Lessons from EU experience

Douglas Evans

European Topic Centre
on
Biological Diversity

European Environment Agency
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Previous reporting under Bird Directive Article 12 & Habitats Directive Article 17

Habitats Directive	Birds Directive
1996-2000	Three yearly reports but little information on species
2001-2006	
2007-2012	2008-2012

3 032 habitat reports, 7 259 bird reports &
7 102 non-bird species reports for 2007-12

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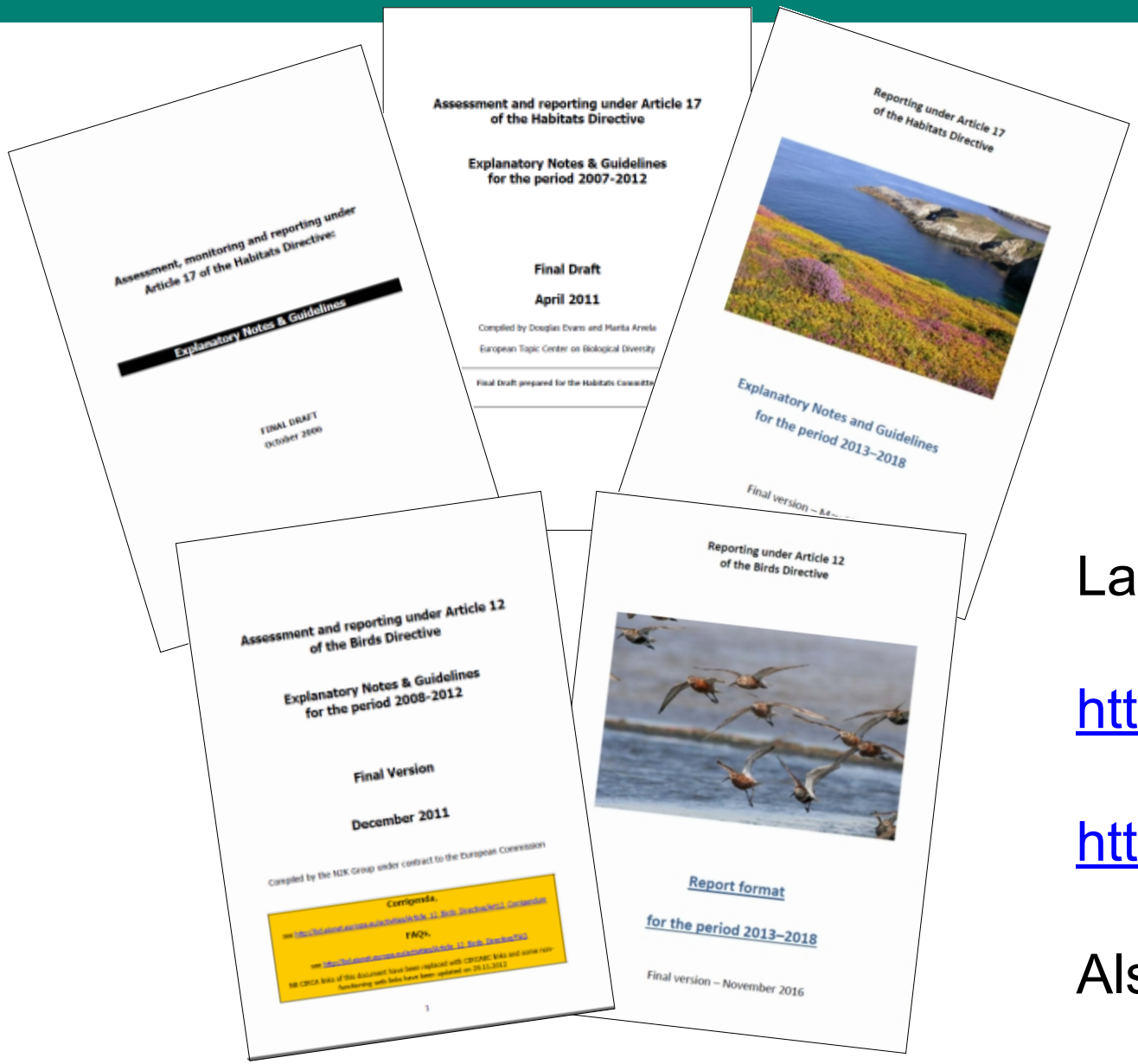
EU Guidance



Reviewed & revised after each reporting cycle

Latest guidelines available from

http://cdr.eionet.europa.eu/help/birds_art12

http://cdr.eionet.europa.eu/help/habitats_art17

Also worked examples

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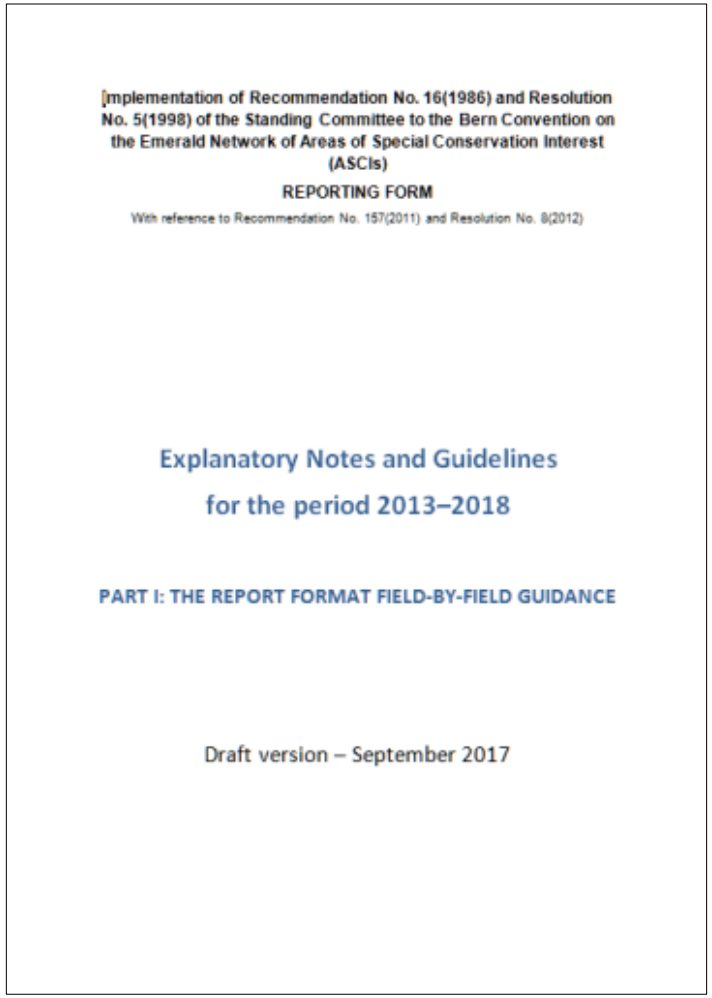
CoE Guidance



Implementation of Recommendation No. 16(1986) and Resolution No. 5(1998) of the Standing Committee to the Bern Convention on the Emerald Network of Areas of Special Conservation Interest (ASCIs)

REPORTING FORM

With reference to Recommendation No. 157(2011) and Resolution No. 8(2012)

Explanatory Notes and Guidelines

for the period 2013–2018

PART I: THE REPORT FORMAT FIELD-BY-FIELD GUIDANCE

Draft version – September 2017

Only part 1 (field-by-field guidance) available at the moment

http://rm.coe.int/explanatory-notes-and-guidelines-for-the-period-2013-2018-part-1-the-r/native/168074b851

But will also be available on Emerald Reference Portal https://www.coe.int/en/web/bern-convention/emerald-network-reference-portal

