



Ndlovu Node

Where are we one year down the road?

Dave Balfour



The South African Environmental Observation Network (SAEON) is South Africa's response to the need to monitor and understand global change, in the same way that the LTER sites are the response of the USA. We are young and still emerging.....



We are also different to the LTER sites.....



Defining qualities of SAEON:

Network of monitoring nodes

Partnerships and low bureaucratic overheads

Effective information management and data sharing

Education and learning



(See www.saeon.ac.za)

The SAEON vision for nodes.....

Ndlovu



Arid lands?



Grasslands?



Fynbos



Marine



GEOSS

The larger links

Ndlovu Node



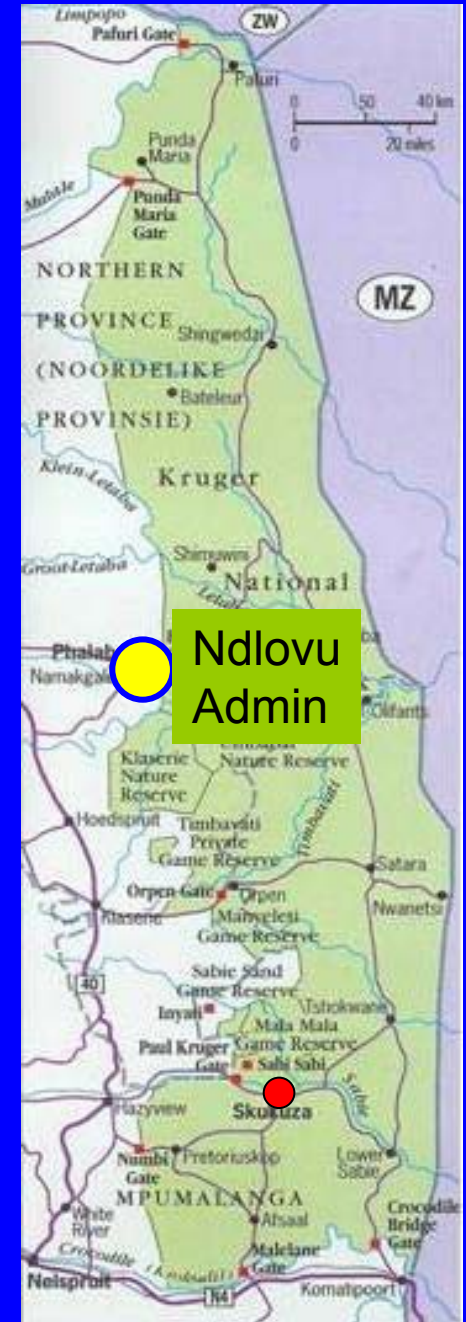
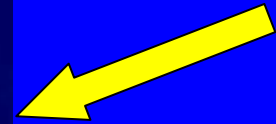
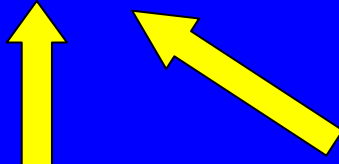
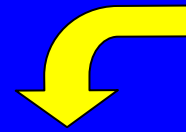
SAEON



