Urbanization in a biodiversity hotspot: species conservation in Cape Town

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THREATENED ECOSYSTEMS IN SOUTH AFRICA: 2010

400 Veld types in South Africa.

21 are Critically Endangered (more than 25% of their species will go extinct)

11 out of the 21 (52%) occur in Cape Town
Some 13 Extinct and 319 threatened plant species in Cape Town City

- 13 EX
- 85 CR
- 112 EN
- 122 VU
- 67 NT
- 53 DD

319 threatened on IUCN Red List

- Only 6 countries have more than 300 threatened plants according to the IUCN
- 18% of ZA threatened species in Cape Town
SYSTEMATIC BIODIVERSITY PLAN
Biodiversity Features

- City Vegetation Maps
  - Subdividing National types using City vegetation types
  - National types = 22
  - Subdivided City types = 50

- Plant species
  - CREW (229 data points, 110 spp.)
  - Protea Atlas (30,405 data points, 105 spp.)
  - Sites and Species database (11,631 data points, 2,335 spp.)

- Connectivity: Expert Mapped Corridors
Planning Units

- Based on ground-truthed remnant layer
- Remnants > 100ha subdivided by 100ha hexagons
  - Removed bias towards larger units
  - Hexagons are more efficient for corridor design
- Protected areas integrated into layer
Biodiversity Targets

- Vegetation Type targets based on national NBA (2011)
- Targets range 24% - 34%
- NEMBA STATUS:
  - Critically Endangered = 20 (2 EX)
  - Endangered = 7
  - Vulnerable = 5
  - Least Threatened = 18
Climate change adaptation & BioNet

Workshop outcomes:

4. Incorporate areas of high local endemic plant richness
   - Created layer of endemic richness
   - Included in Minset rules
SPECIES POPULATION DATA

- EIA’s – population
- No real-time assessment on Biodiversity Plans
- No species-level monitoring

• Populations

SYSTEMATIC BIODIVERSITY PLAN

Critical Biodiversity Areas & Wetlands
City of Cape Town 2012
IN CONSERVATION ESTATE

• Threatened species are in City Reserve Management Plans
  • Monitoring not yet underway: but starting
  • Where started by volunteers CREW and Friends
• TMNP has investigated priorities and costings
  • But nothing underway yet (apart from a few mammals)
• Stewardships: who will monitor species?
Biodiversity Targets

- CREW species locations
- All locations
- Protea Atlas and SAS species locations
- Sliding scale based on number of occurrences
  - <=5 = 100%
  - >5 = 80%

Outside of reserves – even CBAs – no official monitoring
- Ad hoc by volunteers – CREW

- In Cape Town – Excellent data bases

- BUT WHOSE JOB IS IT TO MONITOR SPECIES?
  - City?
  - CapeNature?
  - National?

1 in 5 of ZA threatened species
(50% of CR ecosystems!)
SO WILL PROTECTION OF CR ECOSYSTEMS PROTECT SPECIES?

- DON’T KNOW
  - In Cape Town – Excellent data bases
  - Opportunity to study what if scenarios

BUT IT ASSUMES THAT CR ECOSYSTEMS WILL BE PROTECTED AND NOT FURTHER LOST:
DOES NOT SEEM TO BE HAPPENING -
Irreplaceable sites are treated as “fair game” for development with mitigation & species lose out
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Graph showing area (ha) over years from 1900 to 2000, with different categories tracked: urbanization, agriculture, unproclaimed vegetation, and proclaimed reserves.
• **CR ECOSYSTEMS HAVE LOST FUNCTION**
  • Unless lost functions are adequately restored AND managed, species extinction cascades are inevitable over the long-time frame
  • In Fynbos:
    • Natural Fires no longer possible
    • Alien invasive species must be controlled
    • Water tables need to be maintained
    • Edge effects must be minimized
  
  **No urgency: no action: systems deteriorating: populations lost**
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thanks