Guidelines for including species of conservation concern in the Environmental Assessment process
Introduction

• To date not all provinces are including species of conservation concern as targets in their spatial biodiversity plans.
• All provinces are responsible for commenting on land-use change applications.
• We aim to promote a unified approach on how species of conservation concern are dealt with in the land-use decision making process.
• 2009 Plant Red List SANBI’s included guidelines for EIA process.
• Using as an example for what we could do for all species.
Land-use change is the biggest threat to plants. Western Cape:
- Crop cultivation 38%
- Urban development 21%
- Deleterious fire regimes 12%
- Overgrazing 11%

- Rooibos tea
- Invasive aliens
- Deleterious fires
- Urban development
- Vineyard cultivation
- Thatch harvesting
Red lists measure the likelihood of extinction?

Species of Conservation Concern

Threatened species CRITERIA

Least Concern LC

Declining

Near Threatened NT

Vulnerable VU

Data Deficient?

Endangered EN

Critically Endangered CR

population size

10000000000000 individuals

0 individuals

risk of extinction

low risk of extinction

high risk of extinction

Low risk of extinction

Critically rare

Rare

Data Deficient?

Threatened species CRITERIA
Rarity criteria

- **Critically Rare** – known from one site
- **Rare** - species are defined as per Rabinovitz 1981 categories of rarity

<table>
<thead>
<tr>
<th>Restricted range</th>
<th>Habitat specialist</th>
<th>Low density</th>
<th>Small total population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range &lt; 500 km²</td>
<td>Restricted to micro habitat eg Forest margin, quartz patch, seasonal pools</td>
<td>Occurring as either small subpopulations or as single individuals that are scattered over a wide area</td>
<td>Total population &lt; 10,000 individuals</td>
</tr>
</tbody>
</table>
**Erica leuumontana**

Known from one mountain top in the Langeberg, occurs in rock crevices on cliffs above 1500 m.

EOO = 1 km²
Range restricted, habitat specialist
Criteria for threatened taxa, CR, EN, VU

A. Declining population
B. Small distribution and decline or fluctuation
C. Small population size and decline
D. Very small or restricted
E. Quantitative analysis

*Erica jasminiflora*

CR A2ac; B1ab(iii,v)+2ab(iii,v); C2a(ii)b; D
How do we determine risk of extinction?

Quantitative thresholds within each criterion determines in which category a species is placed.

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>THREAT CATEGORY</th>
<th>VU</th>
<th>EN</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Population decline</td>
<td></td>
<td>30-50%</td>
<td>50-80%</td>
<td>&gt;80%</td>
</tr>
<tr>
<td>B Range size</td>
<td></td>
<td>5000 – 20 000 km²</td>
<td>100 – 5000 km²</td>
<td>&lt;100 km²</td>
</tr>
<tr>
<td>C Population size AND Decline OR Subpopulation size</td>
<td>&lt;10 000</td>
<td>&lt;2500</td>
<td>&lt;250</td>
<td></td>
</tr>
<tr>
<td>D Population size</td>
<td></td>
<td>&lt;1000</td>
<td>&lt;250</td>
<td>&lt;50</td>
</tr>
<tr>
<td>E Probability of extinction</td>
<td></td>
<td>10-20%</td>
<td>20-50%</td>
<td>&gt;50%</td>
</tr>
</tbody>
</table>
**Detailed table of recommendations based on Category and Criteria a species is listed under available on redlist.sanbi.org**

**TABLE 4.1. Guidelines on EIA recommendations for taxa of conservation concern found on proposed development sites.**

<table>
<thead>
<tr>
<th>Status</th>
<th>Criterionb</th>
<th>Guideline for Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Critically Endangered</em></td>
<td>PE</td>
<td>No further loss of natural habitat should be permitted as the taxon is currently considered possibly extinct, and all known subpopulations have been lost. The subpopulation in question is likely to be newly discovered and the only remaining subpopulation of this taxon.</td>
</tr>
<tr>
<td>Critically Endangered</td>
<td>A,B,C,D</td>
<td>No further loss of natural habitat should be permitted as the taxon is on the verge of extinction.</td>
</tr>
<tr>
<td>Endangered</td>
<td>B,C,D</td>
<td>No further loss of habitat should be permitted as the taxon is likely to go extinct in the near future if current pressures continue. All remaining subpopulations have to be conserved if this taxon is to survive in the long term.</td>
</tr>
<tr>
<td>Endangered</td>
<td>Listed under A only</td>
<td>If this taxon has a restricted range, EOO &lt; 2 000 km², recommend no further loss of habitat. If range size is larger, the taxon is possibly long lived but widespread, and limited habitat loss may be considered under certain circumstances, such as the implementation of an offset whereby another viable, known subpopulation is formally conserved in terms of the National Environmental Management: Protected Areas Act (Act 57 of 2003), and provided that the subpopulation to be destroyed does not occur (i) within a threatened ecosystem or (ii) within an area required for biodiversity conservation in terms of a relevant spatial biodiversity plan or (iii) on a site associated with additional ecological sensitivities.</td>
</tr>
<tr>
<td><em>Vulnerable</em></td>
<td>D</td>
<td>This taxon either constitutes less than 1 000 individuals or is known from a very restricted range. No further loss of habitat should be permitted as the taxon’s status will immediately become either Critically Endangered or Endangered, should habitat be lost.</td>
</tr>
<tr>
<td>Vulnerable</td>
<td>B,C</td>
<td>The taxon is approaching extinction but there are still a number of subpopulations in existence. Recommend no further loss of habitat as this will increase the extinction risk of the taxon.</td>
</tr>
</tbody>
</table>
Critically Endangered
listed under criterion A,B,C,D

Recommendation

- **No further loss** of natural habitat should be permitted, as the taxon is on the **verge of extinction**.