SAEOS



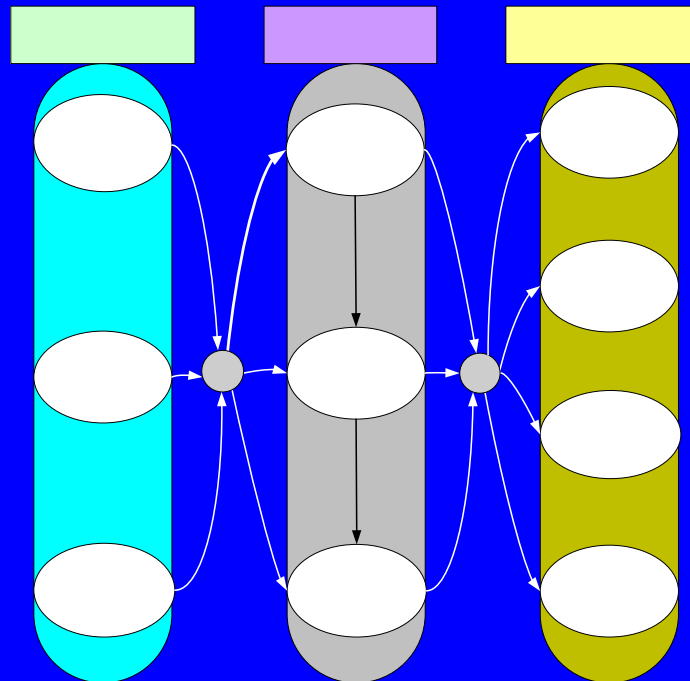
ELTOSA



SAEON has national Govt. support linked to commitments and imperatives arising from the:

WSSD, CBD, GEOSS, our own S&T White Paper & R&D strategy.....

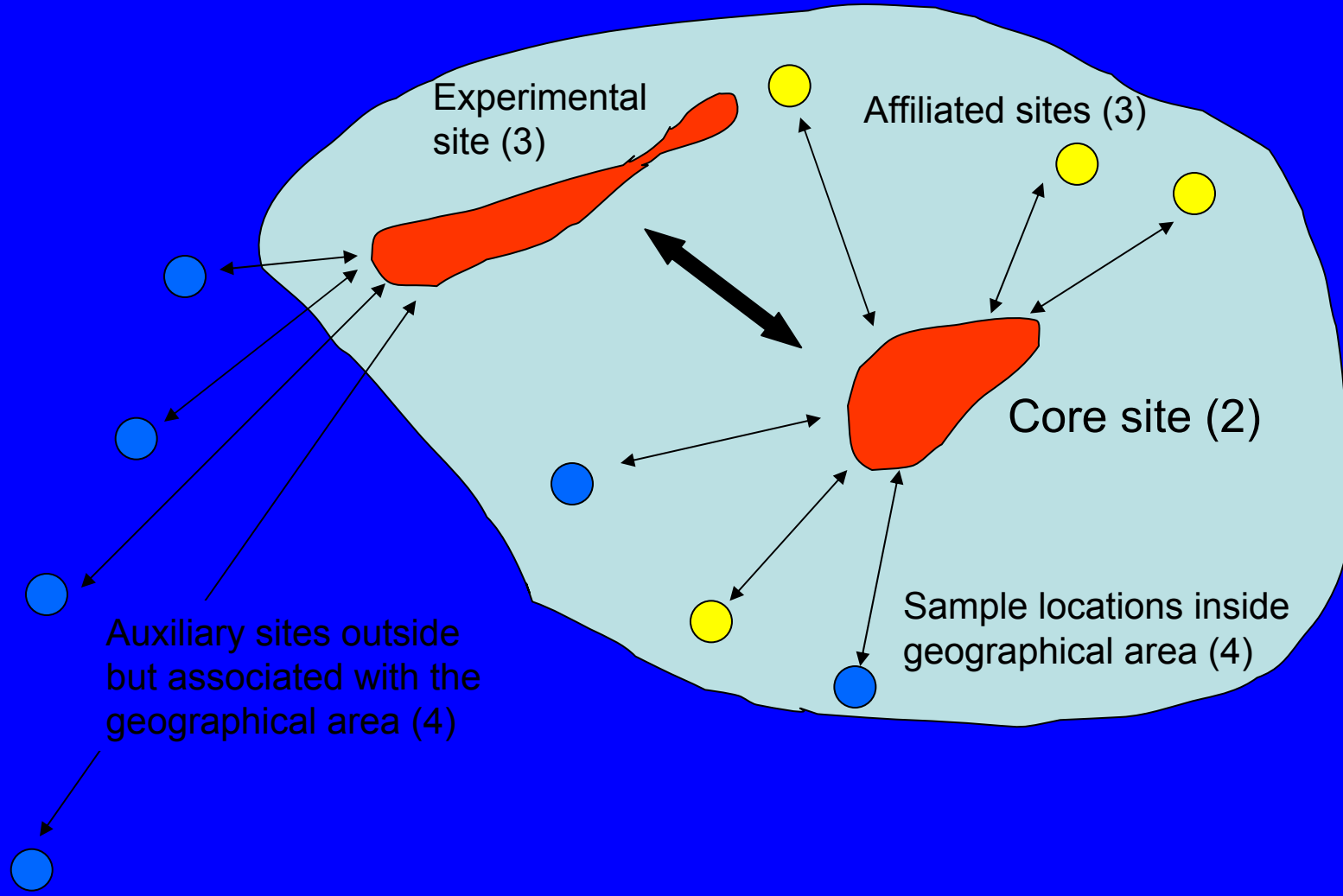
National need as most monitoring and research projects run on time spans of less than 5 years, yet the change that we need to understand is taking place over decades.



