EUROPEAN TOPIC CENTRE ON BIOLOGICAL DIVERSITY

CDDA version 16 (2018)
reporting guidelines
version 1.1

Version	Change in Chapter	Nature of change
1.0 => 1.1	Chapter 2 Quick start	Update of links. Additional instructions on uploading to CDR.
	Section 9.2 CDR upload instructions	Additional instructions on uploading to CDR, as given in the CDDA data call.

Contents

Acronyms:

CDDA:Nationally designated areas inventory (**original meaning:** Common database of nationally designated areas)
CDR: Central Data Repository
CIRCA: Communication & Information Resource Centre Administrator
DD: Data Dictionary
EIONET: European Environment Information and Observation Network
ETC/BD or ETC: European Topic Centre on Biological Diversity
GML: Geography Markup Language
INSPIRE: Infrastructure for Spatial Information in the European Community
IREPORTING: environmental reporting re-using INSPIRE
QA/QC: Quality assurance/Quality control
Reportnet: Eionet's infrastructure for supporting and improving data and information flows
ROD: Reporting Obligations Database
UNEP-WCMC or WCMC: United Nations Environment Programme - World Conservation Monitoring Centre
UML: Unified Modeling Language
WDPA: World Database on Protected Areas (http://www.wdpa.org/)
WFS: Web Feature Service
XML: Extensible Markup Language

1 Introduction

This reporting guideline has been developed with the aim of assisting and facilitating the reporting of the "Nationally designated areas inventory" (CDDA) version 16 in 2018.

The Nationally designated areas inventory (CDDA), formerly known as the Common Database on Designated Areas, holds information about designated areas and the national legislative instruments, which directly or indirectly create protected areas in the Eionet partner countries. The CDDA data is delivered by each country as thematic information and spatial information.

The CDDA is an agreed annual Eionet core data flow maintained by the European Environment Agency (EEA) with support from the European Topic Centre on Biological Diversity (ETC/BD). The dataset is used by the EEA and e.g. the UNEP-WCMC for their main assessments, products and services.

The need for harmonisation of data on protected areas across Europe was identified in the early nineties. The first version of the nationally designated areas inventory was created in 1995 from databases hosted at the UNEP-WCMC, the Council of Europe and the CORINE programme of the European Commission, hence the name "Common Database on Designated Areas" (cf. the abbreviation "CDDA"). The CDDA was maintained and disseminated by the EEA in agreement with Council of Europe and UNEP-WCMC with a pan-European coverage. Since a number of years the UNEP-WCMC has in place an IT infrastructure for the World Database on Protected Areas (WDPA) and the EEA is maintaining now the inventory of the Eionet partner countries only. The CDDA was re-named to 'Nationally designated areas inventory' to reflect this change but the abbreviation was kept as it had become synonym with the dataset maintained by Eionet and the EEA. The CDDA is the coordinated official source of protected area information from Eionet partner countries to the WDPA, https://www.protectedplanet.net/.

2 Quick start

The following CDDA data sets are required

- Type 1 spatial data (GML format)
- Type 2 (XLS or XML format)
    - DesignatedArea
    - LinkedDataset

1. The Type 1 geometry of designated areas must be reported using polygons or points (as appropriate for a given designated area). If applicable, separate files must be provided for each geometry type.
2. The coordinate reference system (crs) used for Type 1 data must be valid for INSPIRE data. For countries not implementing INSPIRE, the crs must be ETRS89-LAEA (or ETRS89-GRS80 for overseas territories).
3. The Type 1 data files must be submitted as valid GML files, conformant with the schemas available in the INSPIRE Protected Sites (INSPIRE PS), http://inspire.ec.europa.eu/id/document/tg/ps. If your country does not have the Type 1 data files available as INSPIRE PS, you may prepare the GML data using shapefiles. In that case, the *shapefile templates* must be used. They are available at https://projects.eionet.europa.eu/cdda-restricted-distribution/library/[country code]. The shapefiles must then be converted to GML files using the conversion tool at http://cdr.eionet.europa.eu/help/cdda/FME_processes/Shp2GML.html. Finally, the GML files must be uploaded to the appropriate envelope in Reportnet CDR. Do not upload the shapefiles to CDR.
4. The Type 2 data files are reported as Excel files or, alternatively, as XML file. In the first case, the *Excel file template* must be used. The empty template can be downloaded from Data Dictionary (http://dd.eionet.europa.eu/datasets/3344), while the prefilled templates are available at https://projects.eionet.europa.eu/cdda-restricted-distribution/library/[country code]. The Excel data files must then be uploaded to the appropriate envelope in Reportnet CDR. After upload the Excel files are automatically converted to XML files. Alternatively, the Type 2 data files may be uploaded to CDR directly as XML files valid according to the XML schema available in Data Dictionary at http://dd.eionet.europa.eu/v2/dataset/3344/schema-dst-3344.xsd.
5. The quality of the data sets must be evaluated by the Data Provider before the submission.
6. Partial deliveries to the CDR envelope are not accepted, i.e. it will not be possible to release the envelope. All Type 1 and Type 2 data must be present in the envelope. You can split data into multiple files, but each Type 2 file must contain both DesignatedArea data and the respective LinkedDataset data. If you split a delivery into multiple files, all files must be uploaded into the same envelope. Please do not upload nested zip files. Nested zip files will not be properly processed.
7. After upload, you must test your data by using the 'Run automatic QA' function of the CDR envelope. The results of the QC tests will be stored in the Feedback section of the envelope. Please check the QC tests and correct your data if necessary.
8. When in doubt, consult with the **CDDA reference page, cdr.eionet.europa.eu/help/cdda**

3   Reporting obligations

3.1   The CDDA reporting obligation

The reporting obligation for the CDDA is defined in the Reportnet's Reporting obligations database (ROD). It is a voluntary data flow. Eionet partner countries (EEA member and cooperating countries, 39 in total) have committed to report on areas designated under national legislation for the purpose of nature protection including sites such as national parks and nature reserves. Other types of sites may also be reported (see the box). The CDDA reporting is annual and the reporting date is fixed to 15 March of any year.

> **The definition of a protected area adopted by IUCN** is: A clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values. Definitions and details are basing on IUCN publication: "Guidelines for Applying Protected Area Management Categories" that can be found in pdf format at url: http://data.iucn.org/dbtw-wpd/edocs/PAPS-016.pdf
>
> **The definition of a "designated area" within the CDDA** is very similar. The "designation types" are grouped according to three categories, which clearly reflects the IUCN note above by also identifying designation types in other sectors "or other effective means". As some of the designation types do not refer to the creation of individual site networks, the definition of the CDDA also includes "area covering" designations such as the protection of the complete distribution of certain habitats. This is an addition to the IUCN "protected area" definition. http://dd.eionet.europa.eu/datasets/3344

3.2   The obligations on CDDA data coming from the INSPIRE Directive

The EU Directive on INSPIRE (2007/2/EC), the Infrastructure for Spatial Information in the European Community, mandates the EU Member States (MS) to provide spatial data on protected sites in conformity with the INSPIRE implementing rules by November 2017. This includes:

- Provision of metadata describing the dataset and the respective service, accessible via the European INSPIRE Geoportal
- Dataset is harmonised according to the requirements of the INSPIRE Implementing Rules on interoperability of spatial data sets and services (1088/2010)
- Dataset is accessible via an INSPIRE Network Service

Specifications for the data model to be used by EU MS are available here.

The EU MS are requested to provide the geographical boundaries of the protected sites, a unique ID in a specific structure (inspireID) for each site, information about the legal document behind the site, the date of designation, the designation type, the site name etc. of all geographically referenced legally protected areas in the MS. It is recommended to provide the dataset in a certain exchange format (GML) and to be accessible at all times from certain services (Web Map Services and Web Feature Services).

Figure 3-1 INSPIRE Data Specification on Protected Sites (reference: D2.8.I.9_v3.2)
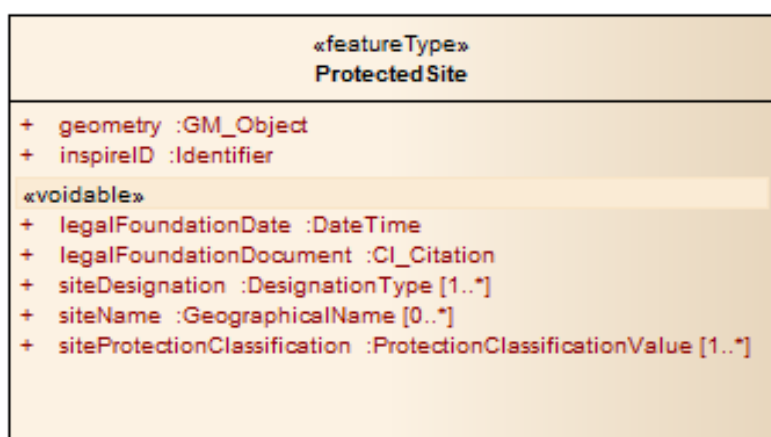
3.3 Relationship between the INSPIRE Directive and the CDDA reporting

There are 39 Eionet partner countries reporting to the CDDA. Of these 39 countries, 28 EU MS are legally mandated from the INSPIRE Directive to provide some of the same elements following the INSPIRE specifications. INSPIRE requires not to collect new data but is being applied to data already existing to facilitate better exchange and re-use of environmental data across Europe. The scope of the INSPIRE Directive is defined by the Spatial Data Themes (one of them is Protected Sites) which are focused on the geometry and core elements related to it.

Figure 3-2 Relation between CDDA reporting and INSPIRE requirements
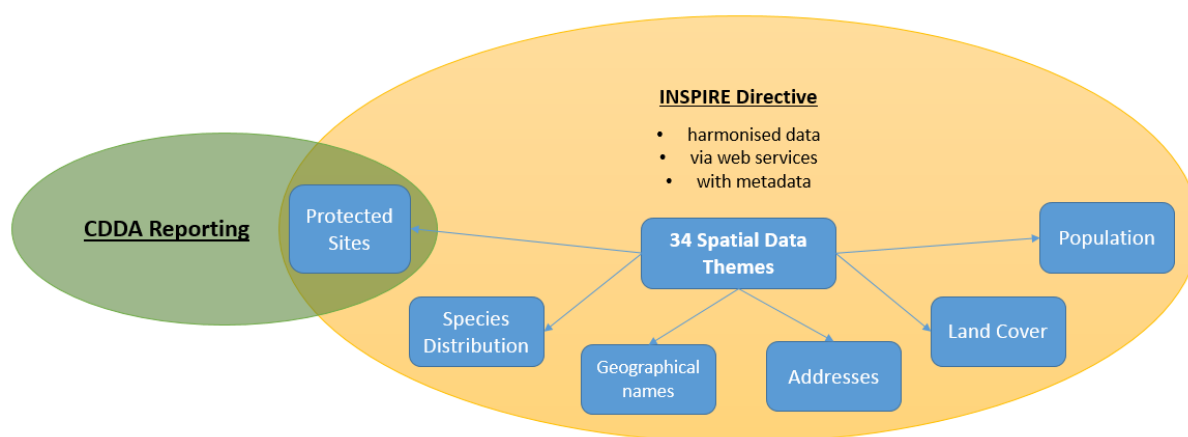
The CDDA reporting asks more broadly for information about sites with statutes (e.g. management schemes) suitable for durable protection of species and habitat types. Such sites may have no formal designation in the national regulation and are as such not included under the INSPIRE Protected Sites. Information about these sites are however valuable for area statistics used for assessing progress towards international biodiversity targets.

