The use of Global positioning Systems (GPS) and GIS in identifying and assessing the Impact of the changing land uses on the migratory corridors of Nairobi National Park.

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Introduction

- The Nairobi National Park (NNP) is a unique park located 5km from Nairobi City, the capital of Kenya. The park is bordered by Kajiado District to the south, Machakos District to the east, and Mbagathi River forms the south and southeastern boundaries .

- This study will show how the changing land uses interferes with the migration and the breeding patterns of animals in the park and especially the wildebeest and the Zebras using GPS and G.I.S.

- The study will create a buffer zone for conservation purposes.

Location of Nairobi National Park
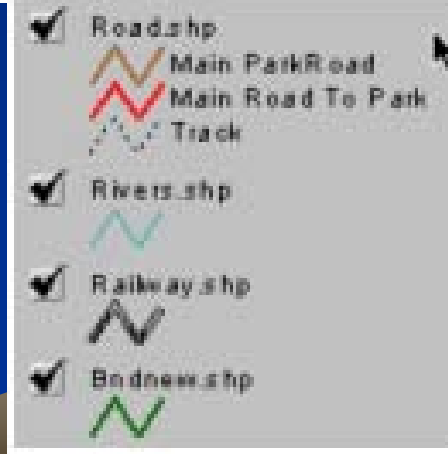
Topics of Discussion

Description of the study area:

- Physical Geography.
- Fauna and Flora.
- Materials and Methods.
- Results and discussions.
- Conclusions and Recommendations

Topic One

Description of the study area

- Nairobi National Park was established in 1946 and is situated 5km south of Nairobi city. It covers an area of 117km2 .

- The park has been fenced on all side except to the southern part where Mbagathi river forms the boundary.

- The park is geographically at an elevation of 520-1700m above sea level.The topography consists of rolling hills with undulating gradient.

- NNP experiences a mean annual rainfall between 500m-800m,and annual mean temp is 19.6 oc

Topic Two

Fauna and Flora:

- NNP has a high density of fauna,most common are the Maasai Giraffe,Leopard,Buchell's Zebra, Cheetah Widebeeste, Thompsons Gazell,Grants Gazelle, Impala, Eland etc

- The vegetation in the park consists of deciduous forests and riverine forests. There is also grass and scattered acacia trees. Wetland vegetation flourishes along the river valley,watering points.

- The bush land has a variety of habitat including dry streambeds and rocky gorges.

Topic Three

Materials and methods:

- Digital maps such as the population census maps, vegetation maps, and relief, geology and soil maps were used for analyzing and categorizing the data.

- The (GPS) was used to Geo-reference the current vegetation status, migratory corridors and the various types of human activities in the park neighbourhood The type of GPS used was Etrex legend

- The (GIS) was used to manipulate, analyse, model and display spatially referenced data and its associated attributes.

- Secondary data was rainfall data, animal count, vegetation maps, soil maps and cadastral map on land use changes

- Data analysis involved statistical analysis such as the use of linear regression and correlation analyses. All statistical procedures were conducted using the MS-Excel and SPSS computer software.

TOPIC FOUR

Results and Discussion

- The comparison of the two satellite images (1995 and 2000) indicates that there has been a gradual change in the land use activities. The environmental impact of these activities has been the interruption of the migration of animals in and out of the Park.

- Ground truthing showed that different land use activities have led to widespread subdivision and fencing of the land .Hence the need for a buffer zone of 2.5km to be reserved for animal migration.

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Wildebeest/Zebra Calving &Dispersal Area
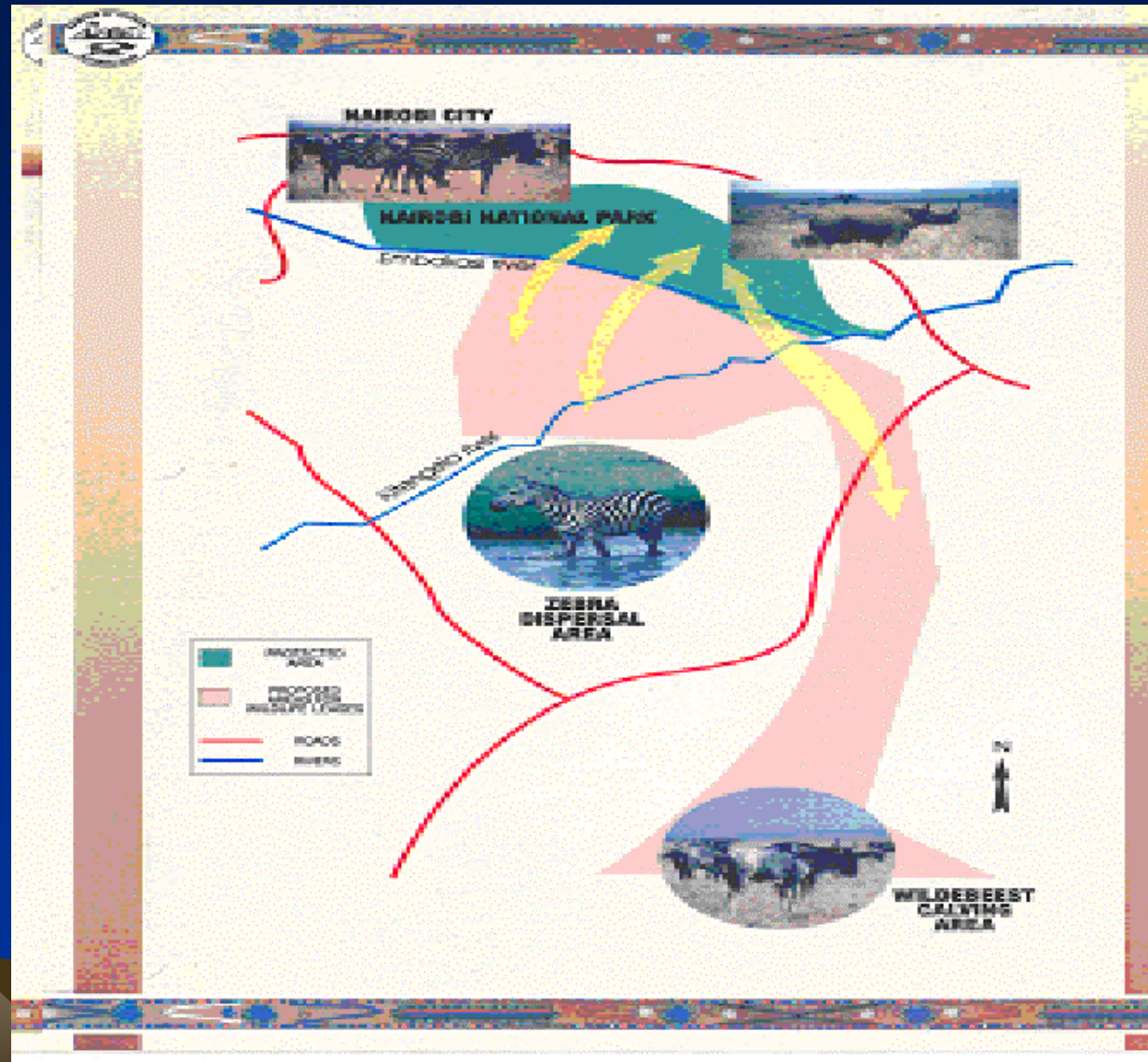
Topic five