DESIGN OF SAEON

Tier (GTOS)	Sites	Purpose and Variables
2	~10 Core sites	Intensively, comprehensively & continuously monitored sites, at least one per selected ecoregion. Aimed at developing integrated datasets for providing process understanding. Multiple variables are measured.
3	~100 Affiliated sites	Locations observed on a continuous but less frequent basis (e.g. monthly), for limited set of key variables, often thematic & quality controlled. Samples the land use & natural variation in subtypes of the major ecosystem.
4	~1000 Sample locations	Locations repeatedly but infrequently sampled (annually), e.g. sample plots, volunteer observing networks. Used to get an estimate of the heterogeneity of biological productivity. Usually one or few variables.
5	∞	Spatially continuous, frequent remote sensing coverage, GIS or model output. Used to extrapolate. Single variable per coverage.

LAYOUT OF A NODE



So where are we, Ndlovu node, and what have we achieved, one year down the line?

The office & staff



Science



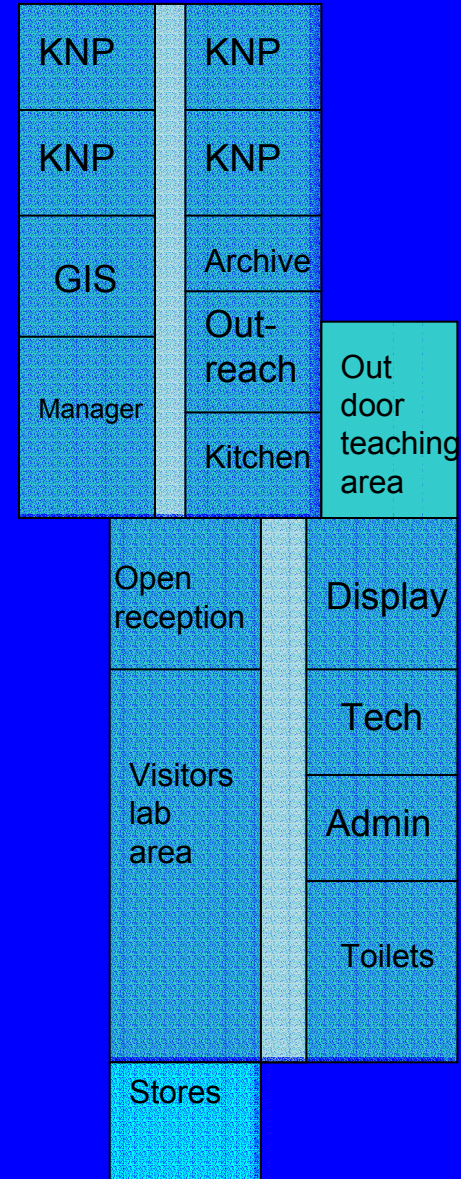
Education



Partnerships



The office



Anticipate occupation to be July 2006

The staff

- A manager



- An environmental science outreach facilitator



- A GIS/data manager

In progress....

