

# ***SynBioSys*** **Kruger**

Alterra Research  
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University of Pretoria

SANParks



Presented by

Theo Mostert

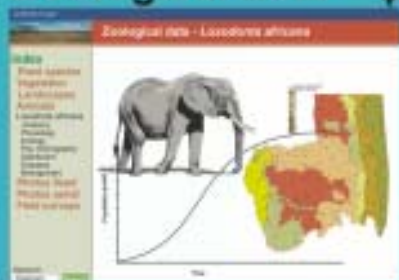


# SynBioSys Kruger: Mass data storage software using a GIS platform to promote integrated scientific research

T.H.C. Mostert<sup>1</sup>, J.H.J. Schaminee<sup>2</sup>, S. H. Hennekens<sup>2</sup>, G.J. Bredenkamp<sup>1</sup>  
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SynBioSys Kruger is a computer program for the storage of large amounts of data. The software is based on the very successful software packages SynBioSys Europe and SynBioSys Netherlands and acts as an open-ended data storage system in which new data can be added on a daily basis. Both simple and multivariate statistical analyses can be performed, with results being recalculated as new data sets are added. It makes use of a GIS platform in order to display complex data in the simple format of maps and statistical graphs and figures. Both simple and complex maps and figures can be generated with the click of a button, without the operator knowing anything about GIS. This enables scientists and conservation coordinators to tap into data from other research fields, extracting information that may be of relevance to their field of interest. The detail of information and data extracted will depend on detail required by the operator, and the operator's ability to interpret the results and data generated. This ability to simplify cross-disciplinary studies encourages scientists and conservationists to approach ecological and conservation problems holistically. Effective long-term conservation of ecosystems and their environmental drivers can only be achieved with integrated research approaches. SynBioSys Kruger provides researchers with a simple, yet powerful device to produce such integrated and holistic answers to multi-facet research and conservation issues.

## Zoological data



## Environmental data



## Ecosystem data



## Management data



## Botanical data



## Digital imagery



## Statistical analyses





# SynBioSys Kruger

## Index

### Plant species

### Vegetation

*A - Aquatic*

*B - Swamp*

*C - Pioneer*

*D - Grassland*

*E - Savanna*

*F - Riverine*

*G - Outcrops*

### Landscapes

### Animals

### Photos fixed

### Photos aerial

### Field surveys



Keyword

**Search**

# Botanical Data

SynBioSys Kruger



## Species data - Terminalia sericea

### Index

#### Plant species

##### Combretaceae

##### Terminalia

*Terminalia phanerophlebia*

*Terminalia prunioides*

***Terminalia sericea***

Commelinaceae

Convolvulaceae

Crassulaceae

Cucurbitaceae

Cyperaceae

Dennstaedtiaceae

Dicranaceae

Dioscoreaceae

Dipsacaceae

Ditrichaceae

Dracaenaceae

Droseraceae

Dryopteridaceae

Ebenaceae



#### *Terminalia sericeae*

Small to medium-sized deciduous tree, 4-8 m, occasionally a large spreading tree to 20 m; crown rounded to characteristically flat-topped; in a variety of bushveld types, usually on deep, sandy soils. **Main stem:** upright, straight, to 400 mm diam., branches reddish-brown to purplish-brown, peeling in strips; twigs zig-zagged, often bearing small rounded

