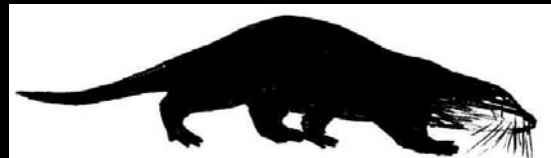


Monitoring and assessment of Conservation Status for the European Otter *Lutra lutra* in Denmark



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University of Aarhus - Denmark

Overview of presentation

Monitoring

- National surveys
- Deadfound otters
- DNA-analysis

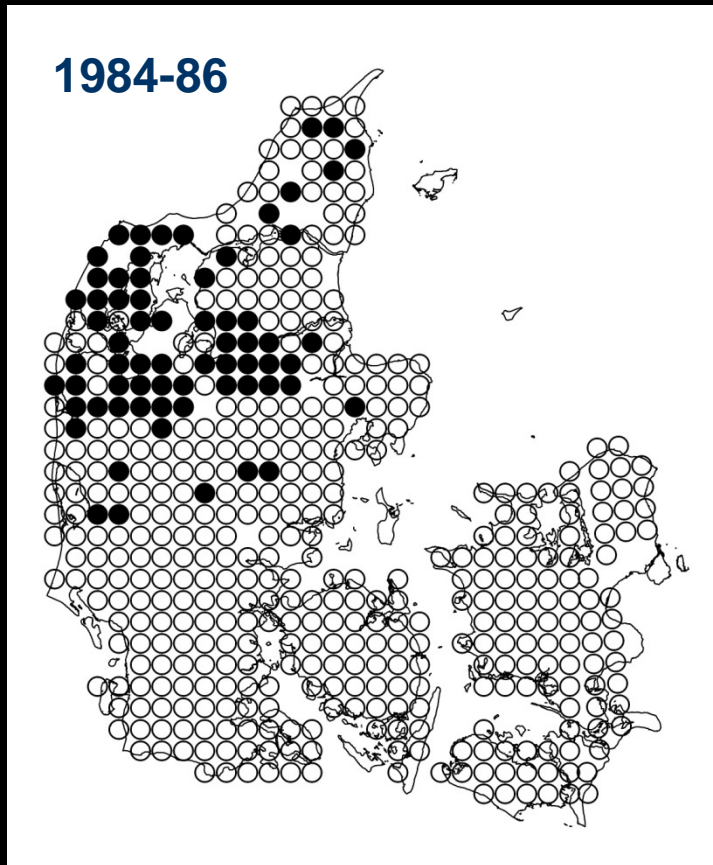
Conservation status

- Habitats Directive
- Conservation status
- Assessment of status

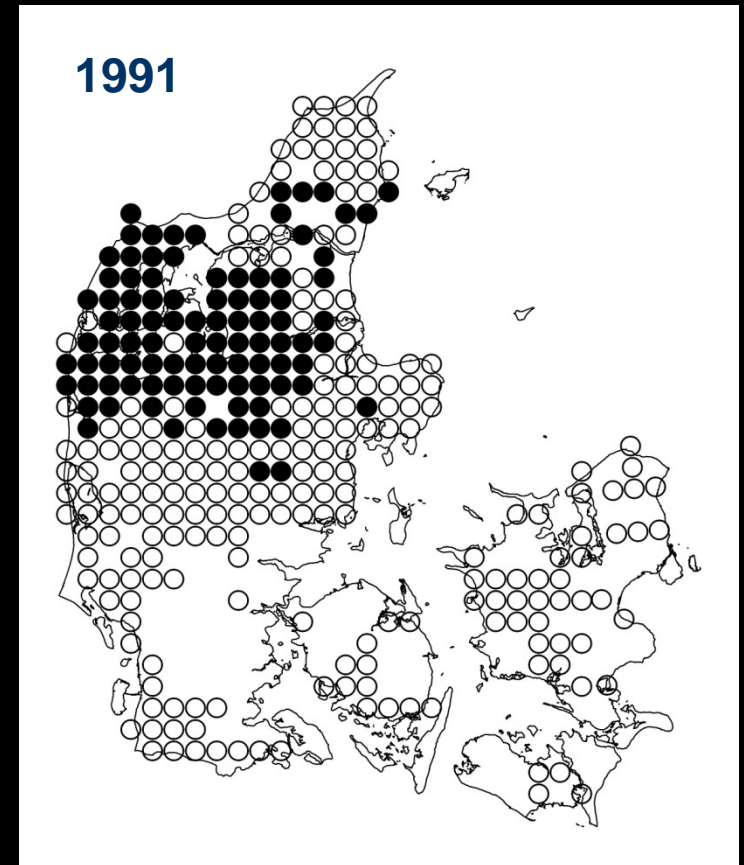
Conservation status

A concept for all otter species?

National surveys 1984 - 1991

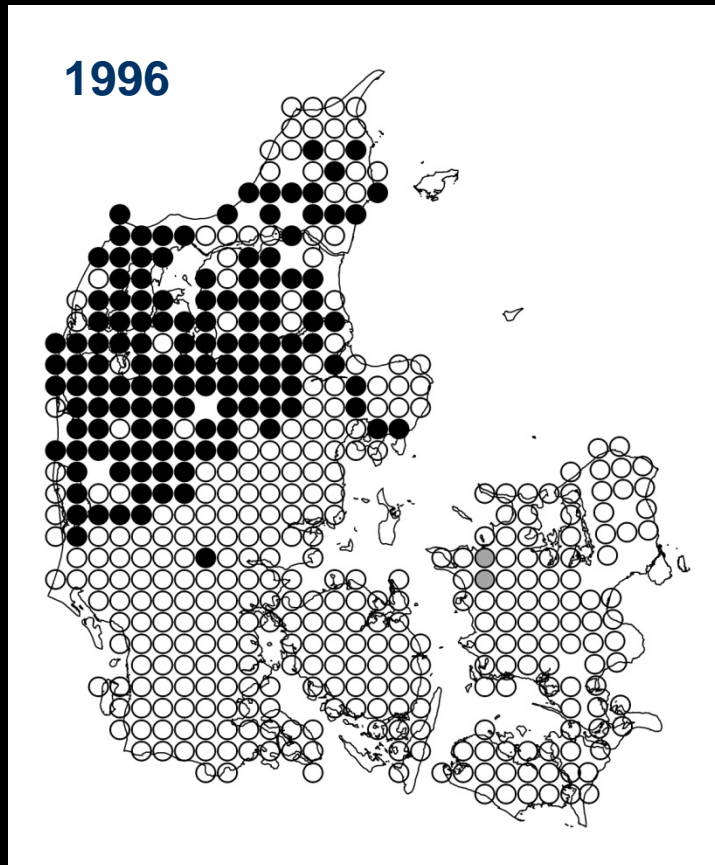


- 1154 sites investigated
- 106 positive sites (9,2%)