Part 2 covers concepts and EU guidance is also relevant for non EU countries

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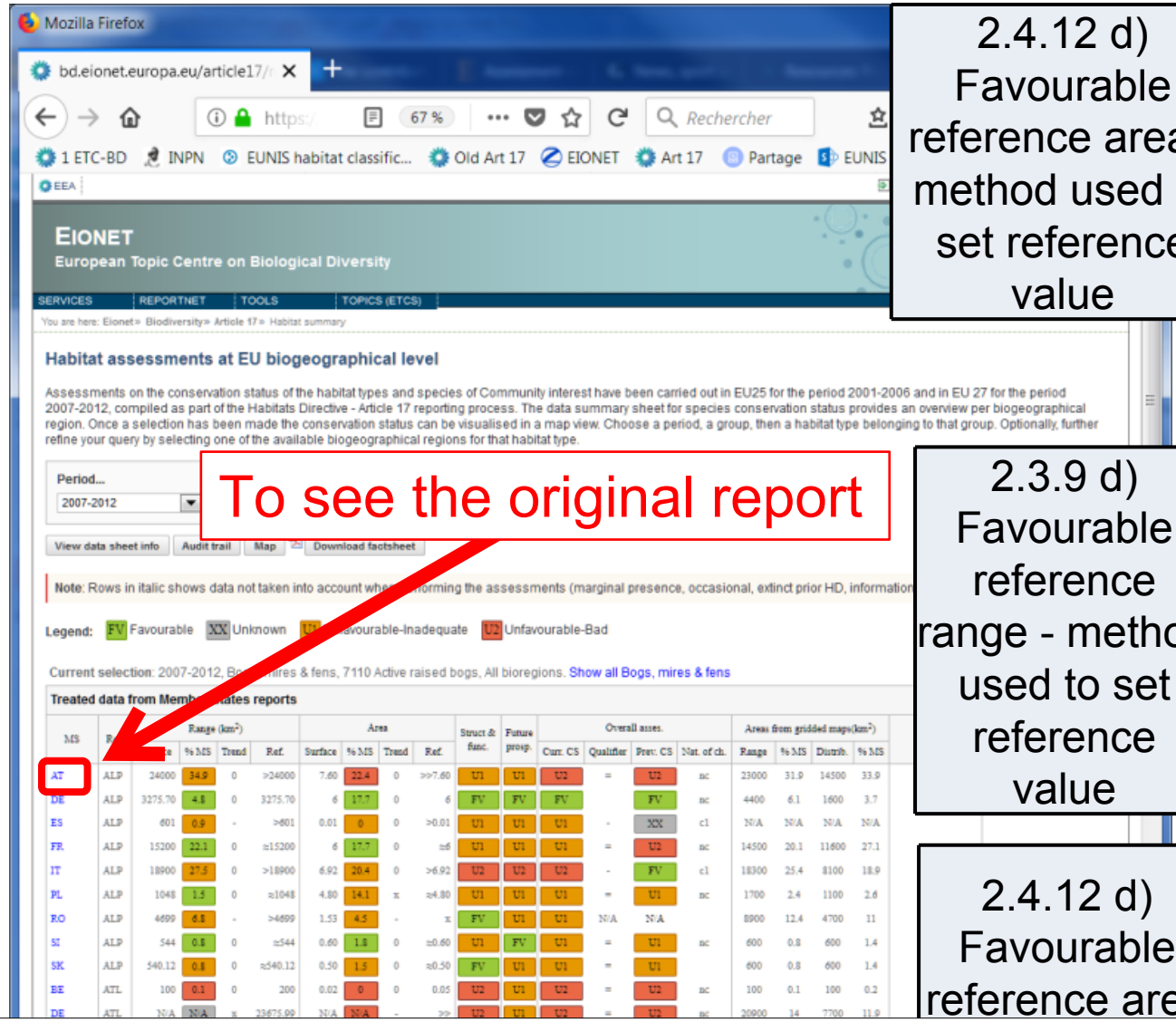
Learning from EU experience – web tool gives access to country reports



To see the original report

2.4.12 d) Favourable reference area - method used to set reference value	FRV is set as CV plus the area of 7120. Habitat 7120 is supposed to be restored to 7110 and therefore add up to the reference value of 7110. For occurrence and range, data comes from VMI, county administration and, MOTH/RIS.
2.3.9 d) Favourable reference range - method used to set reference value	2.3 Range Favourable reference range (FRR) The range of this habitat has probably remained stable in the past and is not expected to change due to current pressures or future threats. Thus, it is expected that FRR = CV according to ETC's (2011) guidelines. Current value (CV) …
2.4.12 d) Favourable reference area	See Explanation Note

https://bd.eionet.europa.eu/article17/reports2012/

Species only parameters

Cypripedium calceolus
http://www.tela-botanica.org

- Population
- Habitat for species

For birds, assessments are made at a European scale & countries only report population size and trends (plus distribution maps, etc)

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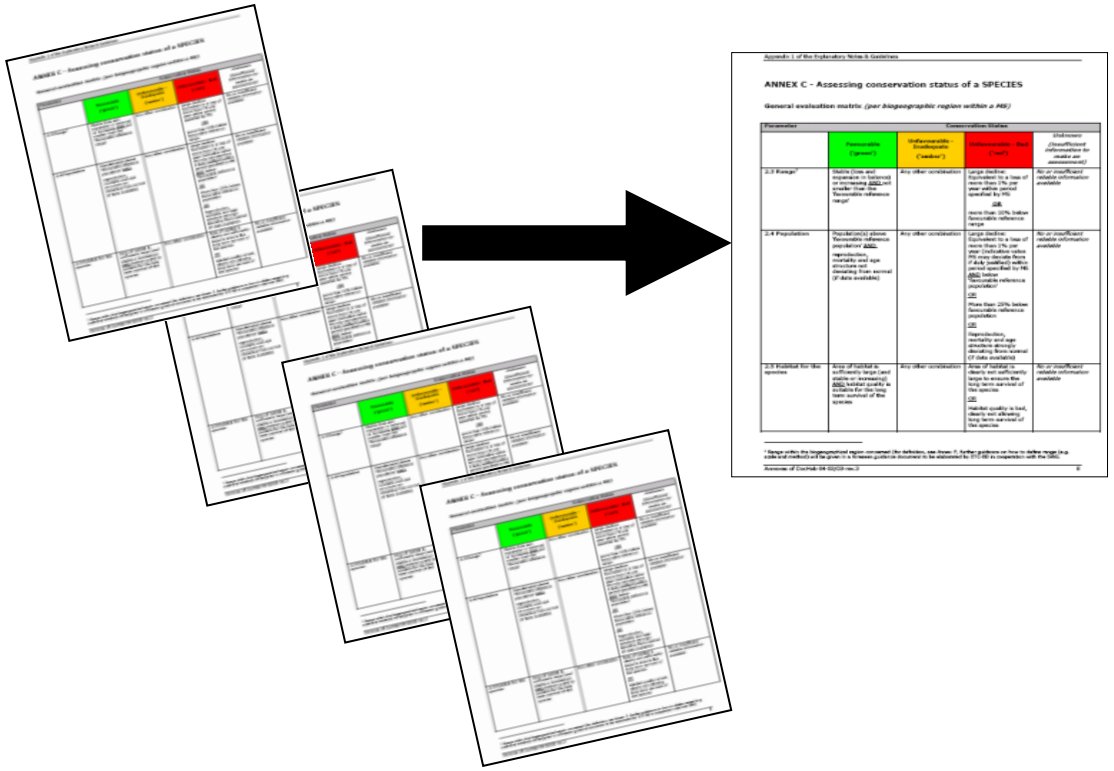
Population units for reporting

- Individuals
- 1x1 km grids (not for birds)
- Breeding pairs, calling males (Birds only)
- *Agreed alternatives for 11 species, mostly bryophytes, and none on list of species for Emerald reporting*

New for 2013-18 report so no experience

In previous rounds it has been difficult to get agreement

Why do we need common units for population ?



- EU Article 17 assessments based on Member State data, assume CoE assessments will use similar methods
- Where possible, quantitative parameters assessed as for Member States
- Otherwise weighting by area/population or distribution

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Population units for assessment

- The assessment of the population parameter can be made using other units
- If a different reporting unit is used for the assessment, the Member State should ensure that it can capture trends and is biologically suitable for expressing the favourable reference population.

Vertigo angustior in Ireland

- The species is difficult to identify in the field and recording it requires specialist knowledge.
- Balance between confirming presence and overuse of destructive sampling.
- The habitat assessment covers a wide area of potential habitat but the snail's presence is not confirmed from this entire area.
- Trends in the population are therefore semi-quantitative and a mixture of expert opinion and measured changes.
- The species was located at 19 out of the 21 sites during the 2008-2010 surveys. In addition to the two negative sites, population was assessed as declining at three sites.
- Assessed as Unfavourable-Inadequate (U1)

See NPWS (2013) *The Status of EU Protected Habitats and Species in Ireland. Species Assessments Volume 1*. Unpublished Report, NPWS. Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland. https://www.npws.ie/article-17-reports-0/article-17-reports-2013