Keyword

Terminalia

Search

# Zoological Data

SynBioSys Kruger



## Zoological data - *Loxodonta africana*

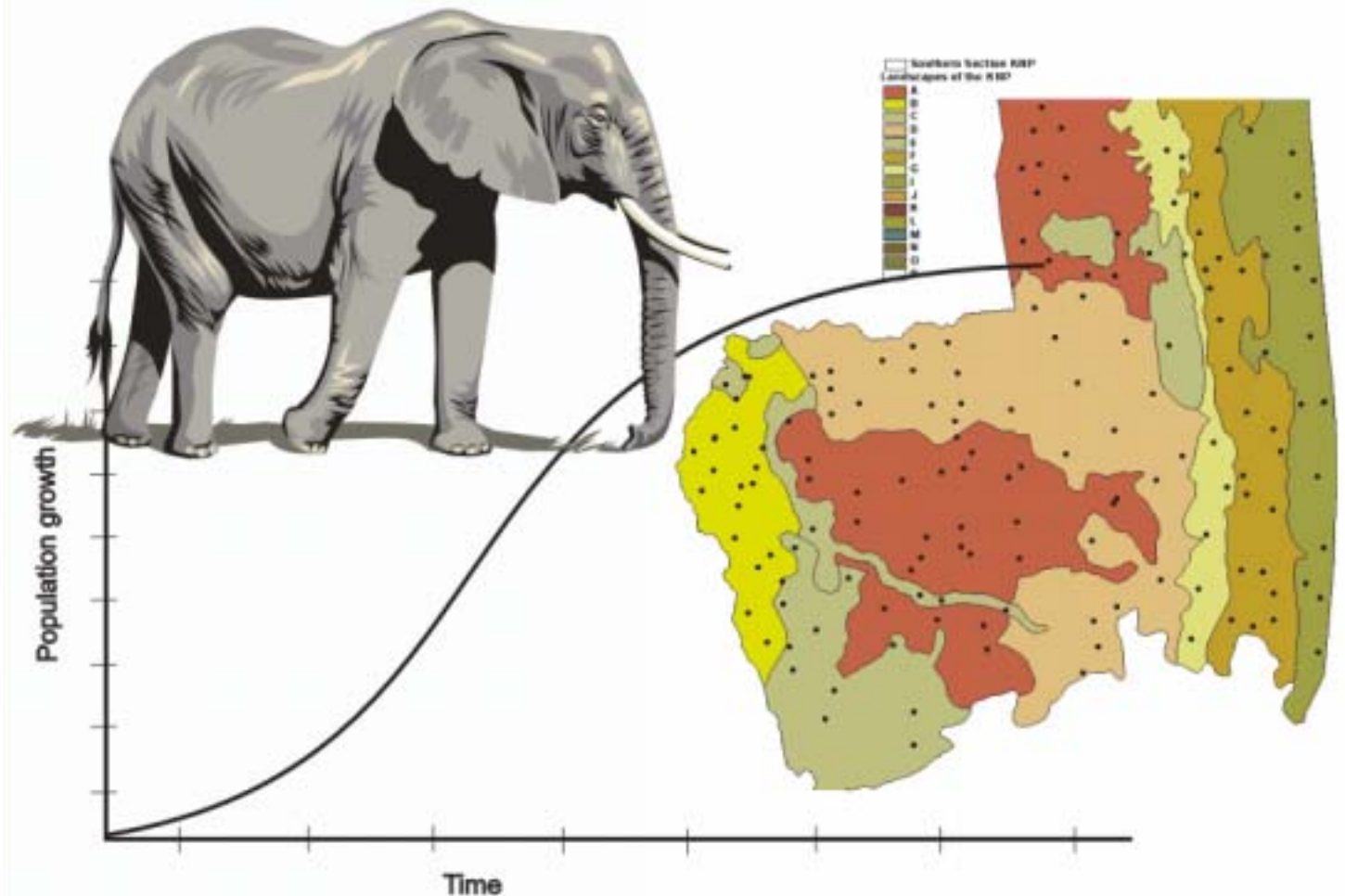
### Index

- Plant species
- Vegetation
- Landscapes
- Animals

#### *Loxodonta africana*

- Anatomy
- Physiology
- Ecology
- Pop. Demography
- Distribution
- Diseases
- Management