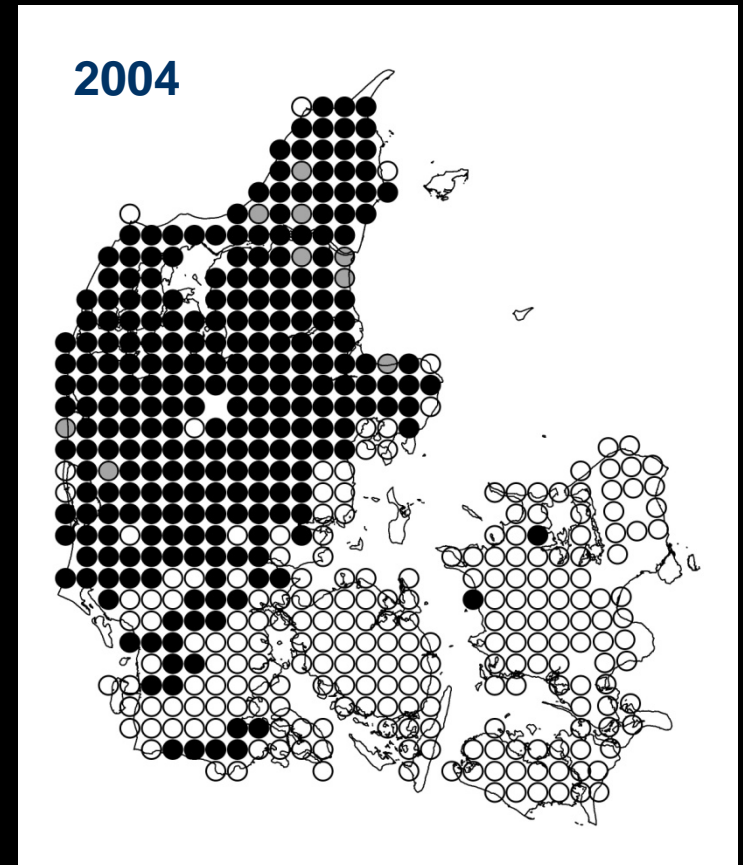


- 767 sites investigated
- 200 positive sites (26,1%)

National surveys 1996 - 2004



- 1235 sites investigated
- 265 positive sites (21,5%)



- 1248 sites investigated
- 603 positive sites (48,3%)