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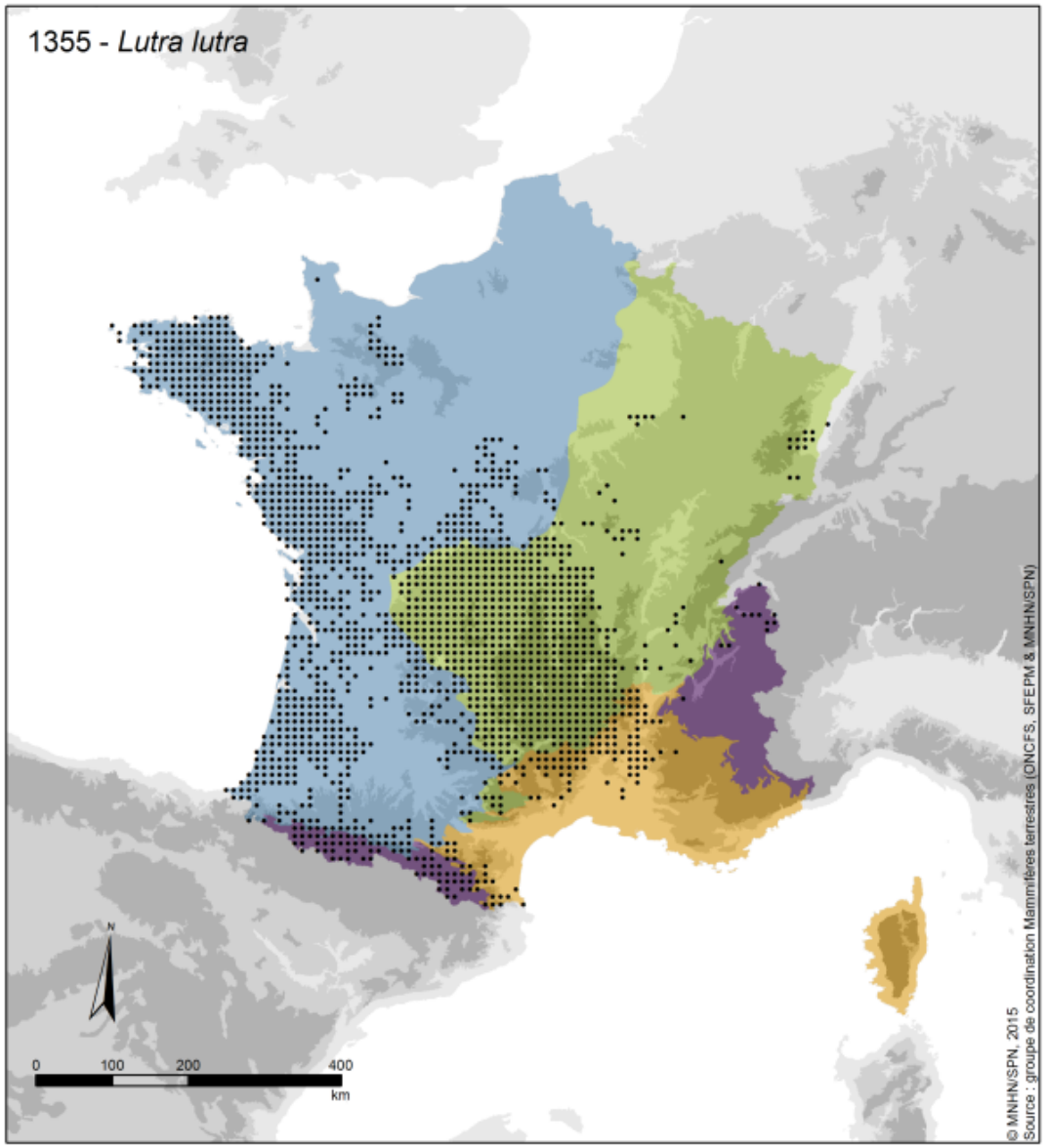
Otter (*Lutra lutra*) in France



- DNA based methods give reliable population estimates but are too expensive across large areas
- Use estimates of population density in the literature and length of river used by the species to give an estimate
- 5 500 to 15 500 individuals for the Atlantic biogeographical region
- Noted as based on expert opinion
- Distribution expanding so assume population is increasing

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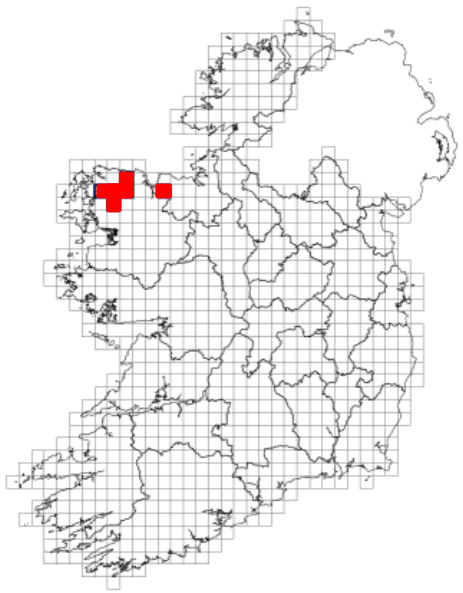
Habitat for species

- To survive and flourish a species needs a sufficiently large area of habitat of suitable quality and spatial distribution.
- ‘habitat for the species’ should be interpreted to take into account the following:

  - physical and biological requirements of the species; this includes prey, pollinators, etc.;

  - all stages of its life cycle are covered and seasonal variation in the species’ requirements is reflected.

Habitat for species – *Saxifraga hirculus* in Ireland



- Habitat quality indicators were assessed at 13 [of 19] populations including water level, positive & negative species, vegetation height and grazing level.

- 7 populations were given a poor rating and one a bad rating mainly due to issues relating to vegetation height linked with grazing level. Ongoing monitoring will determine whether this will have a knock-on effect on competition or excessive flower head removal. The overall quality is assessed as good as these issues are currently not considered to be having a major impact on the species.

Although there are many apparently suitable flushes across the north-west there is no real understanding as to why this species is restricted to particular flushes, therefore the Area of suitable habitat is considered to be equal to the Habitat for the species.

http://www.tela-botanica.org

NPWS (2013) *The Status of EU Protected Habitats and Species in Ireland.* Species Assessments Volume 1

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Habitat only parameters

Fagus woodland, French Alps

- Area
- Structure & functions

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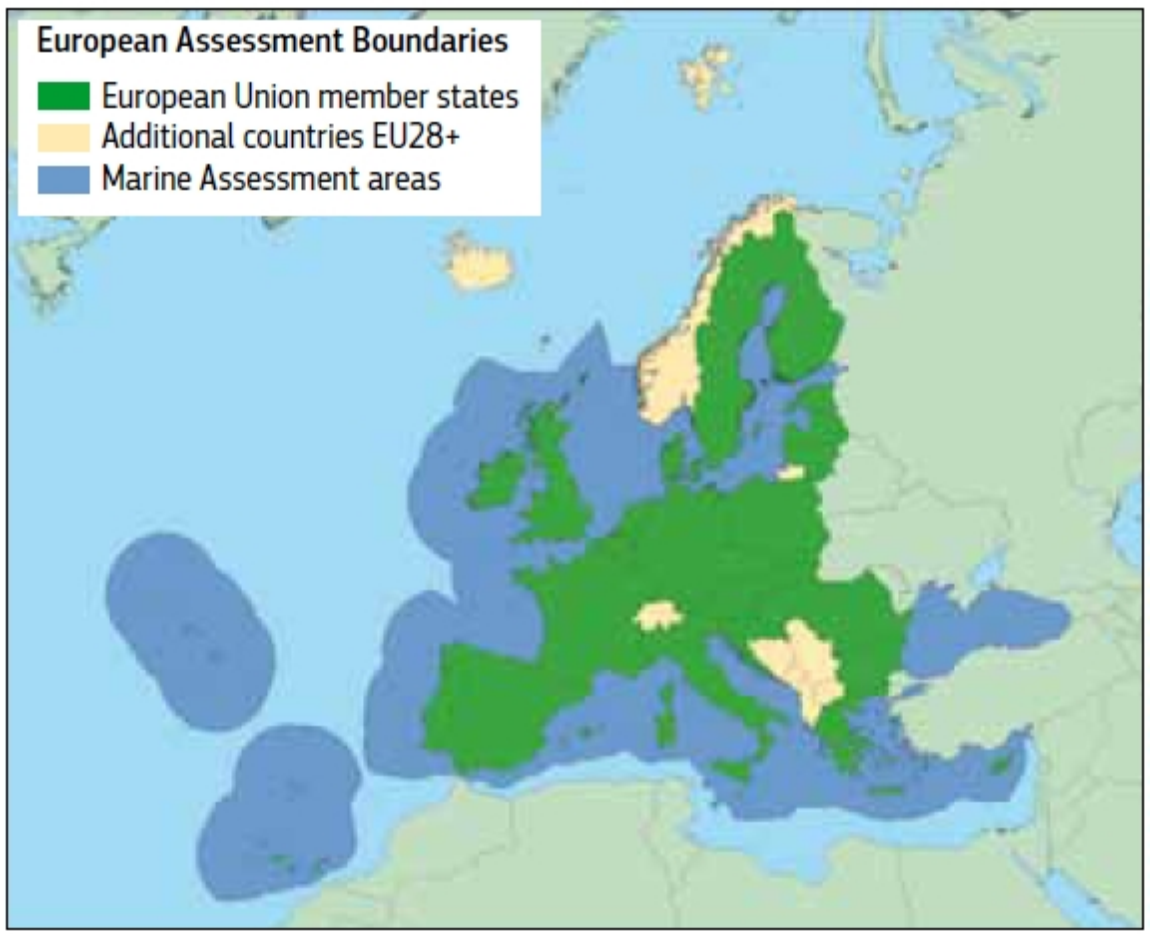
Habitat information

- National Forest Inventories
- Corine Land Cover
- European Red List of habitats
- Modelling



Area assessed for habitat Red List

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All habitats chosen for reporting have a Red List assessment

