

Conservation and management of biodiversity in protected areas in the North West Province

Pieter Nel

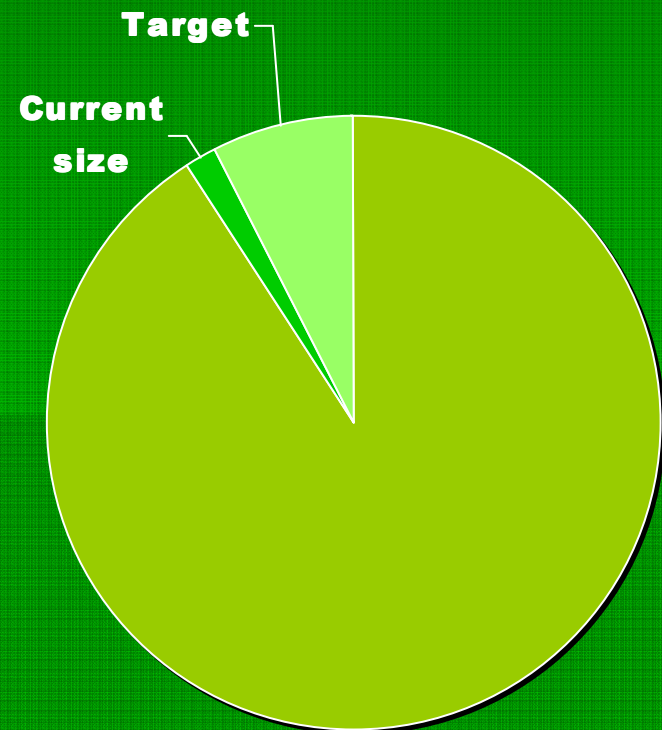
Conservation Management Division

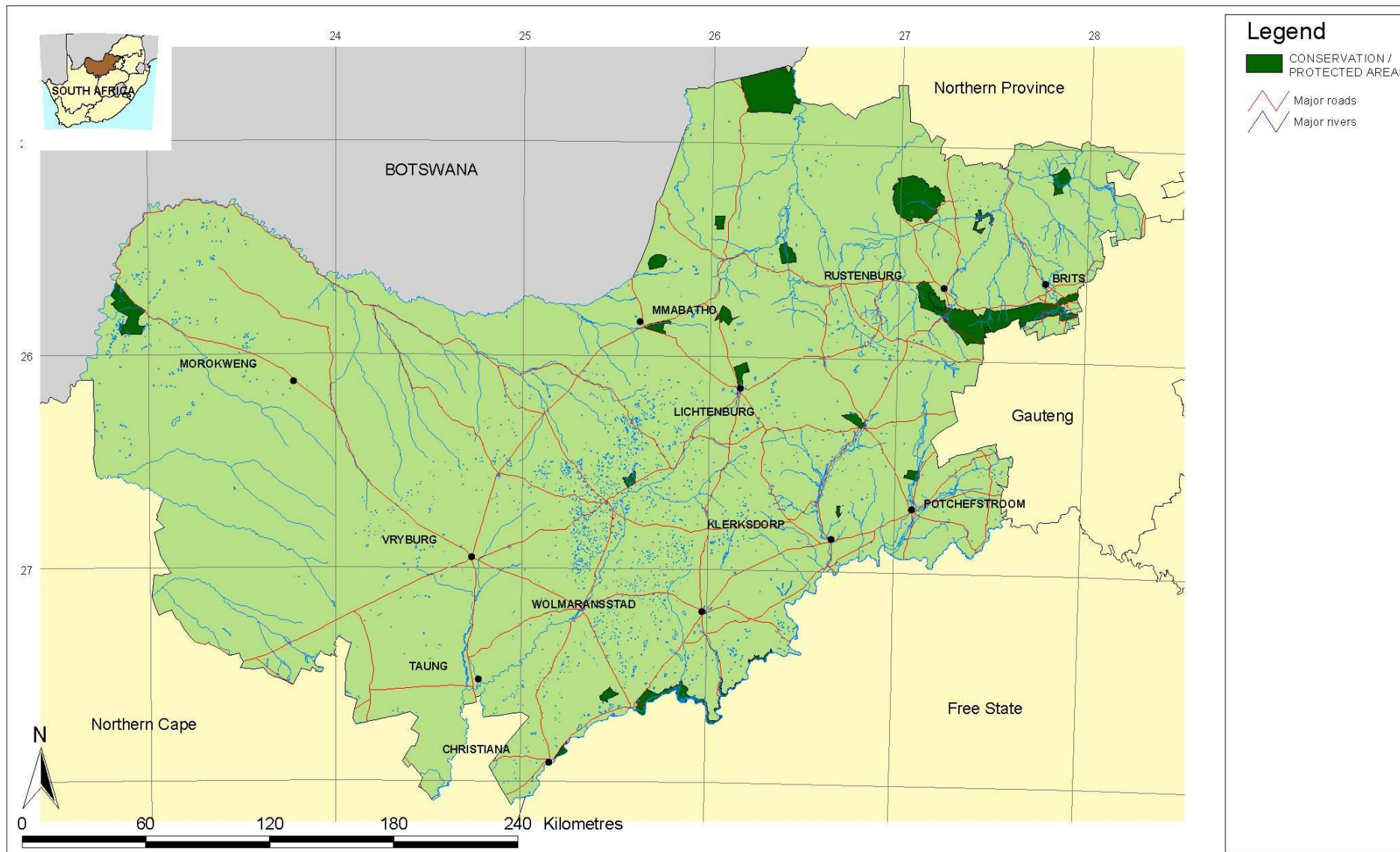
North West Parks and Tourism Board



North West Parks and Tourism Board

- Established in 1998
- Amalgamation of Bop Parks and wildlife, Transvaal Nature Conservation and Northern Cape Nature Conservation
- Located within the Department of Economic Affairs and Tourism, of the NWP Administration
- The Board manages a total of 14 parks; totaling approximately 185 000 ha ~ 1.6% of the province





Nat. Biodiversity & Action plan strategy

- An enabling policy and legislative framework that integrate biodiversity and economic development
- Institutional efficiency and effectiveness to promote good governance
- Integrated terrestrial and aquatic management to minimize impacts, enhances ecosystem services and improves social and economic security
- Enhanced human development and well being through sustained use of biological resources and benefit sharing
- Network of conservation areas to conserve representative samples of biological features and processes

Mandate of the North West Parks and Tourism Board

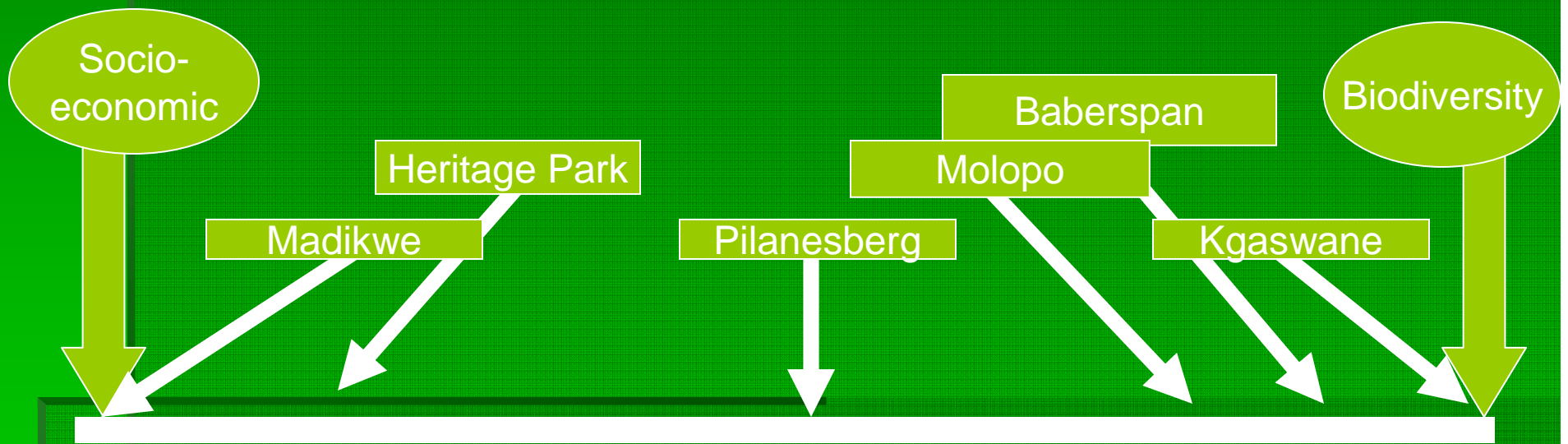
- The core business of the North West Parks and Tourism Board as defined in Section 2(a) & (b) of the North West Parks and Tourism Board Act (Act 3 of 1997) is as follows:
 - To ensure the establishment, development and efficient management of a network of formally protected areas in order to conserve indigenous bio-diversity, representative samples of natural ecosystems and habitats of critically important or threatened species;
 - To facilitate the development, coordination and promotion of tourism in the province.
- But, we need to address provincial priorities as well:
 - Advance economic development/stimulate economic opportunities
 - Job creation
 - Skills development
 - Community /rural development