In the past years, the EEA has investigated and tested several possible solutions to bridge between the two overlapping reporting obligations and avoid double reporting. At the same time, there was a process with the Eionet partner countries to review and remove redundant or outdated elements in the pre-2018 CDDA reporting format. The CDDA reporting templates based on MS Access 2003 also had to be replaced with a more up-to-date file format.

A project in 2015 explored the possibilities of extending the INSPIRE Protected Sites data model. This resulted in a new CDDA data model which had to be further modified as time and experience showed that the extending approach would mean that a large number of data models would need to be maintained across INSPIRE themes. One of the pivotal ideas behind the INSPIRE Directive is that only a few core data models should be maintained within each thematic area.

After several iterations with the so-called "linked approach" which basically aims to re-use the INSPIRE data models as they are, the conclusion is now that the INSPIRE data models should be changed the least possible; several EU MS already have the INSPIRE services running according to the INSPIRE specifications.

For the CDDA reporting this means that a small number of CDDA elements mentioned by the INSPIRE Protected Sites will from now on be reported together with the spatial data under INSPIRE. Some fields in the INSPIRE Protected Sites will not be considered by the CDDA reporting regardless of the information countries may provide, as the definition of the elements differs slightly from what is requested in the CDDA dataset reporting format. Most CDDA elements will still be reported in tabular format as is the case with the pre-2018 CDDA reporting.

For Eionet partner countries that are not members of the EU and not implementing INSPIRE, this means that the spatial data will include a few more attribute fields than before.

4 Introduction of the "linked approach" – re-using INSPIRE for environmental reporting

While the implementation of the INSPIRE Directive is progressing, visible among others in the improvements in data availability, harmonization and coordination, the environmental reporting landscape is still highly heterogeneous. Environmental reporting processes and data flows were commonly developed within their communities without taking interoperability or synergies with other communities or data flows into account. Together with the progressing implementation of INSPIRE, environmental reporting data flows will be optimised to better integrate EU Member States' efforts. The modular re-use of INSPIRE for environmental reporting offers the opportunity to reduce fragmentation, to streamline and harmonize the data flows, which address very different policy needs and requirements. For that the EEA is going to use the "linked approach" as default approach where it comes to re-using INSPIRE for environmental reporting.

The EEA linked approach is based on basic assumptions:
- EU Member States must provide data in the scope of INSPIRE in a harmonized way via network services and metadata by 2020 latest. This will include the data supporting the environmental reporting, which countries are asked to implement as their priority.
- EU Member States aim to avoid multiple provision of data (e.g. to INSPIRE and in parallel as part of the environmental reporting obligations).
- For better support of environmental policies more direct, frequent and timely access to the environmental data provided by the EU Member States is needed.

- Acknowledgement of the individualistic nature of each environmental reporting process, the environmental reporting concept should be a pragmatic and generic design able to be re-used for a wide range of reporting processes without introducing high demands on provider and consumer side.

While there are several ways to extend the INSPIRE data models in order to adjust them to the individual use cases, the EEA developed and tested the linked approach which is based on linking external resources (i.e. resources not included by INSPIRE) to INSPIRE compliant data sources. This extension methodology is based on the split between data required by the INSPIRE legal framework and those data outside of it. The environmental monitoring data not required by the INSPIRE data specifications is going to be kept in external reporting files which link to INSPIRE resources providing the spatial reference.

Figure 4-1 Data split practiced by the linked approach
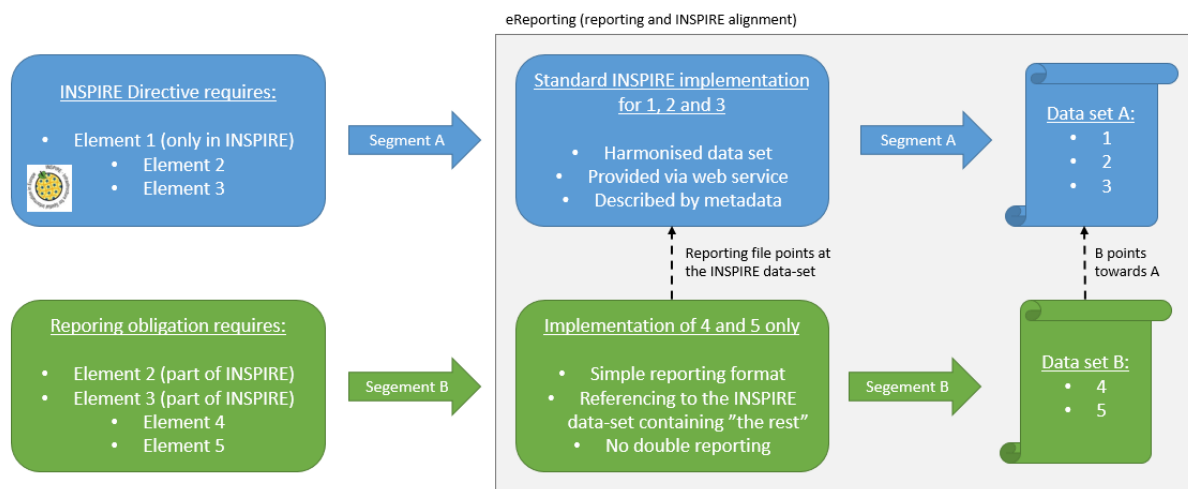
The strategic document "The future of eReporting and the link to INSPIRE"[1] introduces a data typology which categorizes data included in the environmental reporting in three different types and is the foundation for the separation and referencing in the linked approach:

1. The geospatial reference data which enable to prepare maps, data viewers, or perform spatial analysis (***Type 1 data* in the following**). In the case of CDDA reporting this refers to data required under the INSPIRE theme Protected Sites.
2. The environmental or other business data which are connected to a geographic location (such as the state-of-the-environment data, pollution loads or concentrations, statistics, etc.) (***Type 2 data* in the following**). In the case of CDDA reporting this refers to data detailing protected sites information but not being part of INSPIRE Protected Sites.
3. The textual and contextual data linked to a certain geographic location (such as the river basin or waste management plans, conservation measures taken to maintain or improve the species or habitats conservation status inside or outside Natura 2000 sites, etc.).

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[1] The future of eReporting and the link to INSPIRE, Concept note, version: 18 May 2017, https://ies-svn.jrc.ec.europa.eu/attachments/download/2098/eRep%20and%20INSPIRE%20concept%20-%20rev%20-%20May%202017.pdf

This type of data is not part of the CDDA requirements and not considered by the linked approach.

Applying the data typology allows to clearly identify for each reporting obligation which elements can be expected and re-used by the Member State's INSPIRE implementation and which elements needs to be provided in addition to INSPIRE. The linked approach is a way to streamline and reduce the reporting burden for the Member States, reusing their efforts regarding INSPIRE and keeping the environmental data in Type 2 as simple as possible.

5   The CDDA data model

5.1   The 2018 CDDA data model re-using INSPIRE Protected Sites

The linked approach and the data typology described in the section above will be used for the CDDA 2018 reporting. The new CDDA reporting for 2018 can be divided into two different types of delivery:
- Type 1 – which comes from and are defined by the INSPIRE Protected Sites
- Type 2 – which comes from the revised CDDA tabular data

Type 1 includes the spatial data and overlaps with certain CDDA reporting elements.
Type 2 includes the remaining tabular CDDA reporting elements. The Type 2 part delivery is a table with considerable similarity to the current CDDA database specifications. Field names and code lists are however all revised and new. Both Type 1 and Type 2 data files hold mandatory CDDA information.

Figure 5-1 The two parts of the CDDA reporting
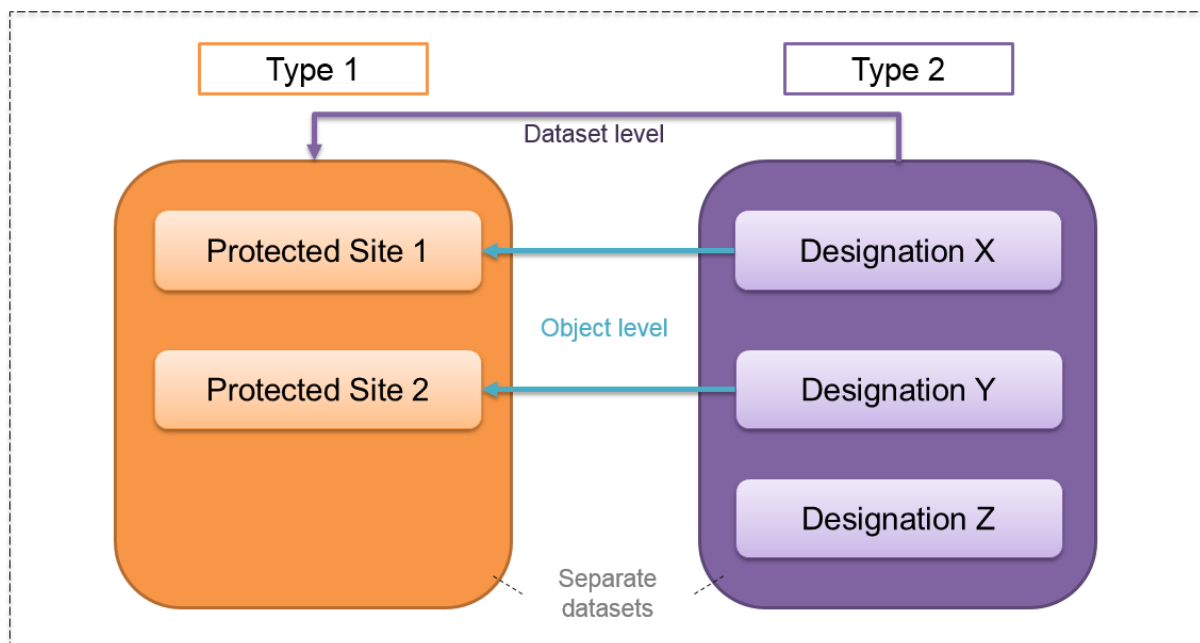
The two parts of the CDDA reporting (Type 1 and Type 2) are linked by use of a common identifier at data set level as well as on object level.

