

Carlos Romão – European Environment Agency

**Data and Information About
Nature and Biodiversity in
Europe**

23. 3. 2022

Overview of the presentation

- Few words about the European Environment Agency
- What data do we collect / where does it come from?
- Data gaps, issues of scale and harmonisation
- Other biodiversity data/information we collect
- How do we make this data available?
- What do we do with this data?
- Focus: the 2030 EU Biodiversity Strategy

EEA and EIONET

EEA

Agency of the European Union that aims to support sustainable development by helping to achieve significant and measurable improvement in Europe's environment, through the provision of timely, targeted, relevant and reliable information to policymaking agents and the public.

Eionet

The European environment information and observation network (Eionet) is a partnership network of the EEA and its **member (32)** and **cooperating (6)** countries.

ETCs

The European Topic Centres (ETCs) are **consortia of organisations in EEA member countries** with expertise in specific environmental areas, contracted by the EEA to support the implementation of the EEA work programmes. ETC/BD is supporting EEA for biodiversity tasks.

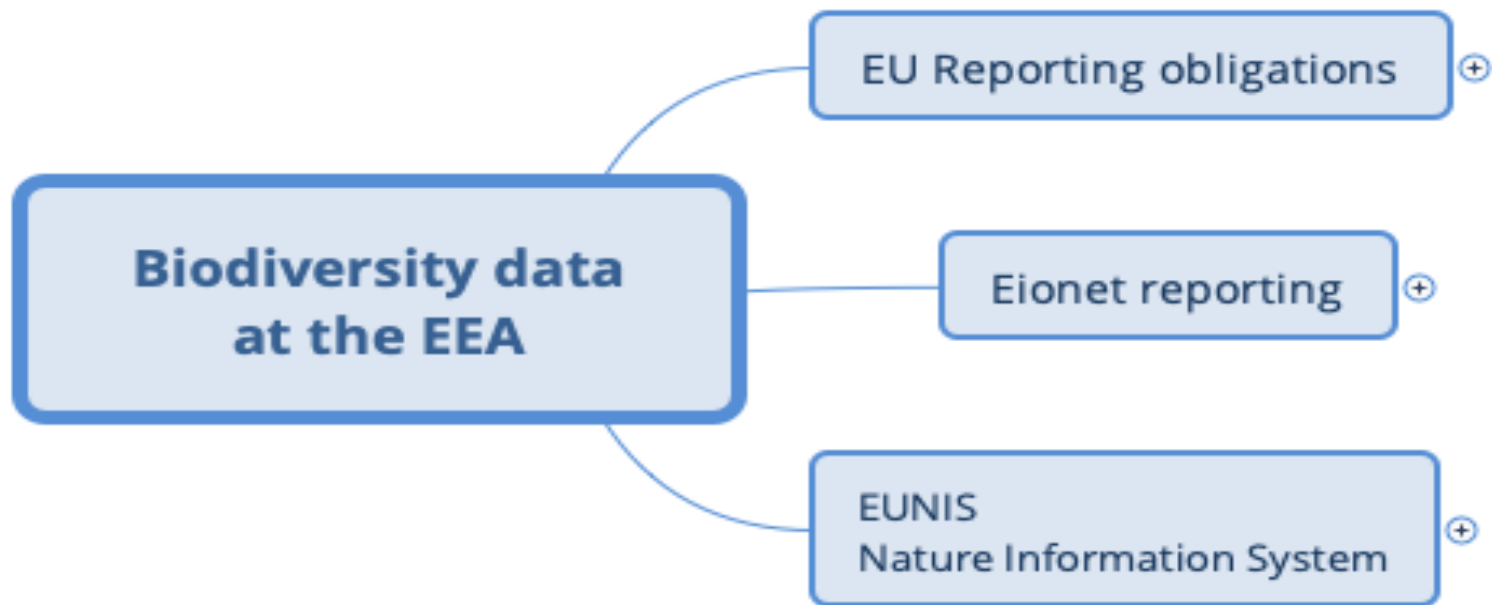


<https://www.eea.europa.eu/about-us>

What data do we collect

Where does it come from?

Nature data & dataflows managed by the EEA



EU Reporting obligations

Birds reporting (Article 12), every 6 years (BD)

Habitats & species reporting (Article 17), every 6 years (HD)

Birds derogations (Article 9), every year (BD)

(Other) species derogations (Article 16), every 2 years (HD)

Natura 2000: Standard Data Forms for site classification and designation, occasional updates (BD, HD)

Invasive Alien Species (EU Regulation), every 6 years



Nature reporting: Article 12 (BD), Article 17 (HD)

≈ 500 birds

≈ 1 400 other animals & plants

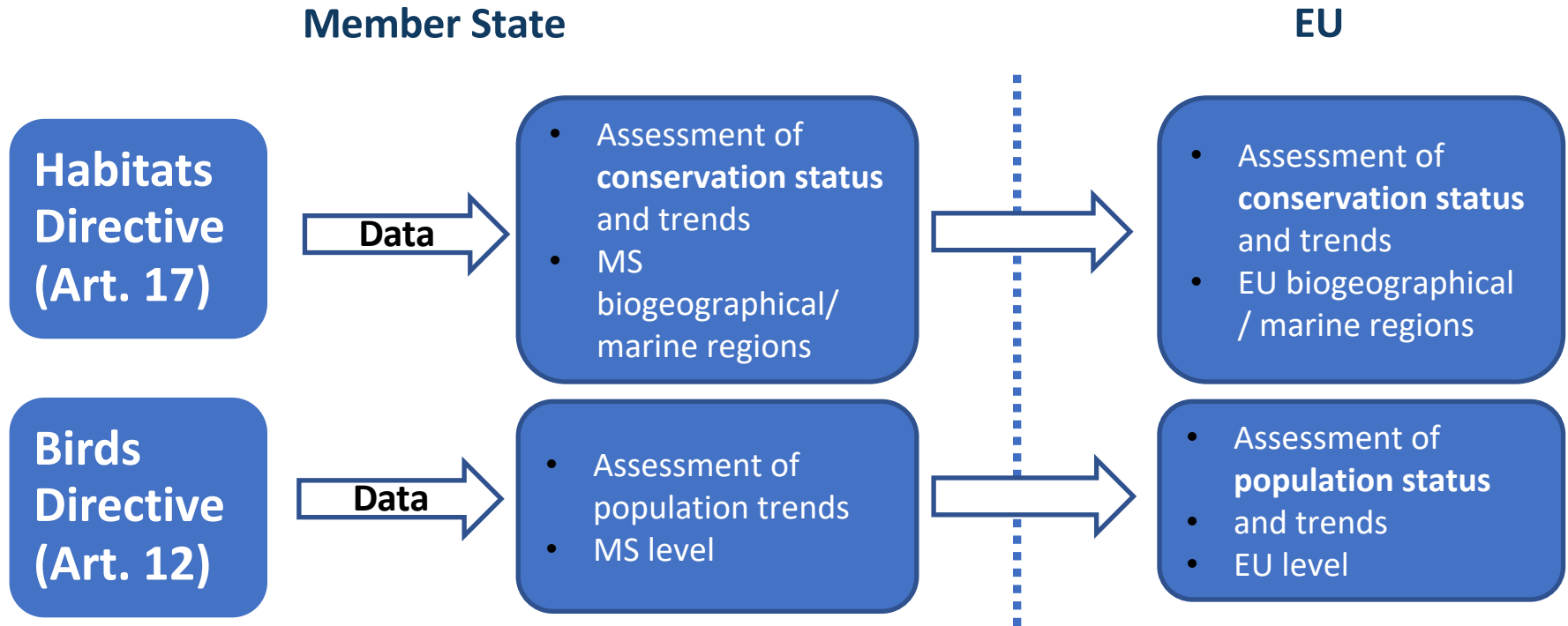
= 233 habitat types

**For each
species & habitat**

- Distribution data and maps (10km x 10km)
- Population/area size & trends
- Pressures & threats (activities)
- Conservation measures
- Proportion & trends in Natura 2000
- Hunting/exploitation/collection
- **Conservation status (only Art 17)**