KEY ORGANIZATIONAL OBJECTIVES

(North West Parks and Tourism Board Business Road Map 2003)

- The achievement a **Strategic Culture** within the organization.
- **Financial Efficiency and Sustainability.**
- **Institutional Capacity Building.**
- The achievement of **Economic Transformation** mandate in our communities.
- The achievement of **Black Economic Empowerment** objectives.
- The creation of a **Humanized Work Environment.**
- The achievement of our **Corporate Social Responsibility** objectives
- The entrenchment of the **Culture of Research** within our corporate culture to inform planning and decision making.

Management objectives for parks in the North West Parks and Tourism Board



Conservation Management Division





**NORTH WEST
PARKS & TOURISM BOARD**

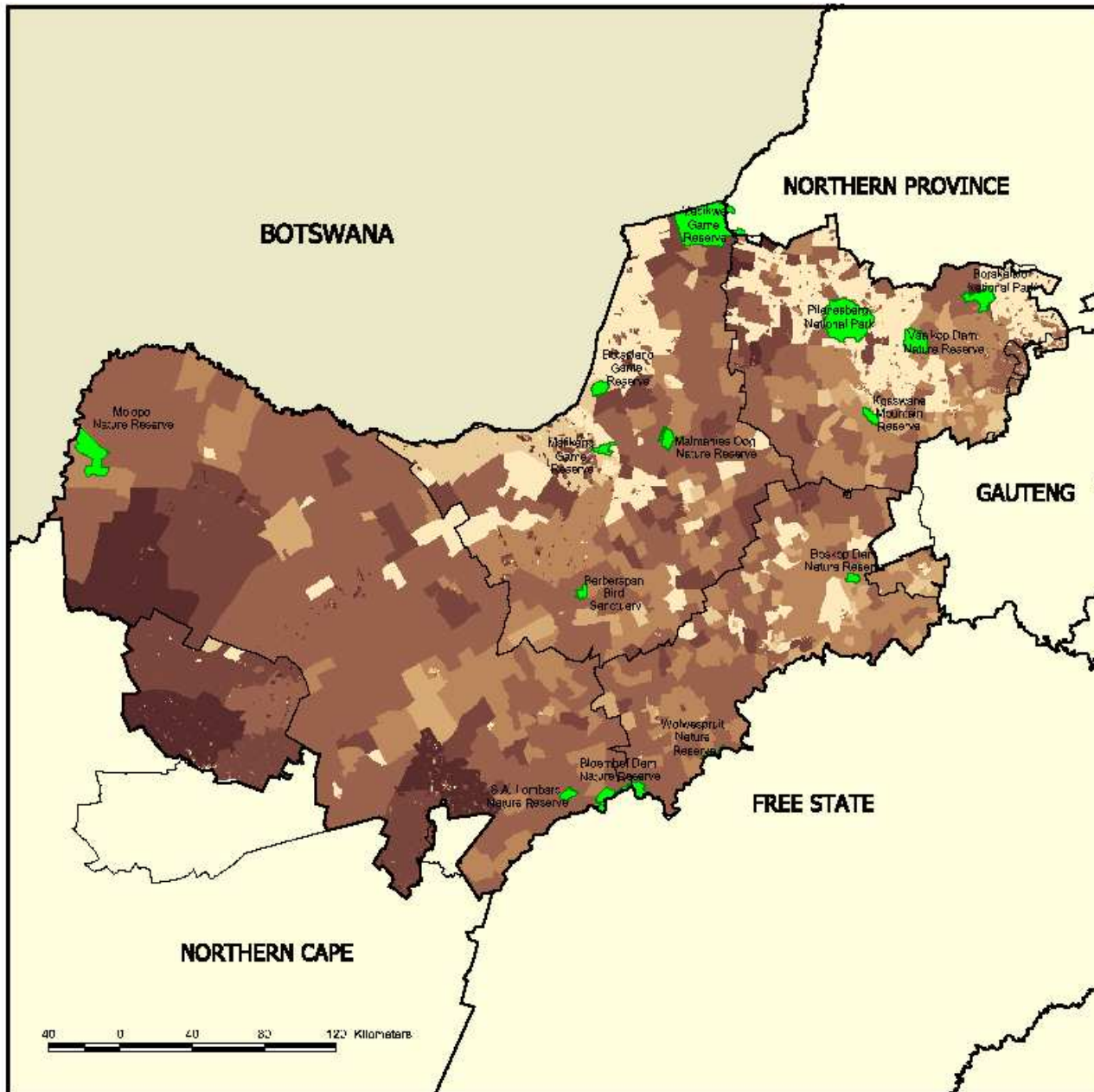
**STRATEGIC LEVEL ANALYSIS
TO IDENTIFY HIGH PRIORITY
CONSERVATION AREAS**

**SOCIO-ECONOMIC NEEDS
INDEX**

- Provincial Boundary
- District Council Boundary
- Existing Nature Reserve/ Park Boundary