- A monitoring technician

To be advertised
when core site is
established

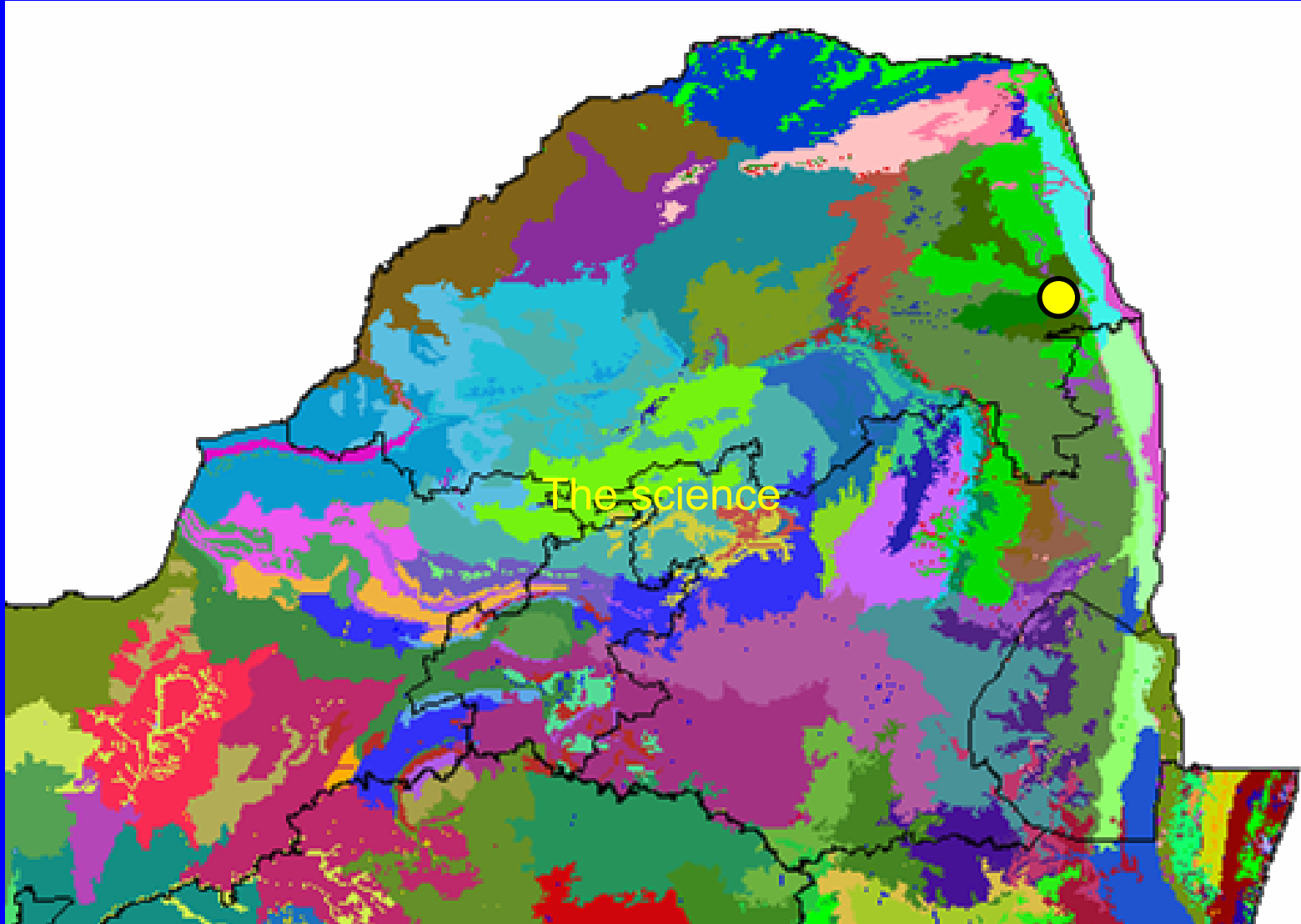
The science

Guided by a Technical Steering Committee, a **CORE MONITORING SITE** needs to be established.