Assessments at both MS and EU level



Assessment of status and trends by counties

Art 17: Parameters for assessing conservation status

Species	Habitats
Range	Range
Population	Area
Habitat of the species	Structure and functions
Future prospects	Future prospects

Art 12

Short- and long-term trends:

increasing +, decreasing -, stable =, fluctuating F, uncertain U, unknown x

Overall conservation status is assessed from the combination of the parameters' assessments

Status of parameters	All favourable or three favourable and one unknown	Two or more unknown combined with favourable or all unknown	One or more inadequate but no bad	One or more bad
Overall assessment of CS	Favourable (FV)	Unknown (XX)	Unfavourable – Inadequate (U1)	Unfavourable – bad (U2)

Overall trend: *improving +, deteriorating -, stable =, unknown x*

EU level assessments

Based on MS data:

- EEA and ETC/BD made the EU assessments for Art. 17
- Commission contractors (BLI) made the EU assessments for Art. 12

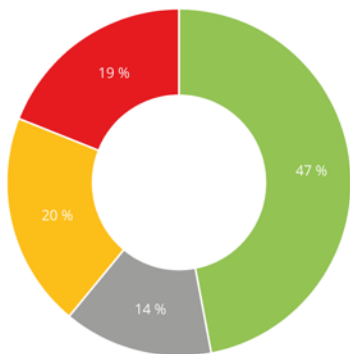
Art. 17	Art. 12
Species / habitats of the Annexes of the Habitats Directive	All bird species regularly occurring in the European territory of the Member States
Biogeographical / marine regional level	EU level
Assessment of conservation status and trends	Assessment of population status and trends – a modified version of the relevant IUCN Red List criteria

Assessments are different but broadly comparable

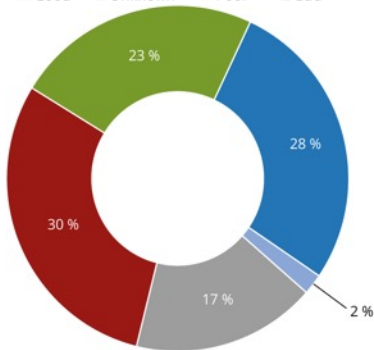
Favourable	→	Good	←	Secure
Unfavourable / inadequate	→	Poor	←	Not secure
Unfavourable / bad	→	Bad	←	Threatened

Current status and trends in EU

Birds

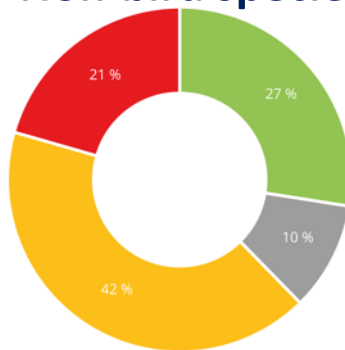


Good Unknown Poor Bad

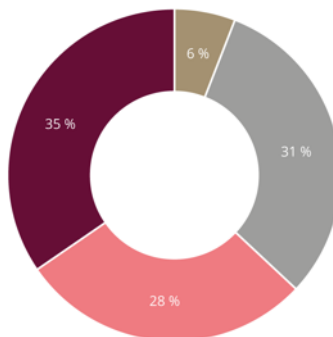


Increasing Stable Fluctuating
Uncertain/Unknown Decreasing

Non-bird species

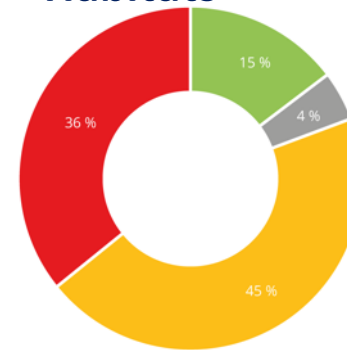


Good Unknown Poor Bad

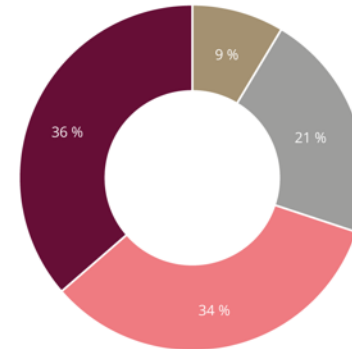


Unfavourable - improving Unknown
Unfavourable - stable Unfavourable - deteriorating

Habitats



Good Unknown Poor Bad



Unfavourable - improving Unknown
Unfavourable - stable Unfavourable - deteriorating

Derogations: Birds (Art.9), other species (Art.16)

- Derogation = exception to the strict protection regime
- What is reported?

- Legal justification

Public safety
Prevent serious damage
Research, education
Re-population, re-introduction
...

- Activity permitted

Killing, collecting
Disturbance
...

- Species concerned

- Number of individuals concerned



OVERVIEW OF DEROGATIONS AND EXCEPTIONS TO SPECIES PROTECTION ACROSS THE EU

A derogation/exception is a permit produced by an administration in a EU Member State that allows to deviate from the legal obligation for strict protection of all individuals of certain species, and of the breeding/resting sites of these individuals, as provided in the EU Birds and Habitats Directives.

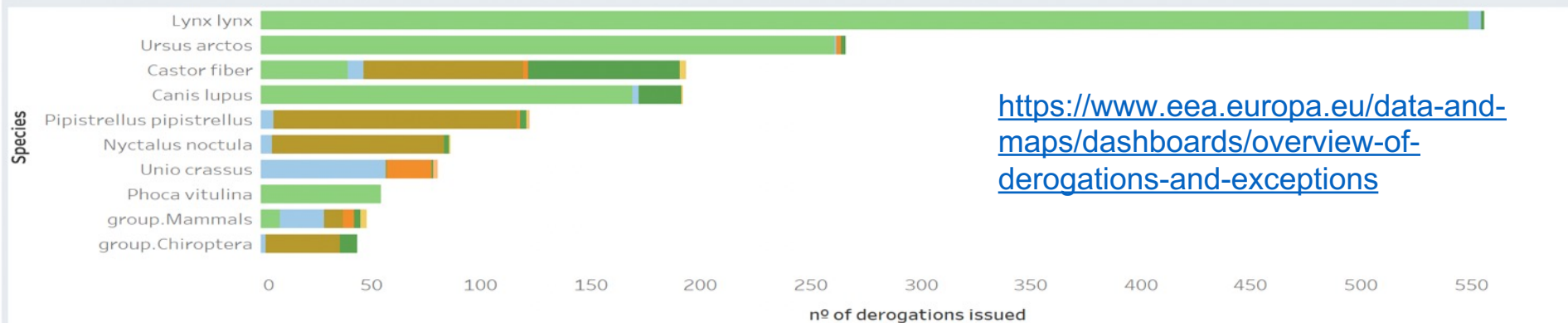
This dashboard presents an overview of the derogations and exceptions that national, regional or local administrations have granted across the EU. It is based on the number of derogations/exceptions that are reported to the EU. Please note that the number of derogations does not reflect the number of individuals affected by the derogations – a single derogation may cover many individuals, or just a single one.