Conclusions and Recommendations:

- The results of GIS and GPS analysis showed that NNP could be managed well if the buffer zones identified are set-aside as reserve area .

- It is therefore recommended that the Nairobi National Park management with the assistance of the Friends of Nairobi National Park (FONNAP) lease the remaining land in the Kitengela conservation area or buy back the built-up are along Mbagathi River

- The buffer zones along the migratory corridors could help identify how much land should be left as reserve area.

Nairobi National Park Landsat 2000 Buffer Zone (2.5km)
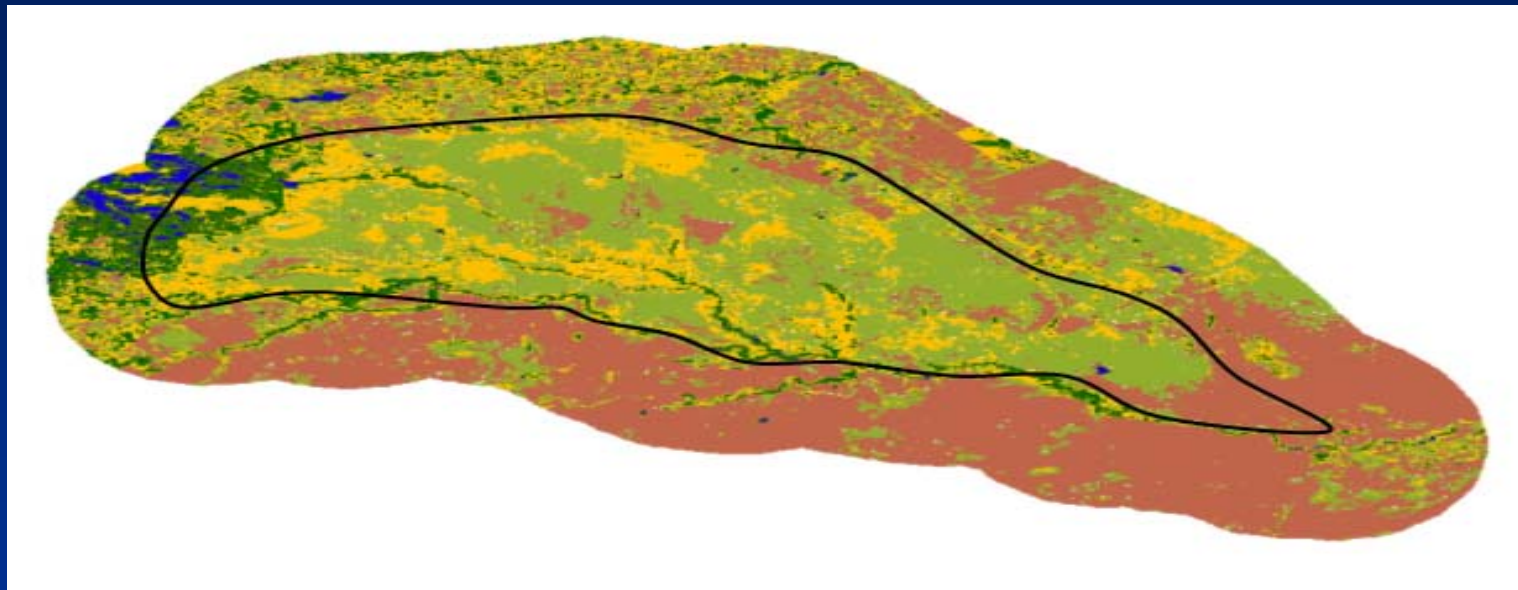
Way Forward:

- Kenya wildlife services and Community wildlife conservancies could create awareness on how communities could coexist with the wildlife.

- The use of Modern computer tools such as GPS and G.I.S could help research and monitoring of Environmental Resources.

THANK YOU!!!!!