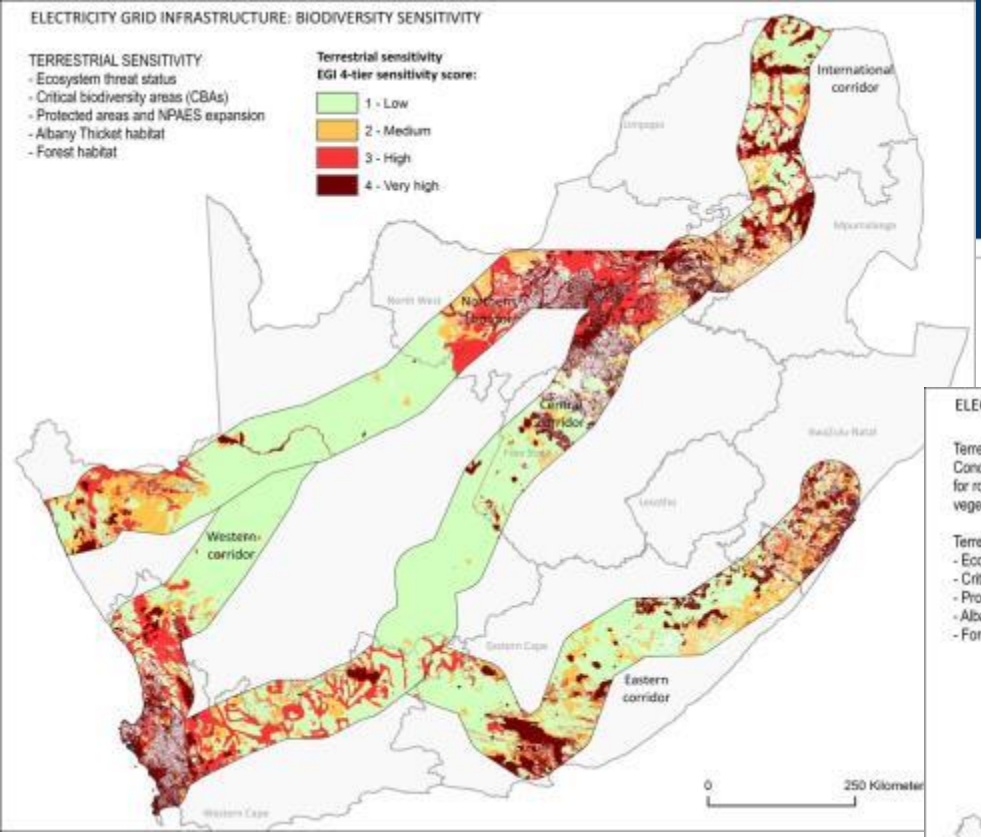


Results: Western Corridor



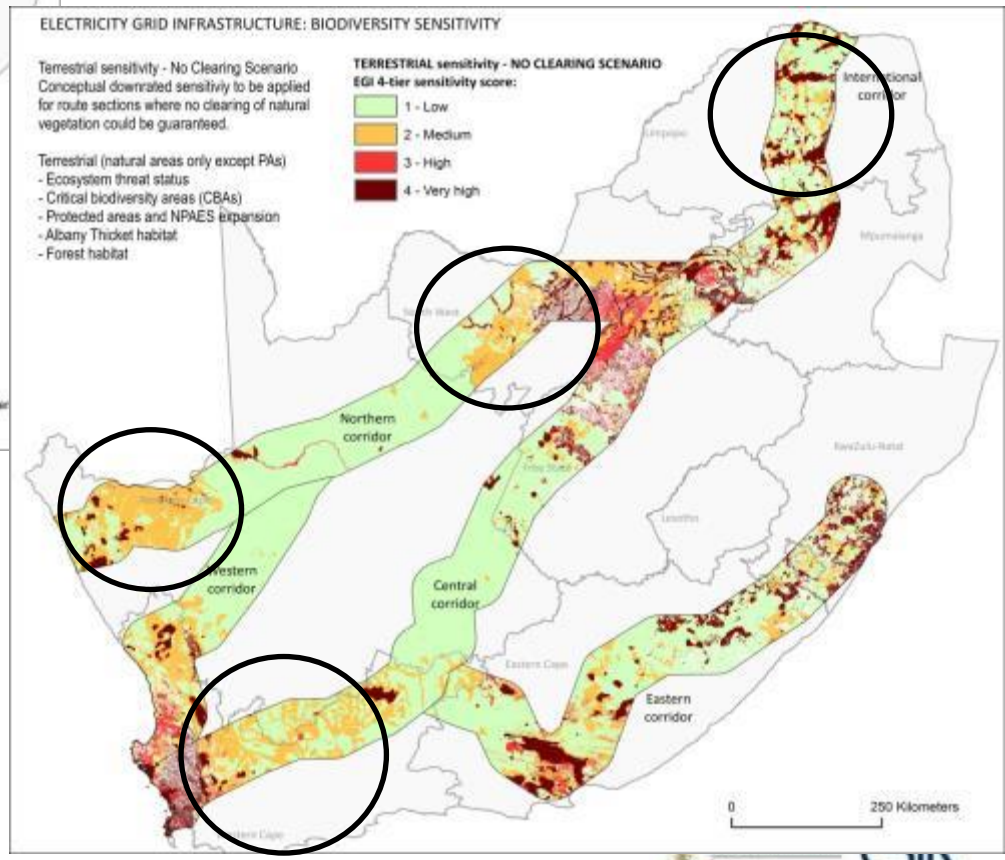
Terrestrial Biodiversity Sensitivity Map