B1.6 Coastal dune scrub	B1.6a Atlantic and Baltic coastal dune scrub B1.6b Mediterranean and Black Sea coastal dune scrub B1.6c Macaronesian coastal dune scrub
C1.25 Charophyte submerged carpets in mesotrophic waterbodies	C1.2a Oligotrophic to mesotrophic waterbody with Characeae
D4.1 Rich fens, including eutrophic tall-herb fens and calcareous flushes and soaks	D4.1a Small-sedge base-rich fen and calcareous spring mire D4.1b Tall-sedge base-rich fen D4.1c Calcareous quaking mire
E1.3 Mediterranean xeric grassland	E1.3a Mediterranean closely grazed dry grassland E1.3b Mediterranean tall perennial dry grassland E1.3c Mediterranean annual-rich dry grassland
F3.241 Central European subcontinental thickets	F3.1eTemperate and submediterranean thorn scrub
G1.6 Fagus woodland	G1.6a Fagus woodland on non-acid soils G1.6b Fagus woodland on acid soils
G1.A4 Ravine and slope woodland	G1.Ab Ravine woodland
G3.9 Coniferous woodland dominated by Cupressaceae or Taxaceae	G3.9a Taxus baccata woodland G3.9b Mediterranean Cupressaceae woodland G3.9c Macaronesian Juniperus woodland
H1 Terrestrial underground caves, cave systems, passages and waterbodies	H1.1 Cave

Caves in Ireland

- Little evidence that Irish caves support much in the way of specialised troglobite fauna, or highly endemic cave species. However, one of the species of bat found in Ireland is listed on Annex II and does occur in caves – the lesser horseshoe bat (*Rhinolophus hipposideros*).
- In Ireland habitat interpreted as caves which host important numbers of lesser horseshoe bat.
- While extensive mapping surveys of some cave systems have been done and the length and area may be known, a complete national survey has not been undertaken.
- In the absence of more detailed information, which would require extensive field survey, each of the 50 caves used by lesser horseshoe bats has been given a nominal area of 100m^2.

See NPWS (2013) *The Status of EU Protected Habitats and Species in Ireland.* Habitat Assessments Volume 2. Unpublished Report, National Parks & Wildlife Services. Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland.

https://www.npws.ie/article-17-reports-0/article-17-reports-2013

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8120 Calcareous and calcshist screes in France (Alpine region)

- Present in at least 260 10x10 km grid cells
- Estimate mean coverage of 3%
- 150 km²

Bensetttiti & Puisssauve (2015) Résultats de l'état de conservation des habitats et des espèces dans le cadre de la directive Habitats-Faune-Flore en France. Rapportage "Article 17". Période 2007-2012. Service du patrimoine naturel, Muséum national d'histoire naturelle, Paris. http://spn.mnhn.fr/spn_rapports/archivage_rapports/2015/SPN%202015%20-%2063%20-%20Rapport_FR_art17_web2.pdf

Structure & functions

- Difficult but clearly important
- Often assessed by aggregating condition of a series of sites
- Frequent use of ‘reference states’ sometimes based on phytosociological literature
- Definition includes link to ‘typical species’ – these do not have to be restricted to plants or to species noted in the Interpretation Manual

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Habitat 3140 in Ireland – similar to C1.25 Charophyte submerged carpets in mesotrophic waterbodies

- At favourable condition dominated by algae, particularly *Chara* spp and krustenstein (an algal crust composed mainly of cyanobacteria). [list of 20 taxa, mostly *Chara* & *Potamogeto*n but also cyanobacteria & a beetle]
- 53.6% lakes in good conservation status, 25% poor & 21.4% bad
- Lakes in poorest condition were the largest
- Use of data on water quality collected for reporting under the Water Framework Directive for non sampled lakes (eg Chorophyll a status, nutrient condition, status of macrophytes, phytobenthos & phytoplankton)
- "the inescapable conclusion is that the greater part of the area of the marl lake habitat (hard water lakes 3140) within Ireland is poor or bad."
- Structure & functions reported as Unfavourable-Bad (U2)

See NPWS (2013) *The Status of EU Protected Habitats and Species in Ireland.* Habitat Assessments Volume 2.

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For both habitats & species

- **Favourable Reference Values**
- **Future prospects**
- *Distribution map*
- *Range*
- *Pressures & threats*
- *Conservation measures*
- *Coverage by network*

Central European subcontinental thickets
European Red List of Habitats

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Favourable Reference Values

Required for

- Range (species & habitats)
- Area (habitats)
- Population (species)

Recognised as being difficult, much work both at both EU & country level

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Favourable Reference Population

How many do we need ?

Biological Conservation 143 (2010) 28–34

Contents lists available at ScienceDirect

Biological Conservation

journal homepage: www.elsevier.com/locate/biocon

Review

Pragmatic population viability targets in a rapidly changing world

Lochran W. Traill [a,*], Barry W. Brook [a], Richard R. Frankham [b], Corey J.A. Bradshaw [a,c]

[a] Environment Institute and School of Earth and Environmental Sciences, University of Adelaide, South Australia 5005, Australia
[b] Department of Biological Sciences, Macquarie University, NSW 2109, Australia
[c] South Australian Research and Development Institute, P.O. Box 120, Henley Beach, South Australia 5022, Australia

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Minimum viable population
Threatened species

ABSTRACT

To ensure both long-term persistence and evolutionary potential, the required number of individuals in a population often greatly exceeds the targets proposed by conservation management. We critically review minimum population size requirements for species based on empirical and theoretical estimates made over the past few decades. This literature collectively shows that thousands (not hundreds) of individuals are required for a population to have an acceptable probability of riding-out environmental fluctuation and catastrophic events, and ensuring the continuation of evolutionary processes. The evidence is clear, yet conservation policy does not appear to reflect these findings, with pragmatic concerns on feasibility over-riding biological risk assessment. As such, we argue that conservation biology faces a dilemma akin to those working on the physical basis of climate change, where scientific recommendations on carbon emission reductions are compromised by policy makers. There is no obvious resolution other than a more explicit acceptance of the trade-offs implied when population viability requirements are ignored. We recommend that conservation planners include demographic and genetic thresholds in their assessments, and recognise implicit triage where these are not met.

For a few species we can have estimates of minimum viable populations but unrealistic to assume we will have similar analysis for all species listed on resolution 6

5000 individuals –

A pragmatic solution ?

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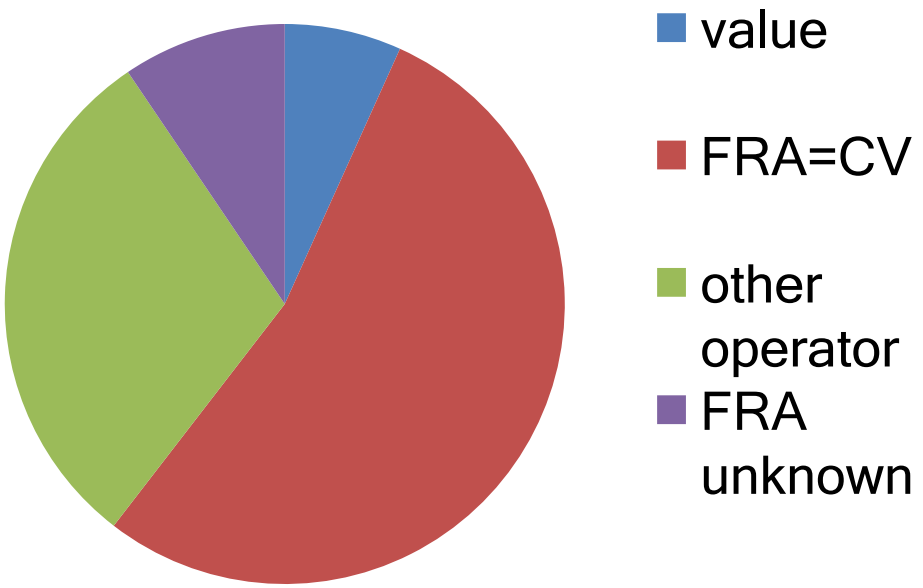
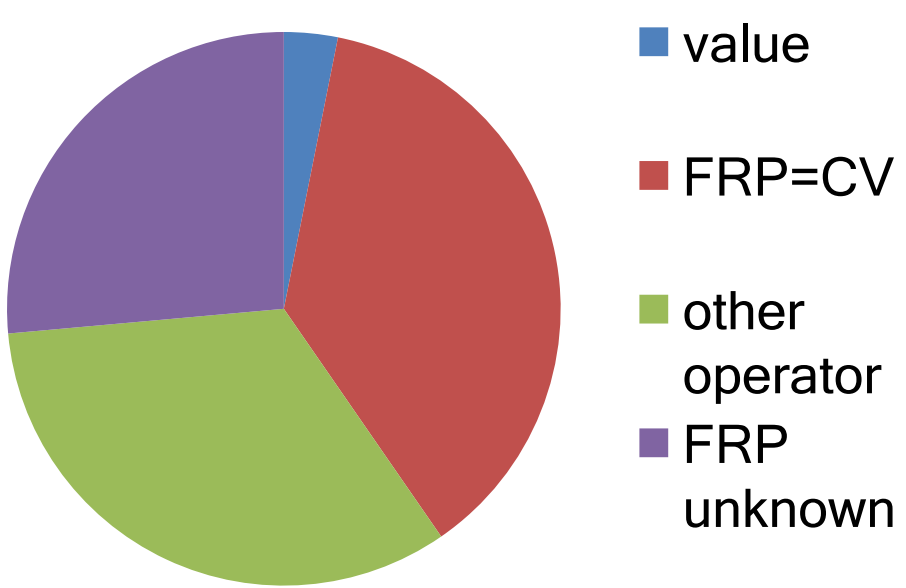
Using ‘qualifiers’