This site should;

- represent processes characteristic of the ecosystem
- typically be about 1 km² in size
- be accessible to staff and external researchers
- allow reasonable removal of samples
- have only one land-use and disturbance regime
- be comparable to affiliated sites with different land-uses
- fall within a single tenorial unit
- it may encompass human settlement

The science



From SANBI

The science

Core site determination group:

Local expertise and knowledge/data

SAEON: D. Balfour

KNP: S. Freitag / I. Smit / S. MacFadyen

ARC: M. Peel

WRF: W. Twine

The science

The working group agreed that:

- although savanna is significant commercially and communally, it is also important for conservation (one of the best conserved biomes) and the core site should benchmark the natural condition. This does not foreclose on opportunities for associated sites to capture elements of other land uses.
- to ensure benchmark functioning of processes the minimum surrounding contiguous area should be greater than 100km²
- to ensure representivity the core site should be in an area which is dominated by the woody vegetation that is dominant (by area) in South African savanna (different vegetation classifications could be used to test sensitivity/robustness of final decision)
- attempts would be made to structure the logic in such a way as to not prematurely exclude areas

STEP ONE

Biophysical (inclusive) - to capture all areas that meet benchmark criteria and are representative wrt composition (woody vegetation) and ecological function (unit of sufficiently large area to allow ecological processes to function) of the “natural” savanna condition in South Africa.

<u>Criterion</u>	<u>Data set and threshold description</u>
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Benchmark:	Land transformation data. (Varying thresholds can be set to test sensitivity)
and	

Ecological processes:	Cadastral data: Select all “homogenous” management areas greater than 100km ² . (Can vary size)
and	

Composition:	SANBI and ENPAT data sets. Dominant woody vegetation at national level (Can try different vegetation classifications)
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STEP TWO

Biophysical & weighting - factors which are important but should not be treated as “winner takes all” factors are considered here. Weightings are applied to sway a final decision

<u>Criterion</u>	<u>Data set and threshold description</u>
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Geology:	National 1:250 000; frequency in savanna
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and

Rainfall:	National isohyets; average frequency in SA savanna
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and

Surface water:	Distance to perennial rivers buffer at <5km, 5-10km and >10km. Spatially rivers are small but functionally large, and position relative to water will be an important quality of the final core site.
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STEP THREE

Enabling criteria which sway in favour of logistically and legally more appropriate sites

<u>Criterion</u>	<u>Threshold description</u>
Infrastructure – access	{weighting : buffers}
Infrastructure – power	{weighting : buffers}
Proximity to node office	{weighting : buffers}
Tenure	{weighting : categories}

STEP FOUR

Beneficiation criteria which aim to maximize advantage of potential legacy data as well as opportunities for experimental design advantage or issues of good will

<u>Criterion</u>	<u>Threshold description</u>
Legacy data	to be workshopped
Structural design	to be workshopped
Complimentarity	to be workshopped
Goodwill	to be workshopped

More science

Direct

- Involvement in KNP TPC development and review exercise
- Participated specifically in developing a framework for elephant research
- SAEON SUMMIT

Initially much of this work has been with KNP - the participation with ARC and WRF has been delayed slightly by two key contacts finishing off important projects of their own. We hope to engage with them shortly. Also we have been hamstrung by the difficulty in recruiting a GIS/data manager

Less direct

- Organized Lowveld GIS liaison meeting
- Co-organizer the network meeting

Education:

Involvement in graduate studies at this stage has been largely through Organization of Tropical Studies

Environmental Science Outreach

Strategy: 3 pronged



Educator support	Learner support	Community
Teachers T-room forum	Science projects & Eskom science expo	Talks and lectures (staff and visitors)
Environmental science workshops	Winter holiday camps	National activities
National activities	National activities	



National Science Week 2005 (2100)



Teachers T-room forum (30)

Community lectures: Phalaborwa bird club, honorary rangers...

Education experts committee

Women in science

Educators Environmental Science Workshop (13)



Partners to date:



Where are we heading?

Our key challenges for the following year are to:

Establish a core site and to initiate monitoring

(This includes the process of deciding what to monitor, and employing a monitoring technician)

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To use established (as well as new) partnerships to accelerate the process of “liberating” data from filing cabinets and servers. This will NOT be a big stick process but rather a carrot process where we will identify people who wish to collaborate

(This includes employing a GID/data manager)



Thank you

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