- Photos fixed
- Photos aerial
- Field surveys



Keyword

# Environmental Data

SynBioSys Kruger



## Environmental data - Rainfall - Pretoriuskop

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Plant species

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*Weather data*

Rainfall

Wind

Sunshine

*Geology*

Soils

*Topography*

*Veld fires*

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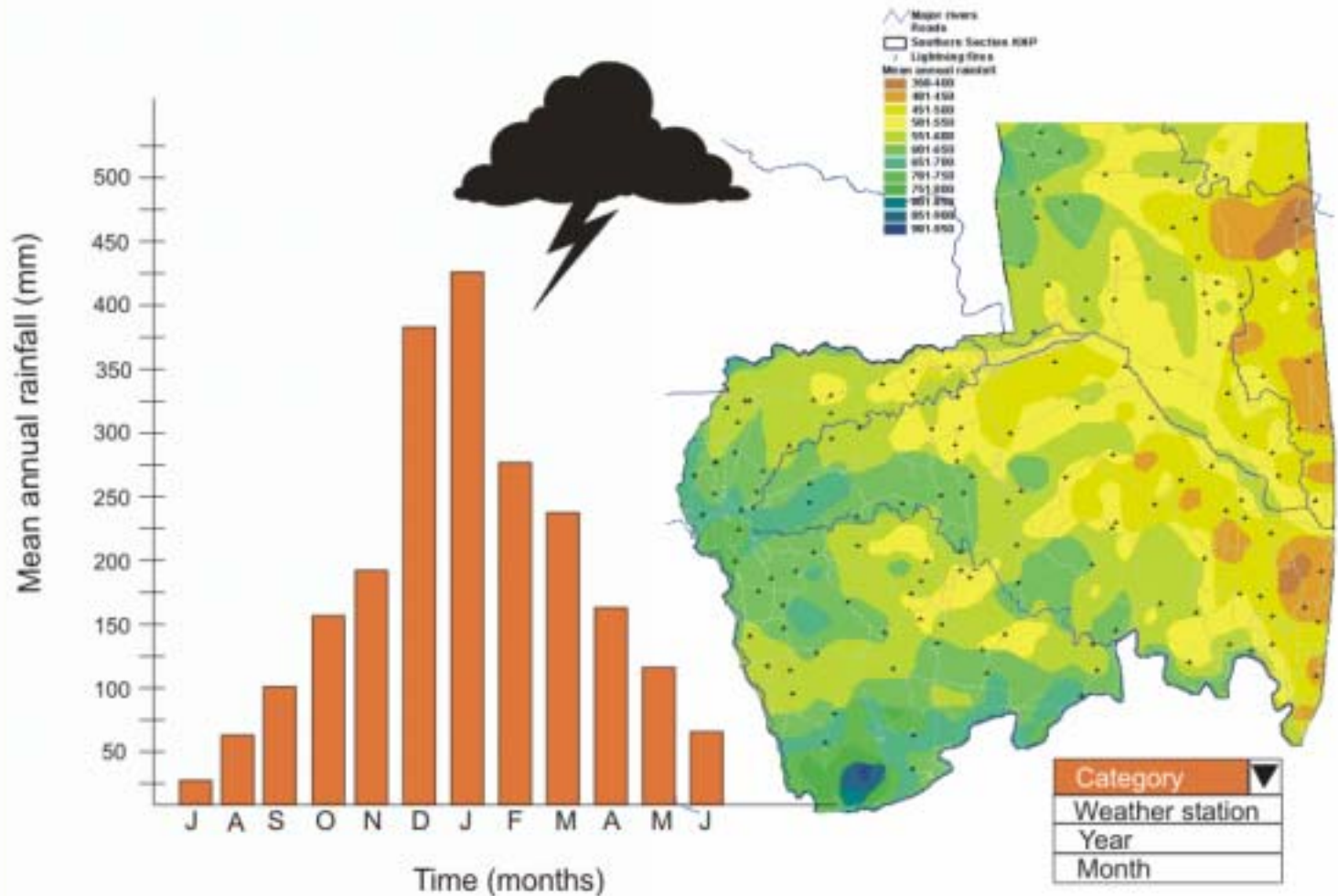
Field surveys

Management

Keyword

Pretoriuskop

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# Ecosystem Data

SynBioSys Kruger

## Ecosystem data - Plant communities - Savanna

### Index

#### Plant species Vegetation

A - Aquatic

B - Swamp

C - Pioneer

D - Grassland

E - Savanna

06 Acacieae tortilis-nigrescentis

06A Acacietalia nigrescentis

06Aa Sclerocaryo birreae-  
Acacietum nigrescentis

06Aa01 Justicia flavae-Acacietum  
nigrescentis

06Ab Acacion gerrardii-  
nigrescentis

06Ab01 Sclerocaryo birreae-Acacietum  
nigrescentis

06Ab02 *Setaria incrassatae*-*Themeditum*  
*triandrae*

06Ab03 Acacietum borleae

06B Lonchocarpus-Acacietalia  
tortilis

06Ba Lonchocarpus-Acacion  
tortilis

06Ba01 Acacietum niloticae-tortilis

07 Combreteteae apiculati

08 Colophospermetum mopane

F - Riverine

G - Outcrops



The *Setaria incrassatae*-*Themeditum triandrae* is associated with the gabbro intrusions. Gertenbach (1983) refers to the associated landscape as the Thornveld on Gabbro Landscape (19). Soils contain very high percentages of clay and have vertic and near-vertic properties. The vegetation structure can be described as an open savanna and is dominated by a dense grass layer, containing palatable species such as *Themeda triandra* and *Setaria incrassata*.