Figure 5-2 The CDDA model in UML (conceptual model): INSPIRE Protected Sites (left) and the DesignatedArea and the LinkedDataset tables (right)
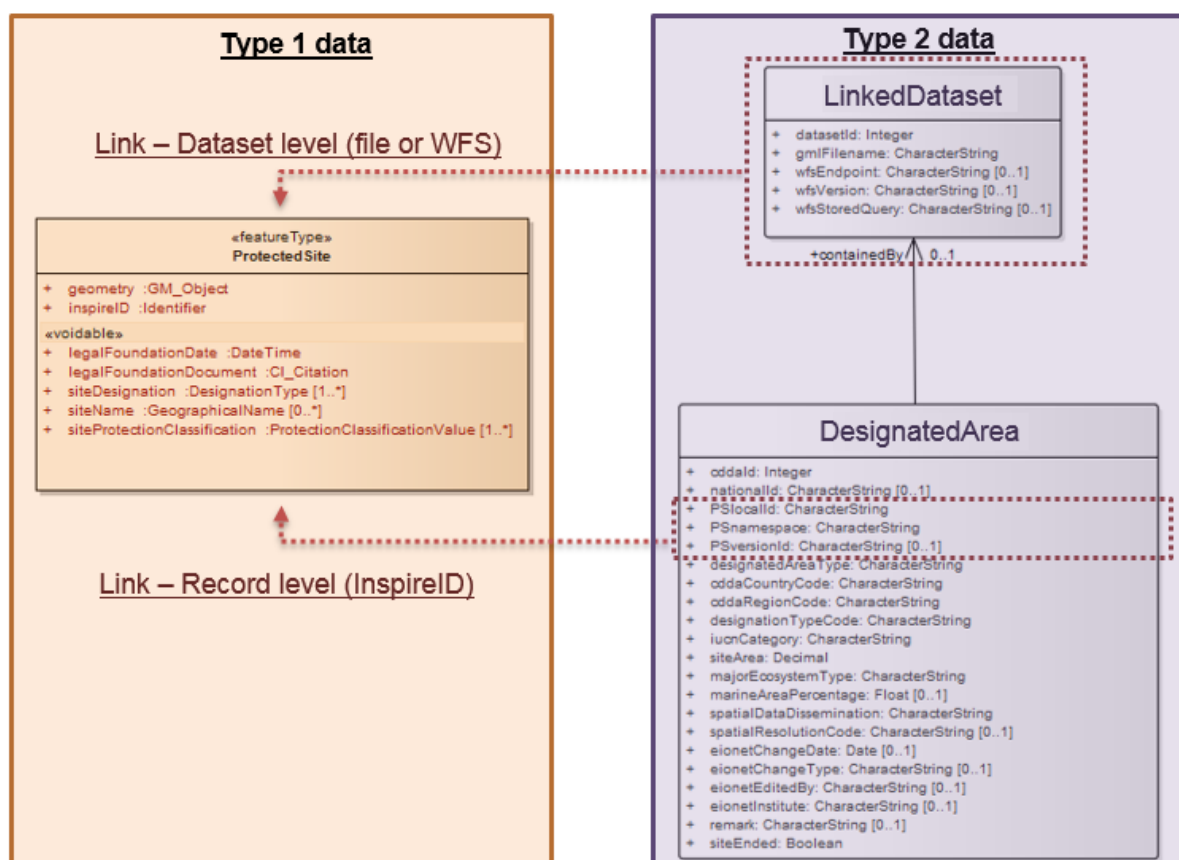
Note – the Type 2 data can be reported as tables in an Excel file or as plain xml

5.2   The 2018 CDDA data model and the pre-2018 model

The revision of the pre-2018 data model included the removal of redundant and outdated information. The national overview table was entirely dropped. The designations table was moved out of the CDDA reporting as the designation types information is also used by other data flows (Natura 2000 and Emerald networks). A new stand-alone codelist and registry will become available. The information in the table site_boundaries and designation_boundaries is now handled inside the new DesignatedAreas table via the element "designatedAreaType".

In table 5-1 the 2018 element names are listed with the corresponding names in the 2017 reporting. The Figure 5-3 provides an overview of the complete models and it is possible to follow the fate and new name of each element of the pre-2018 data model in the new 2018 data model.

Table 5-1 Mapping of the CDDA 2018 data elements with the 2017 data elements.

TYPE	Name 2018	Name 2017	Comment
1	geometry	geometry	
1	inspireID		
1	legalFoundationDate	YEAR	
1	legalFoundationDocument		[not considered by CDDA reporting]
1	siteDesignation		[not considered by CDDA reporting]
1	siteName	SITE_NAME	
1	siteProtectionClassification		[not considered by CDDA reporting]
2	cddaId	SITE_CODE	
2	nationalId	SITE_CODE_NAT	
2	PSlocalId		
2	PSnamespace		
2	PSversionId		
2	designatedAreaType		
2	cddaCountryCode	PARENT_ISO	
2	cddaRegionCode	ISO3	
2	designationTypeCode	DESIG_ABBR	
2	iucnCategory	IUCNCAT	
2	siteArea	SITE_AREA	
2	majorEcosystemType	Major_ecosystem_type	
2	marineAreaPercentage	Marine_area_perc	
2	spatialDataDissemination	CDDA_Dissemination_code	
2	spatialResolutionCode	CDDA_Resolution_code	
2	eionetChangeDate	EIONET_CHNG_DATE	
2	eionetChangeType	EIONET_CHNG_TYPE	
2	eionetEditedBy	EIONET_EDITED_BY	
2	eionetInstitute	EIONET_INSTITUTE	
2	remark	NOTES	
2	siteEnded	To_be_deleted	
2	containedBy		
2	datasetId		
2	gmlFileName		
2	wfsEndpoint		
2	wfsVersion		
2	wfsStoredQuery		

Figure 5-3 (next page) – Overview of the pre-2018 data model and the new 2018 data model including the Designation types registry.

Pre-2018 model

designation_boundaries
- PARENT_ISO
- ISO3
- DESIG_ABBR
- CDDA_Availability_code
- CDDA_Resolution_code
- CDDA_Dissemination_code

designations
- PARENT_ISO
- ISO3
- DESIG_ABBR
- Category
- ODESIGNATE
- DESIGNATE
- CDDA_sites
- Law
- Lawreference
- Agency
- Number
- Total_Area
- Number_reference
- Total_Area_reference
- Data_Source
- Reference_date
- Remark
- Remark_Source
- To_be_deleted

Spatial data
- GEOMETRY
- SITE_CODE

sites
- SITE_CODE
- SITE_CODE_NAT
- PARENT_ISO
- ISO3
- DESIG_ABBR
- SITE_NAME
- SITE_AREA
- Major_ecosystem_type
- Marine_area_perc
- IUCNCAT
- NUTS
- YEAR
- Last_leg_chng_year
- Last_leg_chng_code
- LAT
- LON
- CDDA_Coordinate_code
- CDDA_Resolution_code
- CDDA_Dissemination_code
- EIONET_CHNG_DATE
- EIONET_CHNG_TYPE
- EIONET_EDITED_BY
- EIONET_INSTITUTE
- NOTES
- To_be_deleted

site_boundaries
- SITE_CODE
- SITE_CODE_NAT
- PARENT_ISO
- ISO3
- CDDA_Availability_code
- CDDA_Resolution_code
- CDDA_Dissemination_code

national_overview
- PARENT_ISO
- ISO3
- Category
- Major_ecosystem
- Total_Area
- Reference_year
- Publication_title
- Publication_url
- Methodology_type
- Methodology_reference_title
- Methodology_reference_url
- Remark

2018 model

Type 1 data

ProtectedSite

GEOMETRY	→ geometry
	inspireID
YEAR	→ legalFoundationDate
	legalFoundationDocument
	siteDesignation
SITE_NAME	→ siteName
	siteProtectionClassification

Type 2 data

DesignatedArea

SITE_CODE	→ cddaId
SITE_CODE_NAT	→ nationalId
	PSlocalId
	Psnamespace
	PSversionId
	designatedAreaType
PARENT_ISO	→ cddaCountryCode
ISO3	→ cddaRegionCode
DESIG_ABBR	→ designationTypeCode
IUCNCAT	→ iucnCategory
SITE_AREA	→ siteArea
Major_ecosystem_type	→ majorEcosystemType
Marine_area_perc	→ marineAreaPercentage
CDDA_Dissemination_code	→ spatialDataDissemination
CDDA_Resolution_code	→ spatialResolutionCode
EIONET_CHNG_DATE	→ eionetChangeDate
EIONET_CHNG_TYPE	→ eionetChangeType
EIONET_EDITED_BY	→ eionetEditedBy
EIONET_INSTITUTE	→ eionetInstitute
NOTES	→ remark
To_be_deleted	→ siteEnded
	containedBy

Auxiliary registry (not part of annual reporting)

Designation types registry

DesignationType

PARENT_ISO	→ cddaCountryCode
ISO3	→ cddaRegionCode
DESIG_ABBR	→ designationTypeCode
Category	→ designationTypeCategory
ODESIGNATE	→ designationTypeName
DESIGNATE	→ designationTypeNameEnglish
CDDA_sites	→ creatingSites
Law	→ legalReferenceName
Lawreference	→ legalReferenceOfficialJournalIdentification
	legalReferencePublicationDate
	legalReferenceLevel
	legalReferenceLink
Agency	→ competentAuthorityOrganisationName
	competentAuthorityWebsite
Remark	→ remark
Remark_Source	→ remarkSource
	designationPeriodBegin
	designationPeriodEnd

Legend

Field name / Field name / Field name	Table deleted on the whole
NUTS	Field erased without substitute
ISO3	Field erased with substitute
(YEAR)	Field covered by INSPIRE PS (Type 1 data)
cddaId	Field renamed
PSlocalId	New field

5.3   Relation to the Designation type registry

As mentioned in section 5.2 the designations table of the pre-2018 CDDA data model has become a stand-alone registry of designation types[2]. It will become available populated with the information reported in March 2017. The Designation type registry will be updated via a web form independently from the CDDA reporting. Updates take place when deemed necessary by the countries, e.g. in connection with changes to national environmental legislation. When calling for the annual update of the CDDA, the EEA will remind countries to ensure the Designation type registry to be up-to-date. Updates should happen before the CDDA reporting deadline as the registry is used for QA of the designationTypeCode element.

6   The 2018 CDDA specifications based on the re-use of Inspire Protected Sites

6.1   CDDA type 1 data specification

The specifications in this chapter are copied from the INSPIRE Protected Sites (INSPIRE PS) and simplified to reflect the requirements from the CDDA Type 1 reporting of the geometry. The scope of the specification is not to provide INSPIRE compliant data sets. The full specifications for INSPIRE PS, which is wider than the CDDA, are available here: http://inspire.ec.europa.eu/id/document/tg/ps.

