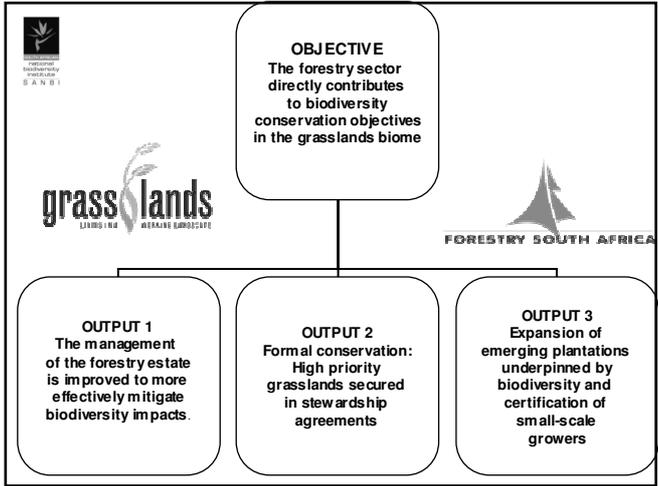


Question?

If we could start again, how would we design our existing plantation layouts so that they could deliver optimal **ecosystem services** and produce the timber resources and fire protection that we need.



- OUTPUT 1: Management**
1. Conservation planning tool
 2. Forest Certification
 3. Symposium: GSSA
 4. Guidelines for Grasslands Management
 5. Research
 6. Communications and Awareness
-

Configuration of ENs in SA

To date ENs are not optimally designed for biodiversity or all ecosystem services but rather a bi-product of several processes:

- The need to delineate 40 m wide buffer zones around streams and wetlands for water conservation.
- Areas that are not viable for timber.
- Power line servitudes and firebreaks.
- Patches indigenous forests, which are completely protected by law.
- Areas set aside for biodiversity.

The challenge is to reconcile these bi-products with optimal design

Factors to consider when attempting to redesign EN's in South African forestry

- **The need to maintain economic viability:** Forestry has lost significant areas to wetland delineation. *Timber must be removed from areas of high ecological value and transferred to areas of low ecological value with no loss in over all production.*
- **No additional fire risk**
- **Identification of priority areas:** *Forestry needs support to identify the ecologically important areas.*
- **Forestry is highly regulated in SA:** *For timber to be exchanged there will have to be policy and legal streamlining with FSC following.*
- **Rehabilitation of previously afforested areas:** *Further research into rehabilitation techniques to restore ecological functioning. Grasslands are notoriously difficult to rehabilitate, wetlands and forests somewhat easier.*
- **Buy-in from forestry organizations:** *Forestry organizations need to see the benefits and be prepared to invest the required resources.*

Possible benefits in improved EN design

The benefits of fewer, larger, higher quality corridors linking substantial nodes:

- **Improved biodiversity and ecosystem functioning:** *There is research to support this: Field (2002) – grasslands flowers, Pryke and Samways (2001) – butterflies, Hill (1995) – Dung Beetles. All support the idea that fewer broad corridors are better for biodiversity than many narrow ones.*
- **Economic benefit to forestry organizations:** *Less fragmented EN will cost less to manage, lead to better fire protection.*
- **Hydrological benefits:** *Many of the narrow corridors support high water using invasive alien species which could be eliminated with broader corridors that could be correctly managed.*



Currently narrow corridors between plantations cannot be always managed appropriately.



Burn after 8-10 years in winter



Burned every second year





Gradually!

- Tools
- Research
- Policy changes

A tool to identify areas of ecological importance

- Identify the ecologically important areas within the EN.
- Map indicating which areas within the forestry estate are most critical for biodiversity.
- Used by forestry managers to direct resources to the most important areas
- Basis for redesigning the ENs.

The tool uses existing biodiversity information from systematic conservation planning tools combined with fine-scale local biodiversity information and a rapid ecological assessment of each planning unit.

Results from conservation planning tool at large scale

- Total area = 78,790 ha
- Open area = 38,540 ha (48.9%)

Comprising:

- 10 plantations
- 11,120 polygons
- Average 3.56 ha each
- Max = 314 ha.

Results from conservation planning tool – Fine scale: (1:10 000)

- Critically Important
- Important
- Least Concern
- Commercial planting

1:10,000

Proposal for Pilot project

Pilot project on a forestry estate.

Desktop study:

- Generate a hypothetical ideal forestry network based on biodiversity, hydrology and management ease and cost: Conservation planning tool.
- Model the hydrological output, the economic impact and the biodiversity effect.
- Present it to the decision making bodies: DAFF, DWE, conservation agencies and SFRA-LAACs: Get buy-in.

Put idealized plan into practice:

At what scale? Water Catchment, River system, Estate Level

In which area?

References

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- Samways MJ, CS Bazelet and JS Pryke Provision of ecosystem services by large scale corridors and ecological networks. In Press



Research

How will riparian networks mitigate the impact of global climate change in the Grasslands Biome?

John Samaika – Stellenbosch



How representative are Ecological Networks of the biodiversity found in nature reserves, KwaZulu-Natal, South Africa?

Lize Joubert - Stellenbosch

