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## Article 12 datasets (tabular and spatial)

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# Introduction

The European Commission will have to report in 2015 on the overall implementation of the Birds and Habitats Directives at the EU level. As part of this, an assessment of population status of all naturally occurring wild bird species at EU level will be done.

The present European database which results from the merging into a European database of all data reported by Member States under Article 12 of the Birds Directive will be used to prepare this assessment.

Until now the reporting under Article 12 had reflected the legal transposition and technical implementation on the national level. However, between 2008 and 2011 the new reporting format under Article 12 was developed jointly by Member States, the European Commission and contracted experts to be used for a first reporting under the new system by the end of 2013.

The current Article 12 reports cover the reporting period 2008-2012; Member States uploaded their reports between December 2013 and April 2014 on [EIONET Central Data Repository CDR](#) under the obligation “Birds Directive: Progress/implementation report (Article12, Birds Directive)”.

All data deliveries were subject to intensive automated as well as manual quality assessment/quality control (Qa/Qc) procedures; the resulting Qa/Qc reports are available together with the delivered data in CDR.

The following resources are useful to understand the **reporting format**:

- [Reference Portal for Article 12 of the Birds Directive](#)

This web page provides links to all reference documents necessary to complete the **reporting format** including Explanatory notes and Guidelines for the period 2008-2012 (reporting guidelines).

The purpose of this note is to document the structure of the tabular and spatial part of the EU Article 12 datasets.

## 1 The data reported by Member States

### 1.1 Overview on the data structure - tabular data

The [reporting format](#) (see also the Reference Portal) has basically two different parts:

#### 1.1.1 General reporting format (Annex 1)

This part aims at summarising the most important facts and figures on the general implementation of the Birds Directive in the given Member State, including links to more detailed information sources.

- Main achievements under the Birds Directive

- General information sources on the implementation of the Birds Directive – links to information sources of the Member States
- SPA classification (ref. Article 4)
- Comprehensive management plans for SPAs
- Measures taken in relation to approval of plans and projects (ref. Articles 6(4) and 7 of the Habitats Directive)
- Research and work required as basis for the management and use of bird populations (ref. Article 10)
- Non-native bird species (ref. Article 11)

### **1.1.2 Bird species' status and trends reporting format (Annex 2)**

This species-wise report format is more detailed and comprises the following sections for each Bird species present occurring in the MS territory:

- Species information
- Population size
- Population trend
- Breeding distribution map and range size
- Breeding range trend
- Progress in work related to international Species Action Plans (SAPs), Management Plans (MPs) and Brief Management Statements (BMSs)
- Main pressures and threats
- SPA coverage and conservation measures

## **1.2 Overview on the data structure - spatial data**

The reporting requires providing information on (a) the breeding distribution and (b) the breeding range of the targeted species of the Birds Directive.

### **1.2.1 Reference grid and spatial resolution**

The Member States were asked to use the [EEA reference grid](#), which is based on the recommendation made at the 1<sup>st</sup> European Workshop on Reference Grids in 2003 and later as part of the INSPIRE geographical grid systems.

The spatial resolution is 10x10 km (ETRS 89 grid cells); in some exceptional cases a 1x1 km grid was used.

### 1.2.2 Distribution maps

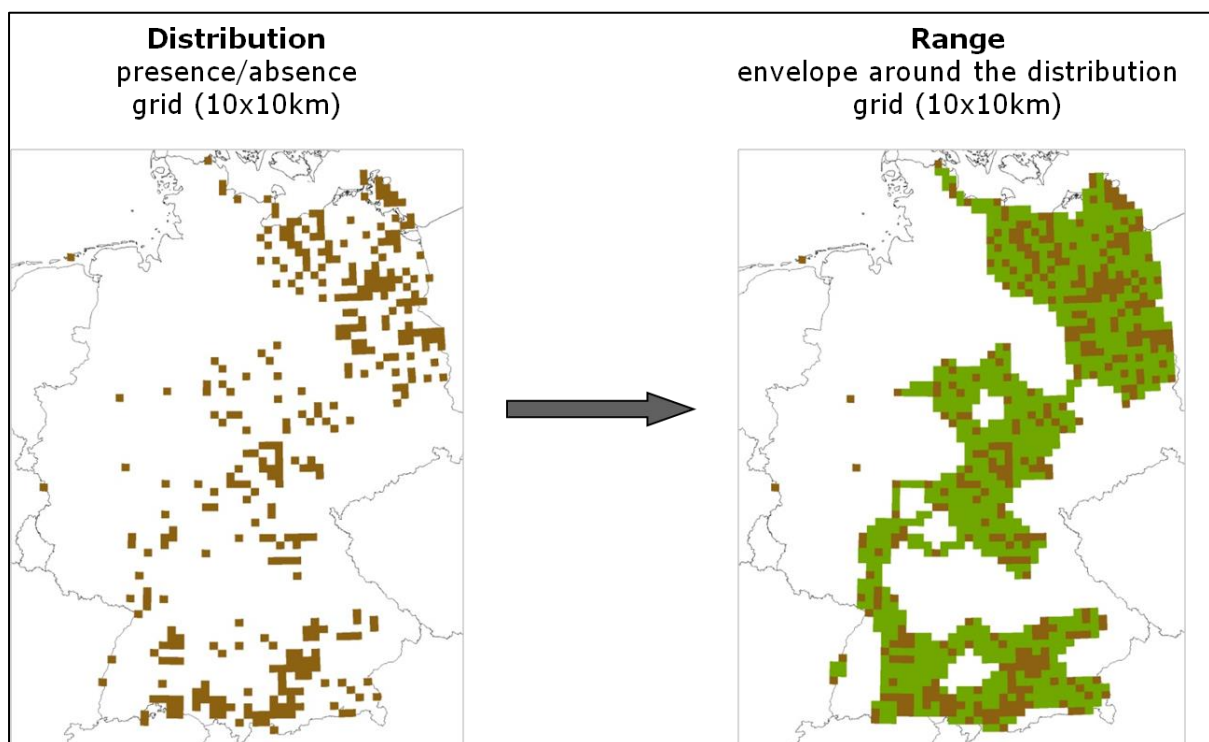
The distribution maps provide information about the known breeding occurrence of the species, which should be based on the results of a comprehensive national mapping or inventory of the species wherever possible.

Only the presence of targeted species in the grid cell is documented in the dataset; the grids cells do not contain information about the absence of these species. The use of attribute data was not permitted. The period over which the distribution data was collected is included in the metadata of the Member States deliveries following the INSPIRE guidelines.

### 1.2.3 Range maps

The range maps have been calculated from the distribution maps by the Member States themselves. In order to harmonise the methodology for such calculation a [range tool](#) had been made available to Member States (it is the same range tool as used for Article 17 reporting under the Habitats Directive.)