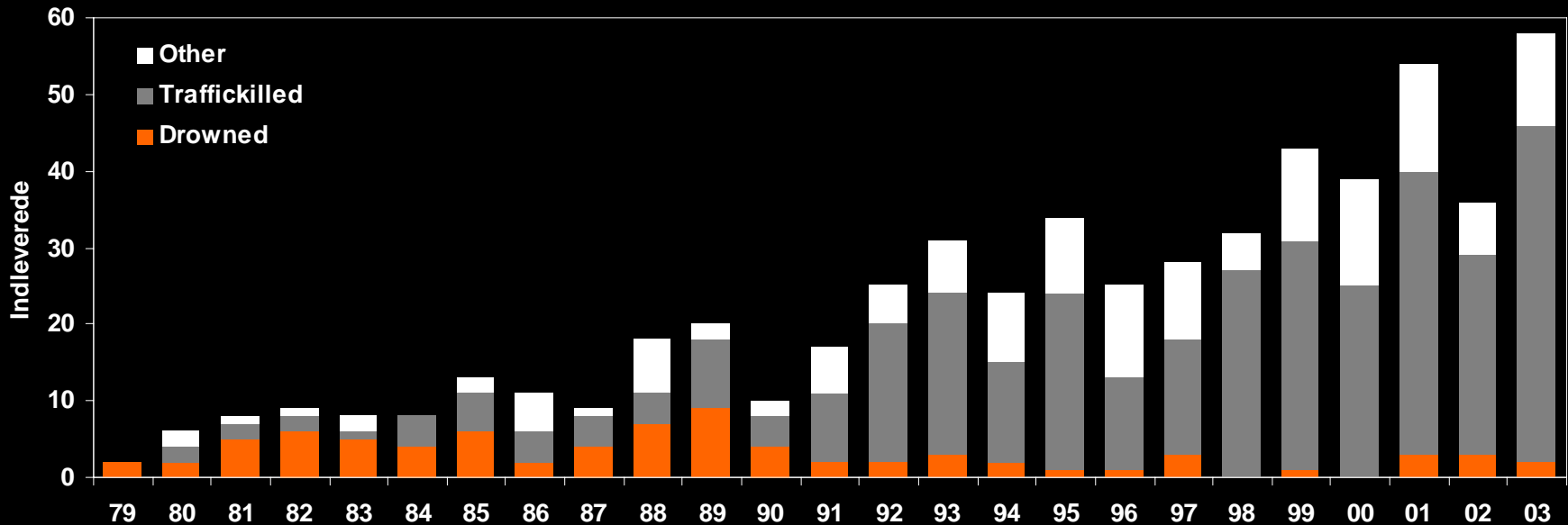
Deadfound Otters 1979-2005

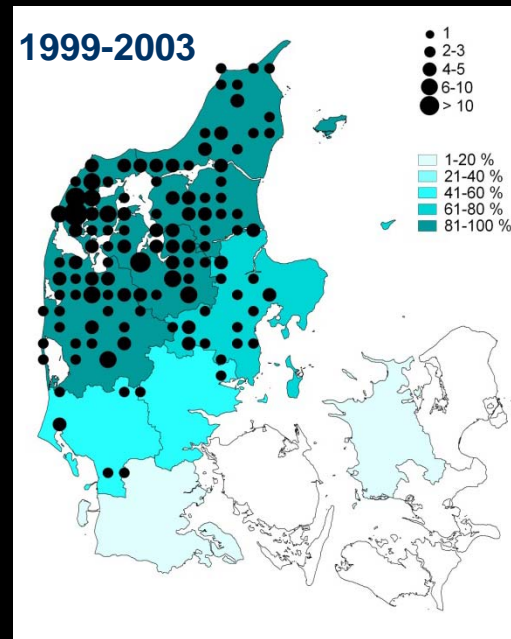
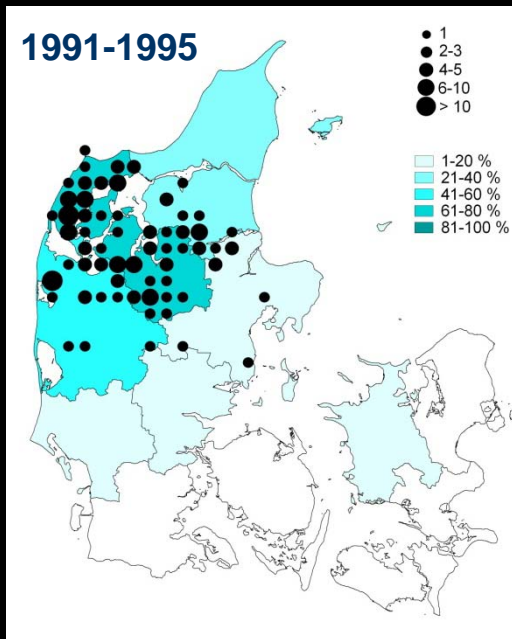
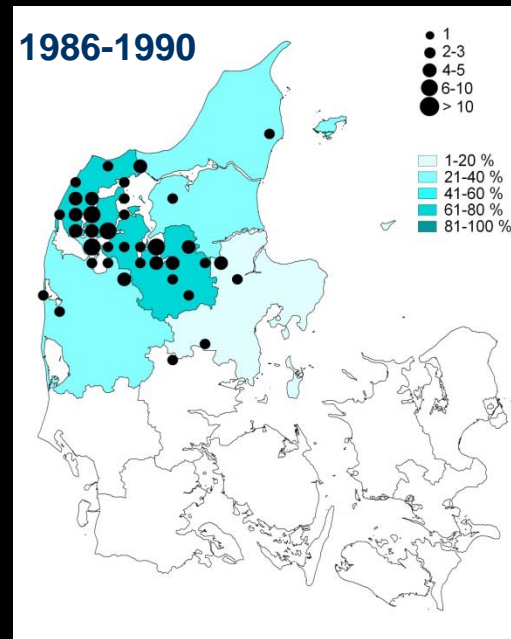
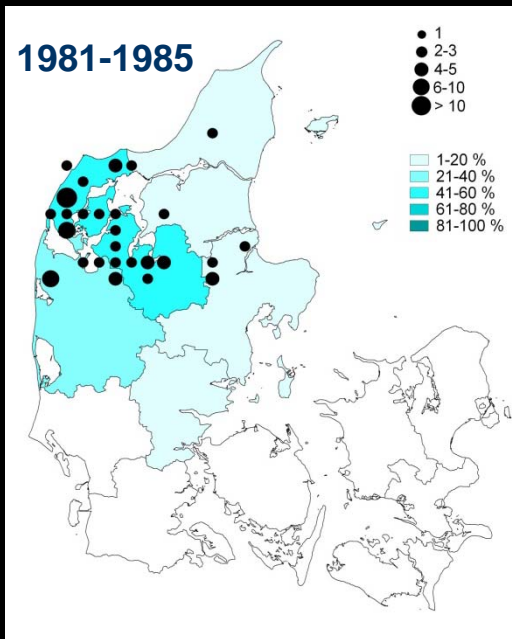
□ 568 Otters collected in the period 1979-2003

□ 9% yearly increase for all otters

□ 15% yearly increase in traffickilled in 1980-2000

□ 10% increase if corrected for 3% increase in intensity of trafic





National surveys and deadfound otters

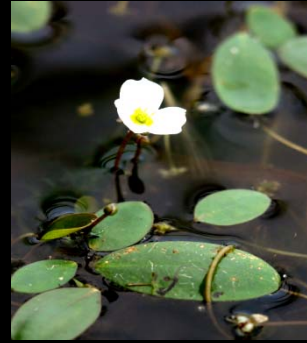
The geographical distribution of deadfound otters is positively correlated to percentages of positive stations (signs of otter) in counties comparing periods of five years from 1981 to 2003.

DNA analysis brings the otter back on the island of Zeeland in 2006



- For more than 10 years the otter has been disappeared on Zeeland
- Intensive inventory carried out in 2006 by many volunteers
- 25 spraints found
- DNA- analysis showed, that 8 of them were from otter

National monitoring programme for species and habitats in Denmark



- The main aim is to fulfil the national obligations according to the **EEC Habitats Directive**
- Carried out in six-year cycles (2004-2009)
- Monitoring “Conservation Status”
- Goal: ”Favourable Conservation Status”