The CDDA reporting will take advantage of the data provided as INSPIRE PS data sets. Countries implementing INSPIRE should refer to the INSPIRE PS specifications and use the below instructions to understand how their INSPIRE PS data will be re-used in the context of the CDDA reporting of Type 1 information.
Countries not implementing INSPIRE can use the below as specifications and refer to the full INSPIRE PS specifications for further information on the origin of the elements. Shapefile and GML file templates are available prefilled with the CDDA data reported in 2017.

The subset of INSPIRE PS attributes required for CDDA Type 1 are:
- Geometry
- inspireID
- legalFoundationDate
- siteName

Attribute: geometry
- Value type: GM_Object
- Definition: The geometry defining the boundary of the Protected Site.
- Description: The geometry may be determined by a wide range of methods, including surveying, digitisation or visual reference to natural features or cadastral boundaries and may be defined by the legal document that creates the protected area. The geometry included in a data set that uses this data model is stored as a fixed geometry by

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[2] The dataset definition is available in Data Dictionary http://dd.eionet.europa.eu/datasets/3379

coordinates, not by reference to natural, cadastral or administrative boundaries, although it may originally have been defined from these.
- In the context of CDDA reporting, point data are accepted where boundaries are not available.
- *Mandatory*
- The location path (Xpath) of the attribute Geometry within the GML file: /gml:FeatureCollection/gml:featureMember/ps:ProtectedSite/ps:geometry

Attribute: inspireID
- Value type: Identifier
- Definition: External object identifier of the protected site.
- Description: NOTE: An external object identifier is a unique object identifier published by the responsible body, which may be used by external applications to reference the spatial object. The identifier is an identifier of the spatial object, not an identifier of the real-world phenomenon.
- The inspireID consists of three components shown in the table 6.1. For countries not implementing INSPIRE, the EEA provides suggestions in the table.
- *Mandatory* (localId and namespace)
- The location path (Xpath) of the attribute inspireID within the GML file: /gml:FeatureCollection/gml:featureMember/ps:ProtectedSite/ps:inspireID/base:Identifier/base:localId
/gml:FeatureCollection/gml:featureMember/ps:ProtectedSite/ps:inspireID/base:Identifier/base:namespace
/gml:FeatureCollection/gml:featureMember/ps:ProtectedSite/ps:inspireID/base:Identifier/base:versionId

Table 6-1 The three components of the complex attribute inspireID. The Suggestions field is meant for countries where the components of the inspireID are not already defined in the context of INSPIRE implementation*.

Component	Definition	Type	Suggestion
localId	A local identifier, assigned by the data provider. The local identifier is unique within the namespace that is no other spatial object carries the same unique identifier.	Character String	It is suggested to re-use the value of the element cddaId, where localId is not already defined by the country.
namespace	Namespace uniquely identifying the data source of the spatial object.	Character String	It is suggested to use the following string, where namespace is not already defined by the country: EIONET.ENVIRONMENT.PS.CDDA. [cddaRegionCode]
versionId		Character String	(optional element)

* Those countries having inspireID components (localId, namespace, versionId) already in place should reuse these for CDDA reporting.

16   The European CDDA version 16 (2018)

Attribute: legalFoundationDate
- Value type: DateTime
- Definition: The date that the protected site was legally created. This is the date that the real world object was created, not the date that its representation in an information system was created.
- Format: YYYY-MM-DD Thh:mm:ss
- In the context of CDDA reporting, only the year (YYYY) is required.
- *In the context of CDDA reporting, this field is Mandatory*
- The location path (Xpath) of the attribute legalFoundationDate within the GML file:
  /gml:FeatureCollection/gml:featureMember/ps:ProtectedSite/ps:legalFoundationDate

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NOTE for countries not implementing INSPIRE:

CDDA reporting requires only information about the year of designation, but the GML encoding for DateTime requires also the month and the day (and the time, which is obviously not meaningful and there is a change request made to the INSPIRE community for the format of this attribute for INSPIRE PS). If you report only the year (i.e. if your country is not implementing INSPIRE), please be aware that EEA will have to provide a dummy value for the month and day (and time). The dummy values will be YYYY-01-01 T01:01:01.

Attribute: siteName
- Value type: GeographicalName
- Definition: The name of the Protected Site.
- *In the context of CDDA reporting, this field is Mandatory*
- In the context of CDDA reporting, the name is requested in the local language only. For languages with other than Latin characters, a transliteration should be used (e.g. Greek, Cyrillic).
- The location path (Xpath) of the attribute siteName within the GML file:
  /gml:FeatureCollection/gml:featureMember/ps:ProtectedSite/ps:siteName/gn:GeographicalName/gn:spelling/gn:SpellingOfName/gn:text

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NOTE:
If more than one site name is provided, by default only the first name is included in context of the CDDA. Additional names are not considered for CDDA reporting.

> NOTE for countries implementing INSPIRE:
>
> The IUCN protected area management category is regarded a designation type in the context of INSPIRE PS.
>
> The IUCN category code list used for the INSPIRE siteDesignation is different compared to the code list recommended by UNEP-WCMC. UNEP-WCMC is maintaining the World Database on Protected Areas. UNEP-WCMC requested for the INSPIRE code list to be changed and the EEA made available from the Data Dictionary a code list aligned with the UNEP-WCMC recommendation. This code list is already in use by the CDDA reporting. Consequently, until the INSPIRE code list is corrected, the IUCN category reported via the Type 1 INSPIRE Protected Sites will not be taken into consideration for the CDDA reporting.
>
> The IUCN category is included in the CDDA Type 2 Designated Area table in order to use the recommended IUCN category code list.

6.2 CDDA Type 2 data specification

This chapter provides information about the data elements of the CDDA Type 2 data.
The type 2 data is build up by two tables:
•   DesignatedArea
•   LinkedDataset

The descriptions and examples provided in this guideline are general descriptions of all elements requested in the reporting. Technical specifications have been simplified to ease the understanding. For detailed descriptions including the full data specifications please refer to the Data Dictionary http://dd.eionet.europa.eu/datasets/3344. A pdf export is available at: http://dd.eionet.europa.eu/GetPrintout?format=PDF&obj_type=DST&obj_id=3344 (please copy-paste the url into your browser for downloading the specifications).

> NOTE:
> The Data Dictionary is *the* reference for the Type 2 data specifications. In case of doubt, please consult always http://dd.eionet.europa.eu/datasets/3344.

The relation between DesignatedArea and LinkedDataset is depicted in Figure 6-1.

Figure 6-1 Relational database model of CDDA Type 2 data (including an example of a designated area in Luxembourg)

Element	Example
datasetId	11111
gmlFileName	CDDA_type2_v15_LU_20180310.gml
wfsEndpoint	http://geoserver.institution.eu/geoserver/wfs?
wfsVersion	2.0.1
wfsStoredQuery	http://inspire.ec.europa.eu/operation/ download/getspatialdataset

Element	Example
cddaId	337498
nationalId	LU0001029
PSlocalId	337498
PSnamespace	EIONET.ENVIRONMENT.PS.CDDA.LUX
PSversionId	1
designatedAreaType	designatedSite
cddaCountryCode	LU
cddaRegionCode	LU
designationTypeCode	LU06
iucnCategory	IV
siteArea	1675.31000
majorEcosystemType	terrestrial
marineAreaPercentage	
spatialDataDissemination	public
spatialResolutionCode	scaleLarger100K
eionetChangeDate	2017-09-26
eionetChangeType	U
eionetEditedBy	PG
eionetInstitute	MDDI
remark	Updated siteArea
siteEnded	false
containedBy	11111

6.2.1 DesignatedArea

The Designated Area table is the main CDDA table which is primarily constructed from the pre-2018 CDDA Sites table. The elements are not part of the INSPIRE Protected Sites data model with one exception: iucnCategory. The IUCN category is included in the siteDesignation data type of the INSPIRE Protected Sites. The reason for requesting again the IUCN category in the CDDA Type 2 data is that the reference codelist used by the INSPIRE siteDesignation is different than the one recommended by UNEP-WCMC and used in the World data base on protected areas (WDPA). The CDDA uses the same code list as the WDPA.
The Designated Area elements are listed and described in Table 6-2 below.

Table 6-2 Elements of the DesignatedArea table.

Element	Description	Specifications
cddaId (former SITE_CODE) *(mandatory field)*	The unique identifier within the CDDA database for nationally designated areas. The CDDA ID is identical to the WDPA ID of the World Database on Protected Areas. The management of the IDs is a collaboration between the EEA and the UNEP-WCMC. New IDs may only be requested by an appointed Reportnet user via the Site code allocation web service. Example: '337498'	integer

nationalId (former SITE_CODE_NAT)	The unique identifier within the national database for designated areas. − when the field designatedAreaType = designatedSite the nationalId is mandatory − when the field designatedAreaType = designatedBoundary, the nationalId is optional It is advised to maintain a national ID for the designated sites or – where national IDs are not in place – reuse the cddaId as such. Example: 'LU0001029'	string
PSlocalId *(mandatory field)*	PSlocalId is one of the three components of the Type 1 inspireID. PSlocalId is uniquely identifying the Protected Site within the namespace of the Type 1 data. The localId from the Type 1 data *must be* reused here in the Type 2 data. PSlocalId is *the principal* linking element between Type 1 and Type 2 of the CDDA reporting, linking to the corresponding spatial representation. For European wide harmonisation it is suggested to reuse the cddaId as PSlocalId for countries not implementing INSPIRE*. Example: '337498'	string
PSnamespace *(mandatory field)*	PSnamespace is one of the three components of the Type 1 inspireID. PSnamespace is uniquely identifying the origin of the data in the Type 1 dataset. The namespace element from the Type 1 data *must be* reused here in the Type 2 data, linking to the corresponding spatial representation. For European wide harmonisation the following structure is proposed for countries not implementing INSPIRE*: EIONET.ENVIRONMENT.PS.CDDA.{cddaRegionCode} Example: 'EIONET.ENVIRONMENT.PS.CDDA.LU'	string
PSversionId	PSversionId is one of the three components of the Type 1 inspireID. It is the life cycle information of the Type 1 data. *If* the versionId is provided in the Type 1 dataset, it *must be* reused here linking to the corresponding spatial representation*. Example: '1'	string
designatedAreaType *(mandatory field)*	Indicates whether the spatial object is a designated site or a designated boundary. Designated sites are under national or federal legislation aiming to protect fauna, flora, and habitats. Designated boundaries are areas (or often sets of areas) which provide adequate and durable protection for fauna, flora and habitats through national/federal, sectorial or private statutes, e.g. via management practices. An example of designated boundaries is when specific habitat types (raised bogs, specific meadow types, etc.) are under general protection wherever they occur. Another example could be when areas are managed for the protection of biodiversity, e.g. by NGOS. With respect to the reporting, a designated boundary will often not have all the information that is defined as mandatory for the reporting of a designated site. For further explanations and examples please refer to the dedicated document "CDDA designation boundaries concept" that will be available here.	code list