**Figure 1-1 Example for distribution and derived range map**



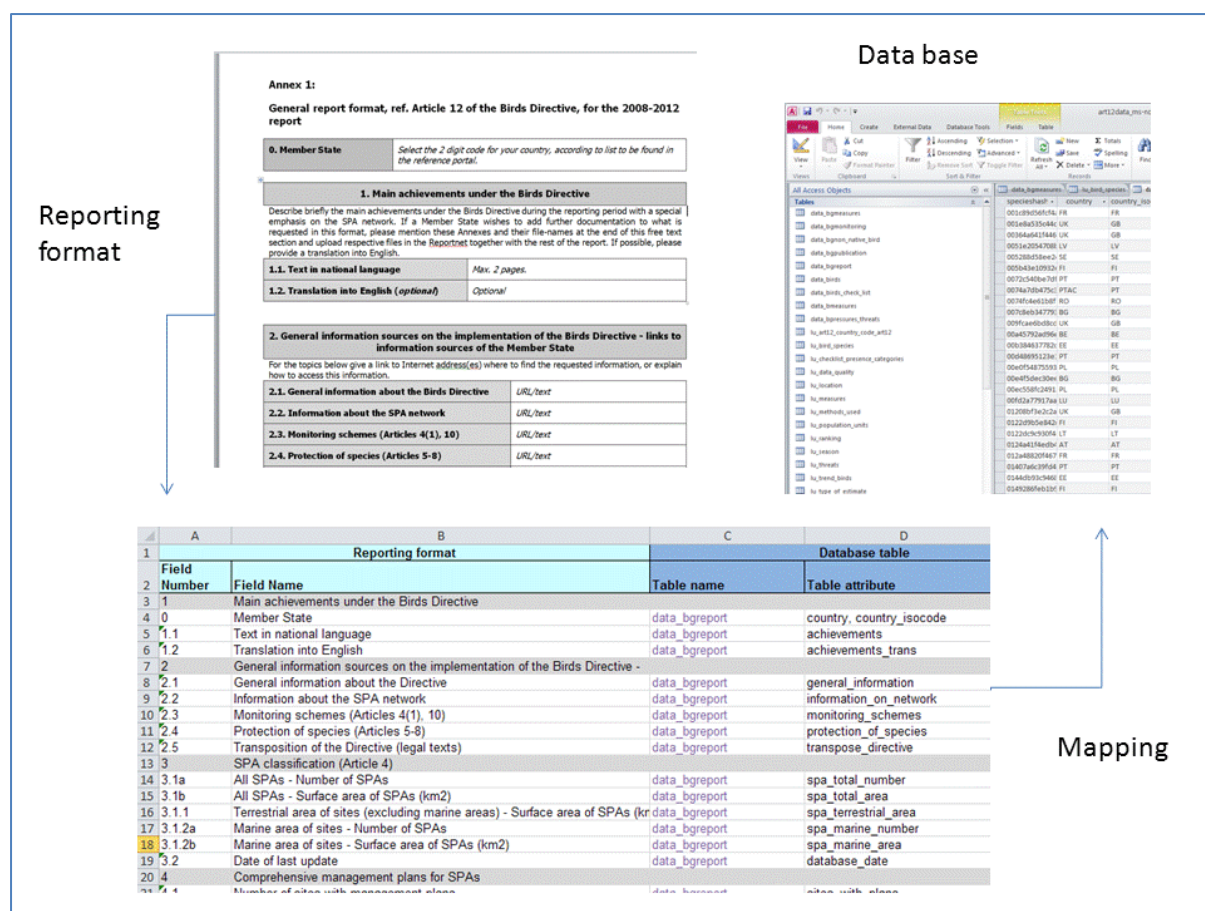
## 2 The European data set – tabular data

### 2.1 Mapping between the fields in the reporting format and the tables and attributes of the European dataset

The tabular data as delivered by Member States have been merged into a European data set.

Figure 2-1 illustrates how the content of the database can be mapped to the reporting format and *vice versa*. The detailed mapping is listed in Annex 2 and the entity relationship diagram is in Annex 4. The Explanatory notes and Guidelines of the reporting format are available in the Art 12 reference portal.

**Figure 2-1 Mapping between the reporting format the EU database**



### 2.2 Changes made by the ETC/BD to the data delivered by Member States for the compilation of the European data set

The quality of the data delivered by Member States was generally good. However in order to enable a smooth use of the merged data sets at the European level some ‘cleaning’ was necessary.

### **2.2.1 Use of different species names in descriptive and spatial data**

In some cases Member States did not follow properly the reporting guidelines and delivered distribution and range maps under a different taxon name (and therefore different code) than the one used in the tabular report. This concerns on the one hand the use of species synonyms by MS instead of the name recommended for reporting. It also concerns species for which the report is given for a subpopulation flyway - following the reporting guidelines - whereas the map shows the distribution on the subpopulation level or even for a different flyway than used in the report (for examples, see Annex 3).

As the European data set is made up of both the tabular and the spatial data, the harmonisation of species names used for both data sets had to be achieved. For this purpose a cross-linkage table has been created in collaboration between the ETC/BD and the contractor of the European Commission (BirdLife International), which allows assigning the reported descriptive data with the spatial data. The cross/linkage is presented in Annex 3.

### **2.2.2 Change of the ‘presence status’**

In some cases the presence status of species as reported by the MS in its national checklist was reviewed by the contractor of the European Commission. For further information on the checklists see the reporting guidelines in the Art12 Reference portal.

### **2.2.3 ‘Technical cleaning’**

The majority of issues with data deliveries have been solved by the Member States as part of their final delivery, following the Qa/Qc procedures. However some minor ‘technical cleaning’ remained to be done for the European data set:

- The obligatory information on ‘map delivered’ for range and distribution maps in the table “data\_species” has been updated according to the maps received.
- The flag for sensitive information in the table species\_reports has been double checked with the shapefiles for sensitive species distribution and range and, after consultation with the Member States updated accordingly.
- Erroneous entries of 0 for population units were corrected to null.
- In the table data\_bg\_measures one incorrect site code was corrected based on the sitename and the code listed in the Natura2000 database.
- The three fields range\_map, additional\_distribution\_map and sensitive\_species have been automatically filled in with ‘0’ for non-breeding species where, in the original dataset, no value was reported at all.
- The missing country isocode has been filled in for NL.
- Missing EURING codes have been filled in after consultation with the contractor of the European Commission.



## 2.2.4 Known issues

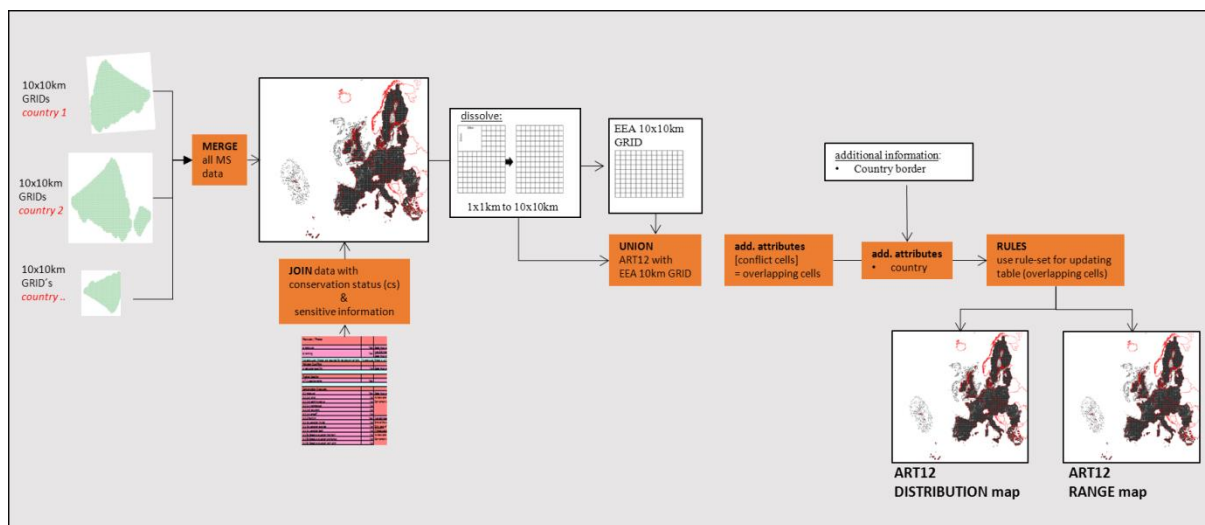
- In a few cases the character encoding (reference to the table for the character set such as UTF8) could not be correctly transferred into the MS access database. However this concerns only fields which are not directly used for data analysis such as “published sources” of the reporting format. However the text is correctly displayed in CDR by means of html pages (see Annex I for the URL to Member States deliveries).