With Clearing

No Clearing



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Interpretation *

Sensitivity	
Very High	These are areas identified as having known or likely features of very high potential concern which may be impacted by transmission infrastructure. This includes environments where transmission infrastructure could generate large negative impact
High	These are areas identified as having known or likely features of potential concern which may be impacted by transmission infrastructure. As some level of impact is highly likely, specialist input in order to assess and provide recommendations to reduce these impacts is required
Medium	These are areas identified as having known or likely features of potential concern which may be impacted by transmission infrastructure. As some level of impact is highly likely, specialist input in order to assess and provide recommendations to reduce these impacts is required
Low	These are areas identified as having few features of concern, where the development of EGI is not likely to generate significant ecologic impact. As such, detailed ecological input from specialists is not likely to be warranted, however it is possible that there may some locally significant features present that were not mapped here.

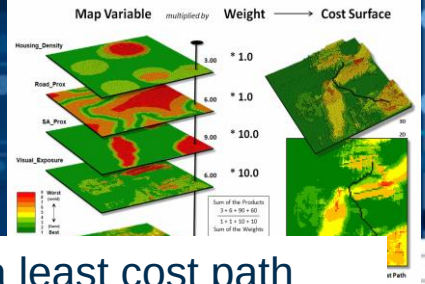
Recommendations

6.1. Specific Issues and limitations to be taken into account for interpretation of the four tier map

Corridor	Key Impacts	Site Specific Descriptions	Possible Effect	Opportunities to avoid/reduce/offset
Western Corridor	Habitat loss and degradation within listed ecosystems in the west	There are many listed ecosystems in the Cape Lowlands which have a high conservation value and where any further habitat loss is highly undesirable	Habitat loss within listed ecosystems leading to direct impact on biodiversity and reduced ability to meet conservation targets.	Many of these ecosystems are highly fragmented and the remnants are usually well mapped, so these can easily be avoided at the planning stage. Habitat loss within Critically Endangered ecosystems is unacceptable as these ecosystems are by their nature highly fragmented and can easily be avoided.
	Degradation from alien invasion and erosion	The corridor moves from the Cape Lowlands to the Western Karoo through a sensitive area near to Niewoudtville and Calvinia where there are many mountainous areas where erosion and degradation are likely to occur following construction phase disturbance	Erosion leading to degradation and decline in ecosystem services and loss of biodiversity.	Careful route planning to avoid sensitive vegetation units and rugged terrain where possible
Northern Corridor	Impact on Namaqualand Sand Fynbos	There are several areas on the coast of Namaqualand Sand Fynbos which have high endemism and which are not well protected.	Habitat loss and direct impact on biodiversity within sensitive vegetation types.	Fine-scale mapping of vegetation units is available and should be used in preference to the national vegetation map for this area.
	Impact on sensitive fauna associated with the coastal plain	There are several listed and endemic species associated with the Namaqualand coast that would be vulnerable to impact	Habitat loss for fauna and impacts to local populations and disruption of landscape connectivity	Specialist input at the planning and screening stage to avoid sensitive habitats.
	Impact on unique	There are several vegetation types and unique	Loss of listed flora.	Fine scale mapping of this area is available and

Corridor	Key Impacts	Site Specific Descriptions	Possible Effect	Opportunities to avoid/reduce/offset
	habitats within the Bushmanland inselbergs areas	habitats associated with the Bushmanland Inselbergs and Aggeneys area that contain a high abundance is listed and endemic species	Habitat loss within rare and restricted habitats such as quartz patches	should be used in preference to the National Vegetation Map. Specialist input required from specialists with specific knowledge and experience

Recommendations



For the initial planning phase, overall route impacts are minimised by use of a least cost path planning approach.

Recommend the use of a maximum score map for feature representation and inspection, especially where traversing sensitive features is unavoidable

The post-construction management of the power line footprint is a major impact associated with power line infrastructure in general. Avoid unnecessary clearing where possible, clearing is only applied where it genuinely poses a risk, would greatly reduce negative impact and could result in potentially positive effects in many areas.

For the second phase of planning, aim to refine the routing options through a process of verification of features and their sensitivities to a scale of at most 1:5000 through specialist input

The four tiers of sensitivity should guide specialists in terms of the level and detail of input required for each tier.

Thank you

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