	Values:	
	designatedSite, A site designated under national legislation with the intent to protect fauna, flora and habitats. *designatedBoundary*, A boundary of an area (or often sets of areas) which provides adequate and durable protection for fauna, flora and habitats through national, local, sectorial or private statutes. Example: 'designatedSite' Code list can be found in the vocabulary: http://dd.eionet.europa.eu/vocabulary/cdda/designatedAreaTypeValue/	
cddaCountryCode (former PARENT_ISO changed to ISO2 standard) *(mandatory field)*	Two-letter code as defined by the ISO 3166-1 alpha-2 standard representing the reporting country (exceptions apply to Greece and United Kingdom with codes 'EL' and 'UK', respectively). Example: 'LU' Code list can be found in the vocabulary: http://dd.eionet.europa.eu/vocabulary/cdda/cddaRegionCodeValue/	code list
cddaRegionCode (former ISO3 changed to ISO2 standard) *(mandatory field)*	Two-letter code as defined by the ISO 3166-1 alpha-2 standard representing the reporting entity being country, autonomous or overseas region/community or other territory (exceptions apply to Greece and United Kingdom with codes 'EL' and 'UK', respectively). Example: 'LU' Code list can be found in the vocabulary: http://dd.eionet.europa.eu/vocabulary/cdda/cddaRegionCodeValue/	code list
designationTypeCode (former DESIG_ABBR) *(mandatory field)*	Designation type code defining the national designation by which the site has been declared (e.g. by statutory designation, voluntary designations, conservation objective or management restrictions). The designation type code is maintained by the country as a sequential list of designations with related regulatory and legal background. Beside the Nationally designated areas inventory the code list is also used in the Natura 2000 and Emerald reporting. Designation type codes are allocated by country representatives and registered in the Designation types registry. The code is made of the two-letter country or region code (as described above) and two numerical values starting with '00' representing 'No protection status', and ending with '99', indicating "Others". Example: 'LU06' Code list can be found in the vocabulary: http://dd.eionet.europa.eu/vocabulary/cdda/designationTypeCodeValue/	code list
iucnCategory (former IUCNCAT) *(mandatory field)*	The IUCN protected area management category for the specific site represents a global standard for defining and recording protected areas. The IUCN category reported via the Type 1 INSPIRE Protected Sites will not be taken into consideration for the CDDA reporting as it is slightly different from the recommended codelist from IUCN:	code list

	− *Ia* (strict nature reserve) − *Ib* (wilderness area) − *II* (national park) − *III* (national monument or feature) − *IV* (habitat/species management area) − *V* (protected landscape/seascape) − *VI* (protected area with sustainable use of natural resources) − *notApplicable* (not applicable) − *notAssigned* (not assigned) − *notReported* (not reported) Example: 'IV' Code list can be found in the vocabulary: http://dd.eionet.europa.eu/vocabulary/cdda/IucnCategoryValue/	
siteArea (former SITE_AREA) *(mandatory field)*	Surface area of the designated site in hectares [ha] (EPSG:3035) without an unit name. '0' might be given to point objects such as trees, caves or cliffs. Example: '1675.31'	decimal
majorEcosystemType (former Major_ecosystem_ type) *(mandatory field)*	The major ecosystem type can be: marine, marine and terrestrial (incl. freshwater) or terrestrial (incl. freshwater). A coastal designated area located only on the terrestrial side of the coastline should be considered terrestrial. The type must be provided as value: − *marine* − *marineAndTerrestrial* − *terrestrial* Example: 'terrestrial' Code list can be found in the vocabulary: http://dd.eionet.europa.eu/vocabulary/cdda/majorEcosystemTypeValue/	code list
marineAreaPercentage (former Marine_area_perc)	Percentage of the total area of marine ecosystems in the site. This field has to be filled in case both marine and terrestrial surfaces are found in the designated area. (majorEcosystemType = 'marineAndTerrestrial') Example: '' (site terrestrial → no marine percentage)	float
spatialDataDissemination (former CDDA_Dissemination_ code) *(mandatory field)*	Code for instructions to EEA regarding further dissemination of geographical data (boundaries) to partners (WDPA) or the public. The concept behind dissemination restriction and benefit of a database/reporting being as far as possible public can be found in the dedicated "Note on CDDA dissemination restriction" that will be available here. To be provided as value: − *eeaOnlyInternal* − *eeaPartnersInternal* − *public* Example: 'public' Code list can be found in the vocabulary: http://dd.eionet.europa.eu/vocabulary/cdda/spatialDataDisseminationValue/	code list

spatialResolutionCode (former CDDA_Resolution_code)	Code for spatial resolution of the dataset from which the geographical data for this feature (boundaries, coordinates) has been derived. − *metadataResolution* − *scaleLarger100K* − *scale100K-250K* − *scale250K-1M* − *scaleSmaller1M* − *unknown* Example: 'scaleLarger100K' Code list can be found in the vocabulary: http://dd.eionet.europa.eu/vocabulary/cdda/spatialResolutionCodeValue/	code list
eionetChangeDate (former EIONET_CHNG_DATE)	Date the site record was altered Example: '2017-09-26'	date
eionetChangeType (former EIONET_CHNG_TYPE)	Type of change to the site record − *A (additional new record)* − *C (correction or error)* − *U (updated field)* Example: 'U' Value list can be found in: http://dd.eionet.europa.eu/fixedvalues/elem/92564	fixed values
eionetEditedBy (former EIONET_EDITED_BY)	Name or acronym of the person who did the actual editing of the data Example: 'PG'	string
eionetInstitute (former EIONET_INSTITUTE)	Abbreviation of the institution responsible for editing of the record Example: 'MDDI'	string
remark (former NOTES)	Remarks about the site record. Example: 'Updated siteArea'	string
siteEnded (former To_be_deleted) *(mandatory field)*	To be able to maintain the central data base, sites which are not valid must be marked for deletion in this field. When a site has been marked for deletion, the remark field should be used to indicate the reason for doing so. − *false* − *true* Example: 'false' Value list can be found in: http://dd.eionet.europa.eu/fixedvalues/elem/92568	fixed values
containedBy *(mandatory field)*	An integer code which is used as unique foreign key and links to the **datasetID** element in the **LinkedDataset** table. By use of this identifier the Type 1 data is linked to the Type 2 data. The value of this code may be chosen by the country in any appropriate way resulting in a nationally unique code. Example: '11111'	integer

* Countries having inspireID components defined already (localId, namespace, versionId) should re-use these for INSPIRE reporting.

For more technical specifications please consult the Data Dictionary http://dd.eionet.europa.eu/tables/11022.

6.2.2 LinkedDataset

The Linked Dataset table acts as a bridging element between the records of the Designated Area table and the records of an external GML file or the INSPIRE Protected Site records which contain the relevant spatial information. In 2018 the GML file name will be the link. The Linked Dataset table may also provide information about INSPIRE web feature services (WFS) where such services are already available.

The Linked Dataset elements are listed and described in Table 6-3 below.

Table 6-3 Elements of the LinkedDataset table.

Element	Description	Specifications
datasetID *(mandatory field)*	An integer code which is used as unique foreign key linking to the **containedBy** element in the **DesignatedArea** table. By use of this identifier the Type 1 data is linked to the Type 2 data. The value of this code may be chosen by the country in any appropriate way resulting in a nationally unique code. Example: '11111'	integer
gmlFileName *(mandatory field)*	The corresponding GML filename of the spatial CDDA Type 1 dataset (INSPIRE Protected Sites version 4.0 encoded as GML) holding the geometry information. Example: 'CDDA_type2_v15_LU_20180310.gml'	string
wfsEndpoint	WFS URI outlining which web service is supposed to carry out the download request providing the Type 1 data. Example: 'http://geoserver.institution.eu/geoserver/wfs?'	string
wfsVersion	The WFS version number of the download service *Remark:* the full version number must be given (e.g. "2.0.1" instead of "2" only) Example: '2.0.1'	string
wfsStoredQuery	GetFeature-query needed to extract the necessary information from the WebFeatureService (WFS) query (only in case the query differs from the INSPIRE standard GetFeatureById) Example: 'http://inspire.ec.europa.eu/operation/download/ getspatialdataset'	string

For more technical specifications please consult the Data Dictionary http://dd.eionet.europa.eu/tables/11023.

7 Data management recommendations

This section aims at providing guidelines in certain aspects of the provision of data for the CDDA reporting purpose. While the selection of points is not exhaustive it aims at the most sensitive aspects and frequent questions.

7.1 CDDA reporting process model

The following figure which is further explained below shall give an additional provider perspective for the CDDA 2018 reporting data flow. While there is no clearly marked beginning the process model marks the most important stages which are partly further reflected in the following chapters.

Figure 7-1 Provider perspective for the CDDA 2018 data flow
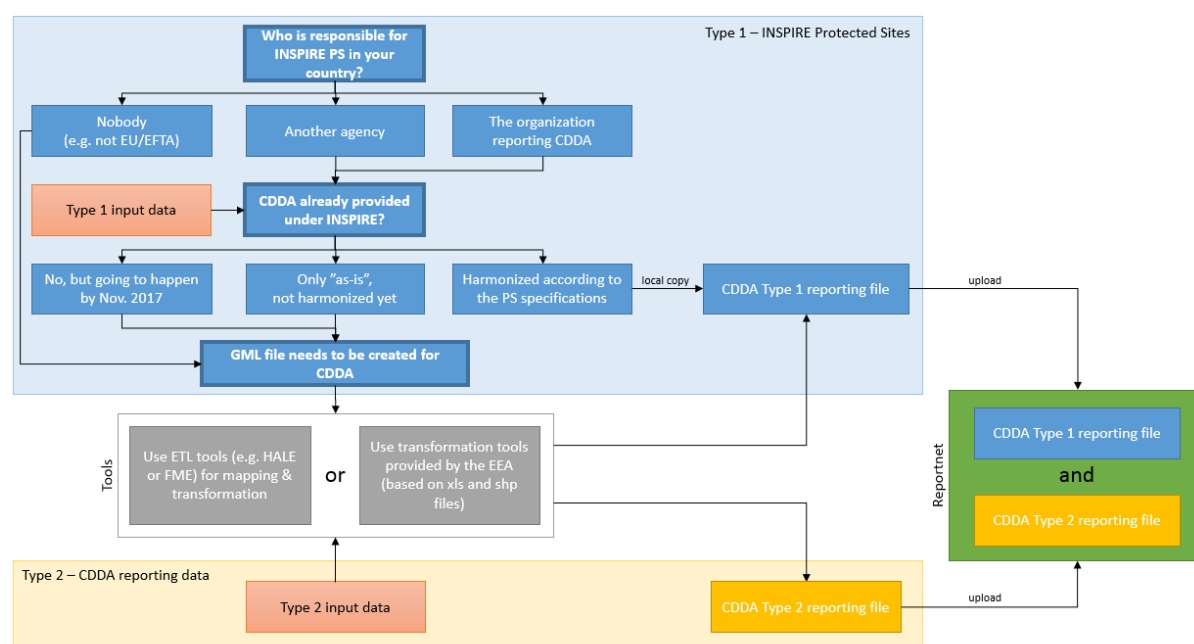
The part of the reporting process which will likely need the most attention is the provision of the Type 1 part – the INSPIRE Protected Sites. For this part the starting point for CDDA reporters is the question of the responsibility for INSPIRE Protected Sites in their country. As described earlier this includes the management of the data, the harmonisation and transformation as well as the provision of INSPIRE network services and metadata. In most cases this is not the person in charge for CDDA reporting. Knowing the responsible person for providing CDDA data towards INSPIRE and establishing good communication with this person is crucial to the next step in the process model. In EU Member States there should be a person or organisation in charge for providing INSPIRE Protected Sites in general. Sometimes the responsibility is divided by themes and some organisations have a special responsibility for providing CDDA to INSPIRE. If this person or organisation cannot be identified, it has to be agreed internally or with the organisation in charge for the INSPIRE implementation coordination how CDDA will be provided harmonized, described by metadata and accessible via a web service by November 2017 to meet the legal obligation regarding INSPIRE Annex I.