Legal Obligation: Habitats Directive & Be...
Reporting period: (Valores múltiples)
Country: (Todo)
Species: (Todo)
Legal justification: (Todo)
Activity: (Todo)

EU statistics on species with the highest number of derogations

This bar chart ranks species according to the number of reported derogations/exceptions.

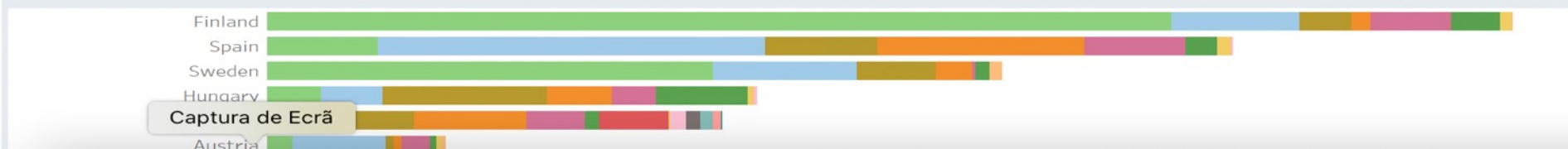
- Killing
- Capture and immediate release
- Deterioration of sites
- Capture and keeping
- Picking, collecting of plants
- Disturbance
- Destruction or damage to nests or
- Keeping, transport and sale



<https://www.eea.europa.eu/data-and-maps/dashboards/overview-of-derogations-and-exceptions>

EU statistics by Member State

This bar chart ranks EU Members States according to the number of reported derogations/exceptions



Invasive alien species (IAS)

- EU Regulation of 2014
- IAS of Union concern: 66 species (30 animals, 33 plants)
- All IAS
 - Prevention measures / emergency measures / national or regional lists
- IAS of Union concern
 - Prevention measures
 - Early detection and rapid eradication
 - Management of widespread

IAS reports 2015-2018

- 48 species

Summary statistics

Total number of rapid eradication measures: **66**

Total number of effective rapid eradication measures: **63**

Total number of management programs: **358**

Total number of effective eradication measures: **93**

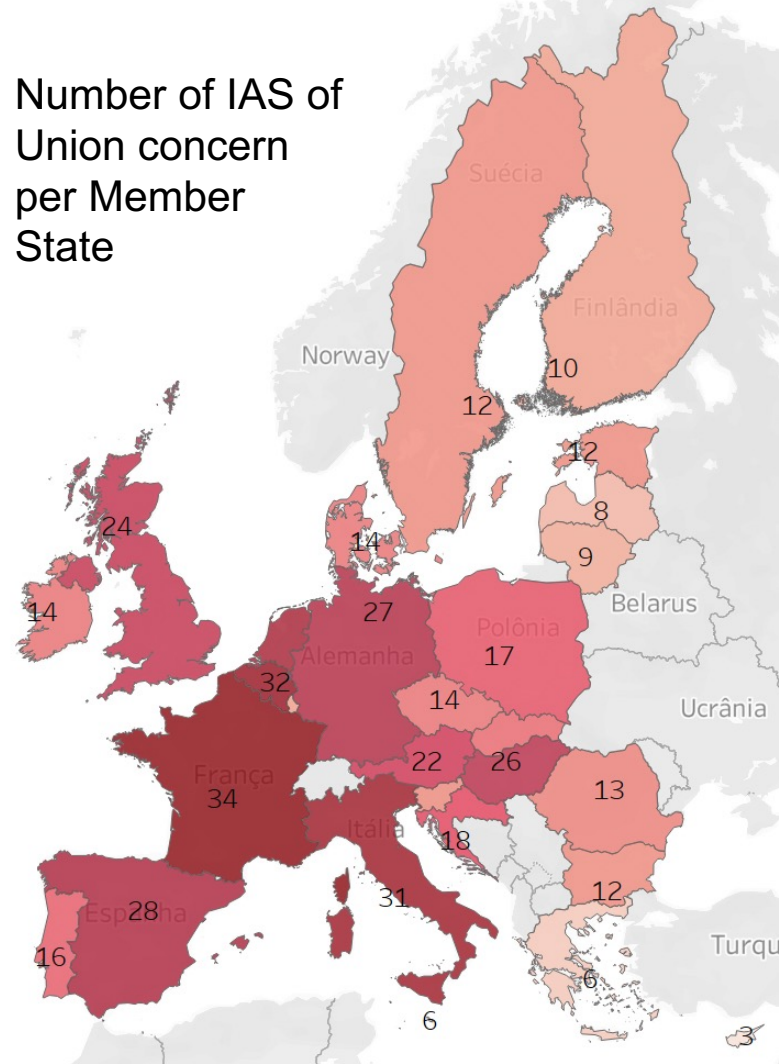
Total number of IAS with rapid eradication measures: **25**

Total number of IAS with management programmes: **41**

Total number of Member States applying rapid eradications measures: **17**

Total number of Member States doing management programs: **24**

Number of IAS of Union concern per Member State



Rapid eradication and management measures applied for IAS of Union concern

After the introduction of an invasive alien species, early detection and **rapid eradication measures** are crucial to prevent their establishment and spread. The most effective and cost efficient response is often to eradicate the population as soon as possible while the number of specimens is still limited. In the event that eradication is not feasible or the costs of eradication outweigh the environmental, social and economic benefits in the long term, containment and control measures should be applied. **Management measures** should be proportional to the impact on the environment and take due consideration of the biogeographic and climatic conditions of the Member State concerned.

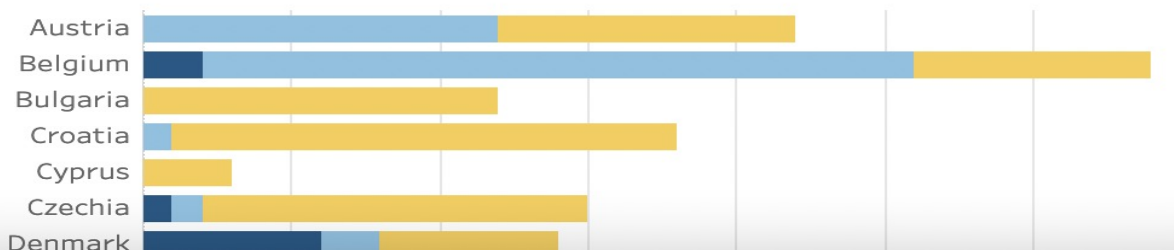


Filter by category

(Tudo) ▾

- Rapid eradication (Article 17 of Regulation (EU) No 1143/2014)
- Management measures (Article 19 of Regulation (EU) No 1143/2014)
- No measures, species presence unknown
- No measures, species present

a) Number of IAS of Union concern per measure category



<https://ias.eea.europa.eu/products/european-statistics/dashboard-measures-and-impacts>

Natura 2000 network

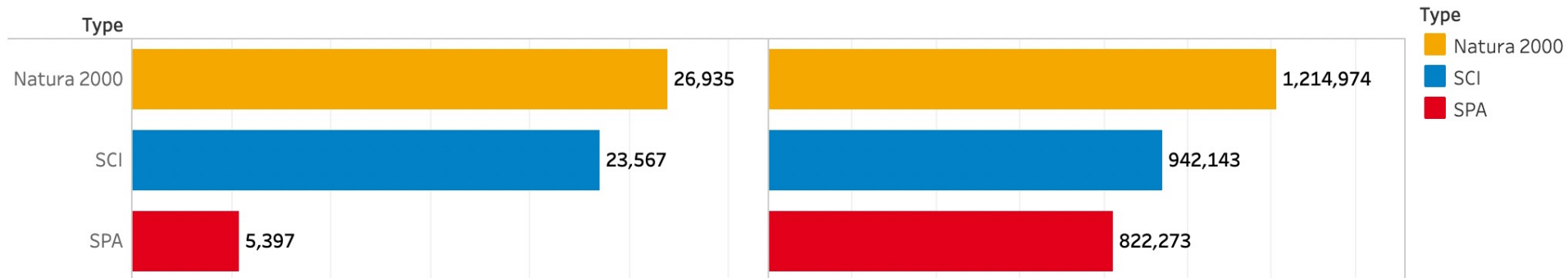
- Sites classified as Special Protection Areas (SPAs) – Birds Directive
- Sites proposed as Sites of Community Importance (SCIs), and later designated as Special Areas of Conservation (SACs) – Habitats Directive
- Standard Data Form (descriptive data)
- Site maps (spatial data)