Criteria for favourable conservation status

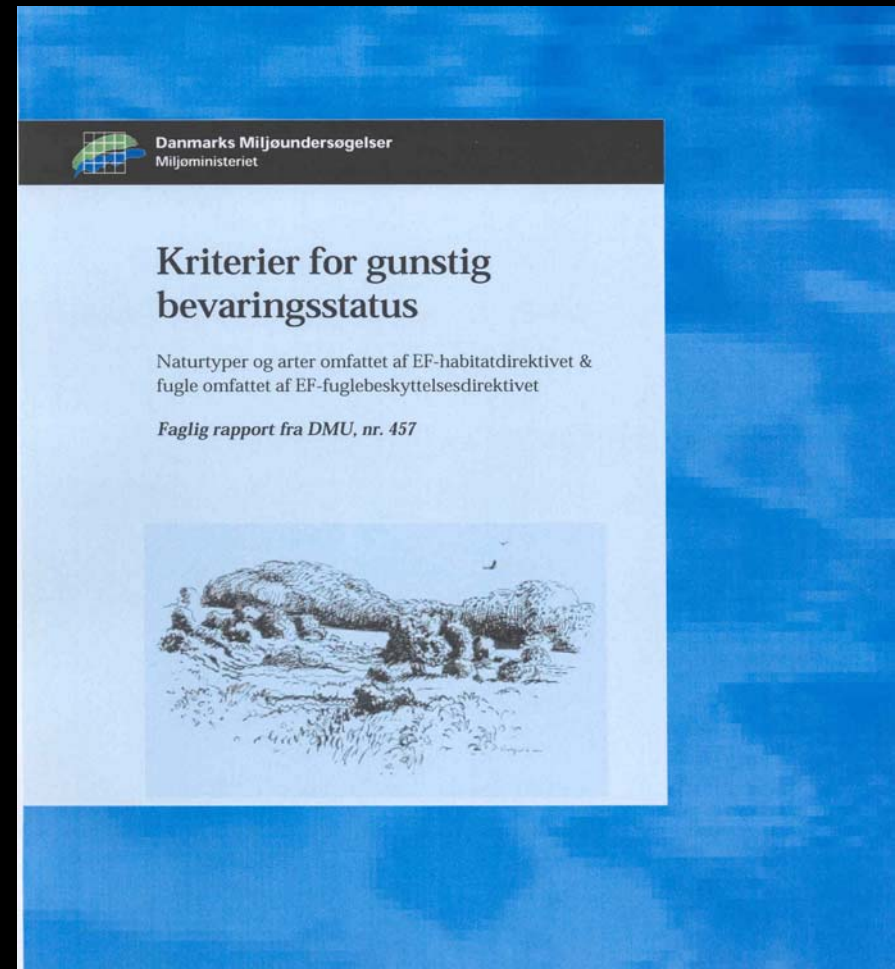
Technical Report from NERI - 462 pp in a Danish version

Criteria for 36 species
(among them the OTTER)

Criteria for 51 habitats

Criteria for 75 birds

English draft version



”Favourable conservation status”

Conservation status of a species means the sum of the influences acting on the species

- **population** dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable components of its natural habitats, and
- the **natural range** of the species is neither being reduced nor it is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficient large **habitat** to maintain its populations on a long-term basis



Monitoring and assessment of Conservation Status - Denmark

Conservation objectives
Scientific Criteria for
"Favourable Conservation Status"