# 3 The European data set – spatial data (GIS)

## 3.1 Overview on the workflow

An overview on the workflow for the production of the GIS data set is given in figure 3-2. The distribution and range maps as delivered by the Member States have been merged into a European data set. The overlapping cells – e.g. along country borders– have been treated according to a detailed rule set as described in Annex 5.

Figure 3-1 Workflow on the EU GIS data set production



## 3.2 Data sets used for the production of the European data set

- Breeding distribution and range maps for bird species delivered by the Member States (the links to the reports are listed in Annex 2)  
The grid is based on the recommendation at the 1st European Workshop on Reference Grids in 2003 and later INSPIRES geographical grid systems. For each country three vector polygon grid shape files, 1, 10 and 100 km, are available. The grids cover at least country borders - plus 15km buffer - and, where applicable, marine Exclusive Economic Zones v7.0 - plus 15km buffer - ([www.vliz.be/vmdcdata/marbound](http://www.vliz.be/vmdcdata/marbound)). Note that the extent of the grid into the marine area does not reflect the extent of the territorial waters.

The data can be downloaded from the EEA data sever:

<http://www.eea.europa.eu/data-and-maps/data/eea-reference-grids-2>

- EuroBoundaryMap  
This map provides a European geographic database for administrative and statistical regions that will be maintained at the source level by the National Mapping and Cadastral Agencies (NMCAs), and by providing harmonized access conditions for this geographic information within the framework of EuroGeographics. EBM (1:100 000) offers the combined strength of detailed European administrative units and linkages to the corresponding LAU and NUTS codes.

Version used:

EuroBoundaryMap (full European coverage) - version 7.0, Oct. 2013

<http://sdi.eea.europa.eu/catalogue/srv/eng/search?uuid=f917855c-8fde-44dd-99f1-7849060e1844>

### 3.3 Attributes of the European spatial data set

The shapes files have in addition to the standard attributes such as Objectid and Cellcode also information on the species code used in the report delivered by the countries (“Code\_orig”) and the sensitivity of spatial information. The cross linkage of the codes in the GIS data set and the tabular data is listed in Annex 3.

**Table 3-1 Attribute table of the European spatial data set**

Attribute	Type	Example	Comment
OBJECTID	number	1	Identifier
CellCode	String	10kmE429N265	EEA 10 km grid code (ETRS3035)
EofOrigin	Number	4290000	East [m]
NofOrigin	Number	2650000	North [m]
Code	String	A267	Art12 bird species code
Country	String	AT	2-letter ISO 3166 country-code with exceptions 1) UK instead of GB 2) new codes for the following regions: Gibraltar (GIB), Azores (PTAC), Madeira (PTMA), Canary Islands (ESIC)
MapType	String	Distribution	(Distribution) / (Range)
Category	String	Birds	
Code	String	A154-B	Birds code
MapType	String	Distribution	(Distribution) / (Range)
Code_orig	String	A154-A	Art12 bird species code in original MS data deliveries
Sensitive	String	NO	sensitive (yes) / not sensitive (no)

### 3.4 Sensitive information

Some Member States considered that for selected species making information on their distribution publicly available is detrimental to their conservation (guidance on sensitive species was given in the reporting guidelines).

The reporting format allowed flagging those species. Thus the distribution maps for species being marked as sensitive information have been removed from the European spatial data set.

**Table 3-2 Number of sensitive species per country**

Country	No. sensitive species
AT	2
BG	12
CY	12
FI	11
FR	4
IE	1
IT	11
LT	47
LU	3
PT	3
PTAC	5

## 4 Reference data to facilitate statistics from an ecosystem perspective

For reporting on state and trends of biodiversity from an ecosystem perspective, information on the association of species and habitat types to ecosystems is required. Hence in 2013 the ETC/BD prepared reference data sets - building on preliminary work done in 2010 -, where all Mammal, Reptile and Amphibian species listed in European Atlases, all species and habitats considered for reporting under Article 17 of the Habitats Directive and all bird species considered for reporting under Article 12 of the Birds Directive are allocated to ecosystem-types as defined by the MAES typology (under Target 2 of the EU 2020 Biodiversity Strategy). This allocation of species and habitat per ecosystem is done for each of the nine terrestrial biogeographical regions (according to the Habitats Directive) and each marine region (according to the Marine Strategic Framework Directive). The methodology is described in: EEA 2013: Linking species and habitats with MAES ecosystem types at biogeographical level. Explanatory note. This note was prepared for the public consultation in 2013.

The “MAES table for birds” is a subset of the reference data set on “association of species and habitat types to ecosystems” and includes all Bird species covered by the Birds Directive. The association to ecosystems was done separately for wintering and breeding populations. For the birds populations only one type of association is used, namely ‘preferred ecosystems’. Not more than three preferred ecosystems were associated to one bird species population. In the original reference data set on “association of species and habitat types to ecosystems” the association of the birds species to their preferred ecosystems was done on the European Biogeographical level but due to the specific rules for the Art 12 reporting, it was needed to make the association at EU level. Thus an aggregation was done using the following rule: If the total number of the associated ecosystems for a bird population across all regions was higher than 3, the selection was made on the three higher mentioned MAES ecosystems when possible if not, the attribution was based on the following references: Tucker & Evans, 1997, Habitats for Birds in Europe: A Conservation Strategy for the Wider Environment, BirdLife Conservation Series 6 and associated files updates in 2013.

**Table 4-1 Description of the MAES table for birds**

Table: species_birds_maes_EU27	
Table attribute	Description
speciesname	Name of the species as used for the reporting
sub_unit	Indication on subpopulation, related to the speciesname
speciescode	Species code used in the Art 12 reporting
euringcode	Code for species according to EURING
codeeco	Code ecosystems: lu_ecosystems_maes
typeasso	Importance of the bird relation/link to the MAES classification: lu_spec_hab_association
season	Indication of whether breeding or winter data were used in the EU assessment of status: lu_season
region	Regional scope (here the EU27) on which the relation to the MAES classification is relevant for a given species and season.

## References

Reference Portal: [http://bd.eionet.europa.eu/activities/Reporting/Article\\_12/reference\\_portal](http://bd.eionet.europa.eu/activities/Reporting/Article_12/reference_portal)

Explanatory notes and guidelines for Article 12 reporting:  
<https://circabc.europa.eu/sd/a/4fc954f6-61e3-4a0b-8450-ca54e5e4dd53/Art.12%20guidelines%20final%20Dec%202011.pdf>