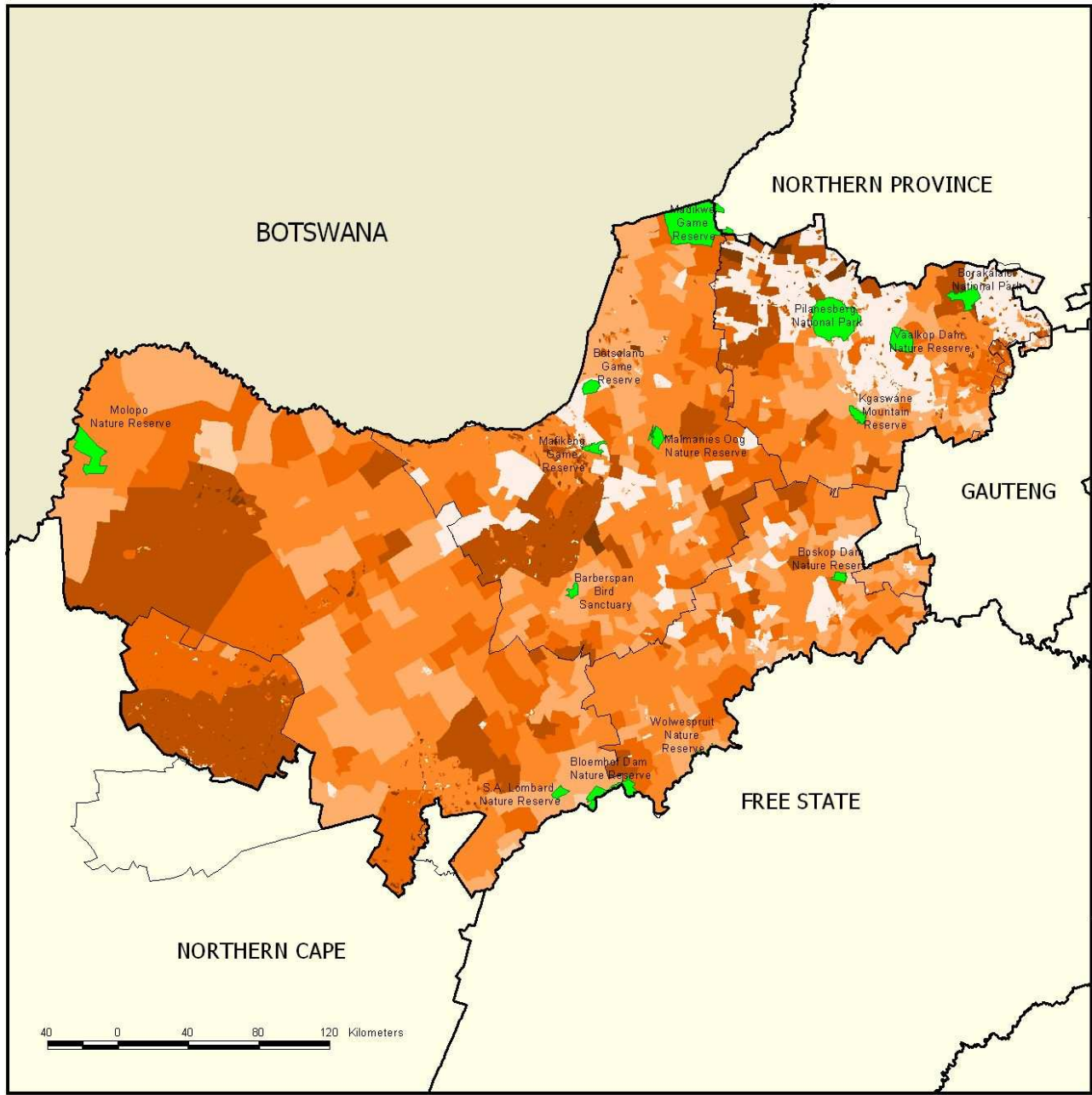
Socio-Economic Needs Index

- Category 1
- Category 2
- Category 3
- Category 4
- Category 5
- Category 6
- Category 7



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40 0 40 80 120 Kilometers



**NORTH WEST
PARKS & TOURISM BOARD**

**STRATEGIC LEVEL ANALYSIS
TO IDENTIFY HIGH PRIORITY
CONSERVATION AREAS**

**INFRASTRUCTURE NEEDS
INDEX**

- Provincial Boundary
- District Council Boundary
- Existing Nature Reserve/ Park Boundary

- Infrastructure Needs Index**
- Category 1
 - Category 2
 - Category 3
 - Category 4
 - Category 5
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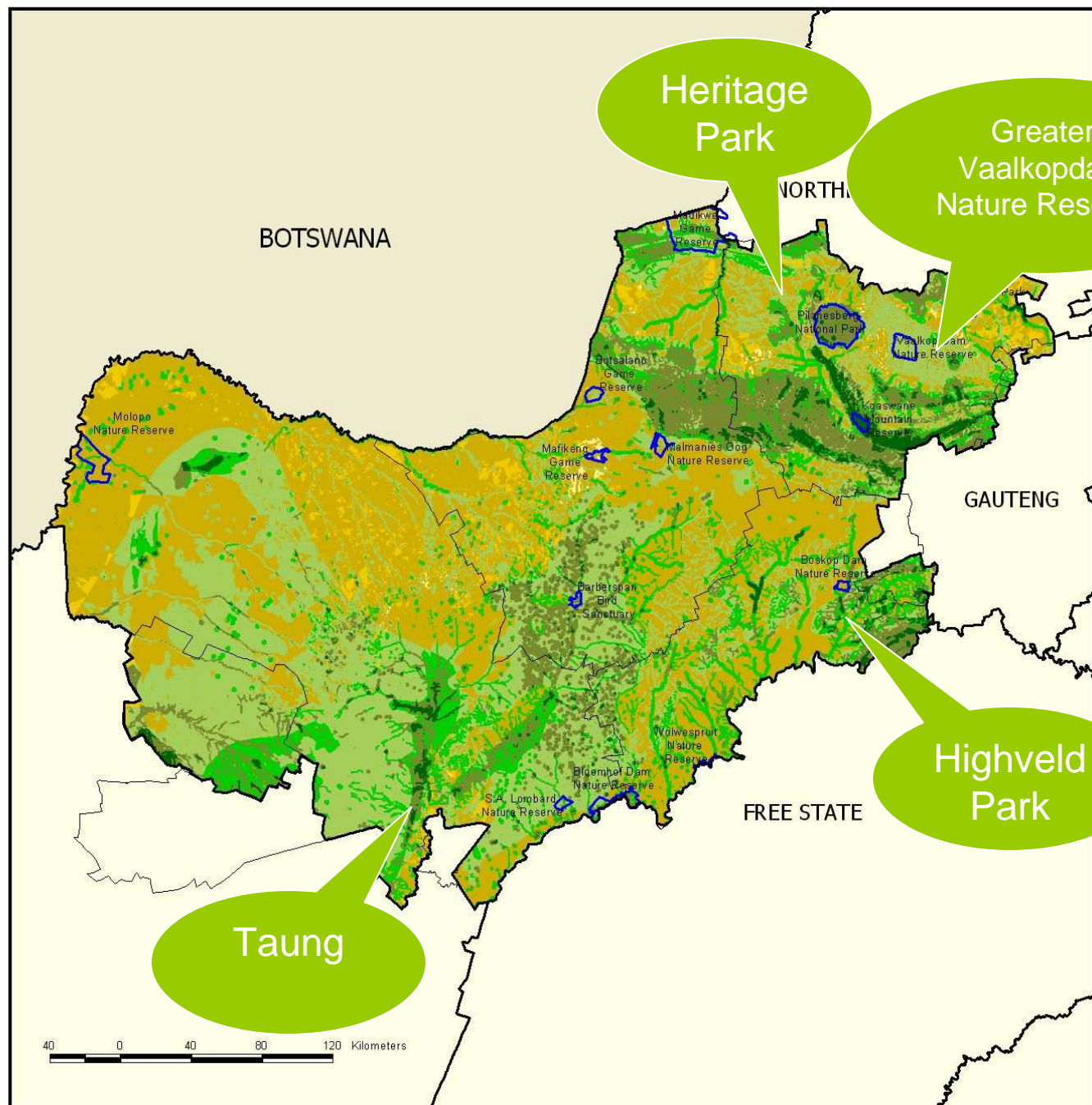
NORTH WEST PARKS & TOURISM BOARD

STRATEGIC LEVEL ANALYSIS TO IDENTIFY HIGH PRIORITY CONSERVATION AREAS

CONSERVATION POTENTIAL INDEX

- Provincial Boundary
- District Council Boundary
- Existing Nature Reserve/ Park Boundary

- Conservation Potential Index
- Category 1
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 - Category 3
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Pilanesberg