- Often known that population or area is a limiting factor even if the value for FCS is not known
- Assume FRV greater or much greater than Current value



Habitats (2007-12)



Species (2007-12)

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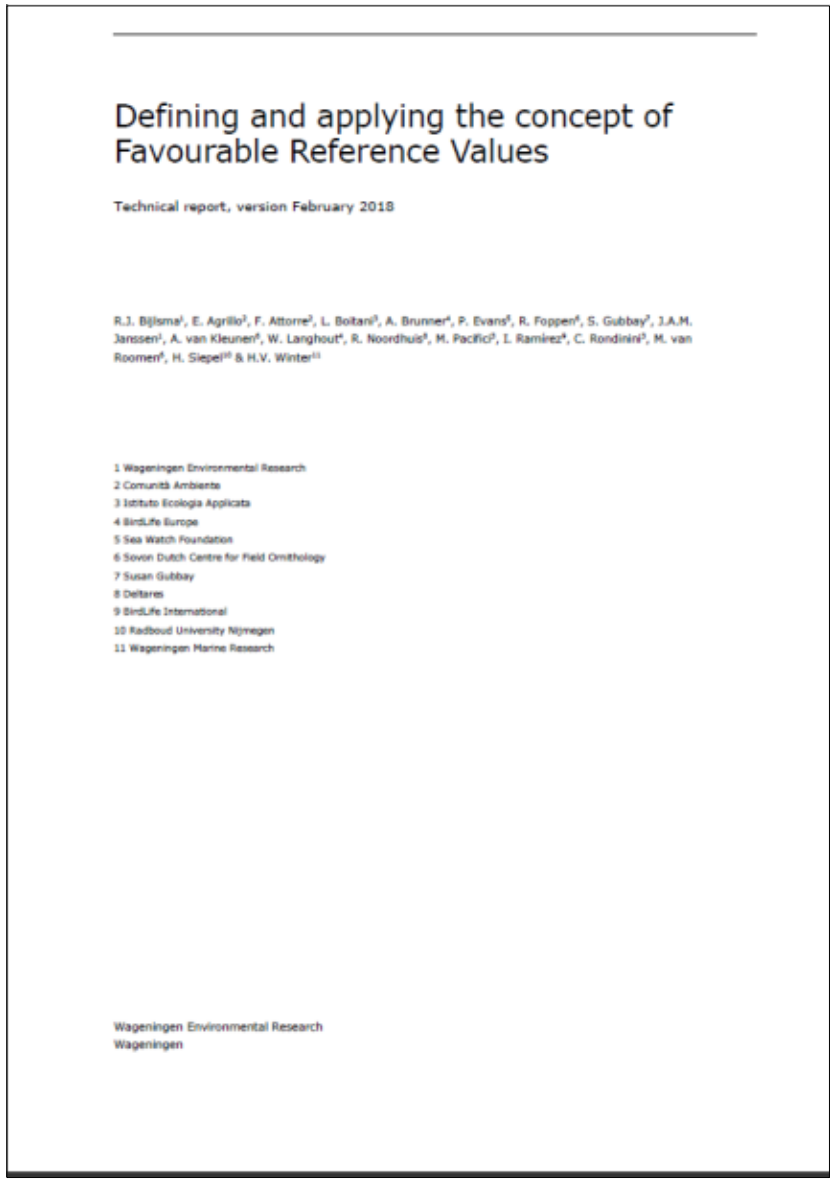
Favourable Reference Values



Defining and applying the concept of Favourable Reference Values

Technical report, version February 2018

R.J. Bijlsma[1], E. Agrillo[2], F. Attorre[2], L. Boitani[3], A. Brunner[4], P. Evans[5], R. Foppen[6], S. Gubbay[7], J.A.M. Janssen[1], A. van Kleunen[8], W. Langhout[4], R. Noordhuis[9], M. Pacifici[3], I. Ramírez[4], C. Rondinini[3], M. van Roomen[8], H. Siepel[10] & H.V. Winter[11]

1 Wageningen Environmental Research
2 Comunità Ambiente
3 Istituto Ecologia Applicata
4 BirdLife Europe
5 Sea Watch Foundation
6 Sovon Dutch Centre for Field Ornithology
7 Susan Gubbay
8 Deltares
9 BirdLife International
10 Radboud University Nijmegen
11 Wageningen Marine Research

Wageningen Environmental Research
Wageningen

Report suggests a variety of approaches depending on the ecology of the species /habitat and the data available

Limited number of examples

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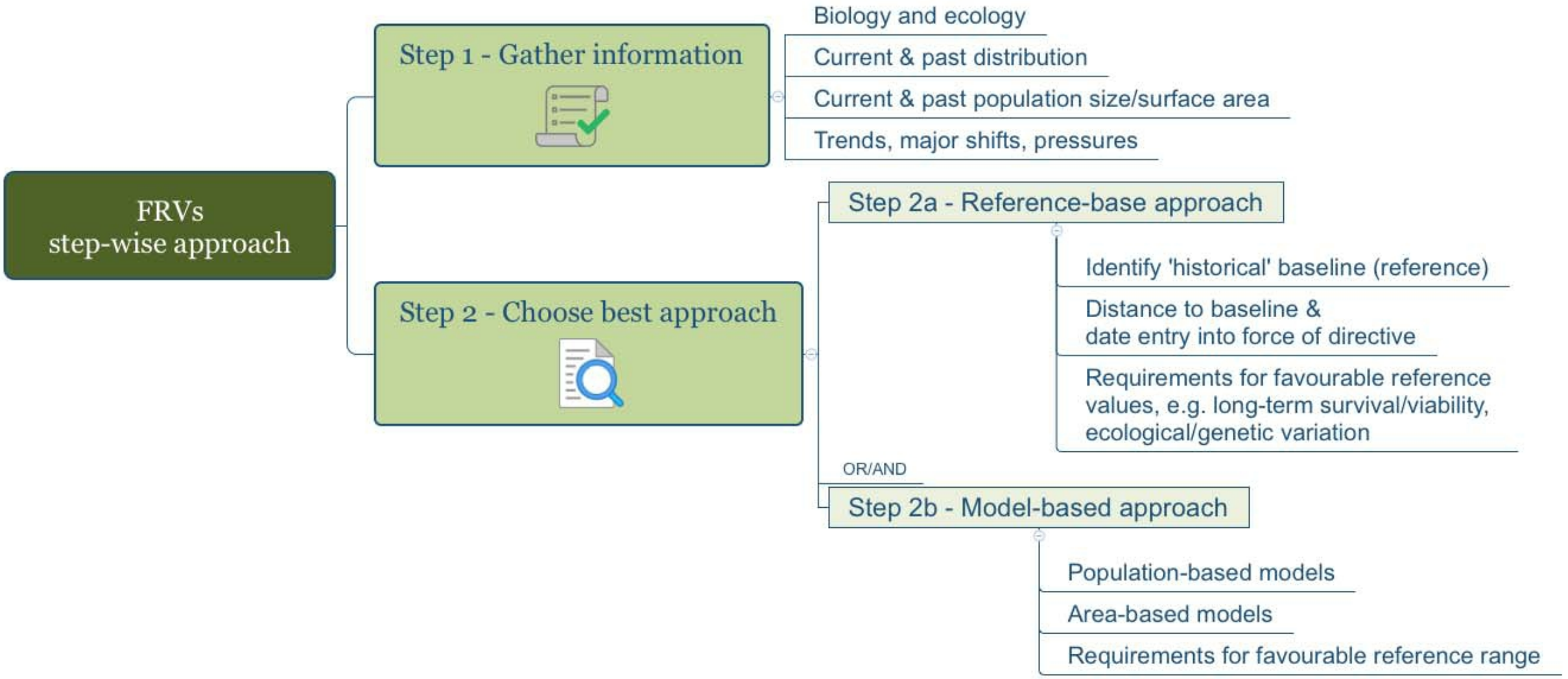
Favourable Reference Values - summary of guidance



Summary by Carlos Romão (EEA)