The second stage in the process is related to the status of implementation of CDDA via INSPIRE Protected Sites in the countries. As the Type 1 part of the CDDA reporting will require that the data is compliant with INSPIRE Protected Sites, the implementation status of the latter is relevant for the most efficient approach. In the case that CDDA is already provided fully harmonized via INSPIRE Protected Sites GML it is strongly recommended to reuse it. If there is already a web service or the file can be downloaded, please contact your responsible colleague to let him know that you aim to reuse the data for reporting purposes. If the data is provided via a WFS the colleague might also assist in getting the physical file required for the reporting.

If CDDA is not yet provided towards INSPIRE at all or not yet harmonized according to INSPIRE Protected Sites (data is still in the in-situ or "as-is" state) it still has to be transformed.

> Recommendation:
> If CDDA is already provided harmonised as INSPIRE Protected Sites in your country, it should be reused for CDDA Type 1 reporting.

The third stage regards Type 2 data as well as Type 1 data in the case it is not yet compliant to the INSPIRE Protected Site requirements. At this stage data has to be transformed and harmonised to meet the requirements of the CDDA reporting. For this step a set of tools is available and can be chosen by the provider. There are sets of tools available from different software providers (e.g. HALE or FME) which can be used for transformation. Additionally, the EEA provides services based on Excel sheet and shapefile templates.

Regardless which tool you decide to use for transformation please keep in mind that CDDA data is subject to INSPIRE implementation and needs to be available harmonized to INSPIRE Protected Sites, accessible via web service and described via metadata. The transformation of CDDA Type 1 data according to the reporting requirements may help you to fulfil the INSPIRE obligations but this is not a substitute for the latter!

> Recommendation:
> CDDA data is subject to INSPIRE. The CDDA reporting – while reusing EU Member States' efforts towards implementing INSPIRE – is not a substitute to your INSPIRE obligations.

One crucial element is the link between the Type 1 and Type 2 files. Regardless if Type 1 files are available by the INSPIRE implementation or still have to be transformed the links between those two external files needs to resolve consistently. Further guidelines and suggestions on the design of the identifiers for the linking elements are given in a following chapter.

7.2   Implications of INSPIRE Protected Sites obligations

As shortly mentioned in the previous section the CDDA reporting is aiming to create synergies with the obligations coming from the INSPIRE Directive. This is based on the general motivation for eReporting, to minimise the effort for data providers and to avoid as much as possible multiple reporting of the same elements.

Following the previously explained CDDA workflow two possible scenarios are picked out and explained, with particular focus on the obligations for the INSPIRE Directive.
1. CDDA is already fully provided as INSPIRE Protected Sites

2. Parts of or the whole CDDA dataset are not yet provided as INSPIRE Protected Sites and need to be harmonized.

In the first scenario that the CDDA is already provided as compliant INSPIRE Protected Sites data set and has been identified (Type 1 dataset), it should be reused for CDDA reporting. If it is provided via a direct access download service please contact the responsible person to the local copy of the data relevant for you. Please consider the following recommendations:
- In case the INSPIRE Protected Sites dataset contains more records than needed for CDDA reporting you can delete or filter those records not needed for reporting
- Do not change any of the IDs (gml ID or INSPIRE ID) of INSPIRE Protected Sites dataset, even if they aren't matching with the suggestions given in section 7.3.
- Do not change the geometry, update or add elements to the INSPIRE Protected Sites

Recommendation:
If you are reusing an INSPIRE Protected Sites dataset please keep it unchanged (except filtering out redundant records)!

In the second case scenario the status of the INSPIRE PS is not yet fully harmonized. Either CDDA data has not yet been identified and reported as INSPIRE datasets or it has been identified but is still in the pre-harmonized "as-is" state. The "as-is" status refers to datasets which aren't yet transformed and updated according to the INSPIRE requirements, but are in their in-situ status (e.g. as shapefiles, xls-sheets or MS databases). In both cases a transformation is needed in order to meet the INSPIRE Protected Site requirements. In this case there is the need for you to decide about the design of the identifiers and the content. Please keep in mind that there might be a national policy constraining the design of the INSPIRE identifiers. In any case, please contact the people in charge for INSPIRE and make sure they are informed about the dataset created.

In case you harmonise your data according to the INSPIRE Protected Sites requirements, please be aware that uploading your GML files on Reportnet in the context of the CDDA reporting is not substituting the obligations coming from INSPIRE. The INSPIRE Protected Sites dataset containing CDDA data still needs to be described by metadata on the INSPIRE geoportal and be accessible via view and download services.

Recommendation:
Don't forget that as soon as you update an existing INSPIRE Protected Sites dataset or create a new one, the modified dataset gets subject to the INSPIRE obligations.

7.3   Identifier management suggestions

As the key principle of the Linked Approach is to connect or associate two or several files the information on the linking elements is the most crucial part of the reporting dataset. In the CDDA data model we have several identifiers in both parts, Type 1 and Type 2. Only by their correct application it is possible to associate the correct files and the correct records to each other. The following section is highlighting some of the challenges as it comes to the usage of identifiers in the CDDA 2018 reporting.

In CDDA 2018 reporting we have the following identifier:
- Type 1
    - <u>INSPIRE Protected Sites</u>
        - INSPIRE Identifier
            - localId
            - namespace
            - versionId

- Type 2
    - <u>LinkedDataset</u>
        - datasetId
    - <u>DesignatedAreas</u>
        - cddaId
        - nationalId
        - containedby (Foreign key to LinkedDataset.datasetId)
        - PSlocalId (Foreign key to ProtectedSites.localId)
        - PSnamespace (Foreign key to ProtectedSites.namespace)
        - PSversionId (Foreign key to ProtectedSites.versionId)

<u>INSPIRE Identifier</u>

Within the INSPIRE Data Specifications the so-called INSPIRE Identifier is used to uniquely identify the spatial object. The INSPIRE Identifier is part of INSPIRE Protected Sites requirements and therefore needs to be included in the Type 1 dataset as part of the CDDA reporting.

The INSPIRE Identifier is a modular identifier build from three different elements, from which two of them are mandatory and one is optional. All together they uniquely identify a spatial object within a dataset. Instructions and further information on the INSPIRE identifier and identifier management can be found in the INSPIRE Generic Conceptual Model[3].
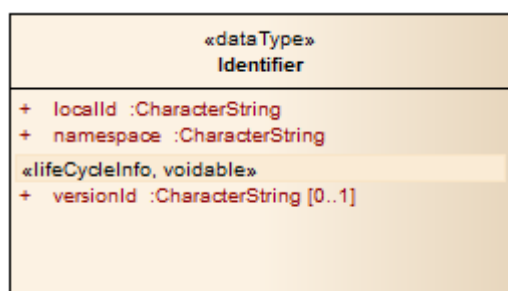
In case CDDA is already provided as INSPIRE compliant dataset in your country, the INSPIRE Identifier will be already assigned and is not supposed to be changed. If this has not happened yet, please check if there are guidelines or policies regarding the syntax and application of the INSPIRE Identifier in your country which you are supposed to follow.

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[3]   INSPIRE   Generic   Conceptual   Model,   D2.5_v3.4rc3,   05/04/2013
http://inspire.ec.europa.eu/documents/Data_Specifications/D2.5_v3.4rc3.pdf

In case you have to build the INSPIRE PS file for the reporting because it does not yet exist in your country and there is no further national policy on the INSPIRE Identifier please consider the following suggestion:

- localId
    - A local identifier, assigned by the data provider. The local identifier is unique within the namespace (see below), i.e. no other spatial object within the namespace carries the same unique identifier
    - Date type: CharacterString
        - For countries not having defined localId for protected areas, we propose to use the cddaId.
        - E.g. ”19142” for Señorío de Bertiz (ES)
- Namespace
    - Namespace uniquely identifying the data source of the spatial object.
    - Date type: CharacterString
        - For countries not having defined namespace for protected areas, we propose to use **EIONET.ENVIRONMENT.PS.CDDA.*{cddaRegionCode}*** as value
        - {cddaRegionCode} codes are to be selected from the cddaRegionCode list (see Table 6.2)
        - e.g. ”EIONET.ENVIRONMENT.PS.CDDA.ES”
- versionId
    - The identifier of the particular version of the spatial object.
    - To be used if there are updates (e.g. geometry or attribute updates) but the spatial object as such stays the same. In this case keep the localId and the namespace persistent but use the versionId to uniquely identify the specific versions of the same spatial object.
    - Optional element and only used in specific cases of updates of the same spatial object
    - Date type: CharacterString
        - E.g. ”1”; “v1”; “v1.2”: “20171115”

In gml encoding the INSPIRE identifier might look like this example:

```
<ps:inspireID>
  <base:Identifier>
    <base:localId>19142</base:localId>
    <base:namespace>EIONET.ENVIRONMENT.PS.CDDA.ES</base:namespace>
  </base:Identifier>
</ps:inspireID>
```

Recommendation:
In case you have to build the INSPIRE Identifier by yourself, please follow our suggestions.

In case you are provided with an already existing INSPIRE conformant CDDA dataset please do not change any identifier. The INSPIRE identifier is supposed to be persistent over the life-cycle of the spatial object, which is in this case the protected site object.

> Recommendation:
> It is important for you to keep in mind to not change the identifiers if you re-use an existing INSPIRE dataset. If you have to adjust identifiers for the synchronisation between Type 1 and Type 2, please do it in the Type 2 segment of the reporting.

Other Identifier

There are a range of elements in the Type 2 section of the reporting (LinkedDataset, DesignatedArea) which serve as identifier or foreign keys. Despite the constraints coming from their nature (e.g. cddaId code or nationalId) and their date type (e.g. integer or character string) there are no further constraints in the context of linked approach or INSPIRE PS. For the other Type 2 identifiers, please see Tables 6.2 and 6.3.