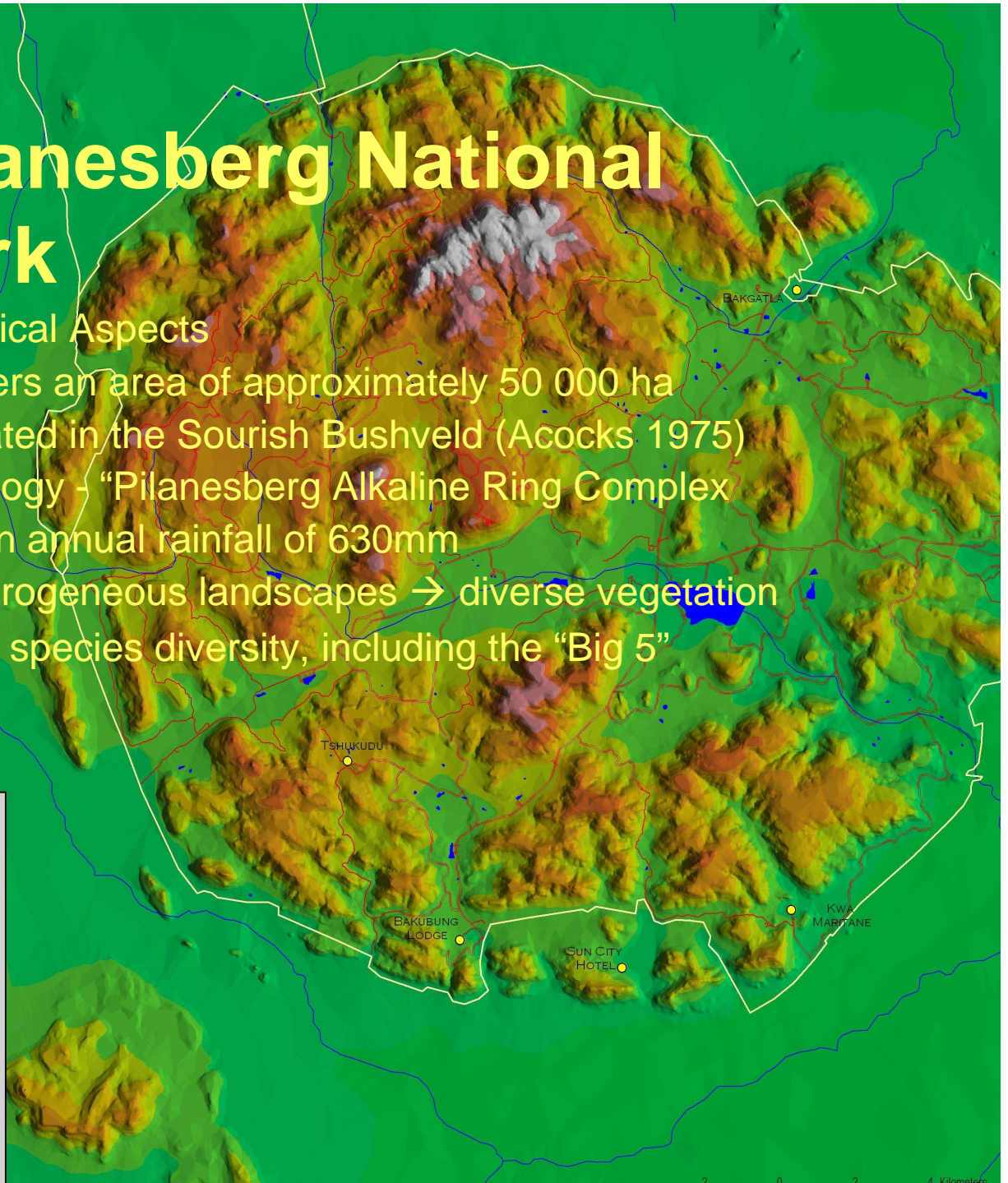
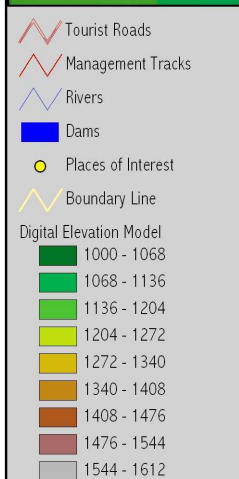
- Established in 1979
- Pilanesberg is a geological phenomena, has an appealing landscape and can act as a catalyst for economic development.
- On this basis, negotiations in 1978 between erstwhile Bop National parks and the local Bakgatla tribe resulted in the following agreements:
 - the allocation of two nearby state farms for community grazing;
 - an unspecified percentage of the park entry ticket sales;
 - reimbursement for costs incurred while dismantling existing homes;
 - the right to have access to family graves in the park;
 - the right to enter the park to collect medicinal plants, thatching grass and firewood;
 - the appointment of Chief Pilane (the Bakgatla chief after which the park is named) to the Park's Board of Trustees.
- Mixed successes in the execution of these agreements – park was established, but community development didn't satisfy expectations



Pilanesberg National Park

Biophysical Aspects

- Covers an area of approximately 50 000 ha
- Located in the Sourish Bushveld (Acocks 1975)
- Geology - "Pilanesberg Alkaline Ring Complex"
- Mean annual rainfall of 630mm
- Heterogeneous landscapes → diverse vegetation
- High species diversity, including the "Big 5"



Pilanesberg

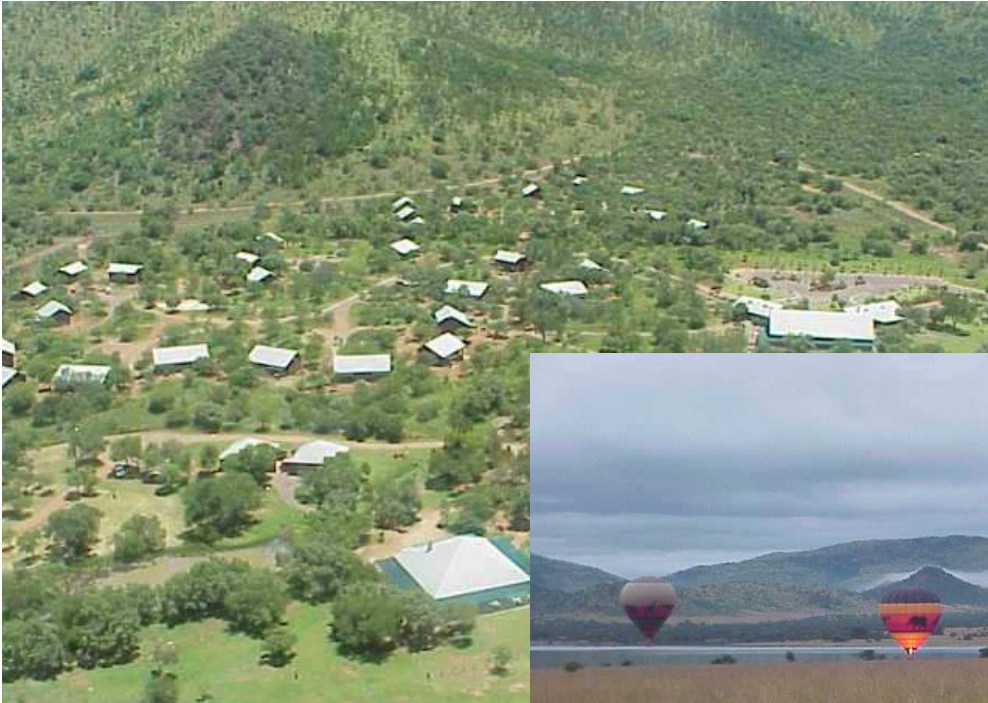
- Management objectives:
 - conserving the system's biodiversity, abiotic resources [soil, water and rock] biophysical processes, unique landscape and historical / archaeological sites;
 - while at the same time utilising the system's renewable natural resources for the enduring socio-economic benefit of the neighbouring communities primarily, and international, national and provincial stakeholders secondarily.

Pilanesberg vision achieved if:

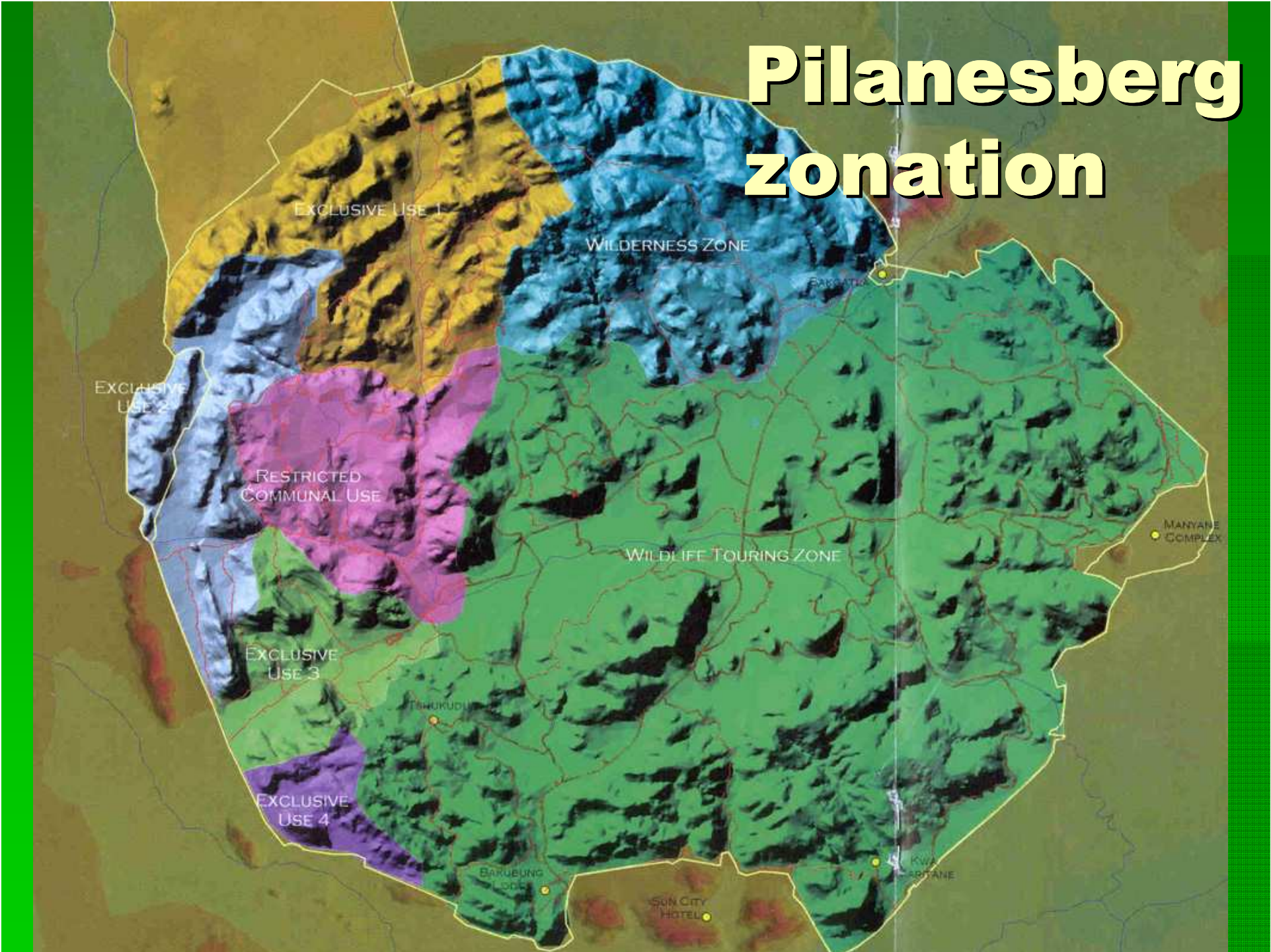
- Pilanesberg provides a Big Five game viewing experience that competes favourably with other well known game reserves of Africa.
- Pilanesberg is renowned for the enriching and informative nature experiences it offers through innovative world class interpretation programmes.
- Although the recreational, educational and spiritual opportunities are maximised, the quality of the visitor's wild African experience and conservation principles is not compromised.
- The visitor facilities and services in and around the park consistently meet the global standards
- Tourism development is undertaken by the private sector through synergistic relationships with Park management and neighbouring communities.
- Pilanesberg enjoys the understanding, appreciation and committed support of the neighbouring communities
- The biodiversity, biophysical processes, non renewable resources and landscape of Pilanesberg is well conserved through a consistently applied adaptive management process
- Pilanesberg becomes an internationally renowned centre for park management and conservation research
- PNP is fully recognised as an integral and important component of the local and regional economy
- PNP achieves financial sustainability through a combination of maximising income
- PNP is competently managed by a well trained team that is truly representative of South African society especially with regards to race and gender.

**Philosophy:
Maximizing economic
opportunities and
outsource as much as
possible**

Concessions	Capacity
Golden Leopard resorts -Manyane -Bakgatla -Bosele	3000 beds, including camping, caravan sites and group camp
Legacy -Bakubung -Kwa Maritane -Tsukudu	1260 beds
Sun City	1500 beds
Other activities: Pilanesberg Centre Temporary camps Curious sales Game drives Hot air ballooning Day visitors Live games sales Sport hunting	
Involving communities/private sector in park management activities, i.e. game fence maintenance, technical services, waste collection and removal, garden services Social responsibility program – alien plant removal, fence upgrades, road upgrades	



Pilanesberg zonation



ECONOMIC IMPACT PILANESBERG (Boonzaaier 2003)

**Private Sector
Investment**

R121 m
(Excluding Sun
City)

**Forthcoming
Investment**

R 10 m (Lodges of
Pilanesberg)

**Contribution to
GGP (Turnover of
concessionaires)**

R87m pa

Taxes Paid

R6m pa

**Direct Jobs
(Indirect 4x)**

530 (Plus 100
NWP&TB)

**Economic
Empowerment**

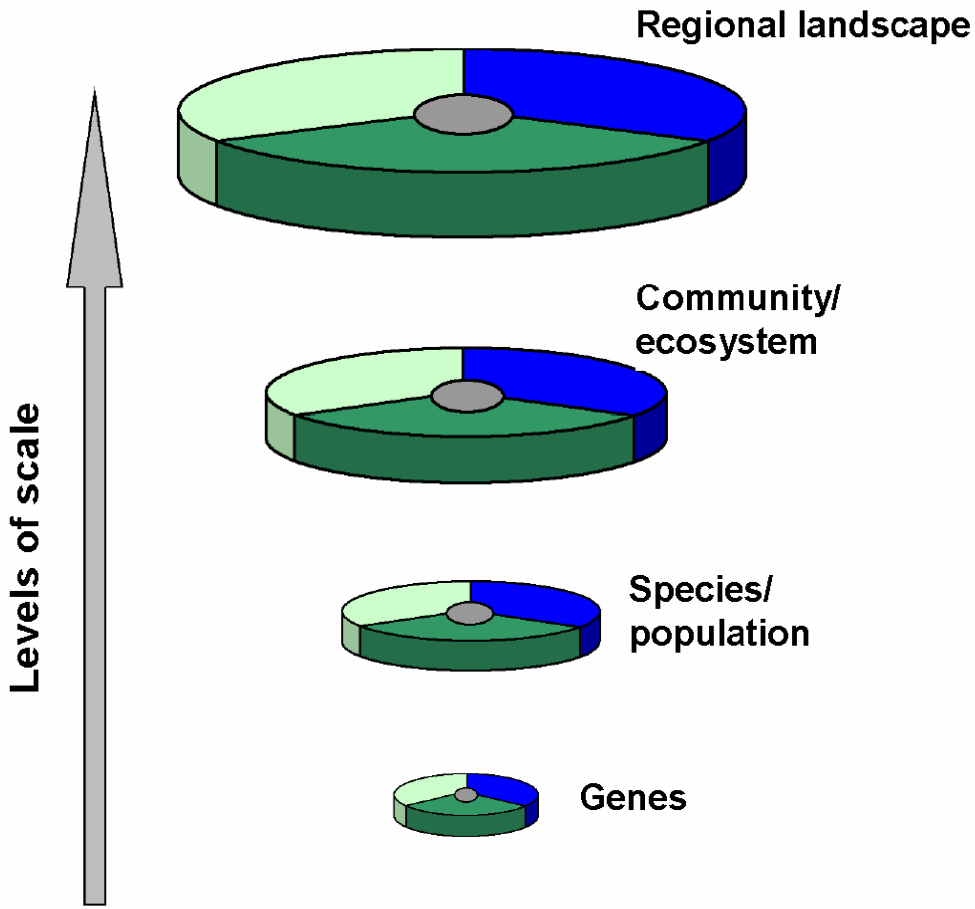
60% community
equity in new lodge

Conservation management

Philosophy of managing of biodiversity in parks

- Definition of biodiversity??
- Franklin *et al* (1981) attempts to characterise biodiversity that identify the major components operating at several layers of organisation.
 - Three attributes to biodiversity:
 - Composition: Identity and variety of the elements in a collection; species lists, measures of species and genetic diversity
 - Structure: Physical organisation or pattern of a system; habitat organisation from community level up to landscape level
 - Function: Ecological and evolutionary processes; gene flow, disturbances and nutrient cycling.