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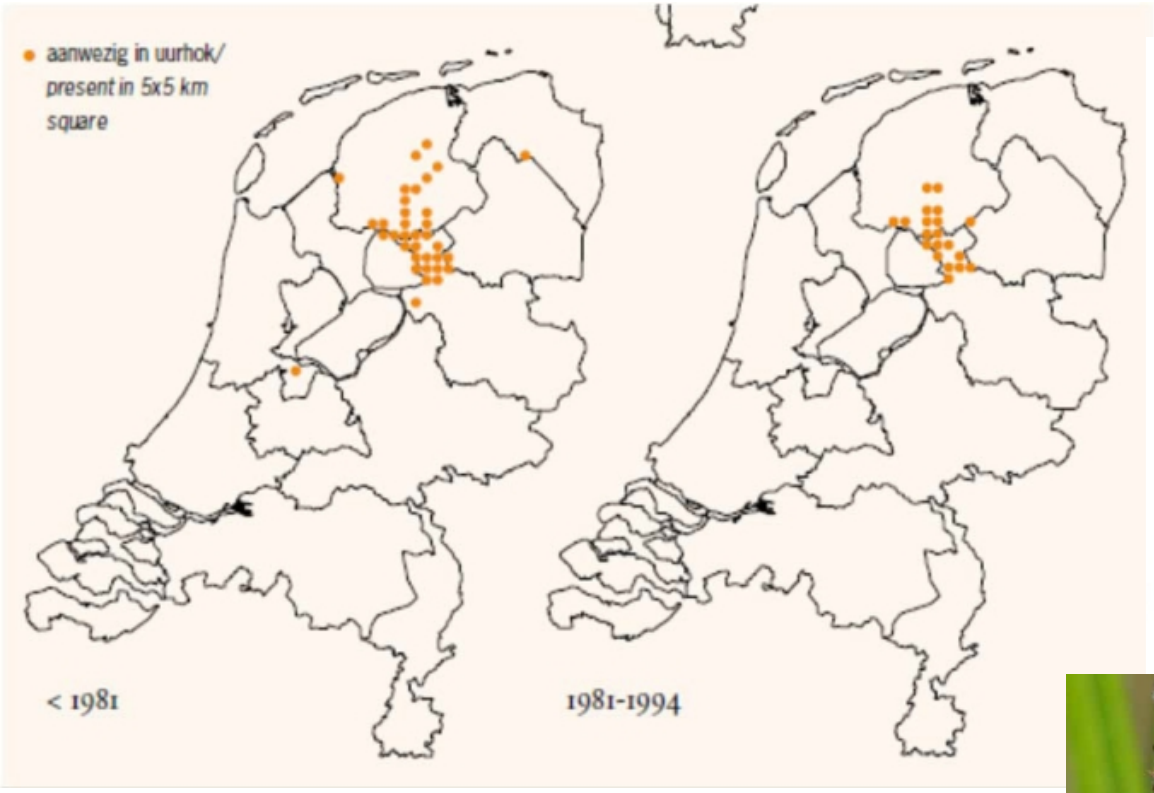
Lycaena dispar in the Netherlands



<1981

1981 - 1994

2010 - 2017

Range has been contracting for a long period (probably several centuries)

Now only one core population and two satellite populations remain

Range is 400 km² (4 grid cells)

From Henk Siepel & Chris van Swaaij

https://inpn.mnhn.fr

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Lycaena dispar in the Netherlands 2

- Population size decreasing since the 1970s, extinction of local populations, no data before 1950
- Currently in 3 sites: 250-700, 20-100, <10 individuals
- FRP ca. 3200 ind. (one meta-population)
  - 2 core areas, 1000 individuals in each
  - 12 satellite areas, 100 individuals in each
- FRR >> current value, to include the FRP long-term viable meta-population

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Future prospects – species & habitats

- **Species** - 'Future prospects' focuses on the requirement for the long-term maintenance of population of the species and the need for habitat and range to be and to remain stable or increase in the foreseeable future.
- **Habitats** - 'Future prospects' focuses on the requirement for the long-term maintenance of structure and functions and the need for area and range to be and to remain stable or increasing in the foreseeable future.
- '**Long term**' interpreted as meaning the two future reporting cycles, i.e. the next 12 years.
- Assessment uses expert judgment based on trends of each of the other parameters
- New method for 2013-18

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Future prospects – the 3 step approach

Step 1: Future trend of a parameter taking into account threats and conservation measures using tables 25 (species) or 32 (habitats)

Step 2: Future prospects of a parameter.

Step 3: Assessing overall Future prospects for a habitat using tables 26 (species) or 33 (habitats)

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Future prospects – *Euphydryas aurinia*

- Range is stable; Population and Habitat for the species are both declining
- 8 threats & pressures reported, mostly linked to agriculture
- Adapt/manage mowing & grazing reported as a conservation measure.
- This is expected to counteract some of the pressures acting on habitat quality, but other 'high'-ranked threats having an impact on both habitat quality and area as well as population are expected to continue. So trends for population and habitat for the species will most likely remain decreasing.

Parameter	Assessment of parameter	Expected future trend	Future prospect
Range	Favourable	Stable	Good
Population	Unfavourable-inadequate	Decreasing	Poor
Habitat for the species	Unfavourable-inadequate	Decreasing	Poor

2 'poor' plus 1 'good' leads to Unfavourable-inadequate (U1)

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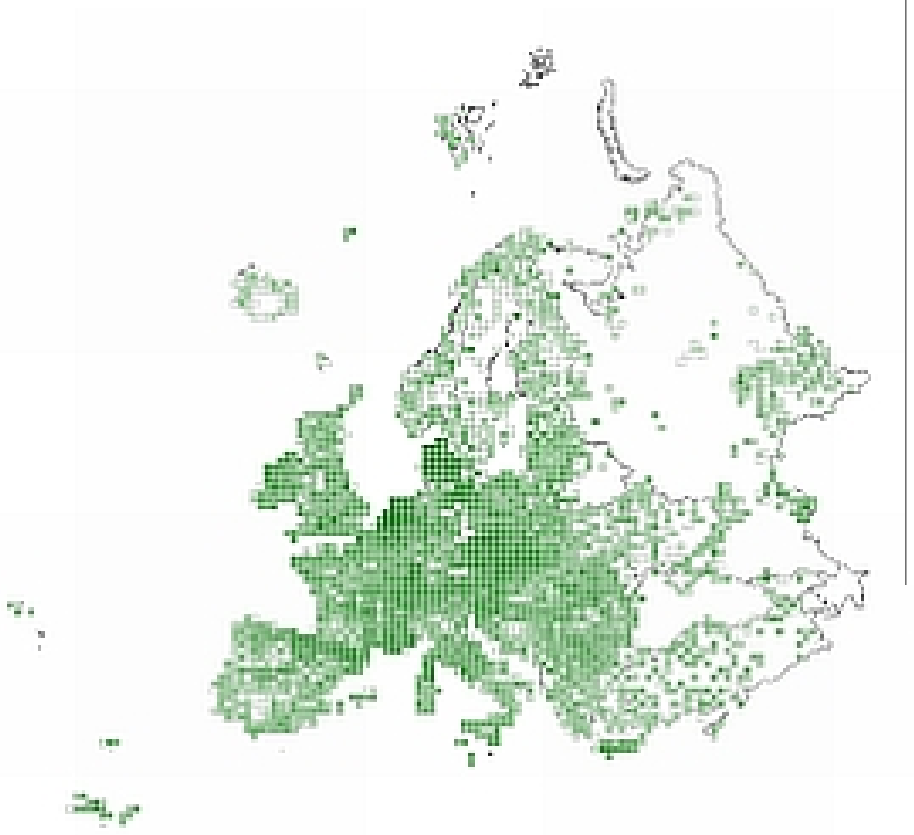
Data- often limited



http://euroveg.org/eva-database

Biological Conservation 221 (2018) 78–85

Contents lists available at ScienceDirect

Biological Conservation

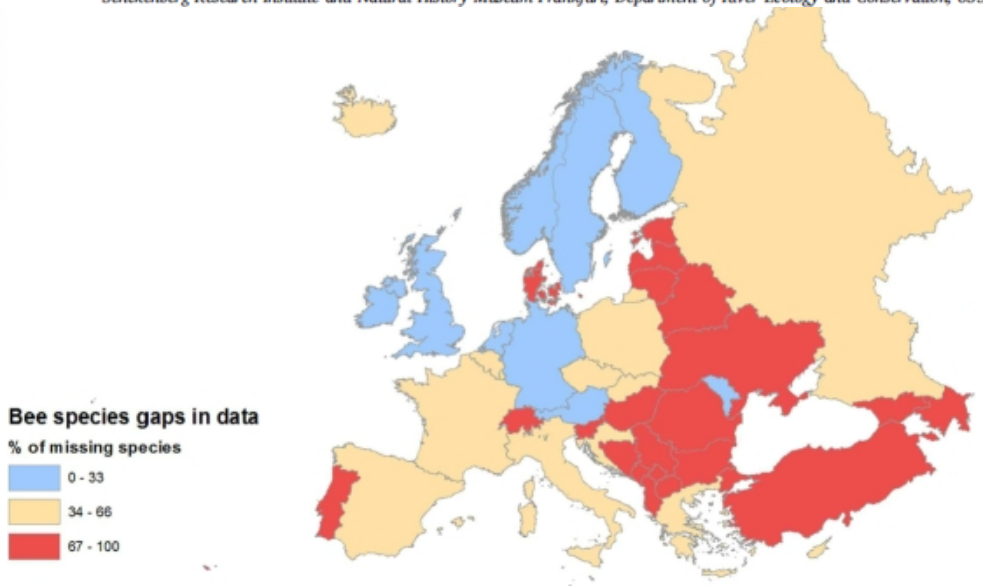
journal homepage: www.elsevier.com/locate/biocon

