A lost biome:
A tale of the South African coastal flora
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A tale of the South African coastal flora

Alastair Potts, Adriaan Grobler & Richard Cowling
Coastal Dunes of South Africa
Linda’s House of Crazy

Coastal Dunes of South Africa

K L Tinley
Coastal Dunes of South Africa

K L Tinley
A lost biome: Part I
Coastal Dunes of South Africa

K L Tinley
Species richness?
Compared with the CFR?

Region
- West-Lowland
- East-Lowland
Compared with the CFR?

- **Region**:
  - West-lowland
  - East-lowland

Lombard & Cowling 2002
Compared with the CFR?
Compared with the CFR?
Coastal Dune Flora: Global Comparison

Region
- Australia
- California
- CFR Coastal Dunes
- MeB
Coastal Dune Flora: Global Comparison
Coastal Dune Flora: Global Comparison

Graph showing the relationship between log(species richness) and log(area [km^2]). The graph includes data points for different regions: Australia, California, CFR Coastal Dunes, and MeB, indicated by different colors and markers. The trend lines for each region are also shown.
Coastal Dune Flora: Global Comparison

10 x 10 m
>45 species
Coastal Dune Vegetation: ~1200 species (Excluding widespread "guests")

With "guests": ~2400 species

Coastal Dune endemics: ~300 species

(work in progress)
Why is this linear, fragmented flora so rich?
Full Interglacial

Full Glacial

Fisher et al. 2010 Quaternary Science Reviews
Cawthra et al (in prep)
Coastal Dune Vegetation:

<< 1% of “historic” distribution
Coastal Dune Vegetation:

<< << < 1% of “historic” distribution

But... “Least Concern”
A lost biome: Part II
A lost biome: Part II

A rose by any other name...?
Coastal Vegetation of South Africa


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Figure 14.18 Distribution of coastal vegetation units along the South African seabords. A: Seashore Vegetation, B: Estuarine Vegetation, C: Eastern Strandveld.
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Figure 14.18 Distribution of coastal vegetation units along the South African seabords. A: Seashore Vegetation, B: Estuarine Vegetation, C: Eastern Strandveld.

Eastern Strandveld

AZs 1 Algoa Dune Strandveld


Distribution Eastern Cape Province: Narrow coastal strip along the Indian Ocean seaboard from the mouth of the Tsitsikamma River to the Sundays River mouth.

Vegetation & Landscape Features Tall (up to 5 m) dense thickets on dunes mainly outside the influence of salt spray, dominated by stunted trees, shrubs (often armed with spines and thorns), abundant lianas and sparse herbaceous and grassy undergrowth.

Geology, Soils & Hydrology Aeolian dune sands of the Schelm Hoek Formation of the Algoa Group.

Climate Nonseasonal precipitation regime, with MAP approximately 680 mm, of which about 300 mm falls in summer (October–March) and 350 mm in winter (April–September). The mean daily maximum and minimum temperatures are 25.1°C and 8.3°C for February and July, respectively. See also climate diagram for AZs 1 Algoa Dune Strandveld (Figure 14.3).


Conservation Least threatened. Target 20%. About 4% supposedly conserved in the Greater Addo Elephant National Park, Cape Recife, Sardinia Bay, The Island, Kromme River Mouth, Gamtoos River Mouth, Huisklip, Cape St Francis and Seal Point Nature Reserves as well in the private Upe and Rebelsrus Nature Reserves, Thyspunt Natural Heritage Site and in the Seaview Game Park. More than 10% already transformed for cultivation, urban development and road building. Some of the dune systems suffer heavy infestation by *Acacia cyclops* and *A. saligna*, which are now being removed by the local Working for Water activities. Erosion very low (63%) and moderate (10%).

Remarks The structure and dynamics of this vegetation unit are similar to those of the thickets of FS 9 Groot Brak Dune Strandveld (see chapter on Fynbos in this book). However, the present unit differs from the latter in having a richer assemblage of woody species. It is somewhat surprising that forest vegetation is not dominant in this seemingly suitable climatic regime. This is probably because the substrate consists of aeo-
A summary of the overall problem

(in the vegmap)
The current state of “coastal dunes”

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What are we up to?
FBIP APPLICATION INSTRUCTION GUIDE

Foundational Biodiversity Information Programme (FBIP)
Small Research Grants

Call year: 2017
“Inventory of the flora and vegetation of the calcareous dunes of the Cape south coast”