Status report

Technical instructions

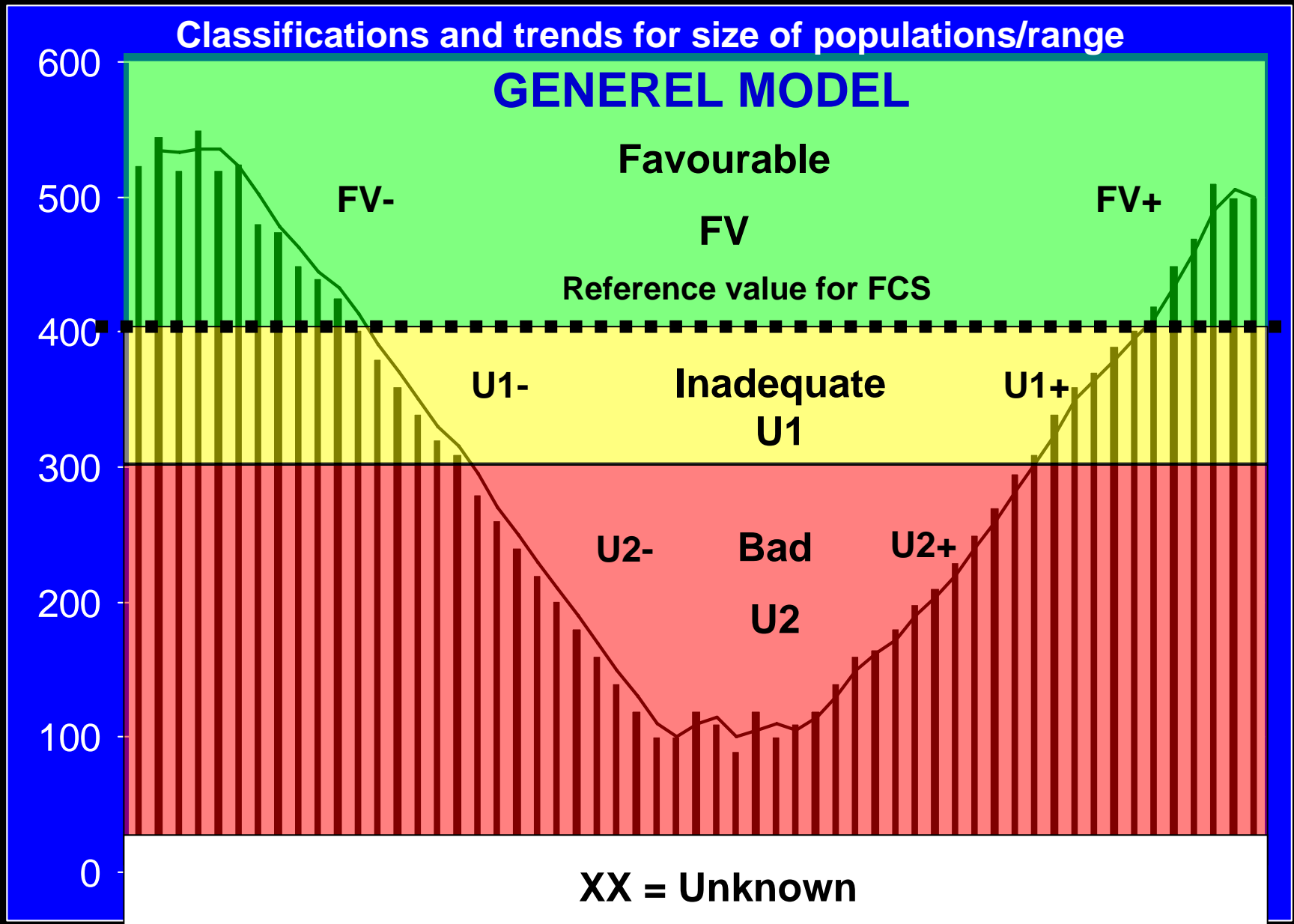
species
&
habitats

Results of monitoring

Conservation status

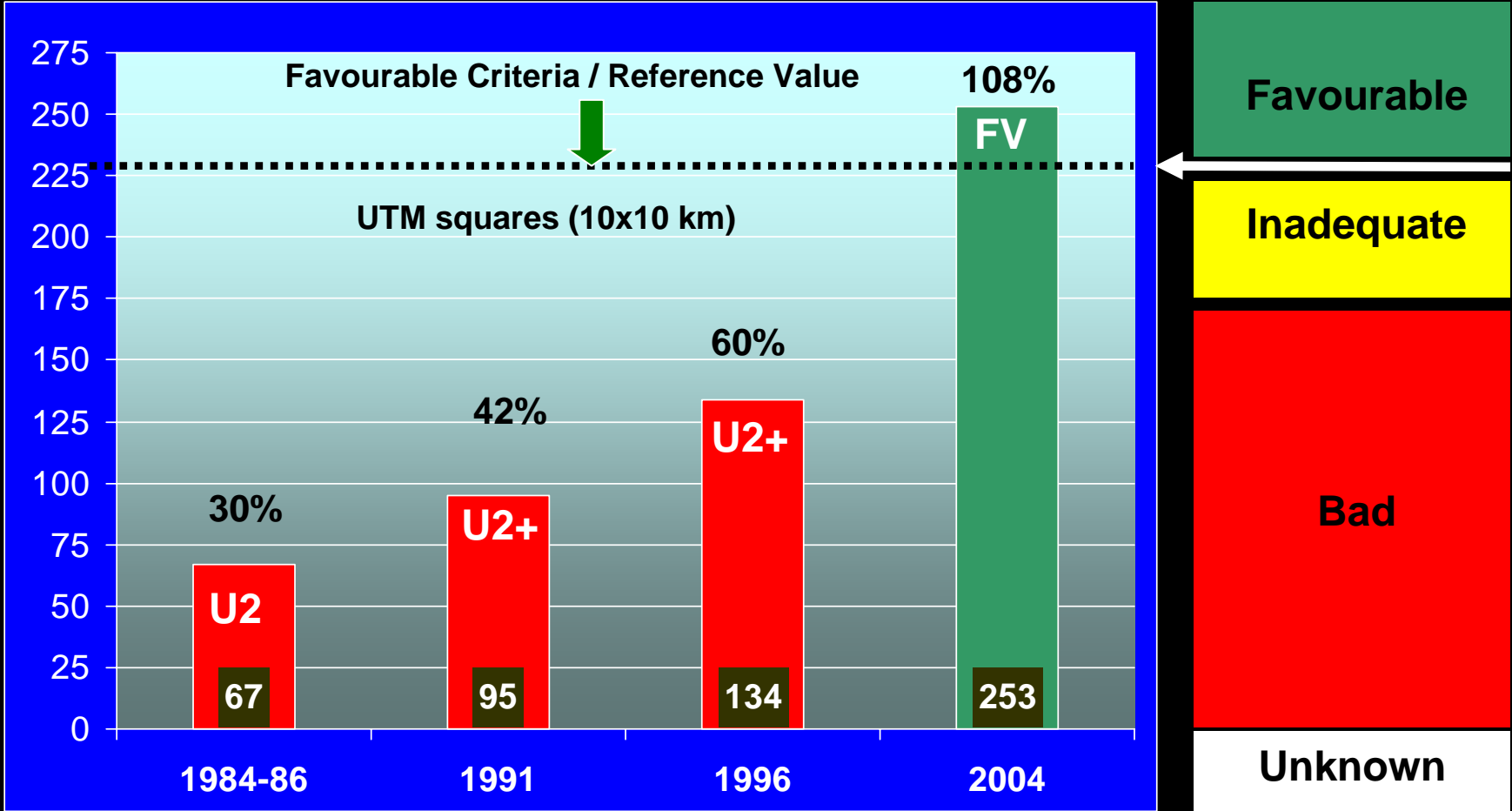
Monitoring

Assessing conservation status of species



Assessing conservation status of species

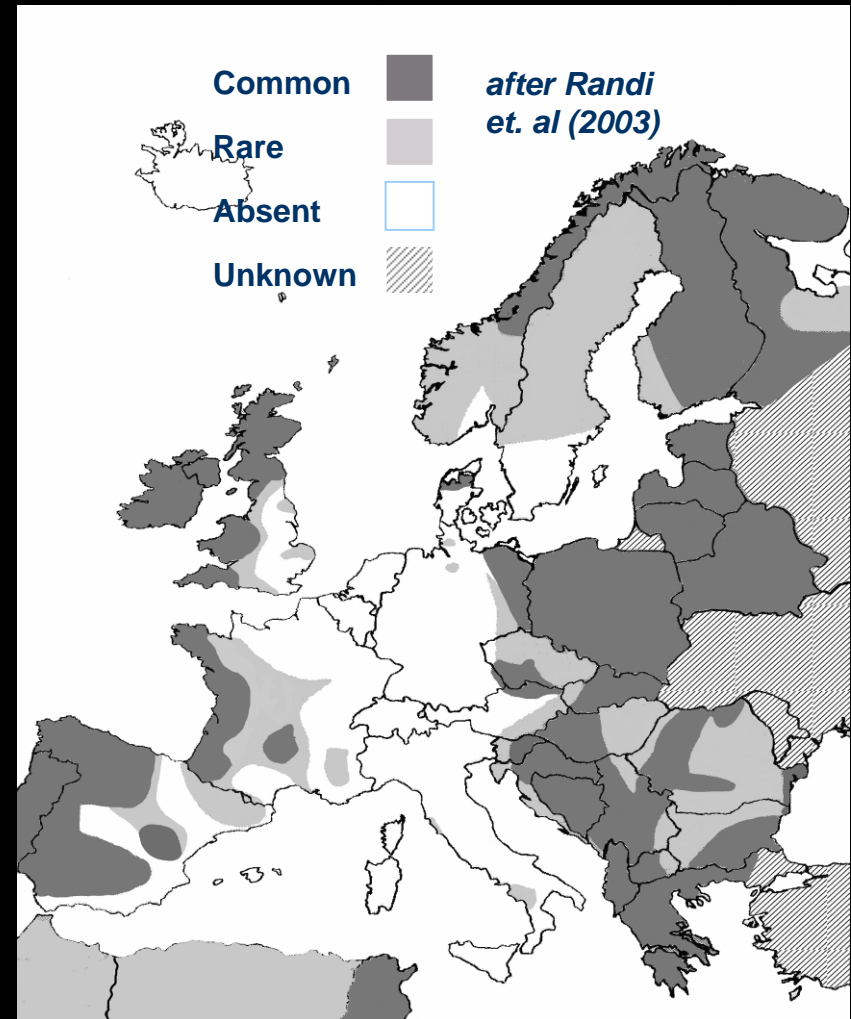
Classifications and trends for population of Otter *Lutra lutra*