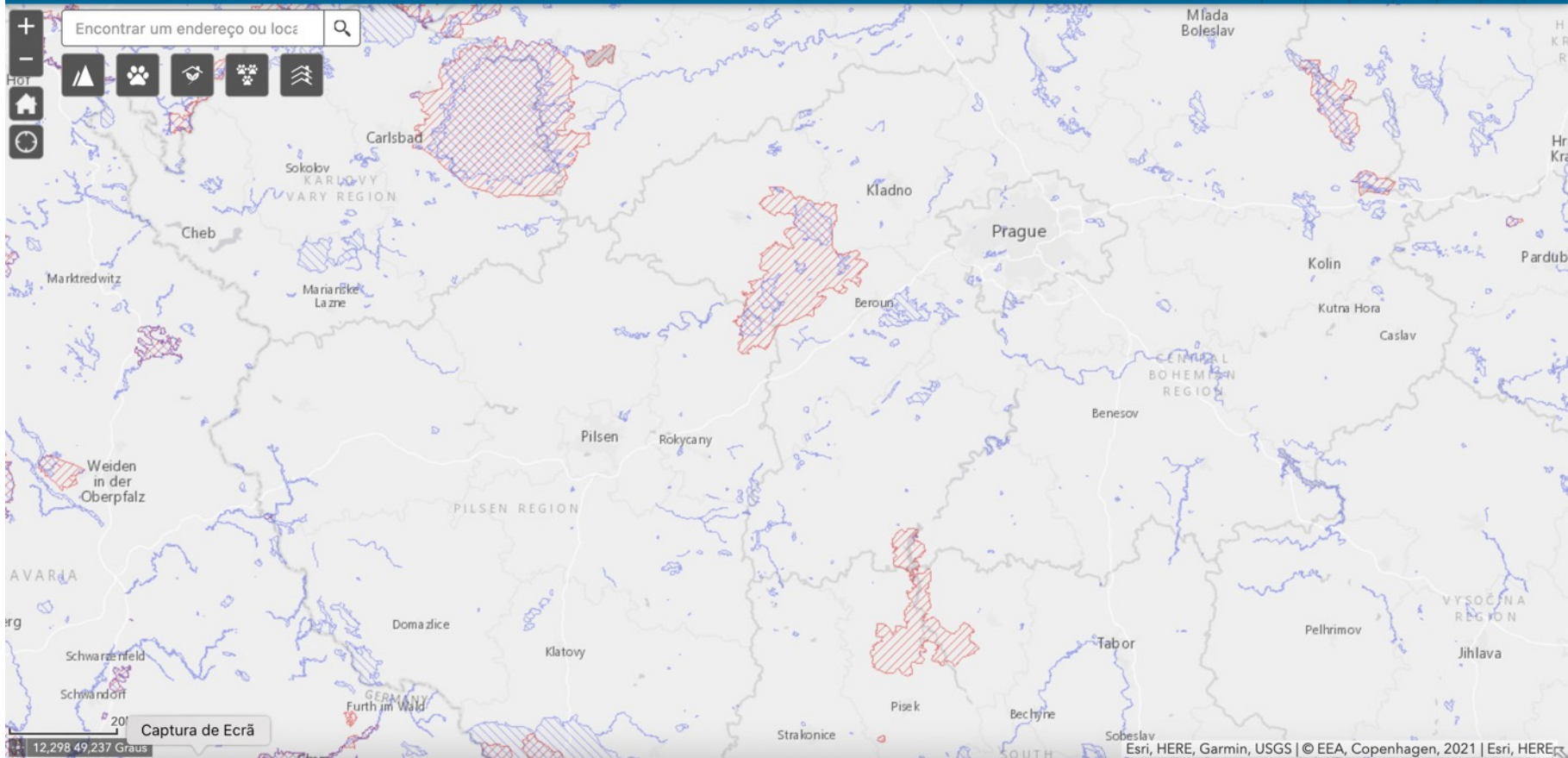
Natura 2000 network – status in 2022

- 18.5 % of EU land, close to 765 000 km²
- ~ 9 % of EU seas, over 450 000 km²

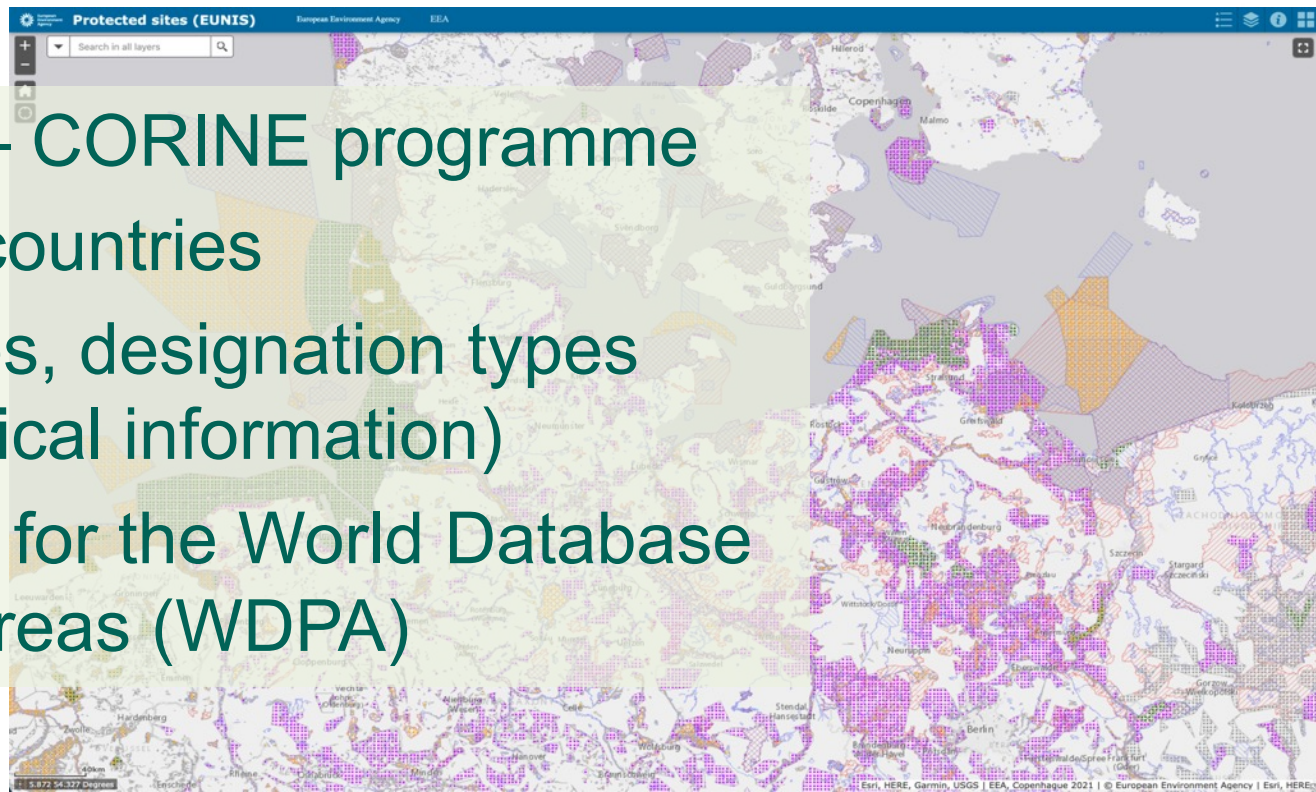
Number of Natura 2000 sites

Natura 2000 total area km²





- Started 1995 – CORINE programme
- 38 European countries
- GIS boundaries, designation types (but no ecological information)
- Official source for the World Database of Protected Areas (WDPA)