## Annex 1 Links to Member States deliveries in CDR

MS	envelope
country	envelope
AT	<a href="http://cdr.eionet.europa.eu/at/eu/art12/envup20ww">http://cdr.eionet.europa.eu/at/eu/art12/envup20ww</a>
BE	<a href="http://cdr.eionet.europa.eu/be/eu/art12/envurmcrq">http://cdr.eionet.europa.eu/be/eu/art12/envurmcrq</a>
BG	<a href="http://cdr.eionet.europa.eu/bg/eu/art12/envurvl3a">http://cdr.eionet.europa.eu/bg/eu/art12/envurvl3a</a>
CY	<a href="http://cdr.eionet.europa.eu/cy/eu/art12/envuo9hna">http://cdr.eionet.europa.eu/cy/eu/art12/envuo9hna</a>
CZ	<a href="http://cdr.eionet.europa.eu/cz/eu/art12/envura88w">http://cdr.eionet.europa.eu/cz/eu/art12/envura88w</a>
DE	<a href="http://cdr.eionet.europa.eu/de/eu/art12/envuqxbpa">http://cdr.eionet.europa.eu/de/eu/art12/envuqxbpa</a>
DK	<a href="http://cdr.eionet.europa.eu/dk/eu/art12/envuzv5nq">http://cdr.eionet.europa.eu/dk/eu/art12/envuzv5nq</a>
EE	<a href="http://cdr.eionet.europa.eu/ee/eu/art12/envurbexa">http://cdr.eionet.europa.eu/ee/eu/art12/envurbexa</a>
ES	<a href="http://cdr.eionet.europa.eu/es/eu/art12/envur2cnq">http://cdr.eionet.europa.eu/es/eu/art12/envur2cnq</a>
FI	<a href="http://cdr.eionet.europa.eu/fi/eu/art12/envuq6_mg">http://cdr.eionet.europa.eu/fi/eu/art12/envuq6_mg</a>
FR	<a href="http://cdr.eionet.europa.eu/fr/eu/art12/envuonm2q">http://cdr.eionet.europa.eu/fr/eu/art12/envuonm2q</a>
GB	<a href="http://cdr.eionet.europa.eu/gb/eu/art12/envuzl7g">http://cdr.eionet.europa.eu/gb/eu/art12/envuzl7g</a>
HU	<a href="http://cdr.eionet.europa.eu/hu/eu/art12/envuyk4q">http://cdr.eionet.europa.eu/hu/eu/art12/envuyk4q</a>
IE	<a href="http://cdr.eionet.europa.eu/ie/eu/art12/envuvesva">http://cdr.eionet.europa.eu/ie/eu/art12/envuvesva</a>
IT	<a href="http://cdr.eionet.europa.eu/it/eu/art12/envuzmuow">http://cdr.eionet.europa.eu/it/eu/art12/envuzmuow</a>
LT	<a href="http://cdr.eionet.europa.eu/lt/eu/art12/envuzqppw">http://cdr.eionet.europa.eu/lt/eu/art12/envuzqppw</a>
LU	<a href="http://cdr.eionet.europa.eu/lu/eu/art12/envuzsh7q">http://cdr.eionet.europa.eu/lu/eu/art12/envuzsh7q</a>
LV	<a href="http://cdr.eionet.europa.eu/lv/eu/art12/envuuf5cg">http://cdr.eionet.europa.eu/lv/eu/art12/envuuf5cg</a>
MT	<a href="http://cdr.eionet.europa.eu/mt/eu/art12/envurfx8a">http://cdr.eionet.europa.eu/mt/eu/art12/envurfx8a</a>
NL	<a href="http://cdr.eionet.europa.eu/nl/eu/art12/envuqbauq">http://cdr.eionet.europa.eu/nl/eu/art12/envuqbauq</a>
PL	<a href="http://cdr.eionet.europa.eu/pl/eu/art12/envuzcsua">http://cdr.eionet.europa.eu/pl/eu/art12/envuzcsua</a>
PT	<a href="http://cdr.eionet.europa.eu/pt/eu/art12/envuzwp4q">http://cdr.eionet.europa.eu/pt/eu/art12/envuzwp4q</a>
RO	<a href="http://cdr.eionet.europa.eu/ro/eu/art12/envuzndka">http://cdr.eionet.europa.eu/ro/eu/art12/envuzndka</a>
SE	<a href="http://cdr.eionet.europa.eu/se/eu/art12/envuvhddg">http://cdr.eionet.europa.eu/se/eu/art12/envuvhddg</a>
SI	<a href="http://cdr.eionet.europa.eu/si/eu/art12/envu1aepq">http://cdr.eionet.europa.eu/si/eu/art12/envu1aepq</a>
SK	<a href="http://cdr.eionet.europa.eu/sk/eu/art12/envuyluvw">http://cdr.eionet.europa.eu/sk/eu/art12/envuyluvw</a>
GR	Did not deliver

## Annex 2 Mapping between the Art 12 reporting format and the EU data base

### General Report

Field Number	Field Name	Table name	Table attribute
1	Main achievements under the Birds Directive		
0	Member State	data_bgreport	country, country_isocode
1.1	Text in national language	data_bgreport	achievements
1.2	Translation into English	data_bgreport	achievements_trans
2	General information sources on the implementation of the Birds Directive - links to information sources of the Member State		
2.1	General information about the Directive	data_bgreport	general_information
2.2	Information about the SPA network	data_bgreport	information_on_network
2.3	Monitoring schemes (Articles 4(1), 10)	data_bgreport	monitoring_schemes
2.4	Protection of species (Articles 5-8)	data_bgreport	protection_of_species
2.5	Transposition of the Directive (legal texts)	data_bgreport	transpose_directive
3	SPA classification (Article 4)		
3.1a	All SPAs - Number of SPAs	data_bgreport	spa_total_number
3.1b	All SPAs - Surface area of SPAs (km2)	data_bgreport	spa_total_area
3.1.1	Terrestrial area of sites (excluding marine areas) - Surface area of SPAs (km2)	data_bgreport	spa_terrestrial_area
3.1.2a	Marine area of sites - Number of SPAs	data_bgreport	spa_marine_number
3.1.2b	Marine area of sites - Surface area of SPAs (km2)	data_bgreport	spa_marine_area
3.2	Date of last update	data_bgreport	database_date
4	Comprehensive management plans for SPAs		
4.1	Number of sites with management plans	data_bgreport	sites_with_plans
4.2	Proportion (%) of the network area covered	data_bgreport	coverage
4.3	Number of sites with management plans under preparation	data_bgreport	plans_under_prep

5	Measures taken in relation to approval of plans and projects (Articles 6(4) and 7 of the Habitats Directive)		
5.1	Project / plan with compensation measures		
5.1.1	Site code	data_bgmeasures	sitecode
5.1.2	Site name	data_bgmeasures	sitename
5.1.3	Year of project/plan	data_bgmeasures	project_year
5.1.4	Title of project/plan	data_bgmeasures	project_title
5.1.5	Impact of projects in need of compensation measures on status of bird species at the site	data_bgmeasures	impact
6	Research and work required as basis for the protection, management and use of bird populations (Article 10)		
6.1	National bird atlas		
6.1.1	Title	data_bgreport	national_bird_atlas_title
6.1.2	Year of publication	data_bgreport	national_bird_atlas_year
6.1.3	Web-link and/or bibliographic reference	data_bgreport	national_bird_atlas_reference
6.2	National bird monitoring overview		
6.2.1	Title or similar plus short description	data_bgmonitoring	monitoring_title
6.2.2	Year of publication	data_bgmonitoring	monitoring_year
6.2.3	Web-link and/or bibliographic reference	data_bgmonitoring	monitoring_reference
6.3	National bird red list		
6.3.1	Title	data_bgreport	national_bird_redlist_title
6.3.2	Year of publication	data_bgreport	national_bird_redlist_year
6.3.3	Web-link and/or bibliographic reference	data_bgreport	national_bird_redlist_reference
6.4	Other publications of EU-wide interest (e.g. national overview of action for threatened species)		
6.4.1	Title or similar plus short description	data_bgpublication	other_publication_title
6.4.2	Year of publication	data_bgpublication	other_publication_year
6.4.3	Web-link and/or bibliographic reference	data_bgpublication	other_publication_reference
7	Non-native bird species (Article 11)		
7.1	Species scientific name	data_bgnon_native_bird	speciesname
7.1.1	Sub-species	data_bgnon_native_bird	subspecies_name
7.1.2	Main contents of legal decision for introduction	data_bgnon_native_bird	introduction
7.1.3	Consultation with the Commission	data_bgnon_native_bird	consultation_date



