Implementing the Habitats Directive: how science can support decision making

Gerald Louette

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Contents

- Science and the Habitats Directive
- Support of science in decision making
- Examples from Flanders (northern Belgium)
Science and the Habitats Directive

Art. 1 and 2
- Favourable Conservation Status
  - range, area, structure & functions, typical species
  - range, population, habitat of species
- Favourable Reference Values (Interpretation manual, Evans & Arvela 2011)
  - should be based purely on scientific grounds
  - should be based on the ecology and genetics
  - must be at least the area / population when the HD came into force

Art. 11
- Surveillance of the conservation status

Art. 17
- A report on the implementation of measures and main results of surveillance

Art. 18
- Research and scientific work with respect to Art. 2 and 11
- Scientific work with respect to Art. 4 (delineation of sites) and 10 (essential features for migration)
Favourable Conservation Status

Priorities
Calibration model

Monitoring Conservation Status
Participation & leanness
Data gathering agreement

Conservation Measures
Cost-efficiency
Manual for nature management
Support of science in decision making

- Favourable Conservation Status
  - Population Viability Analysis, modeling, ecological signatures, actual and historical data, expert judgment
  - Conservation objectives on member state level (Paelinckx et al. 2009, Louette et al. 2011)
  - Conservation objectives on a local level (Adriaens et al. 2008, T’jollyn et al. 2008)

- Priorities
- Calibration model
## Favourable Conservation Status

### Regional conservation status

### Local conservation status (tables)

<table>
<thead>
<tr>
<th>Regional (Flanders)</th>
<th>European dry heaths</th>
<th>Triturus cristatus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>6167 ha</td>
<td>11852 ha</td>
</tr>
<tr>
<td>Area</td>
<td>5788 ha</td>
<td></td>
</tr>
<tr>
<td>Structure &amp; Functions incl. Typical species</td>
<td>Quality</td>
<td></td>
</tr>
<tr>
<td>Spatial coherence (75% of the area in a patch of minimal size)</td>
<td>5 ha</td>
<td></td>
</tr>
<tr>
<td>Typical flora &amp; fauna species</td>
<td>no Red List status</td>
<td></td>
</tr>
<tr>
<td>Populations</td>
<td>240 ponds</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Local quality (sample unit: permanent quadrat)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disturbance</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Structure</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Vegetation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Local quality (sample unit: reproduction site)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Habitat quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presence of fish</td>
</tr>
<tr>
<td>Shrubs (distance to)</td>
</tr>
<tr>
<td>Shading</td>
</tr>
<tr>
<td>Submerged vegetation</td>
</tr>
</tbody>
</table>
Favourable Conservation Status

- **Local conservation status (tables)**

- **A permanent quadrat (4x4 m) should harbor**
  - Less than 50 % grass
  - Less than 30 % trees
  - > one typical species

- **A pond should harbor**
  - 20 adults
  - Reproduction
  - No fish
  - Distance less than 2 km
Favourable Conservation Status

Art. 2

Measures taken shall take account of economic, social and cultural requirements and regional and local characteristics

Priorities (Society)

- Economical use of space
- Strongest shoulders heaviest loads
- Efficient
Favourable Conservation Status

Calibration model

- Integrates science and society
  - extra area for habitats is assigned to SCI to reach FCS

- ecological preconditions
  - range, area, quality ~ patch size and typical species

- spatial distribution over Flanders takes into account
  - socio-economical requirements from various sectors: agriculture, industry, private and nature conservation
Favourable Conservation Status
Favourable Conservation Status

Grey: sites of community importance
Yellow: actual area European dry heaths
Red: additional area European dry heaths

meeting the ecological preconditions and taking into account of socio-economical requirements
Support of science in decision making

Conservation Measures
- Restoration trajectories
- Management measures
- Population recovery
- Reintroduction schemes
- Optimal environmental levels

Conservation Measures
Cost-efficiency
Manual for nature management
Conservation Measures

Cost-efficiency (Society)
- Financial cost
- Sustainable
- Public acceptance
- Development time
- ...

Manual for nature management
- Managers can choose among field measures to reach ‘high-quality’ habitat (Van Uytvanck & De Blust 2012)
Support of science in decision making

Monitoring Conservation Status

Delineation of sites for habitats and species (Art. 4)
- standard data forms (listing and conservation value)
- appropriate assessment (plans/projects)

Art. 17 reporting
- conservation status on biogeographical level of member states
  - range
  - area
  - structure & functions incl. typical species
  - future prospects
- natura 2000 network

Participation & leanness

Data gathering agreement
Monitoring Conservation Status

- Statistically sound
  - Varying recording cycle (6 or 12 years)
  - Power of detecting trends (10 or 15%)
  - Indicators (versus binary assessment)

- Ecological knowledge
  - Favourable Conservation Status
  - Biotic proxies (versus abiotic measurements)
# Monitoring Conservation Status

<table>
<thead>
<tr>
<th></th>
<th>European dry heaths</th>
<th><em>Triturus cristatus</em></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Regional assessment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Area (12 year cycle)</strong></td>
<td>total surface-coverage mapping of all known locations (in- and outside SCI)</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>registration of new habitat during nature construction / compensation projects</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>registration of new habitat after successful nature management</td>
<td>x</td>
</tr>
<tr>
<td><strong>Populations</strong></td>
<td>registration of new locations through volunteer network (waarnemingen.be)</td>
<td>x</td>
</tr>
<tr>
<td><strong>Quality</strong></td>
<td>sample oriented monitoring using the Local conservation status tables</td>
<td>14 / year (12 year cycle)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>40 / year (6 year cycle)</td>
</tr>
<tr>
<td><strong>SCI assessment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Area (12 year cycle)</strong></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td><strong>Populations</strong></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td><strong>Quality</strong></td>
<td>only on an extensive scale</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td></td>
<td>x</td>
</tr>
</tbody>
</table>
Monitoring Conservation Status

- Participation & Leanness (Society)
  - Public support
  - Cost reduction (only what is required and use of cheaper proxies)
  - Maximal coupling with other monitoring schemes
    - Water framework directive (European legislation)
    - Monitoring of nature reserves (Flemish legislation)

- Data gathering agreement
  - NGOs (different sectors)
Thank you!

Information
- www.inbo.be
- gerald.louette@inbo.be

Questions
- Gerald Louette
- Dries Adriaens
- Desiré Paelinckx