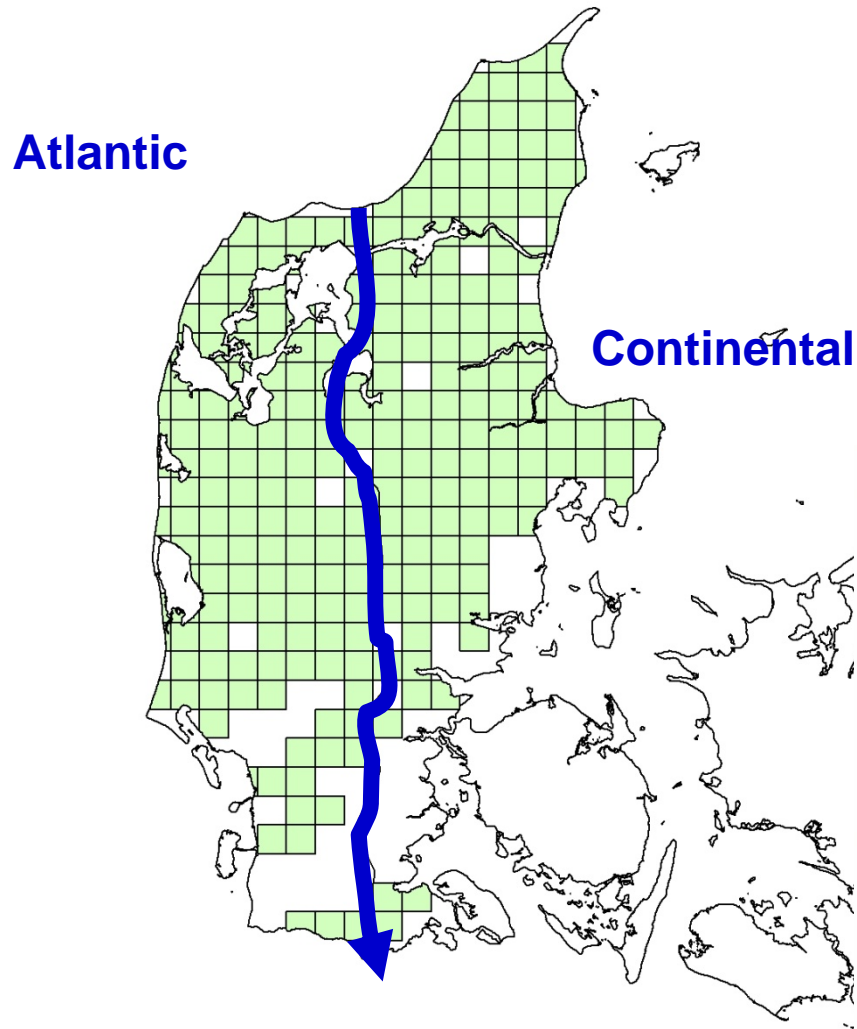
Assessment of “biological populations”

Conservation status of the Otter *Lutra lutra* in Europe?

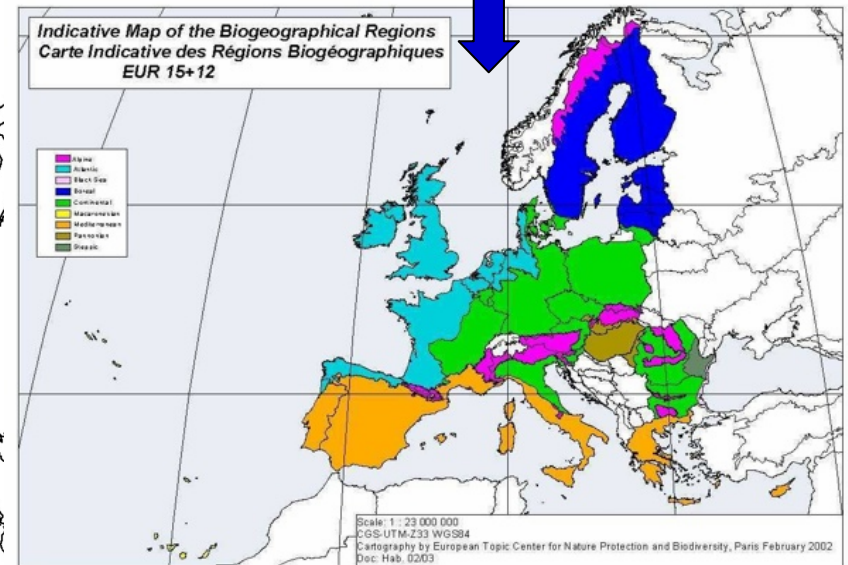
- Populations should be seen as biological populations irrespective of political borders - **or biogeo-borders!**
- Marginal populations in one country/region should not be assessed as small/isolated if they mix genes with populations in neighbouring areas.
- Two (or more) countries concerned undertake the assessment together