## Bird species Report

Field Number	Field Name	Table name	Table attribute
1	Species information		
1.1	Member State	data_birds	country, country_isocode
1.2	Species code		
1.2.1	EURING code	data_birds	euringcode
1.2.2	Natura 2000 code	data_birds	speciescode
1.3	Species scientific name	data_birds	speciesname
1.3.1	Sub-specific population	data_birds	subspecies_name
1.4	Alternative species scientific name	data_birds	alternative_speciesname
1.5	Common name	data_birds	common_speciesname
1.6	Season	data_birds	season
2	Population size		
2.1	Year or period	data_birds	population_date
2.2a	Population size	data_birds	population_size_unit
2.2b	Population size	data_birds	population_minimum_size
2.2c	Population size	data_birds	population_maximum_size
2.3	Type of estimate	data_birds	population_type_of_estimate
2.4	Method used	data_birds	population_method
2.5	Quality	data_birds	population_quality
2.6	Sources	data_birds	population_sources
2.7	Reason for change (since previous report)	Use of this field is not relevant until the reporting for 2013-2018	
2.8	Additional information	data_birds	population_additional_info
3	Population trend		
3.1	Short-term trend (last 12 years)		
3.1.1	Period	data_birds	population_trend_period
3.1.2	Short-term trend, direction	data_birds	population_trend
3.1.3a	Short-term trend, magnitude - Minimum	data_birds	population_trend_magnitude_min
3.1.3b	Short-term trend, magnitude - Maximum	data_birds	population_trend_magnitude_max
3.1.4	Method used	data_birds	population_trend_method

3.1.5	Quality	<a href="#">data_birds</a>	population_trend_quality
3.1.6	Sources	<a href="#">data_birds</a>	population_trend_sources
3.2	Long-term trend (since c. 1980)		
3.2.1	Period	<a href="#">data_birds</a>	population_trend_long_period
3.2.2	Long-term trend, direction	<a href="#">data_birds</a>	population_trend_long
3.2.3a	Long-term trend, magnitude - Minimum	<a href="#">data_birds</a>	population_trend_long_magnitude_min
3.2.3b	Long-term trend, magnitude - Maximum	<a href="#">data_birds</a>	population_trend_long_magnitude_max
3.2.4	Method used	<a href="#">data_birds</a>	population_trend_long_method
3.2.5	Quality	<a href="#">data_birds</a>	population_trend_long_quality
3.2.6	Sources	<a href="#">data_birds</a>	population_trend_long_sources
3.3	Additional information	<a href="#">data_birds</a>	population_trend_additional_info
4	Breeding distribution map and range size		
4.1	Year or period	<a href="#">data_birds</a>	range_period
4.2	Sensitive species	<a href="#">data_birds</a>	sensitive_species
4.3	Distribution map	<a href="#">data_birds</a>	distribution_map
4.4	Additional distribution map	<a href="#">data_birds</a>	additional_distribution_map
4.5	Range map	<a href="#">data_birds</a>	range_map
4.6	Range surface area	<a href="#">data_birds</a>	range_surface_area
4.7	Method used	<a href="#">data_birds</a>	range_method
4.8	Quality	<a href="#">data_birds</a>	range_quality
4.9	Sources	<a href="#">data_birds</a>	range_sources
4.10	Reason for change (since previous report)	Use of this field is not relevant until the reporting for 2013-2018	
4.11	Additional information	<a href="#">data_birds</a>	range_additional_info
5	Breeding range trend		
5.1	Short-term trend (last 12 years)		
5.1.1	Period	<a href="#">data_birds</a>	range_trend_period
5.1.2	Short-term trend, direction	<a href="#">data_birds</a>	range_trend
5.1.3a	Short-term trend, magnitude - Minimum	<a href="#">data_birds</a>	range_trend_magnitude_min
5.1.3b	Short-term trend, magnitude - Maximum	<a href="#">data_birds</a>	range_trend_magnitude_max
5.1.4	Method used	<a href="#">data_birds</a>	range_trend_method
5.1.5	Quality	<a href="#">data_birds</a>	range_trend_quality
5.1.6	Sources	<a href="#">data_birds</a>	range_trend_sources

5.2	Long-term trend (since c. 1980)		
5.2.1	Period	<a href="#">data_birds</a>	range_trend_long_period
5.2.2	Long-term trend, direction	<a href="#">data_birds</a>	range_trend_long
5.2.3a	Long-term trend, magnitude - Minimum	<a href="#">data_birds</a>	range_trend_long_magnitude_min
5.2.3b	Long-term trend, magnitude - Maximum	<a href="#">data_birds</a>	range_trend_long_magnitude_max
5.2.4	Method used	<a href="#">data_birds</a>	range_trend_long_method
5.2.5	Quality	<a href="#">data_birds</a>	range_trend_long_quality
5.2.6	Sources	<a href="#">data_birds</a>	range_trend_long_sources
5.3	Additional information	<a href="#">data_birds</a>	range_trend_additional_info
6	Progress in work related to international Species Action Plans (SAPs), Management Plans (MPs) and Brief Management Statements (BMSs)		
6.1	Type of plan	<a href="#">data_birds</a>	plan
6.2	National plan adopted	<a href="#">data_birds</a>	national_plan_adopted
6.3	Measures and initiatives linked to the SAP / MP / BMS	<a href="#">data_birds</a>	measures_taken
6.4	Sources of further information	<a href="#">data_birds</a>	further_information
7	Main pressures and threats		
7a	Pressure/threat	<a href="#">data_bpressures_threats</a>	code
7b	Impact	<a href="#">data_bpressures_threats</a>	ranking
7c	Quality of impact assessment	<a href="#">data_bpressures_threats</a>	quality
7d	Location	<a href="#">data_bpressures_threats</a>	location
7e	Sources	<a href="#">data_bpressures_threats</a>	sources
8	SPA coverage and conservation measures		
8.1	Population inside the SPA network		
8.1.1a	Population size in the SPA network - Unit	<a href="#">data_birds</a>	spa_population_unit
8.1.1b	Population size in the SPA network - Minimum	<a href="#">data_birds</a>	spa_population_min
8.1.1c	Population size in the SPA network - Maximum	<a href="#">data_birds</a>	spa_population_max
8.1.2	Method used	<a href="#">data_birds</a>	spa_population_method
8.1.3	Short-term trend of population size in the SPA network	<a href="#">data_birds</a>	spa_population_trend
8.2	Conservation measures		
8.2.1	Measure	<a href="#">data_bmeasures</a>	code
8.2.2a	Type - Legal/statutory	<a href="#">data_bmeasures</a>	type_legal
8.2.2b	Type - Administrative	<a href="#">data_bmeasures</a>	type_administrative
8.2.2c	Type - Contractual	<a href="#">data_bmeasures</a>	type_contractual
8.2.2d	Type - Recurrent	<a href="#">data_bmeasures</a>	type_recurrent

8.2.2e	Type - One-off	data_bmeasures	type_oneoff
8.2.3	Ranking	data_bmeasures	rankingcode
8.2.4a	Location - Inside	data_bmeasures	location_inside
8.2.4b	Location - Outside	data_bmeasures	location_outside
8.2.4c	Location - Both inside & outside	data_bmeasures	location_both
8.2.5a	Broad evaluation of the measure - Maintain	data_bmeasures	broad_evaluation_maintain
8.2.5b	Broad evaluation of the measure - Enhance	data_bmeasures	broad_evaluation_enhance
8.2.5c	Broad evaluation of the measure - Long term	data_bmeasures	broad_evaluation_longterm
8.2.5d	Broad evaluation of the measure - No effect	data_bmeasures	broad_evaluation_noeffect
8.2.5e	Broad evaluation of the measure - Unknown	data_bmeasures	broad_evaluation_unknown
8.2.5f	Broad evaluation of the measure - Not evaluated	data_bmeasures	broad_evaluation_notevaluated