Perspective

Unlocking biodiversity data: Prioritization and filling the gaps in biodiversity observation data in Europe

Florian T. Wetzel[a,b,*], Heather C. Bingham[c], Quentin Groom[d], Peter Haase[e,f], Urmas Kõljalg[g], Michael Kuhlmann[h,i], Corinne S. Martin[c], Lyubomir Penev[j], Tim Robertson[k], Hannu Saarenmaa[l], Dirk S. Schmeller[m,n], Stefan Stoll[e,o], Jonathan D. Tonkin[p,e], Christoph L. Häuser[a]

[a] Museum für Naturkunde, Leibniz Institute for Evolution and Biodiversity Science, Invalidenstrasse 43, 10115 Berlin, Germany
[b] Bavarian Academy for Nature Conservation and Landscape Management, Seethalerstraße 6, 83410 Laufen, Germany
[c] UN Environment World Conservation Monitoring Centre, 219 Huntingdon Road, Cambridge CB3 0DL, UK
[d] Botanic Garden Meise, Meise, Belgium
[e] Senckenberg Research Institute and Natural History Museum Frankfurt, Department of River Ecology and Conservation, 63571 Gelnhausen, Germany



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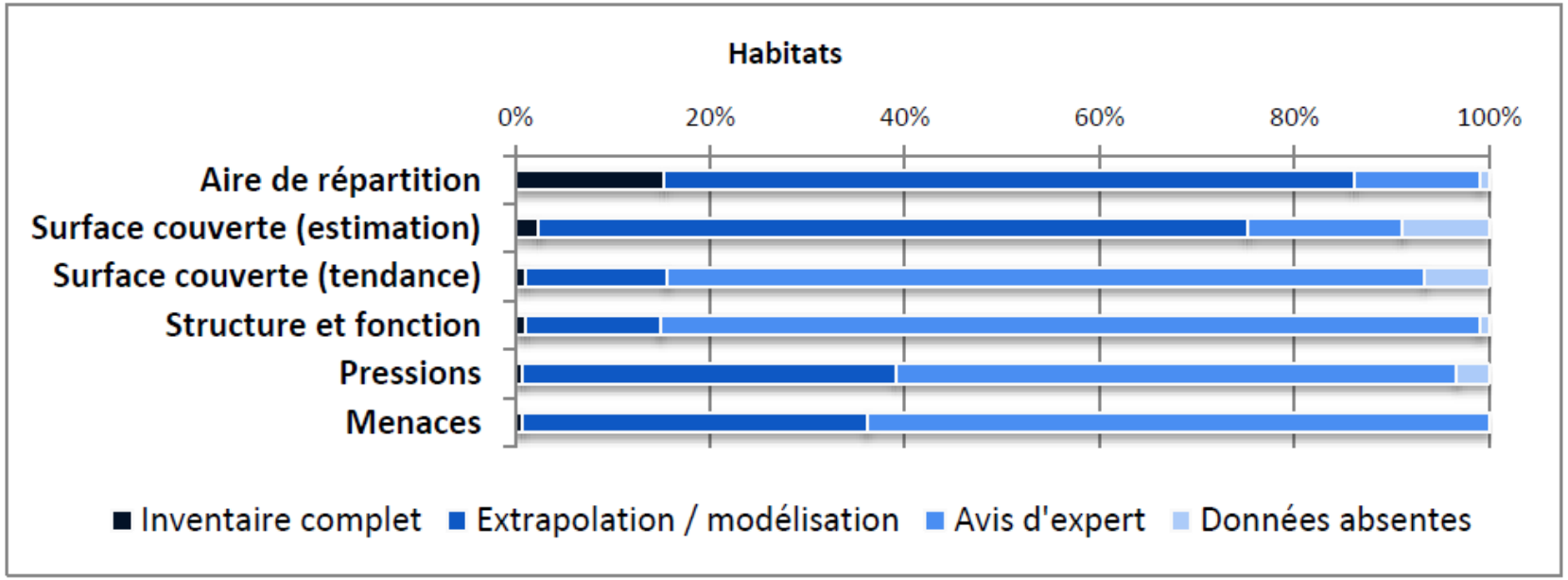
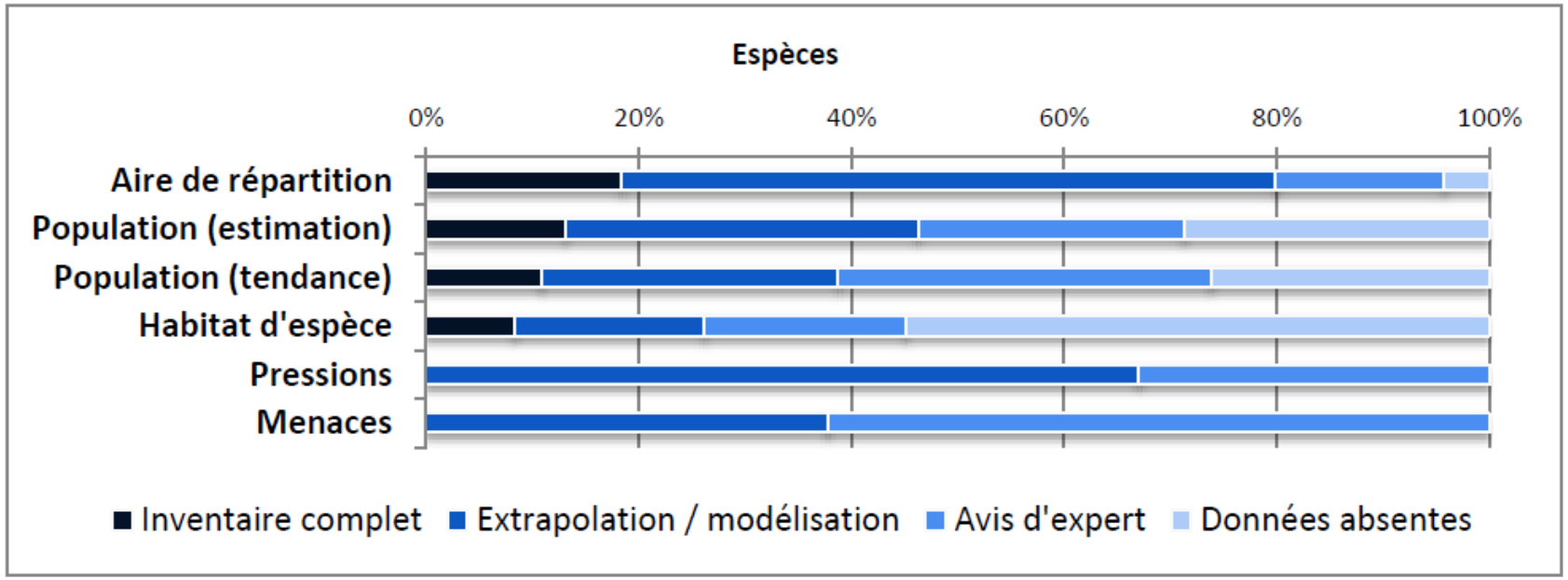
Sources of information used by France for 2007-12



5% habitats assessed as 'unknown'

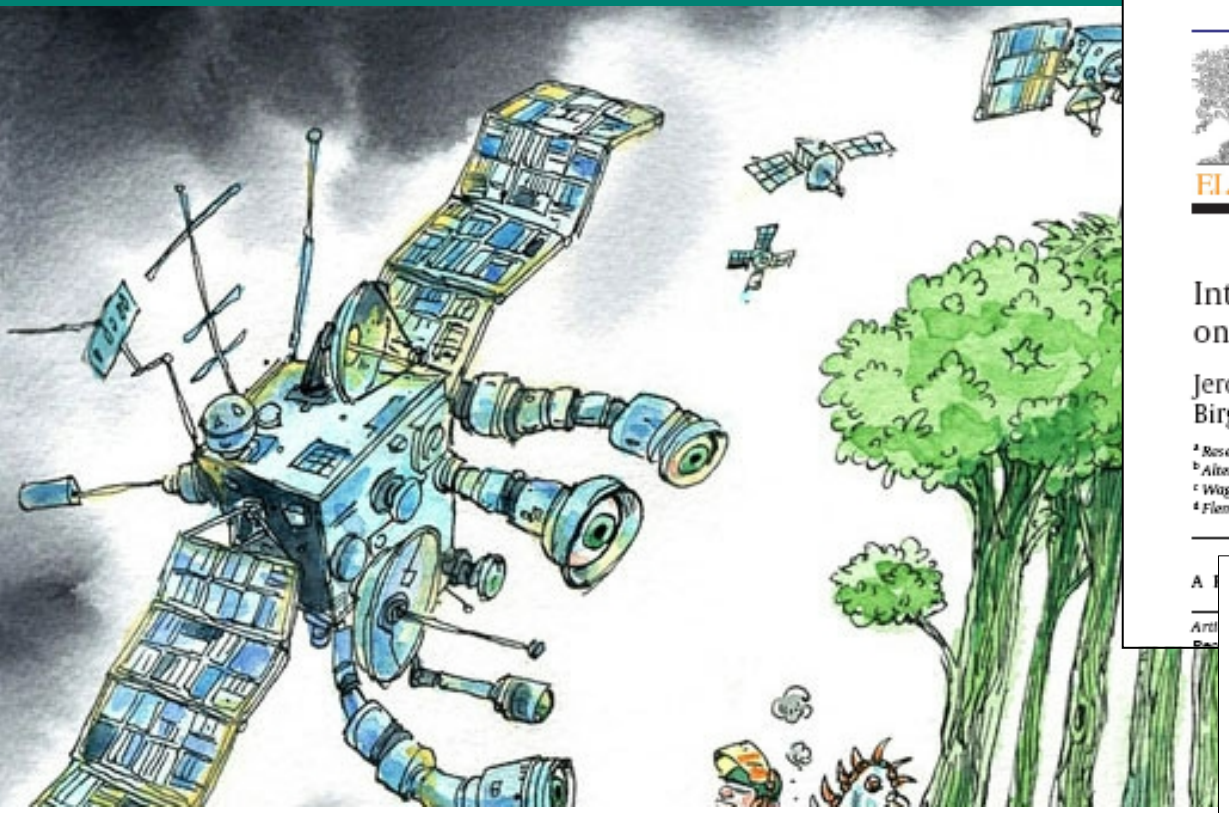
18% species assessed as 'unknown'