7.4   Multiple Type 1 datasets

We generally recommend that only one single INSPIRE Protected Sites dataset is to be used per reporting. This simplifies to some degree the data management efforts on provider and consumer side of the data flow. This goes also under the assumption that CDDA data is centrally managed and not split into individual segments managed by different organisations.

Having said this we are aware that there are cases were you might have several conformant INSPIRE Protected Sites files as segments and not existing as national datasets already. This could be the case e.g. when
- CDDA is managed in federal governance structures
- CDDA as whole dataset is not existing, but is split into several thematic INSPIRE Protected Site files (e.g. national parks, protected areas) on national or federal level
- Datasets are available under different projections (e.g. overseas territories)

> Recommendation:
> We recommend to deliver only one Type 1 file (INSPIRE Protected Sites) per country and projection. This is however the decision of the reporter based on the situation in the country.

In cases like those listed above it is the decision of the reporter if it is easier to merge those different files to one singular INSPIRE Protected Sites or if it is easier to report several files which makes the consistency of the links more important. In case you plan to merge those files, please be aware that you will technically create a new dataset which falls again under the scope of INSPIRE and needs to be provided via service and described by metadata, latest 6 months after its creation.

> Recommendation:
> If you are going to merge datasets (regardless of they were INSPIRE compliant or not) you might just create a new one, which would fall again under the scope of INSPIRE.

8 How to transform data to the new version

Data in the Eionet partner countries is managed and hosted in different ways, which includes a variety of different data formats and models. To report data in accordance to this reporting specifications it is most likely necessary to transform data into the target schemas for Type 1 and Type 2.

For the transformation of the source data into the reporting target scheme there are several options available, as briefly shown by Figure 8.1.

Figure 8-1 Options for transformation of source data into the reporting target scheme
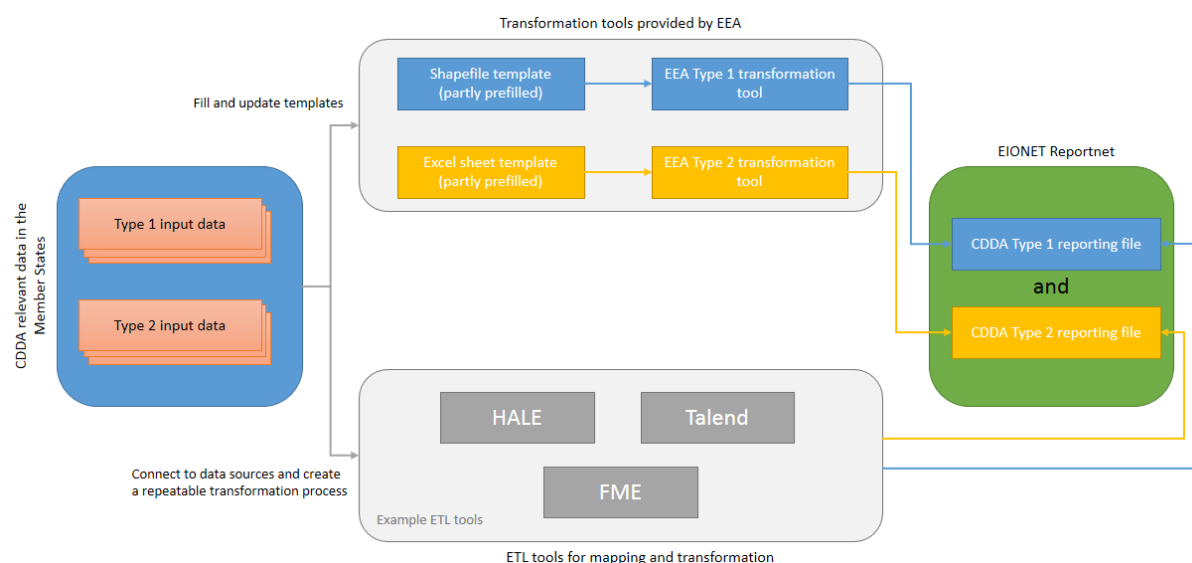
The EEA will provide a transformation process based on shapefile and Excel sheet templates. The respective transformation tools based on FME will be made available. Please be aware as mentioned earlier, that the usage of those transformation tools – in particular the shapefile based transformation towards INSPIRE Protected Sites – is not freeing EU Member States from the obligation under the INSPIRE Directive.

Additionally to the EEA transformation tools based on templates there are a range of other tools which can be used. Those tools – typically ETL (Extract-Transform-Load) tools – are available as proprietary or open-source software. Just to mention the two most commonly used tools, HALE, a free open source tool tailored for data/schema transformation, and FME, a proprietary tool with a wide range of different features. The advantage of using those tools is that they can be connected to your data source, can improve the data quality and can automatize some of the otherwise manual steps.

As it regards HALE transformation the EEA is providing a screen cast which guides you through some of the issues of the transformation process and helps you to understand the necessary steps.

8.1 The shapefile template

The shapefile templates are prefilled using your most recent CDDA deliveries as source. Missing values in the deliveries will also be missing in the templates. The structure of the shapefile template is described in Table 8-1.

The EEA transformation tool will generate GML files conformant to INSPIRE Protected Sites application schema. This is reason why more fields are included in the shapefile template than requested by CDDA reporting. You are not obliged to fill them and fields you leave empty will be encoded in the INSPIRE Protected Sites GML as voided elements (nilReason = "http://inspire.ec.europa.eu/codelist/VoidReasonValue/Unknown").

Please be aware that you are requested to provide those elements to INSPIRE if the data exists on your side (and your country implements INSPIRE) even if they are not required by CDDA 2018 reporting.

Table 8-1 Requirements for INSPIRE Protected Sites and the shape file template provided by EEA (Type 1 data)

INSPIRE PS Requirements		Required and processed by CDDA	Attribute in the shapefile template	Name in shapefile attribute	Shapefile attribute type	Value prefilled by EEA in the shapefile template
Geometry		Yes	Yes		Geometry (either Point or Polygon)	Prefilled field
inspireID	localId	Yes	Yes	LOCALID	Character string	Prefilled field
	Namespace	Yes	Yes	NAMESPAC	Character string	Prefilled field
	versionId	Yes	Yes	VERSIOID	Character string	Empty field
legalFoundationDate		Yes		LEGFDATE	Integer	Prefilled field
legalFoundationDocument		No	Yes	LEGFDOCU	Character string	Empty field
siteDesignation	designationScheme	No	Yes	DESSCHEM	Character string	Empty field
	designationValue	No	Yes	DESVALUE	Character string	Empty field
	percentageUnder Designation	No	No			
siteName		Yes	Yes	SITENAME	Character string	Prefilled field
siteProtecionClassification		No	Yes	SITPCLAS	Character string	Field prefilled with "natureConservation"

Elements supporting the CDDA reporting are in green shading. Elements requested by INSPIRE Protected Sites are in orange shading.

Please note the following:

- For simplification, we decreased the multiplicity of the elements siteName, siteDesignation and siteProtectionClassification to 1. If you wish to provide more than one of those multiple elements in the resulting GML file, you should use another conversion tool such as HALE or FME.
- The element percentageUnderDesignation will be always assumed and filled as 100% in the GML file. Therefore this element is not a variable in the shapefile for you to fill. It will also not be used for CDDA reporting. Areas of designation which are not 100% covered by a single designation type cannot be part of the CDDA reporting.
- Due to the encoding in GML, another field will be generated which is not part of the INSPIRE requirements but mandatory for the GML encoding: the GML Id. The GML Id will be automatically generated by the transformation tool, reusing the localId and uniquely identifying the spatial feature.
- The basic transformation follows the mapping rules as described in Table 5-1.
- Due to the limitations of the dbf file (one component of the shapefile holding the attribute information) the attribute field names are shortened to eight characters.
- Point data: where a site has no boundaries data reported but the coordinates are available, the reported coordinates were used to create a point geometry for the site and are provided in a shapefile with point features.
- inspireID: PSlocalId and PSnamespace are generated using the suggestions in table 6-1. The prefilling is a suggestion and should be replaced with the nationally generated namespace where available in the country.
- The element siteProtecionClassification will be prefilled with the value "natureConservation". Feel free to change this value for the purpose of INSPIRE Protected Sites as it is not stored and further processed for the CDDA reporting.
- Note for countries providing designation boundaries in their most recent delivery: There is not enough information in the deliveries to transform the reported data to the new Type 1 spatial data in a meaningful way. It will require some work by you to analyse how this could be achieved. We will update the information note on the Designation boundaries concept provided with the 2017 data call. Please see also Section 8.3.
- Note for countries providing sites without spatial reference: From 2018 onwards it will not be possible to provide information on sites without accompanying spatial information to the CDDA. See also Section 8.3.

8.2 The Excel file template

The Excel file templates are prefilled using your most recent CDDA deliveries as source. Missing values in the deliveries will also be missing in the templates. The structure of the Excel file template is described in Table 8-2.

Table 8-2 The Excel file template provided by EEA (Type 2 data)

Table Designated area			Value provided by EEA in the template
Element name	Datatype	Element type	
* CDDA ID (cddaId) (PK)	integer	Quantitative	Prefilled field
National site code (nationalId)	string	Quantitative	Prefilled field
* INSPIRE Protected Site identifier Local ID (PSlocalId)	string	Quantitative	Prefilled field
* INSPIRE Protected Site identifier Namespace (PSnamespace)	string	Quantitative	Prefilled field
INSPIRE Protected Site identifier Version ID (PSversionId)	string	Quantitative	Empty field
* Designated area type (designatedAreaType)	reference	Vocabulary	Prefilled field
* Country code (cddaCountryCode) C	reference	Vocabulary	Prefilled field
* Region code (cddaRegionCode) C	reference	Vocabulary	Prefilled field
* Designation type code (designationTypeCode) C	reference	Vocabulary	Prefilled field
* IUCN category (iucnCategory)	reference	Vocabulary	Prefilled field
* Site area (siteArea)	decimal	Quantitative	Prefilled field
* Major ecosystem type (majorEcosystemType)	reference	Vocabulary	Prefilled field
Percentage of Marine area (marineAreaPercentage)	float	Quantitative	Prefilled field
* Spatial data dissemination instruction code (spatialDataDissemination)	reference	Vocabulary	Prefilled field
Spatial resolution code (spatialResolutionCode)	reference	Vocabulary	Prefilled field
EIONET change date (eionetChangeDate)	date	Quantitative	Prefilled field
EIONET change type (eionetChangeType)	string	Fixed values	Prefilled field
EIONET edited by (eionetEditedBy)	string	Quantitative	Prefilled field
EIONET institute (eionetInstitute)	string	Quantitative	Prefilled field
Remark (remark)	string	Quantitative	Prefilled field
* Site ended (siteEnded)	boolean	Fixed values	Prefilled field
Contained by (containedBy)	integer	Quantitative	Empty field
Table Linked dataset			Value provided by EEA in the template
Element name	Datatype	Element type	
* Dataset ID (datasetId) (PK)	integer	Quantitative	Empty field
* GML file name (gmlFileName)	string	Quantitative	Empty field
Web Feature Service endpoint (wfsEndpoint)	string	Quantitative	Empty field
Web Feature Service version (wfsVersion)	string	Quantitative	Empty field
Web Feature Service stored query (wfsStoredQuery)	string	Quantitative	Empty field

(an asterisk in front of element name indicates that the element is mandatory in this table)
(the C sign marks a common element)

Please note the following:

- The basic transformation follows the mapping rules as described in Table 5-1.
- PSlocalId and PSnamespace are generated using the suggestions in table 6-1. The prefilling is a suggestion and should be replaced with the nationally generated localId and namespace values where available in the country.
- designatedAreaType: If the designation type does not create sites according to the designations table (current format) and if there is an entry in the designated_boundaries table (current format) it is transformed to a designatedAreaType = 'designatedBoundary'.
- spatialDataDissemination and spatialResolutionCode: If sites have an entry in the site_boundaries table (current format) and the CDDA_Availability_code = '01' (boundaries available), the CDDA_Dissemination_code and CDDA_Resolution_code provided in the site_boundaries table (current format) is used. For other sites the corresponding values from the sites table (current format) are used.
- Note for countries providing designation boundaries in their most recent delivery: there was not enough information in the deliveries to transform the reported data to the new Type 2 data in a meaningful way.