Protected areas - Czechia

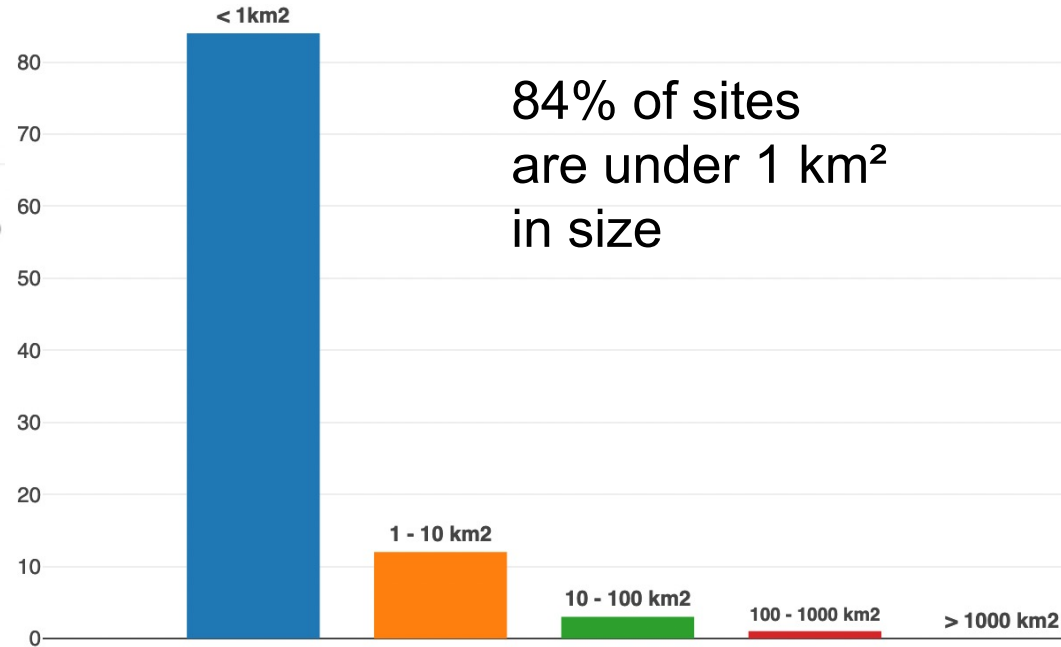
- 3 841 sites (22 %): 41 SPAs, 1 113 SCIs, 2 687 nationally protected



35.36% of the network is protected only through national laws

20.58% of the network consists solely of Natura 2000 sites

44.06% consist of and overlap between the two.

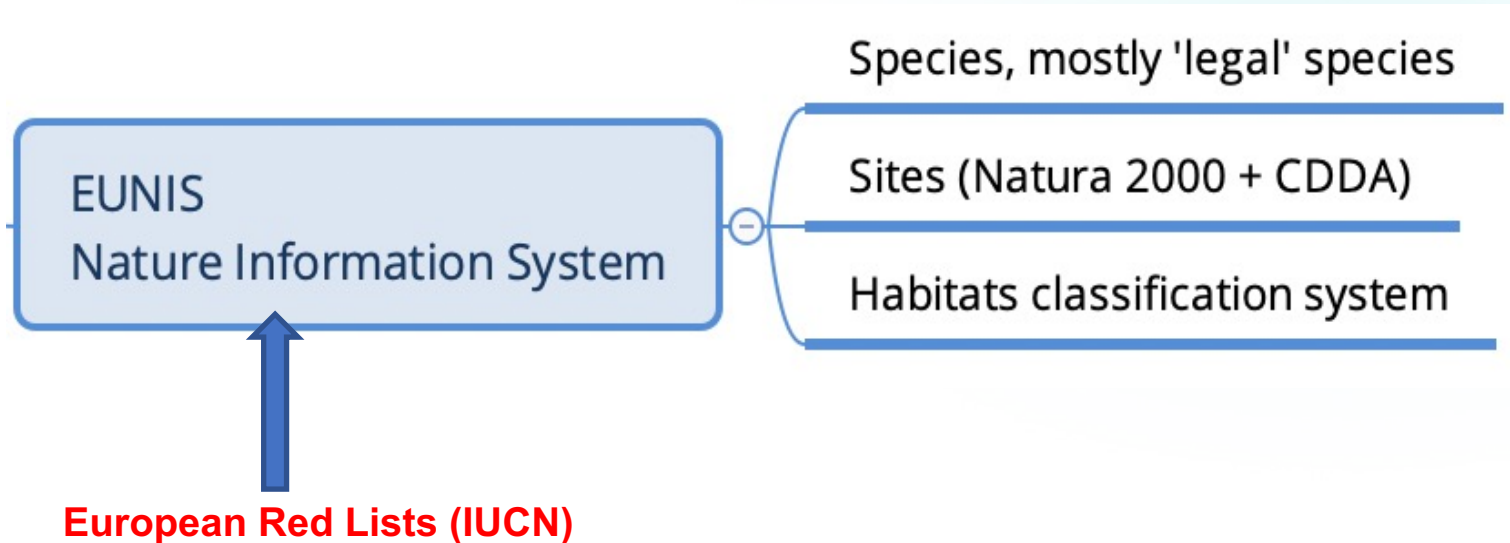


84% of sites are under 1 km² in size



European Nature Information System

- Brings together European data from several databases and organisations into three interlinked modules



Welcome to EUNIS, the European Nature Information System

Find species, habitat types and protected sites across Europe

Species

Search

Information about species in Europe, particularly species mentioned in legal texts

[Search tools](#)

Habitat types

Search

Information about the EUNIS habitat classification and the EU Habitats Directive Annex I habitat types

[Search tools](#)

Sites

Search

Information about protected and other designated sites in Europe

[Search tools](#)

Combined search

Advanced cross-search tool, linking species, habitat types and sites



<https://eunis.eea.europa.eu/>

Data gaps, issues of scale and harmonisation



Data quality and main gaps

- Inventories and monitoring of species and habitats
 - Absent, incomplete or not adequate
 - Large variability between countries, species, habitats
- This limits availability of trend data and comparability among countries
- Reports on pressures, mostly qualitative and based on expert opinion
- Protected areas – information reported does not allow assessment of their effectiveness