BENSETTITI F. & PUISSAUVE R. (2015). Résultats de l'évaluation de l'état de conservation des habitats et des espèces dans le cadre de la directive Habitats-Faune-Flore en France. Rapportage « article 17 ». Période 2007-2012. MNHN-SPN, MEDDE, Paris.

http://spn.mnhn.fr/spn_rapports/archivage_rapports/2015/SPN%202015%20-%2063%20-%20Rapport_FR_art17_web2.pdf

Remote sensing ?



Journal for Nature Conservation 19 (2011) 116–125

Contents lists available at ScienceDirect

Journal for Nature Conservation

journal homepage: www.elsevier.de/jnc

Integrating remote sensing in Natura 2000 habitat monitoring: Prospects on the way forward

Jeroen Vanden Borre[a,*], Desiré Paelinckx[a], Caspar A. Mücher[b], Lammert Kooistra[c], Birgen Haest[d], Geert De Blust[a], Anne M. Schmidt[b]

[a] Research Institute for Nature and Forest (INBO), Kliniekstraat 25, 1070 Brussels, Belgium
[b] Alterra, Wageningen UR, Droevendaalsesteeg 3, 6708 PB Wageningen, The Netherlands
[c] Wageningen University, Centre for Geo-Information, Droevendaalsesteeg 3, 6708 PB Wageningen, The Netherlands
[d] Flemish Institute for Technological Research (VITO), Centre of Expertise in Remote Sensing and Atmospheric Processes, Boeretang 200, 2400 Mol, Belgium

International Journal of Applied Earth Observation and Geoinformation 37 (2015) 7–16

Contents lists available at ScienceDirect

International Journal of Applied Earth Observation and Geoinformation

journal homepage: www.elsevier.com/locate/jag

Remote sensing for mapping natural habitats and their conservation status – New opportunities and challenges

Christina Corbane[a,*], Stefan Lang[b], Kyle Pipkins[c], Samuel Alleaume[a], Michel Deshayes[d], Virginia Elena García Millán[e], Thomas Strasser[b], Jeroen Vanden Borre[f], Spanhove Toon[f], Förster Michael[c]

[a] Irstea – UMR TETIS, 500, rue Jean-François Breton, 34093 Montpellier, France
[b] Interfaculty Department of Geoinformatics – Z_GIS, University of Salzburg, Salzburg, Austria
[c] Geoinformation in Environmental Planning Lab, Technical University of Berlin, D-10623 Berlin, Germany
[d] GEO Secretariat, 7 bis avenue de la Paix, CH-1211 Geneva 2, Switzerland
[e] EFTAS-Fernerkundung GmbH, Oststrasse, 2-18, D-48145 Münster, Germany
[f] Research Institute for Nature and Forest (INBO), Kliniekstraat 25, B-1070 Brussels, Belgium

Rapidly developing field for habitat area, distribution & quality

Citizen science ?

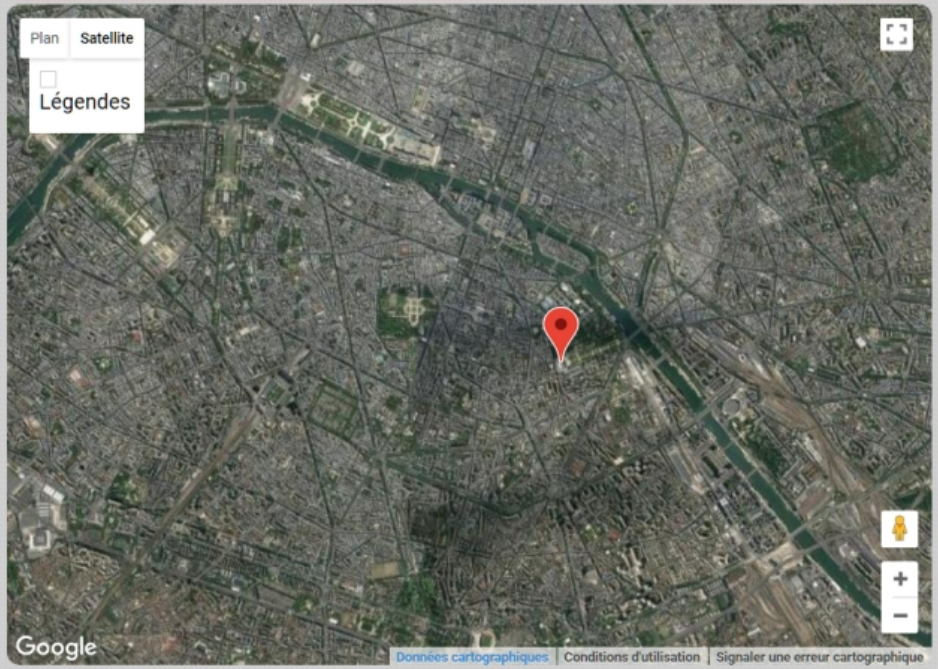
Je crois que j'ai vu... un Lucane cerf-volant !

Depuis 2011, l'Opie enquête sur le Lucane (*Lucanus cervu*
La répartition de ce gros coléoptère n'avait jamais fait l'objet d'une é
Les données rétrospectives nous intéressent également.

Lieu de l'observation

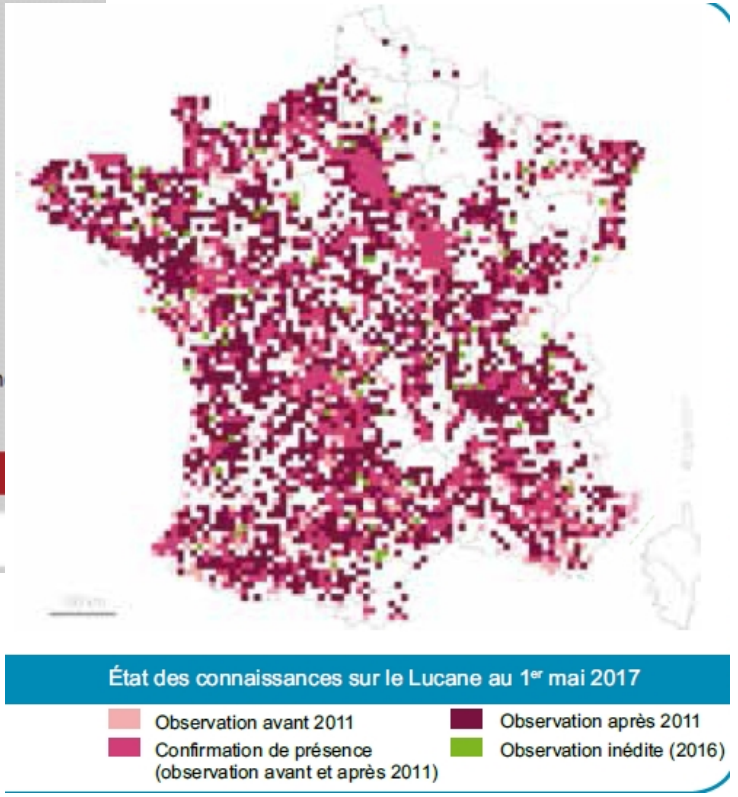
Saisissez une

Déplacer le marqueur à l'emplacement precis de la découverte.



Latitude :48.8423036 Longitude :2.3564291
36 Rue Geoffroy-Saint-Hilaire, 75005 Paris, France

http://www.insectes.org/enquete/lucane-cerf-volant.html



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"I think I've seen a stag beetle…"

Thank you

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