## Annex 3 Cross-linkage between species codes in tabular and spatial data

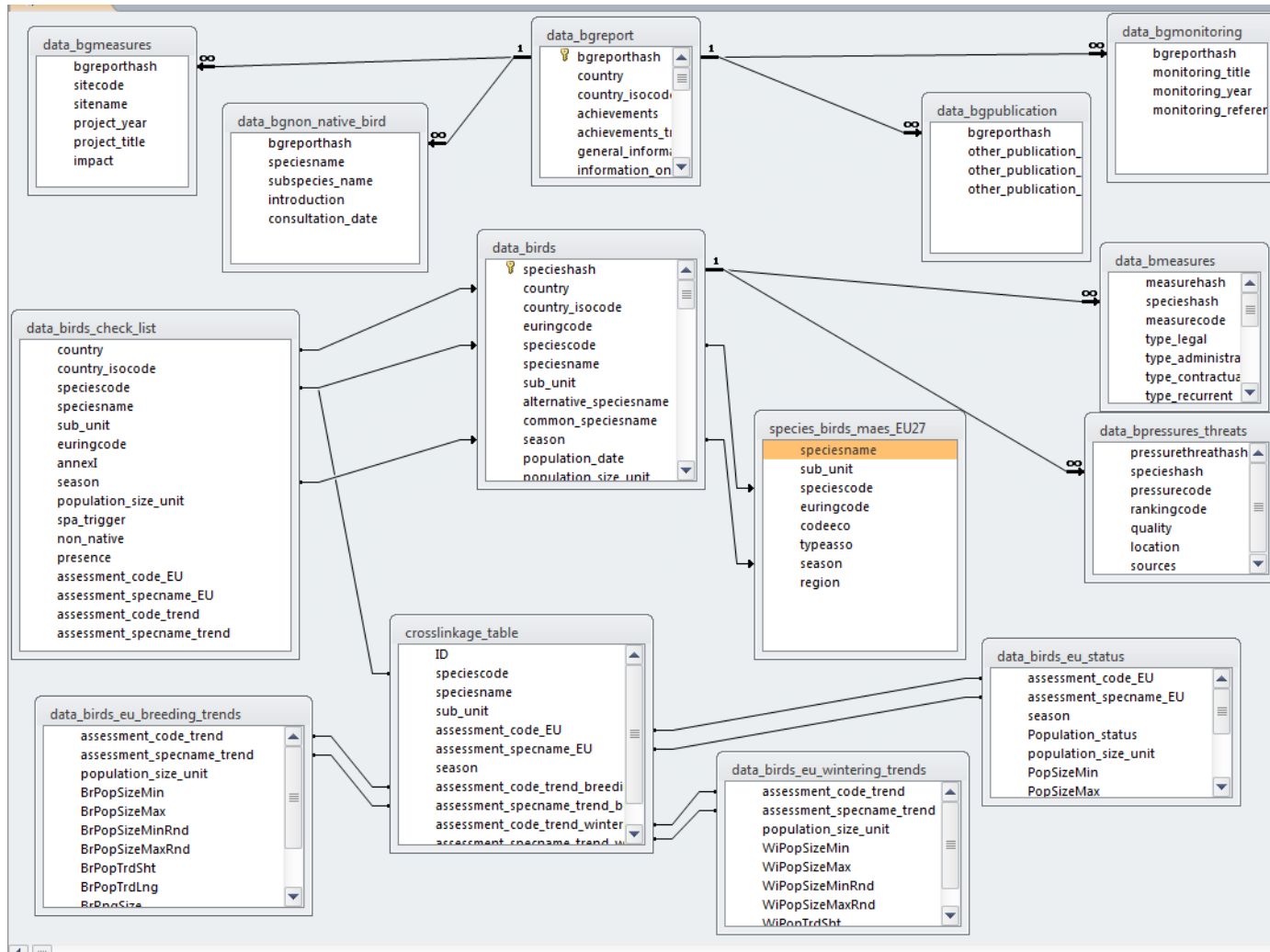
Tabular data				Spatial data				
M S	code in report	species_name	Subspecies /unit	code in GIS data	sp_name	subspec_unit	code final	Comments
AT	A667-B	<i>Ciconia ciconia</i> <i>ciconia</i>	Central & Eastern Europe/Sub-Saharan Africa	A667-A	<i>Ciconia</i> <i>ciconia</i> <i>ciconia</i>	W Europe & North-west Africa/Sub- Saharan Africa	A667-B	Different suffix for population is used in the report and in the GIS: "Central & Eastern Europe/Sub-Saharan Africa" subpopulation is only subpopulation on AT checklist, so GIS code was changed to A667-B.

IT	A607-B	<i>Platalea leucorodia leucorodia</i>	Cent. & SE Europe/Mediterranean & Tropical Africa	A607-A	<i>Platalea leucorodia leucorodia</i>	West Europe/West Mediterranean & West Africa	A607-B	Different suffix for population is used in the report and in the GIS: "Central & SE Europe/Mediterranean & Tropical Africa" subpopulation is only subpopulation on IT checklist, so GIS code was changed to A607-B.
IT	A614-A	<i>Limosa limosa limosa</i>	Western Europe/NW & West Africa	A614	<i>Limosa limosa limosa</i>		A614-A	The code in GIS is missing the suffix for population: "Western Europe/NW & West Africa" subpopulation is only subpopulation on IT checklist / breeding in IT, so GIS code was changed to A614-A.
IT	A631-A	<i>Sterna albifrons albifrons</i>	Europe north of Mediterranean (bre)	A631-B	<i>Sterna albifrons albifrons</i>	Black Sea & East Mediterranean (bre)	A631-A	Different suffix for population is used in the report and in the GIS: "Europe north of Mediterranean (bre)" subpopulation is only subpopulation on IT checklist, so GIS code was changed to A631-A (despite slightly misleading name of this subpopulation).
IT	A682-A	<i>Charadrius alexandrinus alexandrinus</i>	West Europe & West Mediterranean/West Africa	A682-B	<i>Charadrius alexandrinus alexandrinus</i>	Black Sea & East Mediterranean/Eastern Sahel	A682-A	Different suffix for population is used in the report and in the GIS: "West Europe & West Mediterranean/West Africa" subpopulation is only subpopulation on IT checklist / breeding in IT, so GIS code was changed to A682-A.
IT	A690	<i>Tachybaptus ruficollis ruficollis</i>	Europe & North-west Africa	A004	<i>Tachybaptus ruficollis</i>		A690	Different code in report and in the GIS: <i>Tachybaptus ruficollis ruficollis</i> (Europe & North-west Africa) is only subpopulation breeding in Europe, so GIS code was changed to A690.
IT	A691	<i>Podiceps cristatus cristatus</i>		A005	<i>Podiceps cristatus</i>		A691	Different code in report and in the GIS: <i>Podiceps cristatus cristatus</i> is only subspecies breeding in Europe, so GIS code was changed to A691.
IT	A695	<i>Hydrobates pelagicus melitensis</i>		A014-B	<i>Hydrobates pelagicus</i>		A695	Different code in report and in the GIS: <i>Hydrobates pelagicus melitensis</i> is the subspecies breeding in the Mediterranean, so GIS code was changed to A695.
IT	A722	<i>Porphyrio porphyrio porphyrio</i>		A124	<i>Porphyrio porphyrio</i>		A722	Different code in report and in the GIS: <i>Porphyrio porphyrio porphyrio</i> is the only <u>native</u> subspecies occurring in IT, so GIS code was changed to A722.
IT	A723	<i>Fulica atra atra</i>		A125	<i>Fulica atra</i>		A723	Different code in report and in the GIS: <i>Fulica atra atra</i> is only subspecies breeding in Europe, so GIS code was changed to A723.