Assessment in Biogeographical zones in Denmark and Europe



- Two zones in DK
 - Atlantic
 - Continental
- Nine Zones in Europe / EEC



Assessing conservation status for Otter in Denmark: **Atlantic Zone**

Lutra lutra Code: 1355	Favourable (‘green’)	Unfavourable Inadequate-Moderate (‘amber’)	Unfavourable Poor-Bad (‘red’)	Unknown Insufficient (‘white’)
Range	FV+ ≥ FRR			
Population	FV+ >FRP			
Habitat for the species	INCREASING Sufficiently large/long term			
Future prospects	GOOD			
Assessment of CS - overall	FAVOURABLE			
Defintions: FRR = Favourable Reference Range FRP= Favourable Reference Population				
Overall assessment	All green OR three green and one white	One or more amber but no red	One or more red	All white OR Two or more white combined with green



Assessing conservation status for Otter in Denmark: **Continental Zone**

Lutra lutra Code: 1355	Favourable (‘green’)	Unfavourable Inadequate-Moderate (‘amber’)	Unfavourable Poor-Bad (‘red’)	Unknown Insufficient (‘white’)
Range			U2+ < FRR	
Population		U1+ >FRP		
Habitat for the species	INCREASING Sufficiently large/long term			
Future prospects				UNKNOWN
Assessment of CS - overall			U2+	
Defintions: FRR = Favourable Reference Range FRP= Favourable Reference Population				
Overall assessment	All green OR three green and one white	One or more amber but no red	One or more red	All white OR Two or more white combined with green



“Favourable Conservation Status”

A concept for Otters all over the world?

- A common approach to monitoring and assessing conservation status?
- Defined for all otter species in the world to the benefit of the otter?





Thank you - for your attention



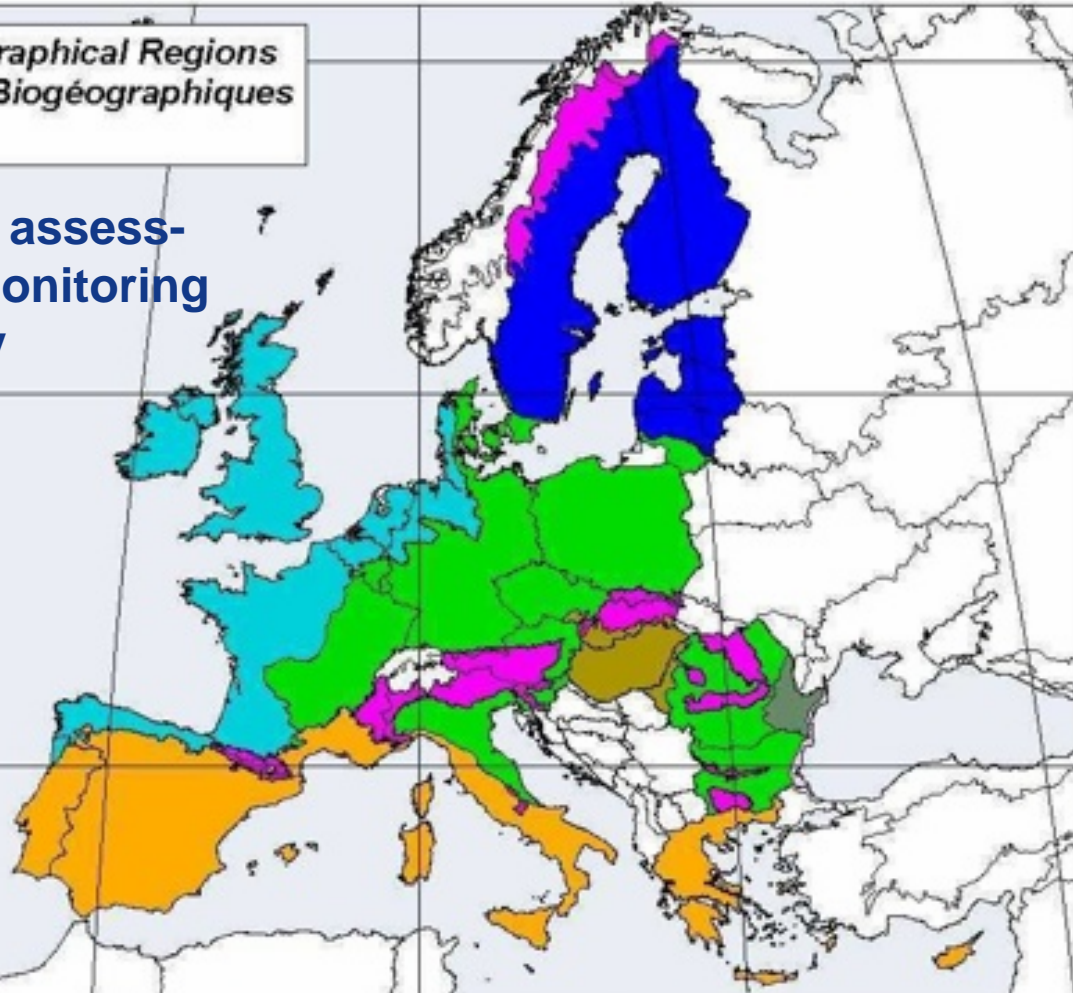
Biogeographical monitoring workshops?