Example: methods used in Art.17 and Art.12 reports

- **Art 17**

21 % from complete survey / 36 % - absent or based on expert opinion

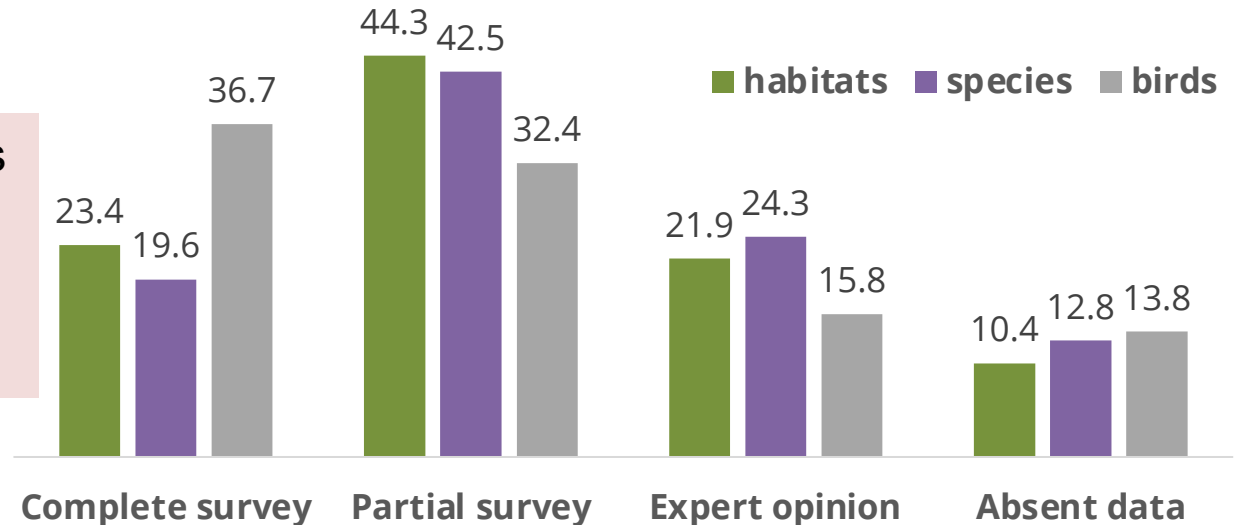
- **Art 12**

37 % from - complete survey / 30 % - absent or based on expert opinion

Variability among countries
e.g. Complete survey

- Art 17: **4% - 76%**

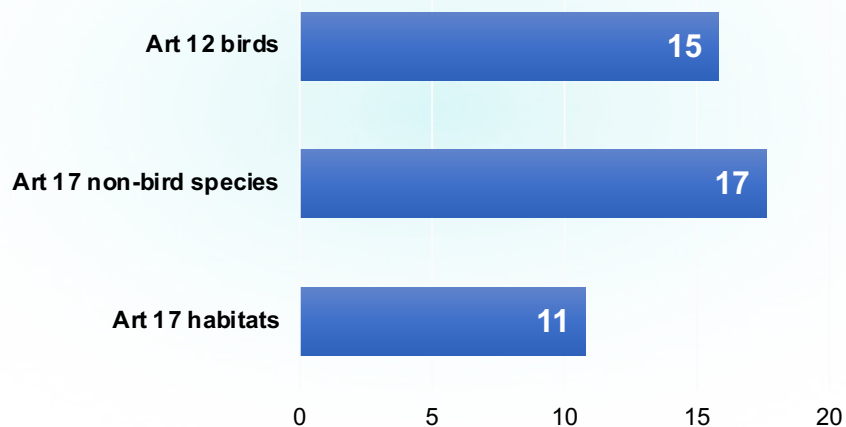
- Art 12: **0.1% - 95%**



Example: missing and unknown information

- Art 12 birds: mostly for **winter population trends & long-term trends** for breeding population & distribution
- Art 17 species: mostly for **population trends & trends for habitat** of species
- Art 17 habitats: mostly for trends of **area and habitat condition**
- Trends within the N2000 network

Missing and unknown information (%) reporting 2013-2018



Variability among countries

Art 17 (4% – 43% missing / unknown)

Art 12 (2% – 53% missing / unknown)

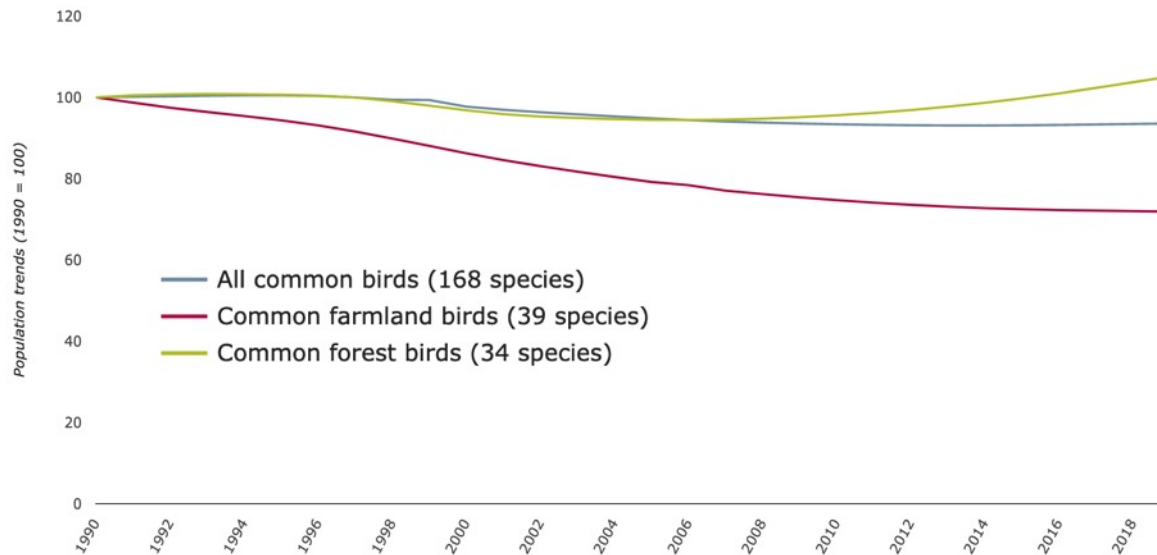
Some harmonisation problems

- **Definitions** of Annex I habitat types, despite the EU Interpretation Manual and biogeographical exchanges between countries
- Monitoring and assessment of **condition of habitat types** (structure and functions): no EU agreement on variables and thresholds on
 - Abiotic characteristics (physical & chemical state)
 - Biotic characteristics (compositional, structural & functional state)
 - Landscape level characteristics (diversity, connectivity, fragmentation)

Other biodiversity data/information we collect

Abundance and distribution of selected species in Europe - indicators

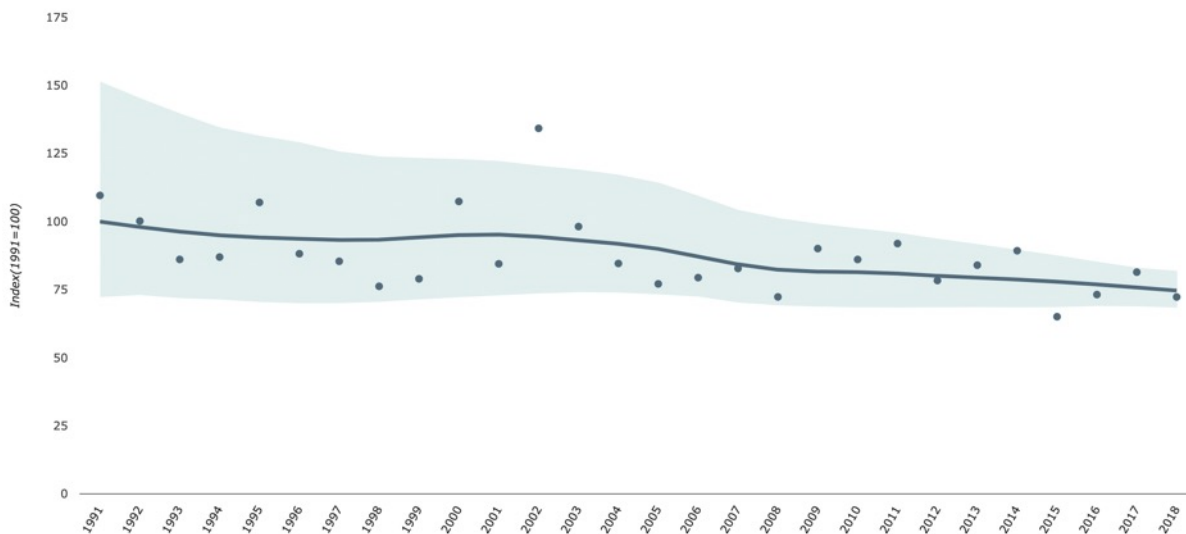
Figure 1. Common Birds in Europe — population index, 1990-2019