IT	A726	<i>Charadrius dubius curonicus</i>	Europe & North-west Africa/West Africa	A136	<i>Charadrius dubius</i>	A726	Different code in report and in the GIS: <i>Charadrius dubius curonicus</i> (Europe & North-west Africa/West Africa) is only subpopulation breeding in the EU, so GIS code was changed to A726.
IT	A731-A	<i>Sterna nilotica nilotica</i>	Western Europe/West Africa	A660-B	<i>Gelochelidon nilotica nilotica</i>	A731-A	Different code in report and in the GIS: <i>Gelochelidon nilotica</i> is a synonym of <i>Sterna nilotica</i> , and ssp. <i>nilotica</i> (Western Europe/West Africa) is the subpopulation breeding in IT, so GIS code was changed to A731-A.
IT	A744	<i>Passer hispaniolensis italiae</i>		A621	<i>Passer italiae</i>	A744	Different code in report and in the GIS: <i>Passer italiae</i> is a synonym of <i>Passer hispaniolensis italiae</i> (treated by some as a full species), so GIS code was changed to A744.
IT	A771	<i>Passer hispaniolensis all others</i>		A355	<i>Passer hispaniolensis</i>	A771	Different code in report and in the GIS: <i>Passer hispaniolensis (sensu lato, i.e. excluding "Passer italiae")</i> is essentially synonymous with " <i>Passer hispaniolensis all others</i> ", so GIS code was changed to A771.
IT	A769	<i>Sylvia undata all others</i>		A645	<i>Sylvia undata undata</i>	A769	
IT	A770	<i>Sylvia cantillans all others</i>		A648	<i>Sylvia cantillans cantillans</i>		Removed from GIS data set
PL	A038-A	<i>Cygnus cygnus</i>	North-west Mainland Europe	A038	<i>Cygnus cygnus</i>	A038-A	The code in GIS is missing the suffix for population: "North-west Mainland Europe" subpopulation is only subpopulation on PL checklist / breeding in PL, so GIS code was changed to A038-A.
PL	A060-B	<i>Aythya nyroca</i>	Eastern Europe/E Mediterranean & Sahelian Africa	A060	<i>Aythya nyroca</i>	A060-B	The code in GIS is missing the suffix for population: "Eastern Europe/E Mediterranean & Sahelian Africa" subpopulation is only subpopulation on PL checklist / breeding in PL, so GIS code was changed to A060-B.
PL	A154-B	<i>Gallinago media</i>	Western Siberia & NE Europe/South-east Africa	A154	<i>Gallinago media</i>	A154-B	The code in GIS is missing the suffix for population: "Western Siberia & NE Europe/South-east Africa" subpopulation is only subpopulation on PL checklist / breeding in PL, so GIS code was changed to A154-B.

PL	A466-B	<i>Calidris alpina schinzii</i>	Baltic/SW Europe & NW Africa	A466	<i>Calidris alpina schinzii</i>		A466-B	The code in GIS is missing the suffix for population: "Baltic/SW Europe & NW Africa" subpopulation is only breeding subpopulation on PL checklist / breeding in PL, so GIS code was changed to A466-B.
PL	A610-A	<i>Nycticorax nycticorax nycticorax</i>	C & E Europe/Black Sea & E Mediterranean (bre)	A610	<i>Nycticorax nycticorax nycticorax</i>		A610-A	The code in GIS is missing the suffix for population: "C & E Europe/Black Sea & E Mediterranean (bre)" subpopulation is only subpopulation on PL checklist / breeding in PL, so GIS code was changed to A610-A.
RO	A654-A	<i>Mergus merganser merganser</i>	North-east Europe/Black Sea	A654-B	<i>Mergus merganser merganser</i>	other populations	A654-A	Different suffix for population is used in the report and in the GIS : "North-east Europe/Black Sea" subpopulation is only subpopulation on RO checklist, so GIS code was changed to A654-A (RO added wrong breeding subpopulation in 1st delivery – see their RO to "QASpecialRemarks" – and presumably forgot to update GIS data subsequently).
RO	A030-B	<i>Ciconia nigra</i>	Central & Eastern Europe/Sub-Saharan Africa	A030	<i>Ciconia nigra</i>		A030-B	For the distribution map, the species code is incorrect and was corrected.

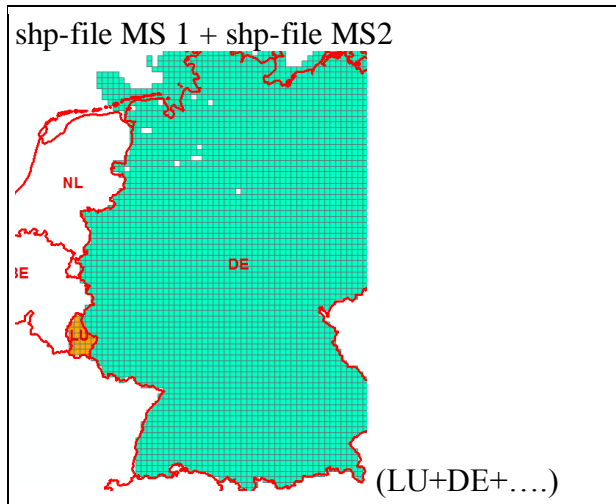
# Annex 4 Entity-relationship diagram of the EU Art 12 tabular data





## Annex 5 Single rules

1. Merge the single MS delivery for distribution and range



2. Add a flag for sensitive species per MS to the attributes table

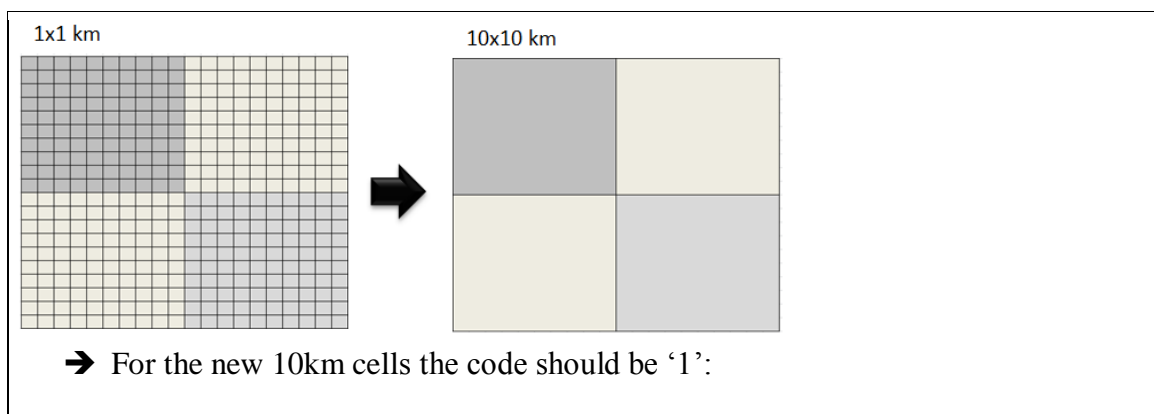
New attribute: [sensitive] = "YES" for sensitive; "NO" for not sensitive

3. Reference grid size: the MS delivered data in different scales: 1km & 10km. For further steps it will be important to have the information of the data underlying reference grid size. Therefore the reference grid size should be added as information to the attribute table.

