Conservation & Development in the Samburu-Laikipia Ecosystem

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Project Area
Samburu-Laikipia ecosystem

One of the 4 areas in East Africa identified as African heartlands by AWF

Located in north central Kenya

Covers approximately 55,000 km²

Mt. Kenya and Aberdare ranges in the south and semi-arid grasslands in the north

Ewaso Ng’iro river is the lifeline for people, livestock and wildlife
Climate

Annual rainfall average 500mm in the north - 1250mm in the south

2 rainy seasons: April–May and November–December

Average minimum temperature 16°C

Geology

- Gneiss and schists in the north
- Deposits of red sand in the center
- Volcanic soils in the South

http://www.africaexclusivesafaris.com/
Fauna

70% of animals in the landscape occur outside of protected areas
All big five game
All big three carnivores
350 bird species
Species

Lesser Kudu
(Tragelaphus imberbis)

Oryx
(Oryx beisa)

Gerenuk
(Litocranius walleri)

Lion
(Panthera leo)

Savanna Elephant
(Loxodonta africana africana)

Grevy’s Zebra
(Equus grevyi)
<table>
<thead>
<tr>
<th>Species</th>
<th>Lesser Kudu</th>
<th>Oryx</th>
<th>Gerenuk</th>
<th>Elephant</th>
<th>Lion</th>
<th>Grevy's Zebra</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Status</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Samburu population</strong></td>
<td>58</td>
<td>369</td>
<td>490</td>
<td>7,415</td>
<td>264</td>
<td>2,400</td>
</tr>
<tr>
<td><strong>Global population</strong></td>
<td>118,000</td>
<td>50,000</td>
<td>24,000</td>
<td>470,000</td>
<td>32,000</td>
<td>3,000</td>
</tr>
<tr>
<td><strong>Threats</strong></td>
<td>Hunting, livestock competition, rinderpest</td>
<td>Hunting, habitat loss, livestock competition</td>
<td>Hunting, habitat loss, livestock competition</td>
<td>Hunting, habitat loss, access to water</td>
<td>Hunting, habitat loss</td>
<td>Hunting, habitat loss, livestock competition, hybridization with Plains zebras, access to water</td>
</tr>
<tr>
<td><strong>Function</strong></td>
<td>Browser</td>
<td>Grazer and browser</td>
<td>Browser</td>
<td>Browser</td>
<td>Carnivore</td>
<td>Browser and grazer</td>
</tr>
<tr>
<td><strong>Habitat</strong></td>
<td>Shrublands, Woodlands</td>
<td>Grasslands</td>
<td>Shrubland</td>
<td>Mix of Grasslands to Shrublands to Woodlands</td>
<td>Thick shrublands to grasslands</td>
<td>Grassland and Shrublands</td>
</tr>
</tbody>
</table>
Climate Change - Annual Mean Temp

Current

2050 RCP-85

Legend

Annual Mean Temp (°C)

- Blue: 14.0
- Light blue: 18.5
- White: 23.0
- Orange: 27.5
- Red: 32.0

Higher mean temps
Climate Change - Annual Temp Range

Current

2050 RCP-85

Legend

Temp Annual Range (°C)
- Green: 12.0
- Light Green: 14.1
- White: 16.3
- Light Pink: 18.4
- Pink: 20.5

Less range in temp
Climate Change - Annual Precipitation

Decrease in precipitation
Conservation Challenges: Current

Only 8% of land is under protection in National Parks and Reserves (approx. 18,000 sq mi)

70% of wildlife is found outside protected areas

Creating enabling conditions for community conservancies to continue delivering ecological benefits
Lamu Port-South Sudan-Ethiopia Transport Corridor (LAPSSET)

1,617 km (1,004 miles) in length

Consists of:

- Railway
- Highway
- Crude Oil pipeline
- Port
- Resort cities
Conservation Challenges: Future

Source: The Economist, 2014
Species Richness: Current and Future Changes

- 5-6 species
- 3-4 species
- 1-2 species
- 0 species

Combined SDM, Present

Combined SDM, 2050 (RCP85)
Impacts of Climate Change

Species richness predicted to decline as the north becomes hotter and drier

Habitat expansion predicted to the south and west

Core area of high-quality habitat will remain unchanged
Connectivity

- Connectivity is high across core Samburu-Laikipia landscape
- LAPSSSET will cause fragmentation and reduce connectivity between PAs and quality habitat

Presentation Connectivity

LAPSSSET Connectivity

Change in Connectivity across Samburu-Laikipia
Connectivity

- Connectivity is high across core Samburu-Laikipia landscape
- LAPSSET will cause fragmentation and reduce connectivity between PAs and quality habitat
Conservation Prioritization

Conservation Prioritization combines current range, future range, and connectivity. Priority is given to core habitat expected to remain even through worst-case climate scenarios. Secondary priority is maintaining connectivity, especially to the south and west.
Recommendations

Reroute the western LAPSSET corridor to the north of Samburu-Laikipia

Construct over/underpasses to prevent fragmentation, prioritizing north-south connectivity

Work to strengthen community conservancy management capabilities
Sources

Channan, S., K. Collins, and W. R. Emanuel. 2014. Global mosaics of the standard MODIS land cover type data. University of Maryland and the Pacific Northwest National Laboratory, College Park, Maryland, USA.


IUCN redlist (http://www.iucnredlist.org/details/68933833/0 )


Asante