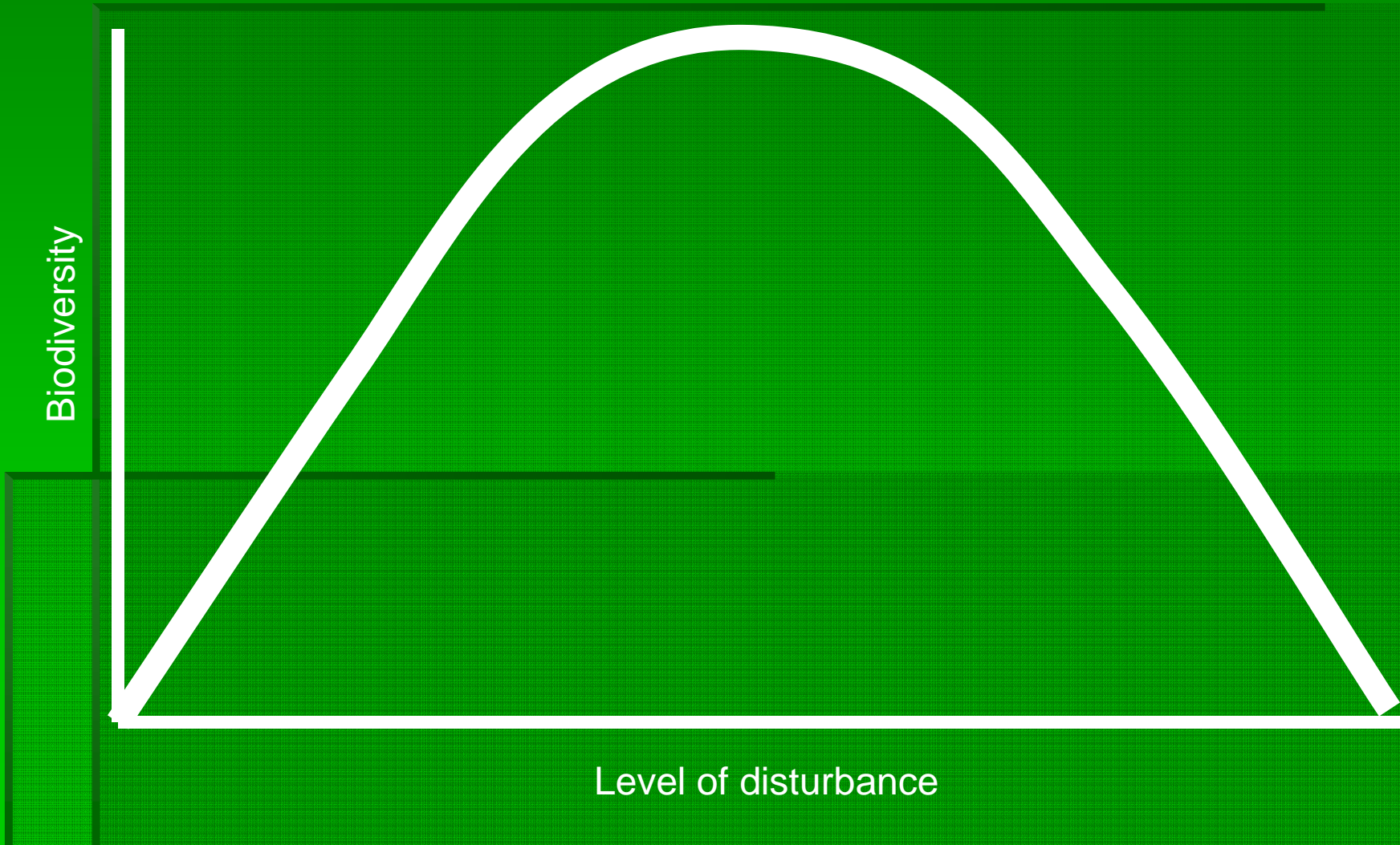
Levels of biological organisation



Components of biodiversity

- Composition
- Structure
- Function
- Penetration

Intermediate disturbance hypothesis



Park manager's "toolbox"

- Fire
- Water provision
- Manipulate stocking rates - herbivory
- Manipulate different types of game; i.e. system drivers (elephants, buffalo's)

Fire as a management tool

- Determined by the fire regime:
 - Timing of fires during year/season
 - Fire intensity
 - Frequency of fires
 - Fire size



Fire as a mechanism in the management of biodiversity

- Mosaic of burnt and unburnt areas
- At different fire frequencies and intensities

Water provision

- Water independent – non mobile species
- Water dependent - mobile species
- Water independent species