New attribute: [ref\_grid] =

- attribute value = '1' if the reference grid cells is 1km
- attribute value = '10' if the reference grid cells is 10km

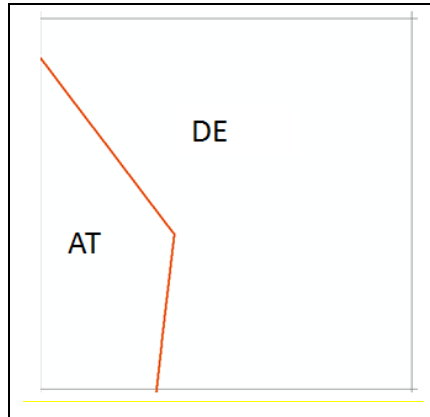
4. Different cell sizes of source data (<10km): in case that there are 1x1 and 10x10 grid cells for a feature in the same region, **dissolve** the 1x1 grid cell to create 10x10 grid cells for the feature in this region



## 5. Production of a conflict layer

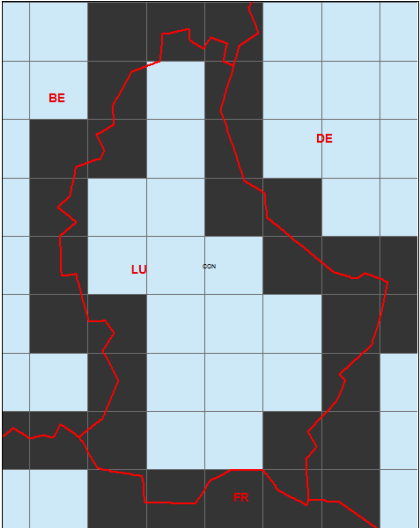
When a single cell covers two or more different member states an attribute allocation cannot easily be made. Such cells we called conflict cells:

- a. One cell covers two or more different Member States



To solve the conflicts a rule set is explained in the following chapters. The first step of solving the conflict is the production of a conflict layer. All conflict cells are labelled with a specific attribute:

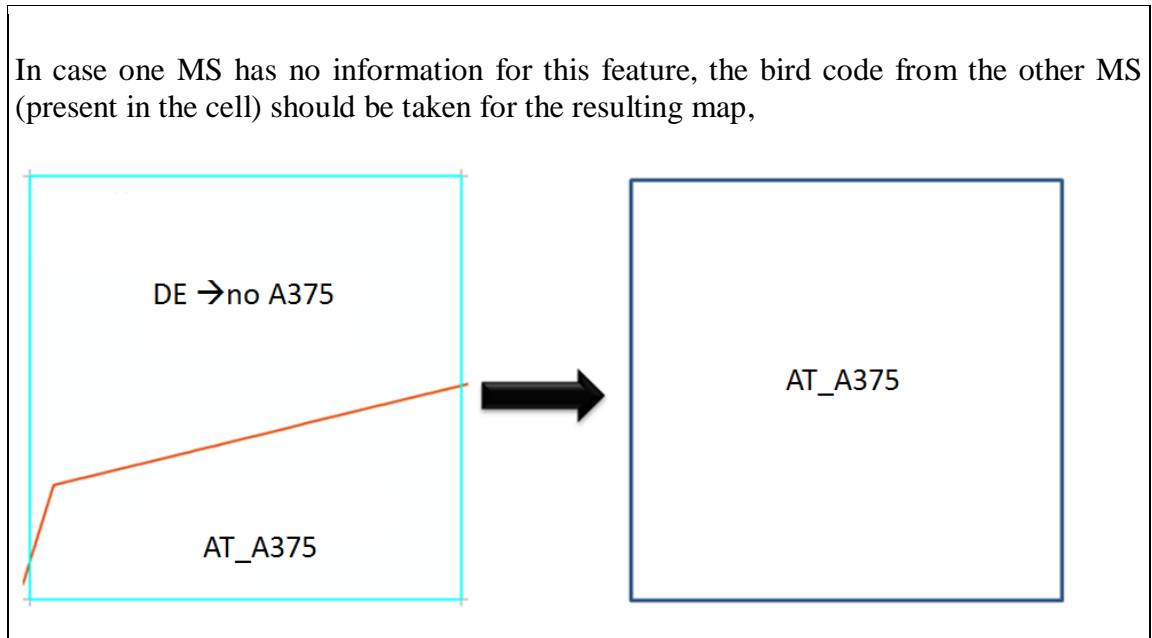
New attribute: [overlapping] = '1' for conflict grid cells

A grid of 10x10 cells. A red line outlines a complex shape. Cells within this shape are light blue, while cells outside are black. Labels 'BE', 'DE', 'LU', and 'FR' are placed in specific cells. 'BE' is in the second row, second column. 'DE' is in the third row, eighth column. 'LU' is in the fifth row, third column. 'FR' is in the eighth row, sixth column. The text 'CON' is also visible in the fifth row, fourth column.

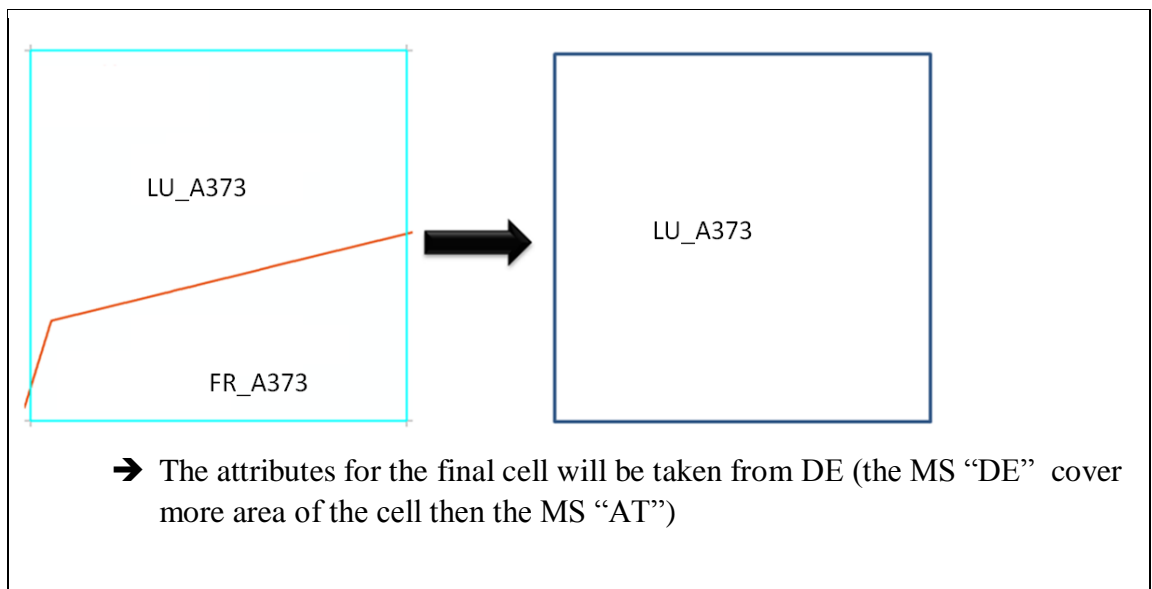
export grid cells with [overlapping] = '1' to a new layer: "conflict layer.shp"  
For (black = conflict cells between LU;FR & DE)

## 6. Rules for solving conflict:

- 6.1. In case one MS has no information for this feature, the species from the other MS/ (present in the cell) should be taken for the resulting map



- 6.2. In case of more than one bird code in the conflicting cell the bird code for this feature resulting from the MS with the largest proportion in the conflicting cell should be taken for the resulting map



## 6.3. Rules for sensitive species

If a species is marked as **sensitive**, the distribution of the birds will not be disclosed to the public by the Commission (for instance, by means of posting this information on a publicly available database or internet-based site).