8.3 Sites missing critical mandatory information

A small percentage of reported sites were lacking critical mandatory information and could not be included in the new templates for the reporting described in Section 8.1 and 8.2. It concerns sites lacking spatial reference altogether and designation boundaries where, so far, attribute information was not requested by the EEA in a formalised way.

These records that could not be included in the templates are made available in a separate Excel file. The file has the same structure as the Excel file template, see Table 8-2, with the addition of two fields: siteName and legalFoundationDate.

You can identify the records by the field designatedAreaType. Where the designatedAreaType = designationSite, the record was reported in the sites table (current structure) with no spatial reference. Spatial reference (polygon or point data) is mandatory in the new data model. Where the designatedAreaType = designationBoundary, the record was reported in the designation_boundaries table (current structure) and mandatory elements like siteName and cddaId were not requested. We will update the information note on the Designation boundaries concept provided with the 2017 data call with suggestions on how to provide the mandatory fields for designation boundaries following the new model.

9 How to transfer the data to EEA

9.1 Data exchange

In 2018 the Type 1 and Type 2 data files should be delivered to the EEA using manual file upload to CDR. Harvesting of INSPIRE services is not yet an option. The EEA aims for 2020 to harvest selected data sets.

9.1.1 Character encoding

The character encoding for all data and metadata files must be UTF-8

9.1.2 Data quality

For Type 1 data
- o Site geometry should be delivered either as polygon or as point (never both).
- o It is recommended to deliver points (if any) in a separate GML file than that of the polygons.
- o It is recommended to deliver one spatial file per country per projection (two spatial files per projection in case point data is reported).

9.1.3 File formats

The Type 1 data must be reported using GML format.

Data providers may prepare the data using the shapefile format. Shapefile templates are available, and a shapefile to GML conversion tool will be provided. The GML files resulting from this conversion must be uploaded to the delivery envelope in CDR. The shapefiles must not be uploaded to the delivery envelope.

The Type 2 data must be reported using Excel or XML format.

Data providers may prepare the data using Excel format. Excel templates, empty as well as prefilled, are available. The Excel files are converted to XML after upload to the delivery envelope in CDR. Alternatively, XML files using the XML schema available in Data Dictionary may be uploaded directly to the delivery envelope in CDR.

9.1.4 GML format

The schema for Type 1 data make use the INSPIRE PS schema http://inspire.ec.europa.eu/schemas/ps/4.0/ProtectedSites.xsd.

> NOTE:
> Countries implementing INSPIRE should always refer to the INSPIRE schema repository, http://inspire.ec.europa.eu/schemas/ps/.

9.1.5 Shapefile format

Shapefile templates are provided and must be used by countries not implementing INSPIRE when preparing the data and using the conversion tool to transform from shapefile to GML, http://cdr.eionet.europa.eu/help/cdda/FME_processes/Shp2GML.html.

Shapefiles must have the three structural files (*.shp, *.shx and *.dbf) and the *.prj and *.cpg files. Shapefiles without the *.prj projection file (or with an incorrect definition of the coordinate system) will not be processed by the conversion tools. The *.cpg file is also mandatory as it explicitly identifies the character encoding used in the *.dbf file. The mandatory encoding is UTF-8. Shapefiles with different fields in the attribute table will not be processed. This includes: additional fields, different field names or different field types. Note that the field names in a shapefile have a maximum of 8 characters, so a "short" version of the GML names was defined for the shapefile templates (see Table 8.1). The structure of the table is fixed for all records (i.e. even if an optional attribute is not provided or is not applicable to a given record). The DBF format has a maximum length of 254 characters for string fields, please be aware of this limitation.

9.1.6 Coordinate reference systems

- o ETRS89/ETRS-LAEA for all territories within Europe (http://spatialreference.org/ref/epsg/3035/)
- o ETRS89-GRS1980 *only* for reporting zones outside the proper domain of epsg:3035, i.e. outside Europe (http://spatialreference.org/ref/epsg/4258/)
- o No site should be reported in epsg:3035 AND epsg:4258

Valid projection metadata files (.prj) for the *shapefile* format are provided below:
- For ETRS89-LAEA (urn:ogc:def:crs:EPSG::3035)

```
PROJCS["ETRS_1989_LAEA",GEOGCS["GCS_ETRS_1989",DATUM["D_ETRS_1989",SPHEROID["GRS_1980"
,6378137.0,298.257222101]],PRIMEM["Greenwich",0.0],UNIT["Degree",0.0174532925199433]],
PROJECTION["Lambert_Azimuthal_Equal_Area"],PARAMETER["False_Easting",4321000.0],PARAME
TER["False_Northing",3210000.0],PARAMETER["Central_Meridian",10.0],PARAMETER["Latitude
_Of_Origin",52.0],UNIT["Meter",1.0]]
```

- For ETRS89-GRS1980 (urn:ogc:def:crs:EPSG::4258)

```
GEOGCS["ETRS89",DATUM["European_Terrestrial_Reference_System_1989",SPHEROID["GRS
1980",6378137,298.257222101,AUTHORITY["EPSG","7019"]],AUTHORITY["EPSG","6258"]],PRIMEM["Green
wich",0,AUTHORITY["EPSG","8901"]],UNIT["degree",0.01745329251994328,AUTHORITY["EPSG","9122"]]
,AUTHORITY["EPSG","4258"]]
```

9.1.7 Excel format

Prefilled Excel templates will be available for those countries that wish to use the transformation tools provided by the EEA. The templates must be used when preparing the data for the Excel to XML transformation in CDR.

9.1.8 XML format

The XML schema for Type 2 data is stored in the Data Dictionary and can be downloaded from http://dd.eionet.europa.eu/datasets/3344. It is available by clicking on Exports, see Figure 9.1. The direct link to the XML schema is: http://dd.eionet.europa.eu/v2/dataset/3344/schema-dst-3344.xsd.

> Recommendation:
> The XML schema should always be accessed from the dataset level. If XML schemas at the table levels are used, information about the relation between the tables are lost.

Figure 9-1 Accessing the XML schema from the CDDA dataset in Data Dictionary

9.1.9 Recommended file name convention

A file name convention is not needed for the Type 1 data as the LinkedDataset table includes the information about the GML file name. For the Type 2 data the recommended file name convention is CDDA_[CDDAversion]_[cddaCountryCode]_[Date].

Example: CDDA_v16_LU_20180315

Table 9-1 Recommended elements for Type 2 file name

Code	Description
[CDDAversion]	Identification of the CDDA version (v15, …)
[cddaCountryCode]	Use of the two-letter country code from http://dd.eionet.europa.eu/dataelements/94222
[Date]	Submission date in the format YYYYMMDD

9.2 CDR upload instructions

- Both parts of the delivery (Type 1 and Type 2 data files) must be uploaded to the CDR envelope (http://cdr.eionet.europa.eu/).
- Make sure all data files, Type 1 as well as Type 2 files, are finalised before uploading. Do not upload partial deliveries! The QC will not run properly.
- You can split data into multiple files, but each Type 2 file must contain both DesignatedArea data and the respective LinkedDataset data. If you split a delivery into multiple files, all must be uploaded into the same envelope.
- Only the most recently released envelope will be processed. Data delivered in older envelopes will not enter the European dataset.
- If you upload compressed formats, ensure that the delivery is unpacked after upload. The delivery is unpacked if GML and XML files become visible in the envelope after uploading. If you upload Excel files, these are converted to XML upon upload. The QC

runs over the GML and the XML files and the quality reports will become available in the same folder. Only Zip format is unpacked automatically. Please do not use other compression formats than Zip. Other compression formats are not unpacked and will not be recognised and processed by the system.

- Do not upload nested compressed files. The system will only unpack the outer zip file. If there are e.g. zip files inside other zip files, they are not unpacked and will not be recognised and processed by the system.
- After upload, you must test your data by using the 'Run automatic QA' function of the CDR envelope. The full list of tests is available in the [CDDA reference page](). You must use the 'Run automatic QA' function at least once before you try the 'Release the envelope' function.
- The results of the QC tests will be stored in the Feedback section of the envelope. Please check the QC tests and correct your data if necessary. If the dataset is unfit for release (it contains "blockers"), it will be indicated in the QC feedback. If you try to release an envelope that contains data files with blockers, it will fail and the envelope will return to Draft status.
- Other types of issues identified by the QC tests ("errors", "warnings") will not prevent the envelope's release, but you should revise the issues anyway.
- When successfully released, the envelope enters the Final feedback stage and the envelope will be locked. In this step, the Data Processor (ETC/BD) will perform additional checks and decide whether the envelope can be "technically accepted" or they will ask for a correction and redelivery from you ("correction requested").
- Only technically accepted envelopes will be harvested and processed into the European dataset. If Data Processor asks for a correction of your delivery, the detailed reasons will be provided in the envelope as a manual feedback and you will be notified about it.
- When a delivery is technically accepted, the envelope will be closed. When correction is requested for a delivery, the envelope will also be closed. Any new delivery, including redelivery of corrected data, will require that you create of a new envelope.

General instructions for CDR

General instructions for the CDR are found at http://cdr.eionet.europa.eu/help.

To prepare a report you first create an envelope (folder). Then you upload the files, run the QC and finally you *release* the envelope.

- [How to upload a report]()
- [Using envelopes in CDR]()
- [Setting up access limitations to files]()
- [Security principles]()
- [Reportnet architecture]()