- [Pan-European Common Bird Monitoring Scheme \(PECBMS\)](#)
- European Bird Census Council, Royal Society for the Protection of Birds, BirdLife International, Statistics Netherlands
- [Czech Society for Ornithology \(CSO\)](#)

Abundance and distribution of selected species in Europe - indicators

Figure 2. Grassland butterflies — population index, 1991-2018



- [European Butterfly Monitoring Scheme \(eBMS\)](#)
- Joint initiative of [Butterfly Conservation Europe](#) and the [Centre for Ecology & Hydrology](#)) and the [Assessing Butterflies in Europe \(ABLE\)](#) project.



Copernicus Land Monitoring Service



Global

Pan-European

Local

Imagery and reference data

Product portfolio



Pan-European

Print



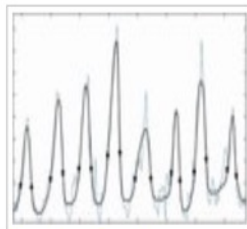
CORINE Land Cover



CLC+



High Resolution Layers



Biophysical parameters



European Ground Motion Service



Related Pan-European products

- Coordinated by the EEA
- Produces CORINE Land Cover datasets, High Resolution Layers and High Resolution Snow as Ice products
- as part of Biophysical parameters.

<https://land.copernicus.eu/pan-european>

Copernicus Land Monitoring Service

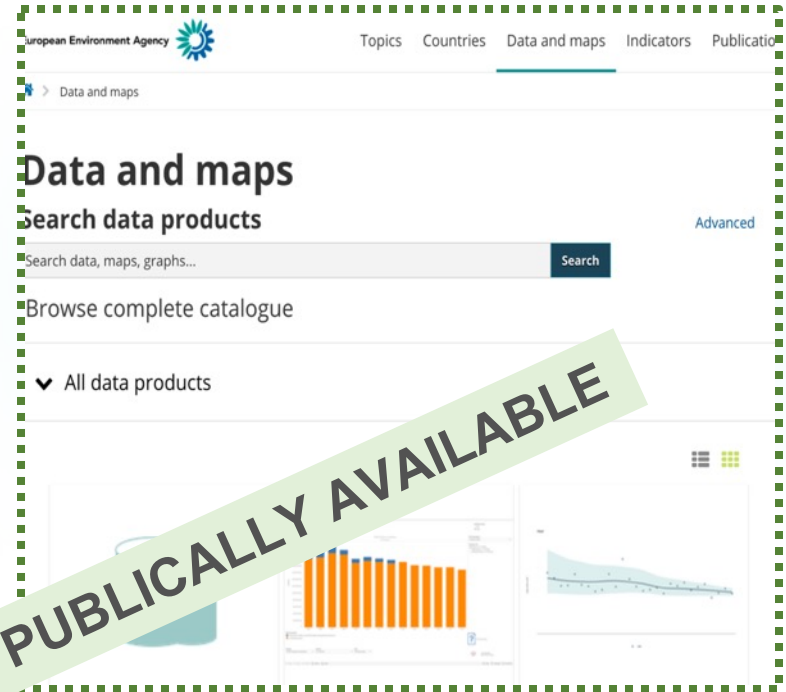
- The CORINE Land Cover (1990, 2000, 2006, 2012, 2018). Vector-based dataset includes 44 land cover and land use classes. Includes a land change layer
- The High Resolution layers (HRL). Raster-based datasets: impervious (sealed) surfaces (e.g. roads and built up areas), forest areas, grasslands, water & wetlands, and small woody features
- More products to come in 2021-2022: High Resolution Phenology and Productivity, CLC+ and European Ground Motion Service

How do we make this data available?



Main types of products

- Spatial and descriptive data sets
- Thematic web pages
- Data viewers and web tools
- Dashboards (interactive)
- Indicators
- Information systems
- Publications



Thematic web pages

> [IAS of Union concern](#)

> [Data viewers](#)

[Dashboard IAS of Union concern](#)

[Dashboard Measures and Impacts](#)

[Dashboard Permits and Inspections](#)

[Dashboard Pathways](#)

[Dashboard Spread patterns](#)

[Dashboard IAS of Member State concern](#)

[Dashboard per IAS of Union concern](#)

[Map viewer IAS and Nature Directives](#)

Data viewers

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[Map viewer IAS and Nature Directives](#)

See the distributed 2000 network.

Explore nature reporting data

Every 6 years EU Member States are required to report on the sizes of and trends in populations of birds (Article 12 of the Birds Directive) and on the conservation status of and trends in targeted habitats and species (Article 17 of the Habitats Directive) within their European territories.

Last modified 23 Jun 2021 — 2 min read



The EEA, together with its European Topic Centre on Biological Diversity and consultants from the Commission, compile and process the reports from the Member

Nature reporting web tools (Art.12 & Art.17)

<https://nature-art12.eionet.europa.eu/article12/>
<https://nature-art17.eionet.europa.eu/article17/>

Period...
 Group...
 Name...
 Bio-region...

Note: Rows in italic shows data not taken into account when performing the assessments (marginal presence, occasional, extinct prior HD, information, etc)

Legend: FV Favourable XX Unknown U1 Unfavourable-Inadequate U2 Unfavourable-Bad

Current selection: 2013-2018, Grasslands, 6240 Sub-Pannonic steppic grasslands, Continental. [Show all Grasslands](#)

Member States reports

MS	Range (km ²)				Area (km ²)								Structure and functions (km ²)					Future prospects					Overall assessment					Distribution area(km ²)		
	Surface	Status (% MS)	Trend	FRR	Min	Max	Best value	Type est.	Method	Status (% MS)	Trend	FRA	Good	Not good	Not known	Status	Trend	Range prosp.	Area prosp.	S & f prosp.	Status	Curr. CS	Curr. CS trend	Prev. CS	Prev. CS trend	Status Nat. of ch.	CS trend Nat. of ch.	Distrib.	Method	% MS
AT	8900	10.87	=	>	1.50	2.70	2.10	interval	a	0.05	-	>	1.50 - 2.70	0.02 - 0.03	N/A - N/A	FV	x	poor	poor	poor	U1	U1	x	U1	x	noChange	genuine	5800	a	11.65
BG	34800	42.52	u	34800	N/A	N/A	145.91	minimum	b	3.42	-	145.91	N/A - N/A	N/A - N/A	145.91 - 145.91	XX	x	poor	poor	poor	U1	U1	x	U1	=	noChange	method	17600	b	35.34
CZ	3600	4.40	=	≈	N/A	N/A	0.55	estimate	a	0.01	=	≈	0.53 - 0.53	0 - 0	0.01 - 0.01	U2	-	poor	poor	poor	U1	U2	-	U2	-	genuine	genuine	1300	a	2.61
DE	23051	28.16	-	>>	12.65	30.51	13.06	estimate	b	0.31	-	>>	6.28 - 14.44	4.21 - 7.69	2.08 - 8.86	U2	-	bad	bad	bad	U2	U2	-	U1	-	genuine	noChange	17900	b	35.94
HR	3100	3.79	u	>	3.50	5	N/A	estimate	a	0.10	u	>	N/A - N/A	N/A - N/A	3.50 - 5	XX	u	poor	bad	unk	U2	U2	x	N/A	N/A	noChange	noChange	3100	a	6.22
RO	8400	10.26	=	≈	N/A	N/A	4100	interval	b	96.11	+	≈	3000 - 3400	100 - 400	100 - 300	FV	u	good	good	poor	U1	U1	-	U1	N/A	knowledge	knowledge	4100	a	8.23