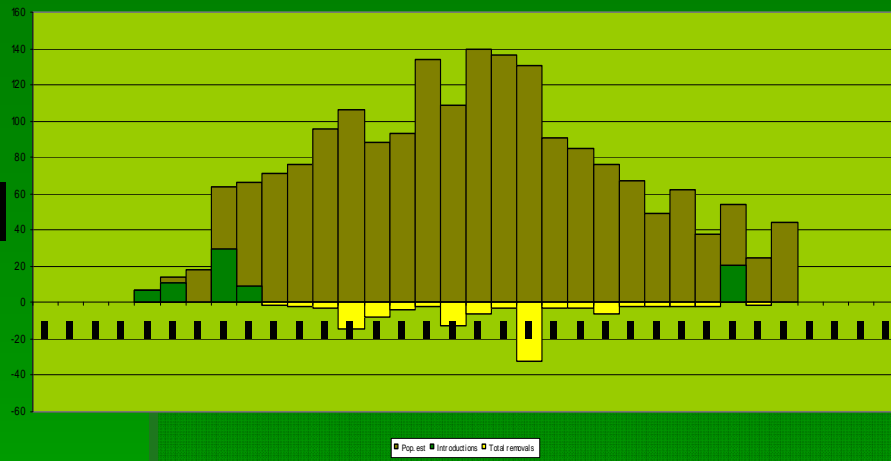


Herbivory

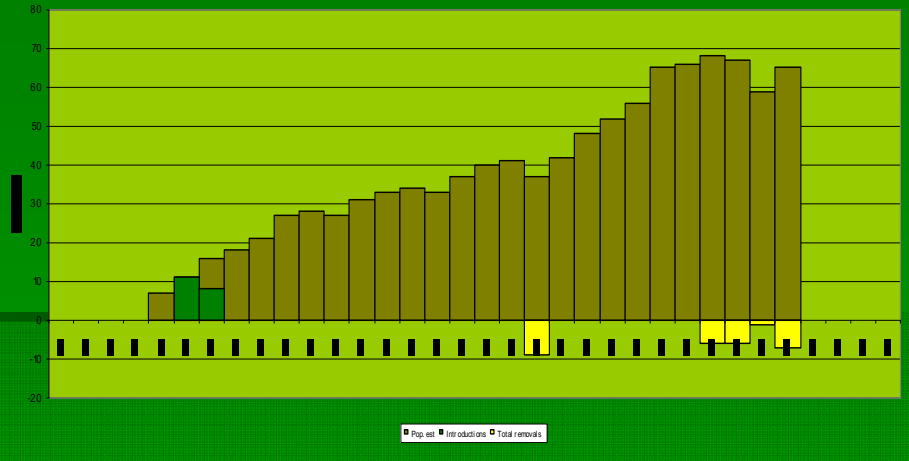
- Impact on biodiversity



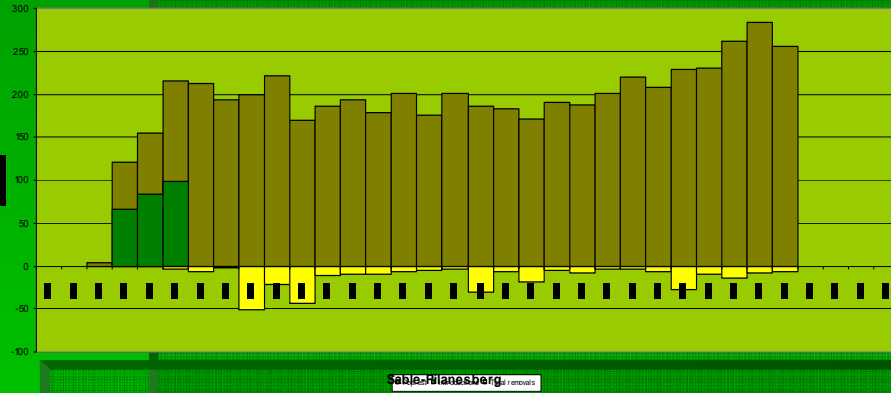
Tsessebe-Pilanesberg



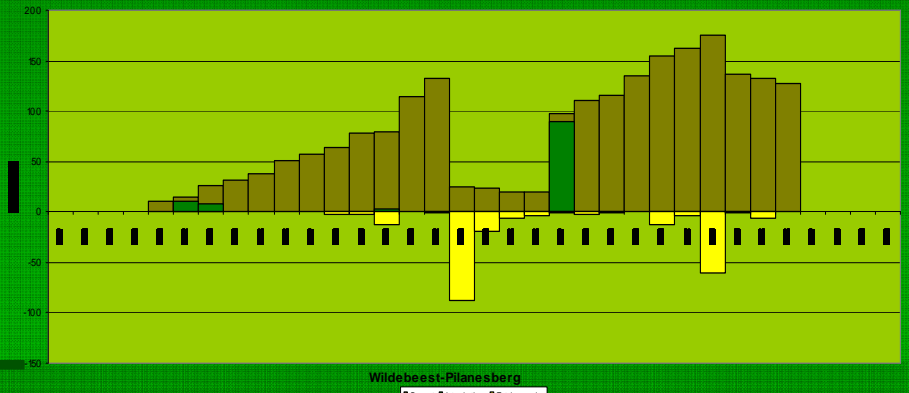
Black rhino - Pilanesberg



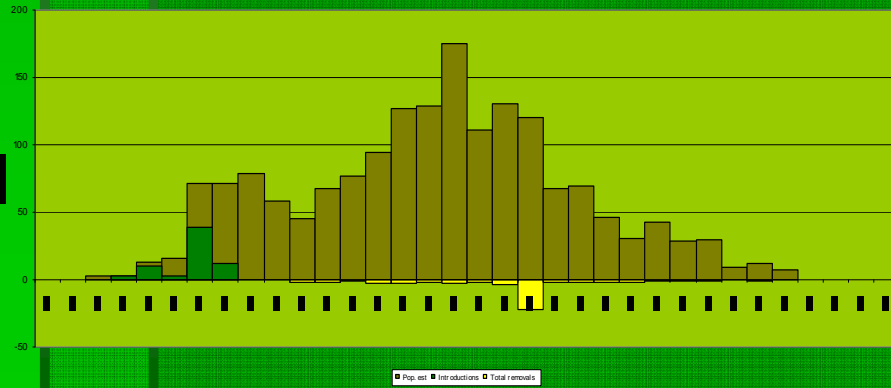
White rhino-Pilanesberg



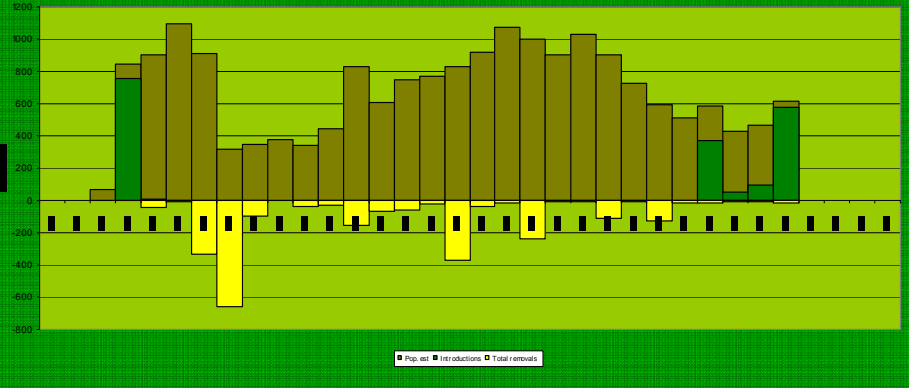
Buffalo-Pilanesberg



Sable-Pilanesberg

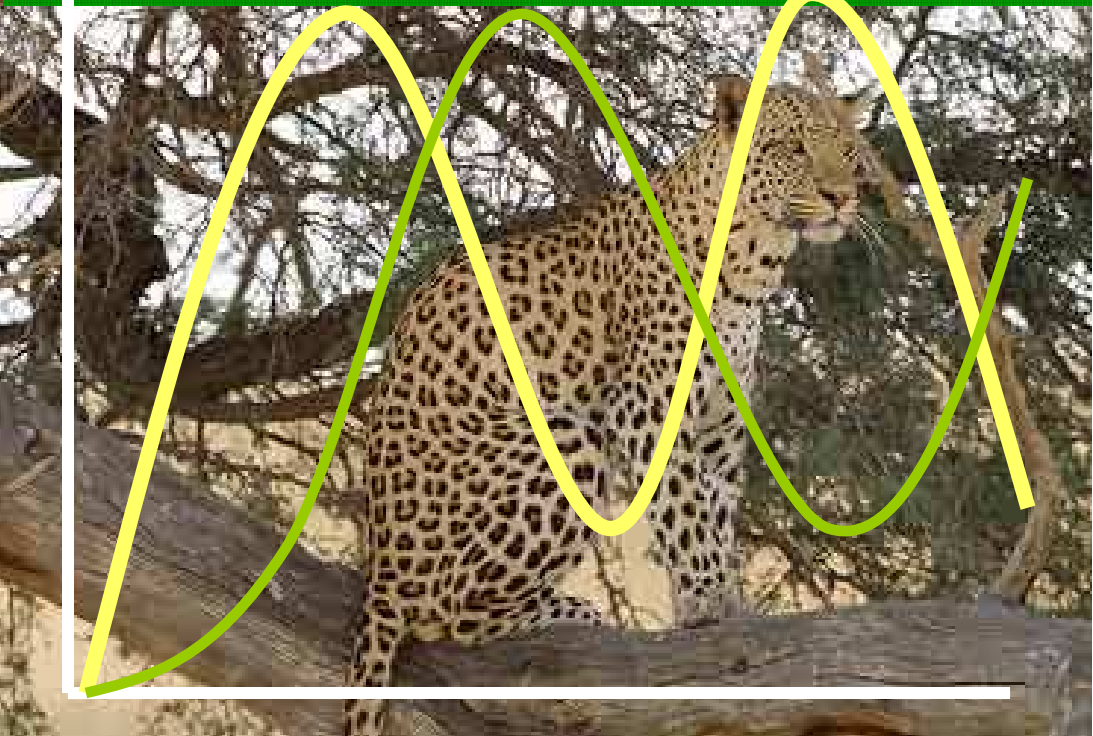
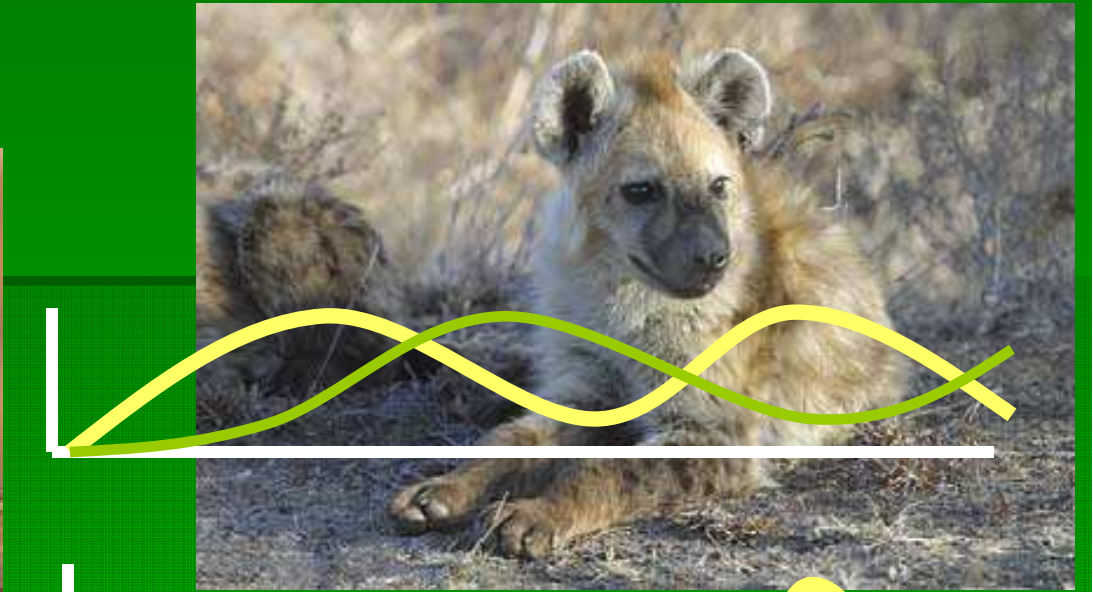