Keyword

Acacia veld

Search

# Management Data

SynBioSys Kruger



## Management data - Experimental burn plots

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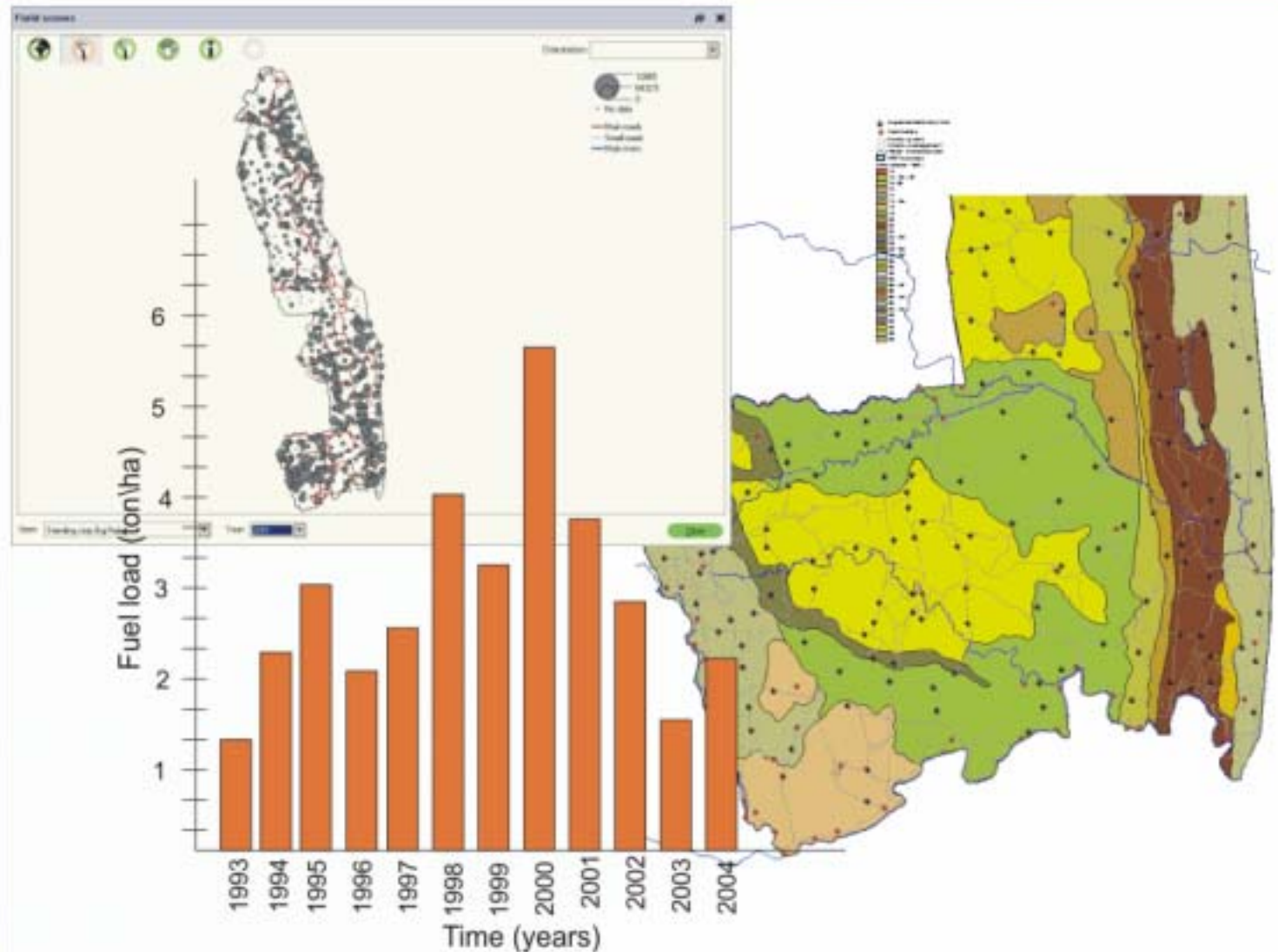
- Plant species
- Vegetation
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- Invasive alien control
- Rare antelope prog.
- Anti-poaching oper.
- Exp. burn plots**
- Exp. Exclosers
- Immunisation prog.
- Animal relocations
- Animal auctions

Keyword

Burn plots

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# Digital Imagery

SynBioSys Kruger



## Digital imagery - Aerial photographs - Sabie River

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Photos aerial

Aerial transects

Sabie River

North

East

South

West

Field surveys

Management



Transect no 1974/003A  
Photo no 1974/147/B25

Keyword

Sabie River

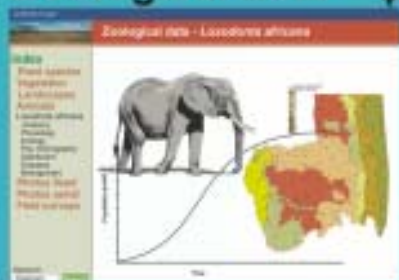
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