Indicative Map of the Biogeographical Regions
Carte Indicative des Régions Biogéographiques
EUR 15+12



Streamlining assessments and monitoring methodology

EEC-Maps with assessment of each species & habitat types



Scale: 1 : 23 000 000
CGS-UTM-Z33 WGS84
Cartography by European Topic Center for Nature Protection and Biodiversity, Paris February 2002
Doc: Hab. 0203



Criteria FCS for Otter in Denmark

Favourable conservation status on national

OTTER	ATTRIBUTE	MEASURES	CRITERIA /	COMMENTS
Populations	Viable populations	Signs (systematic surveys on fixed stations)	At least one viable population in the atlantic and the continental region of the peninsula of Jutland OK	The population in Jutland is a continuous whole covering both biogeographical zones Minimum Viable Population Size is estimated to be 1200-1600 individuals A standardised method to assess population size is lacking.
	Population	Signs (systematic surveys on fixed stations)	Stable or increasing numbers of otters OK - increasing	Apply to both the population in Jutland and on the island Sealand
Range	Range	Geographical distribution	Stable or increasing OK - increasing	In terms of 10 x 10 km squares (UTM -grid) Otters have to be present in all the counties of Jutland (7) and all "Areas of interest for otters" pointed out in the National Management Plan (Søgaard & Madsen 1996)
		Numbers of streams with occurrence of otter	Stable or increasing OK - increasing	
Size of habitats	Present and suitable habitats	Stretches of streams/lakes(meters/hectares) with either presence of otter or makes up suitable habitats for the species	Stable or increasing OK - increasing	It is necessary with sufficient areas/stretches of suitable habitats to maintain/create a selfreproductive and viable population



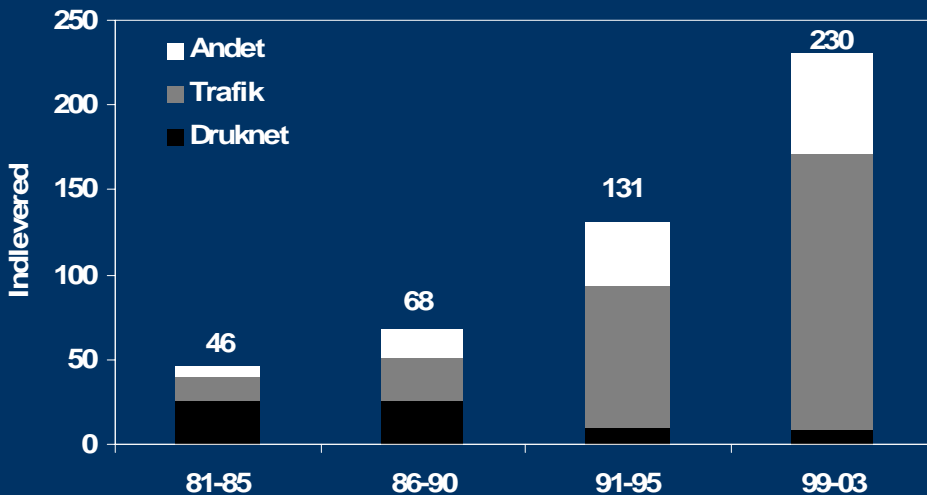
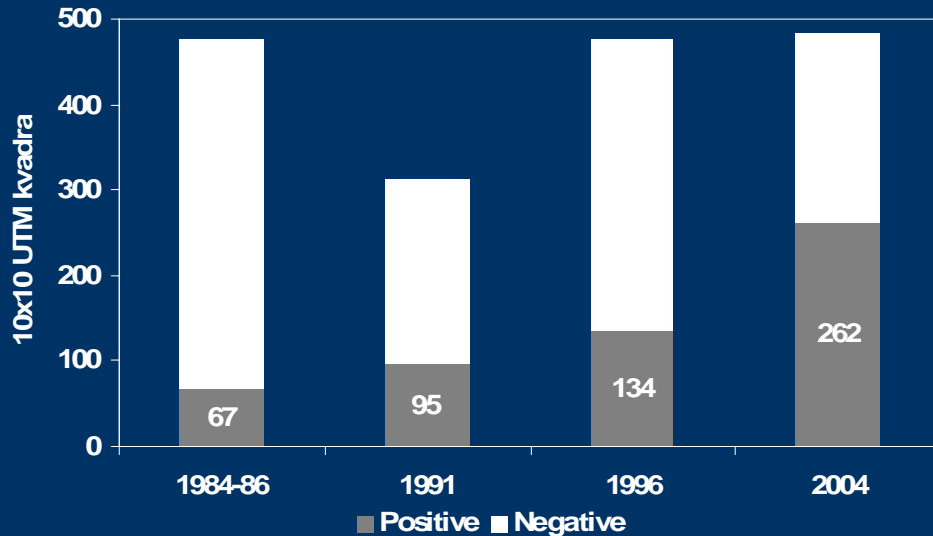
Assessing conservation status of a SPECIES

General evaluation matrix (*per biogeographic region within a MS*)

CONSERVATION STATUS				
Parameter	Favourable ('green')	Unfavourable – Inadequate ('amber')	Unfavourable - Bad ('red')	<i>Unknown</i> (insufficient information to make an assessment)
Rangeⁱ	Stable (loss and expansion in balance) or increasing <u>AND</u> not smaller than the 'favourable reference range'	Any other combination	Large decline: Equivalent to a loss of more than 1% per year within period specified by MS <u>OR</u> more than 10% below favourable reference range	<i>No or insufficient reliable information available</i>
Population	Population(s) not lower than 'favourable reference population' <u>AND</u> reproduction, mortality and age structure not deviating from normal (if data available)	Any other combination	Large decline: Equivalent to a loss of more than 1% per year within period specified by MS <u>AND</u> below 'favourable reference population' <u>OR</u> More than 25% below favourable reference population	<i>No or insufficient reliable information available</i>
Habitat for the species	Area of habitat is sufficiently large (and stable or increasing) <u>AND</u> habitat quality is suitable for the long term survival of the species	Any other combination	Area of habitat is clearly not sufficiently large to ensure the long term survival of the species <u>OR</u> Habitat quality is bad, clearly not allowing long term survival of the species	<i>No or insufficient reliable information available</i>
Future prospects (as regards to population, range and habitat)	Main pressures and threats to the species not significant; species will remain viable on the long-term (100 years plus)	Any other combination	Severe influence of pressures and threats to the species; very bad prospects for its future, long-term viability at risk.	<i>No or insufficient reliable information available</i>
Overall assessment of CSⁱⁱ	All 'green' OR three 'green' and one 'unknown'	One or more 'amber' but no 'red'	One or more 'red'	Two or more 'unknown' combined with green or all "unknown"



National surveys and deadfound otters



The number indicate the positive 10x10 km UTM-grids in the national surveys

Delivered deadfound otters in 5-years periods before the national surveys. Statistical significance between the increase of 10x10 km UTM- grid and the number of deadfound otters

$t = 18.1, d.f. = 2, P < 0.01$