- Known from a small area on the near Kommetjie. Recorded as having been locally common before 1980. It has declined drastically due to quarrying, groundwater extraction, alien plant invasion, flower-picking and seed harvesting. Fewer than 50 plants remain at one site, which is close to a low income housing settlement. Decline due to alien plant invasion, human trampling and pollution is ongoing. Generation length suspected to be 7-10 years.

Gladiolus aureus
CR A2ace; B1ab(i,ii,iii,v)+2ab(i,ii,iii,v); C2a(i,ii), D
Recommendation:

Endangered B,C,D

No further loss of habitat should be permitted as the taxon is likely to go extinct in the near future if current pressures continue. All remaining subpopulations need to be conserved if this taxon is to survive in the long term.

Endangered Listed under A only

If this taxon has a restricted range EOO < 2000 km2, recommend no further loss of habitat. If range size is larger, this taxon is possibly long lived but widespread, and limited habitat loss may be considered under certain circumstances, such as the implementation of an offset whereby another viable, known subpopulation is formally conserved in terms of the National Environmental Management: Protected Areas Act (Act 57 of 2003), and provided that the subpopulation to be destroyed does not occur (i) within a threatened ecosystem or (ii) within an area required for biodiversity conservation in terms of a relevant spatial biodiversity plan or (iii) on a site associated with additional ecological sensitivities.
Vulnerable VU

Recommendation:

Vulnerable D
This taxon either constitutes fewer than 1000 individuals, or is known from a very restricted range. No further loss of habitat should be permitted as, should habitat be lost, the taxon’s status will immediately become either Critically Endangered or Endangered.

Vulnerable B,C
The taxon is approaching extinction but there are still a number of subpopulations in existence. Recommend no further loss of habitat; as this will increase the extinction risk of the taxon.

Geissorhiza splendidissima
VU D2
Recommendation:

If this taxon has a restricted range EOO < 2000 km², recommend no further loss of habitat.

If range size is larger, this taxon is possibly long lived but widespread, and limited habitat loss may be considered under certain circumstances, such as the implementation of an offset.

Protea parvula
NT A2c
Range size
16838km².
A population reduction of 20-30% is estimated based on 28% habitat loss to afforestation, mining and alien plant invasion in the past 100 years (generation length >100 years).
Critically Rare

**Recommendation:**

This is a highly range restricted taxon, known from one site only, thus no loss of habitat should be permitted as habitat loss may lead to extinction of the taxon. The Threatened Species Programme is not aware of any current threats to this taxon.

*Calotesta alba*
Critically Rare
Klein Swartberg Mountains.
Known from a tiny range (EOO<6 km²) from one site. This high altitude mountain endemic is not threatened.
Declining

Recommendation:

This taxon is declining but the population has not yet reached a threshold of concern; limited loss of habitat may be permitted.

Should the taxon be a known medicinal species and if individuals will not be conserved *in situ*, plants should be rescued and used as mother stock for medicinal plant cultivation programmes.
It should be recommended that the subpopulation be conserved in a contiguous natural open space system which provides sufficient space for the subpopulation (equivalent to its entire area of occupancy) and a buffer zone of at least 200m to mitigate deleterious edge effects.

In addition, the open space system must be sufficient to conserve pollinators. **Connectivity** with natural vegetation on adjacent sites should be promoted and habitat fragmentation should be minimised (e.g. by clustering development in the least ecologically sensitive areas).
The need for an Ecological Management Plan

If a development is authorised on a site with taxa of conservation concern:

an ecological management plan for the open space system on the site should be recommended, to be compiled by a suitably qualified specialist

The ecological management plan must ensure the long-term persistence of the taxon of conservation concern:

– include a monitoring programme for the taxon of conservation concern,
– facilitate/augment natural ecological processes such as fire and herbivory,
– provide for the habitat and life history needs of important pollinators,
– minimise artificial edge effects (e.g. water runoff from developed areas and application of chemicals),
– include an ongoing monitoring and eradication programme for non-indigenous taxa with specific emphasis on invasive and weedy taxa.
Strong avoidance of *ex situ* (“search and rescue”) options for conserving taxa of conservation concern

- *In situ* conservation is vital and should be recommended as the only option for conserving taxa of conservation concern!

- *Ex situ* conservation, i.e. the removal of a subpopulation from its natural habitat to an artificial environment, a practice often termed “search and rescue”, will result in the erosion of the inherent genetic diversity and characteristics of that taxon and increase its extinction risk in the wild.

- Similarly, translocation of subpopulations is an unacceptable conservation measure. Translocations are expensive and rarely successful. Even if they are successful, translocated individuals may harm other taxa within the receiving environment, the translocated individuals may transmit pathogens and/ or parasites, and translocation may result in rapid changes in the taxon itself.
How can these type of guidelines be standardized for the country and included in policy?