Automatic Assessments

EU biogeographical assessments

MS/EU28	Surface	Status Range	Trend	FRR	Min	Max	Best value	Status Area	Trend	FRA	Good	Not good	Not known	Status Str. & funct.	Trend	Range prosp.	Area prosp.	S & f prosp.	Status Future prosp.	Curr. CS	Curr. CS trend	2012 CS	2012 CS trend	Status Nat. of ch.	CS trend Nat. of ch.	2001-06 status with backcasting	Target 1
EU28	81851	2GD						2GD			- - -	- - -	- - -	2GD					2GD	MTX	x	U1	-	gen	nong	U1	C
RO											100 400 -	3000 3400 -	100 300 -			poor	poor	poor	2XR	3XR	-	U1	-			U1	F

Information systems



<https://biodiversity.europa.eu/>



<https://water.europa.eu/freshwater>

EUNIS

European Nature Information System

<https://eunis.eea.europa.eu/>



Forest Information System for Europe

<https://forest.eea.europa.eu/>



<https://water.europa.eu/marine>

Combining data from different data sets

<	Table of content	Birds Directive	Habitats Directive	Natura 2000	Natura 2000, % inside and outside	Land cover stocks within N2000 by NUTS3 (map)
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Special protection areas (SPAs) (2020) - CLC 2018 Level 1 by Country (km²)
(country/ies: Todos; biogeoregion/s: Todos)

	1 Artificial surfaces	2 Agricultural areas	3 Forest and semi natural areas	4 Wetlands	5 Water bodies
Austria	104,39	2 024,32	7 740,91	143,05	230,00
Belgium	127,25	970,18	1 953,94	81,28	38,67
Bulgaria	358,64	7 158,76	17 543,33	85,18	435,78
Croatia	234,13	4 196,11	11 703,47	180,90	396,57
Cyprus	9,65	242,13	1 259,99	7,25	12,75
Czechia	99,40	1 705,20	5 004,97	72,24	143,45
Denmark	20,21	914,05	780,86	426,59	288,60
Estonia	8,47	491,15	3 674,59	1 305,01	516,49
Finland	3,20	106,99	16 038,47	6 271,59	1 872,75
France	510,95	15 695,59	24 998,33	1 398,75	1 646,57
Germany	205,63	16 506,41	20 608,03	1 023,24	2 025,49
Greece	224,58	5 296,80	20 769,34	450,06	758,29
Hungary	52,34	5 266,25	6 856,12	470,16	1 087,34
Ireland	6,30	648,85	1 413,68	1 424,20	976,56
Italy	284,42	8 160,83	30 234,02	554,47	1 709,29
Latvia	57,89	1 492,89	3 764,07	757,86	480,19
Lithuania	13,79	1 268,50	3 493,73	248,63	491,93
Luxembourg	3,39	233,80	173,41	0,38	5,11
Malta	0,64	3,06	6,78	0,02	
Netherlands	37,70	477,02	1 427,41	481,62	2 506,16
Poland	804,45	17 169,44	27 605,71	702,47	2 812,84
Portugal	68,28	4 093,13	4 666,85	232,60	242,49
Romania	265,57	12 012,53	19 564,89	2 602,71	2 590,50
Slovakia	22,92	3 392,88	9 456,62	26,95	146,34
Slovenia	0,05	976,57	3 998,98	29,05	32,01

Natura 2000 & Land Cover

<https://www.eea.europa.eu/data-and-maps/dashboards/natura-2000-data-viewer>



What do we do with this data?



From data to policy - actionable knowledge

- Policy cycle – EU, European, Global
 - Developing
 - Implementing
 - Reviewing
 - Assessing
- Legislation
- State of Environment & Nature
- Research projects
- Consultancies



How the European Commission uses biodiversity data: some examples

- [Biodiversity indicators](#) of the Common Agriculture Policy
 - Conservation status and trends of agricultural species and habitats
 - Farmland bird index
 - Natura 2000
- Evaluating CAP national strategic plans
- Selecting LIFE projects
- Investigating legal infringements
- Impact assessment of new EU legislation
- Regular review of existing legislation

The EU Biodiversity Strategy for 2030



"Making nature healthy again is key to our physical and mental wellbeing and is an ally in the fight against climate change and disease outbreaks. It is at the heart of our growth strategy, the European Green Deal, and is part of a European recovery that gives more back to the planet than it takes away."

Ursula Von der Leyen, President of the European Commission

https://eur-lex.europa.eu/resource.html?uri=cellar:a3c806a6-9ab3-11ea-9d2d-01aa75ed71a1.0013.02/DOC_1&format=PDF

https://ec.europa.eu/environment/strategy/biodiversity-strategy-2030_en

EU Biodiversity Strategy 2030 Bringing nature back into our lives

- Protecting and restoring nature in the EU
- Enabling transformative change
- Global biodiversity agenda
- FARM-TO-FORK Strategy

2. PROTECTING & RESTORING NATURE



3. ENABLING TRANSFORMATIVE CHANGE



4. GLOBAL BIODIVERSITY AGENDA

2. PROTECTING & RESTORING NATURE

2.1. Trans-European Nature Network

2.2. EU Nature Restoration Plan

2.2.1. Legal framework for nature restoration

2.2.2. Bringing back nature to agricultural land

2.2.3. Addressing land take & restoring soil ecosystems

2.2.4. Improving quantity, health & resilience of forests

2.2.5. Win-win solutions for energy generation

2.2.6. Restoring the good environmental status of marine ecosystems

2.2.7. Restoring freshwater ecosystems

2.2.8. Greening urban and peri-urban areas

2.2.9. Reducing pollution

2.2.10. Addressing Invasive Alien Species

Trans-European Nature Network

- EU level target
- **30 % of land & 30 % of sea**
Natura 2000, national protected areas, other effective area-based conservation measures (OECMs)
- **10 % should be strictly protected**
include all remaining **primary and old growth forests**
- **Effectively managed** (no *paper-parks*)
- Each country contribute with fair share (based on ecological criteria)
- [Commission criteria and guidance](#)
- Countries to submit contributions (pledges) by end of

2022

European Environment Agency



EU Nature Restoration Plan

Legal framework for nature restoration

1. Commission to propose **new legislation** with legally binding targets for **nature restoration** (ongoing)
2. Raise level of implementation of nature directives
 - Country level target
 - **No deterioration** of conservations status and trends
 - **30 %** of species & habitats are **Favourable** or show **improvement** in trends
 - [Commission guidance](#) to select and prioritise species and habitats
 - Countries to submit contributions (pledges) by end of 2022



EU Nature Restoration Plan

A few other highlights

- Reverse decline of pollinators
- Reduce risk and use of pesticides and fertilizers
- Restore at least 25 000 km² of free-flowing rivers
- Reduce by 50 % Red List species threatened by invasive alien species
- Reduce or eliminate by-catch of species
- ...



Děkuju