Wildebeest-Pilanesberg

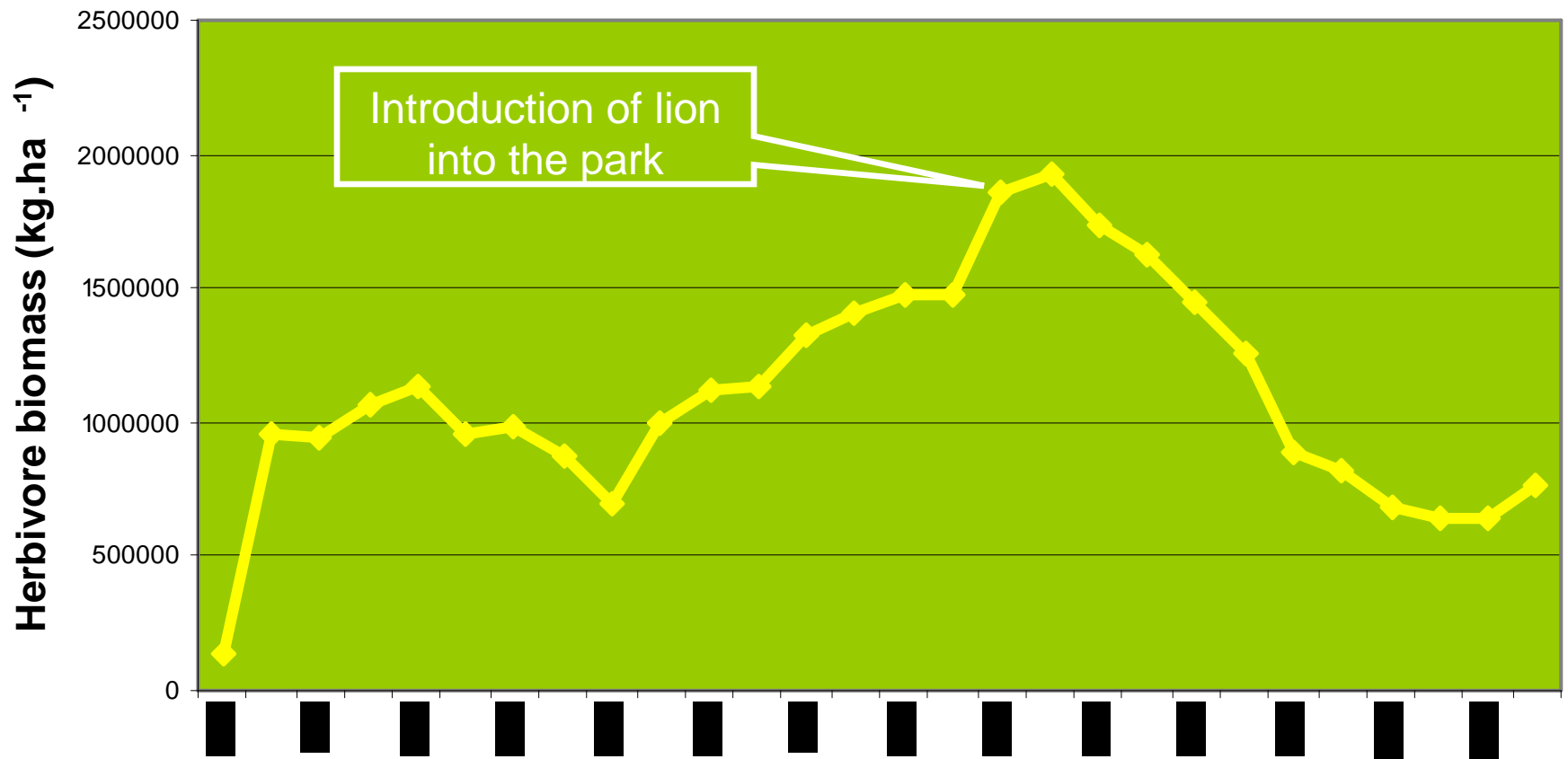


Predators

- Predators in small fenced-in areas, and their impacts on herbivore dynamics

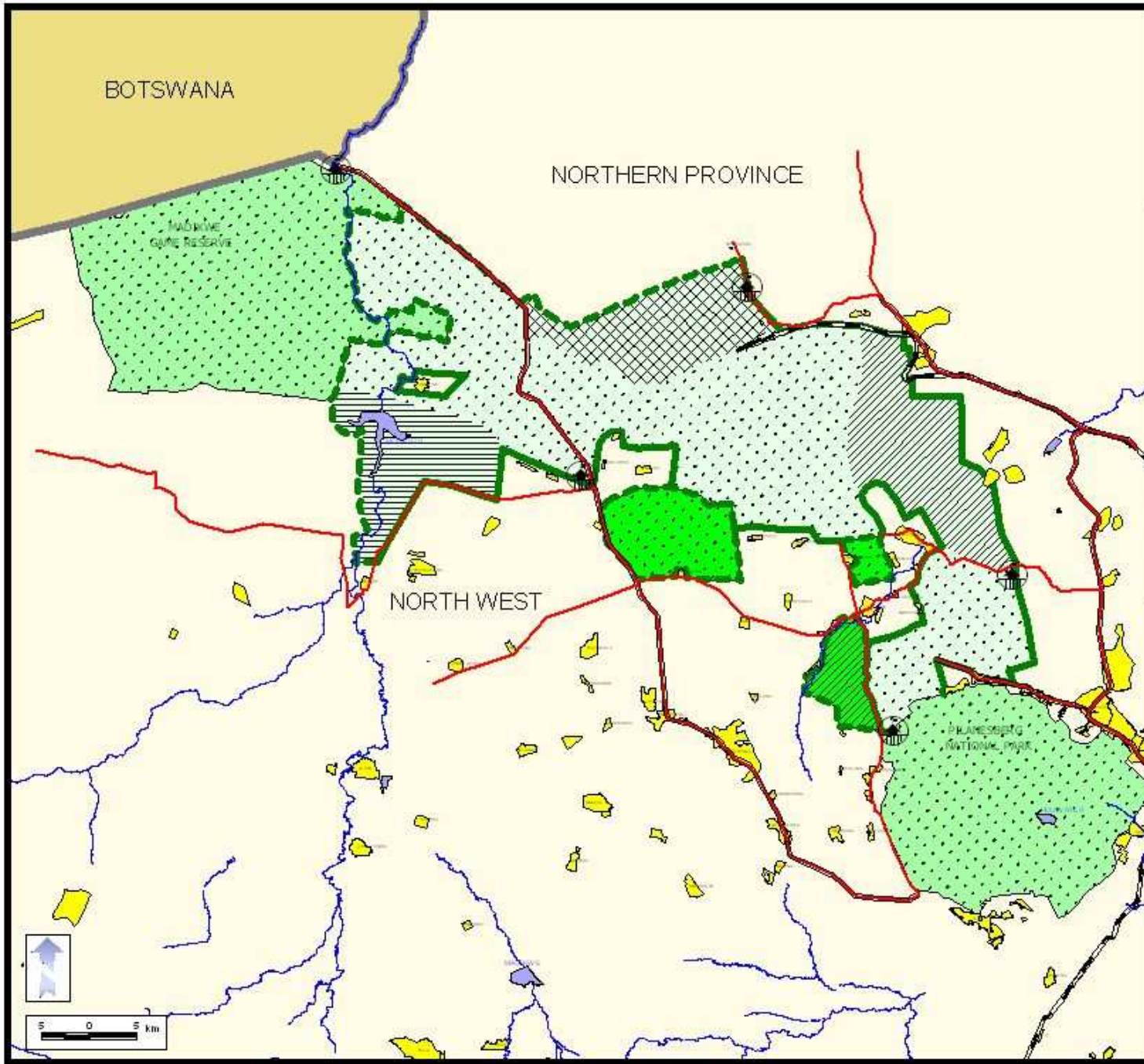


Impact of predation on prey species



Way forward

- In line with NBSAP, the park need to become more relevant in terms of community involvement and development
- Capacity remains and issue, especially when we are dealing with complex systems such as Pilanesberg
 - Research capacity
 - Management capacity
 - Community integration
- Continuously expanding the area of influence of Pilanesberg



PILANESBERG/ MADIKWE CORRIDOR

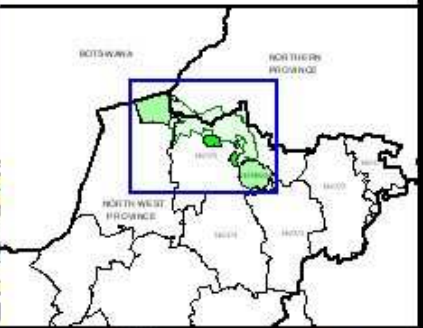
(HERITAGE PARK)

MASTER PLAN

- Gateway
- Major Rivers
- Railway
- Primary Roads
- Secondary Roads
- Heritage Park Boundary (Possible)
- Heritage Park Boundary
- National Boundary
- Core Area
- Protected Areas
- Optional Areas
- Village
- Major Dams

IDENTIFIED ZONES

- 1: Recreation Zone
- 2: Breeding Zone
- 3: Resource Use Zone
- 4: Game Viewing Zone



CLIENT:

SPONSOR:

