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OVERVIEW OF THE FUNDAMENTAL DATABASE FOR THE INFORMATION SYSTEM FOR NATURE CONSERVATION/BIODIVERSITY IN SOUTH-EAST EUROPE

ABBREVIATIONS

BIMR - Regional Network for Biodiversity Information Management and Reporting

CBD - Convention on Biological Diversity

EU - European Union

GIS – Geographic Information System

GUI - Graphical User Interface

ISNC – Information System for Nature Conservation/Biodiversity

MCF - Microsoft Foundation Communication

ORF BD – Open Regional Fund – Biodiversity

RDBMS – Relational Database Management System

SEE – South-East Europe

CONTENTS

This publication is a result of joint efforts by ministries, competent authorities, research institutions, NGOs and experts from EU accession economies in the SEE region to develop a regionally adapted fundamental database for planning, design and development of information systems for nature conservation / biodiversity. This endeavour, which involved pooling of expertise from the SEE region as well as from Croatia, was pursued with determination and in the spirit of excellent cooperation at all levels: political, technical and administrative. All parties and persons involved are greatly acknowledged for their contribution to this work.

INTRODUCTION

Establishment of the fundamental database for the Information System for Nature Conservation/ Biodiversity (ISNC) was supported by the **Open Regional Fund for South-East Europe – Biodiversity (GIZ/ORF-BD)** as part of its sub-project *"Regional Network for Biodiversity Information Management and Reporting (BIMR)",* funded by the **German Federal Ministry for Economic Cooperation and Development (BMZ)** and implemented by **Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH**.

Objective of the BIMR sub-project is to improve BIMR capacities in partner institutions in South-East Europe (SEE) which are needed to meet the requirements of the Convention on Biological Diversity (CBD) and European Union (EU).

The challenges are addressed by ensuring participation and engagement of all relevant stakeholder groups within the SEE region in the design and implementation of three capacity-building components in the BIMR sub-project:

Component 1: Regional and National Assessments of the BIMR Baseline (Stakeholder Assessment, Policy Set-up Assessment and Information System Set-up Assessment)

Component 2: BIMR Regional Guidelines and Recommendation Paper on Enhancing BIMR in the SEE region

Component 3: Piloting of BIMR Regional Guidelines

- **Activity 1:** Development of the List of Selected Endemic Terrestrial Plant and Animal Taxa of SEE,
- **Activity 2:** Establishment of the fundamental database for ISNC in three economies - Montenegro, Macedonia and Bosnia and Herzegovina (separately for Republika Srpska and Federation of Bosnia and Herzegovina).

The BIMR sub-project also delivered two trainings to the relevant stakeholders from the SEE region:

- GIS training "Data processing and handling techniques for the purposes of efficient biodiversity data management and reporting",
- First Biodiversity Data Mobilization training in cooperation with the Global Biodiversity Information Facility (GBIF).

One of the attempts to successfully contribute to the establishment of the ISNC fundamental database in these three economies has commenced as part of the SP BIMR Component 3 (Activity 1), together with this publication. It was based on results and recommendations from Component 1 and 2, scaled up from existing regional projects and initiatives as well as European and global standards. This publication describes the process of establishing the ISNC (objective, methodology, and design of software components with simplified diagram modules, database summary and detailed tables) and relies on the consultations with and contributions from key stakeholders in the period from November 2017 to July 2018. The focus of the approach was on findings of high relevance, adding value to the related ongoing and future initiatives. Subsequent collaborative and coordinated efforts are needed for further establishment and development of ISNC modules.

OBJECTIVE AND METHODOLOGY

The objective of the fundamental database for ISNC is to provide a common platform for managing and regional sharing of biodiversity data, knowledge and experience, in line with the technical and organizational / administrative differences that exist between the economies. This IT solution supports several groups of users, such as: (i) administrative bodies/decision makers; (ii) biodiversity professionals; and (iii) general public, and is focused on several globally accepted technical standards and implementation strategies:

- A well-defined, integrated biodiversity database with a fully documented structure (entity-relationship diagrams),
- Definition and partial implementation of the middleware software layer (WEB services), which provides several benefits:
  - High level of data protection by abstraction of the database structure and software modules,
  - Flexibility in selection of end-user software solution(s) and platforms (commercial or open source),
  - Open standards platform for independent future software development (other WEB modules, desktop solutions, mobile solutions, etc.),
- Fully functional web site(s) that demonstrate the functionality of the proposed solution. These web site(s) are economy-dependent, utilizing local ICT conditions, priorities and resources.

As part of this activity, the Expert Team identified all attributes, capabilities and characteristics, i.e. expected and economy-specific qualities of a system for managing different types of biodiversity data. In preparing and suggesting the IT solution, careful consideration was given to previously recognized weaknesses and key gaps in all three economies:

- **Technical capacities**, including standards and systems for data collection, data verification and validation, data analysis and reporting,
- **Institutional set-up** and **human resources**, previous experiences, lessons learned and already implemented solutions.

To gain full understanding of the stakeholders' intentions and needs, at the very start of this activity the Expert Team made iterative and recursive steps in parallel with other activities aimed at defining the **general performance of the system, including the necessary capabilities of the operators and other stakeholders who will use the system.**

An overview of functionalities and options, accepted by specific stakeholders, was used to prepare a conceptual schema of the IT architecture and organizational requirements, **i.e. explanation of relations to the environment and the construction principles that were used in the design of software components (database, WEB services and WEB site)** as shown in Table 1.

▼ *Table 1: Layered organization of the BIMR Information System*

Database
MS SQL, PostgreSQL

REST WEB services

"Clients":
- WEB sites/applications
- Mobile applications (Android, iOS, Windows)
- Desktop applications (Windows, Linux, …)
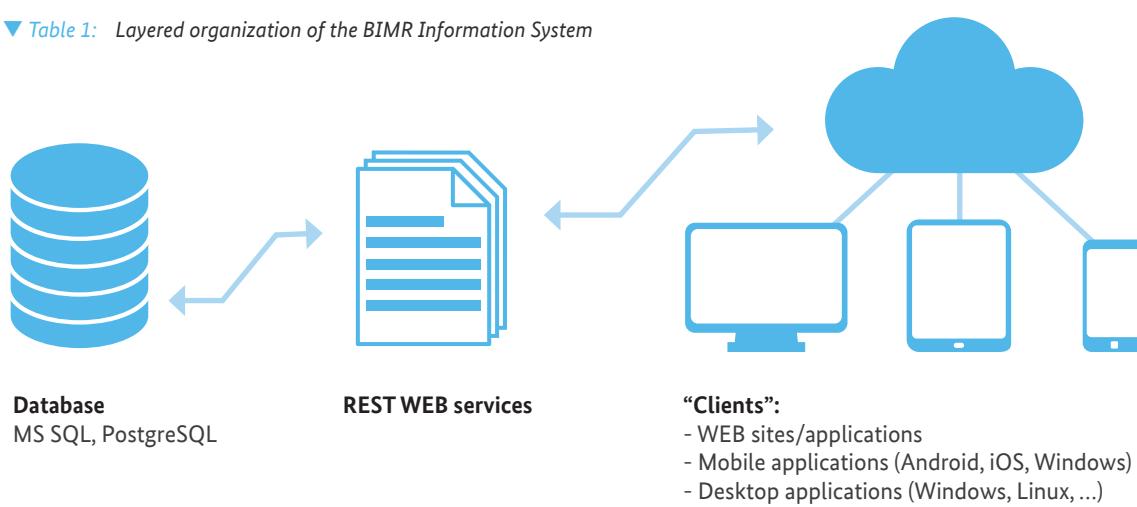
DESIGN OF SOFTWARE COMPONENTS

The developed IT solution has the same structure and shares the same database structure in all economies. The following software components were built during the implementation of this solution, with specifics described below:

Database design

This is the essential element of the BIMR Information System. Besides the differences between economies in terms of institutional background, available biodiversity-related IT solutions and databases and IT technologies in use, the biodiversity data model was identical and common for all economies. The developed biodiversity database entity-relationship diagram was at the economy level and IT-platform-independent. Also, the designed structure covered all biodiversity areas, not only segments (WEB sites) that were implemented within the framework of this activity.

The biodiversity database is logically organized in 6 modules - database schemas (Annex 1):

- **General schema**, including tables related to administrative units, localities, responsible persons per biodiversity area / institution;
- **Bibliography schema**, including tables for all types of textual (books, publications, articles, etc.) and multimedia (videos, internet channels and links, etc.) lookup tables;
- **References schema,** including tables that are used by all other schemas, such as: species list, habitats list, different classifications, etc.;
- **Surveys schema**, including tables for organizing data for field and desktop research;
- **Protected areas schema,** including all data relevant for protected areas. Tables are optimized to support all types of protected areas;
- **Geographic Information System (GIS) schema,** including all relevant spatial data that can be referenced by any other table in other schemas.

The database summary, with a list of all tables in all modules/schemas is provided in Annex 2, while detailed table definitions are provided in Annex 3.

There are many benefits to this approach:

a. Biodiversity expert area

i. Organization of biodiversity data in a unified database structure at both national and regional level;

ii. Standardized manipulation and reporting of biodiversity data at the national level;

iii. Support for easy biodiversity data sharing at the regional level;

iv. Increased possibility for best practices and experiences at the regional level.

b. Technical expert area

i. Relational Database Management System (RDBMS) that can utilize the developed database structure without any technical limitations (commercial or open source RDBMS, existing or new implementations);

ii. Hardware platform independent;

iii. Operating system independent (Windows, Linux, ...);

iv. Straightforward further development of database and software solutions.

WEB services

This IT layer is defined and built using market-recognized standards and frameworks: REST WEB services built on top of the Microsoft Foundation Communication (MCF) framework and Microsoft Entity Framework. This approach provides:

a. Separation of business logic from the database and Graphical User Interface (GUI);

b. Good database integrity protection;

c. Straightforward further development of other software modules ("clients") that will use the bio-diversity database without interrupting previously developed software;

d. Independence of development platform in client software development (Windows, Linux, Android, iOS, open source ...).

WEB site(s)

Web sites developed as part of this activity were at the economy level regarding content and IT platform specific:

a. Macedonia implemented a web site for Natura 2000 Standard Data Form – SDF, including reporting data requirements. The following IT technologies were used:

1. RDBMS: Microsoft SQL Server
2. WEB services: Microsoft Foundation Communication with Microsoft Entity Framework
3. WEB site: owned by the Ministry of Environment and Physical Planning

b. Other economies developed web sites for data import from the List of Selected Endemic Terrestrial Plant and Animal Taxa of SEE (compiled data: taxa and occurrences), based on the Darwin Core standard:

i. Montenegro

1. RDBMS: Microsoft SQL Server
2. WEB services: Microsoft Foundation Communication with Microsoft Entity Framework
3. WEB site: owned by the Agency for Nature and Environmental Protection

ii. Bosnia and Herzegovina

Federation of Bosnia and Herzegovina:

1. RDBMS: Microsoft SQL Server
2. WEB services: Microsoft Foundation Communication with Microsoft Entity Framework
3. WEB site: owned by the Environmental Fund of the FBiH

Republika Srpska

1. RDBMS: PostgreSql Server – Open source
2. WEB services: Django (high-level Python Web framework) – Open source
3. WEB site: owned by the Republic Institute for Protection of Cultural – Historical and Natural Heritage of Republika Srpska

ANNEXES
TECHNICAL DOCUMENTATION

ANNEX 1
BIODIVERSITY DATABASE ENTITY-RELATIONSHIP DIAGRAM MODULES
(database schemas)
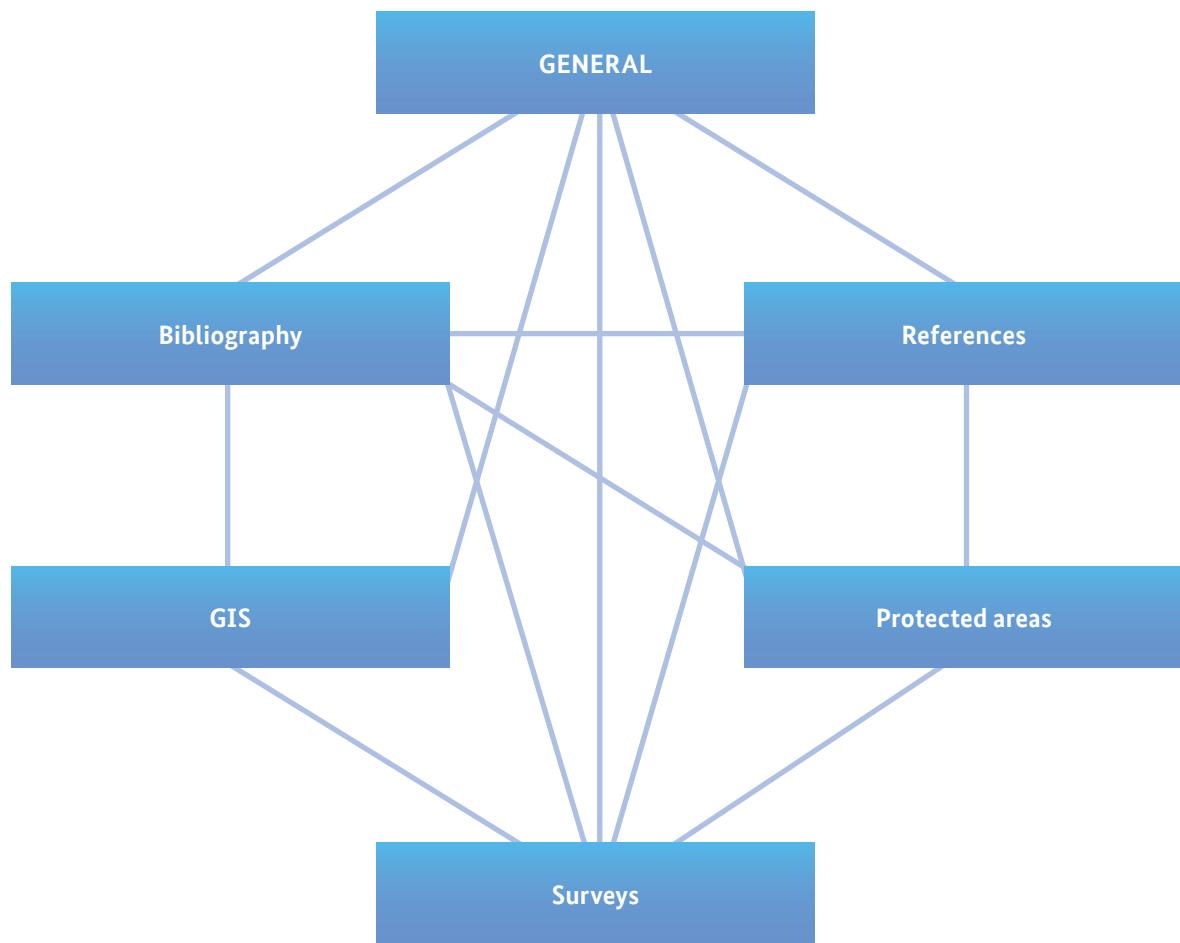
ANNEX 2
BIODIVERSITY DATABASE SUMMARY

Target DBMS:	MS SQL Server
Number of tables:	83
Number of views:	0
Number of columns:	581
Number of indexes:	3
Number of foreign keys:	78

Tables	Columns	Indexes	Foreign keys
sysdiagrams	5	1	0
SurveyType	3	0	0
SurveyStatus	3	0	0
Surveys	7	0	3
SurveyorsPerSurvey	4	0	2
SurveyEvents	10	0	1
SpeciesPerEvent	4	0	1
ImagesPerEvent	4	0	1
HabitatsPerEvent	4	0	1
SpeleologyObjectType	3	0	0
SpeleologyObjects	8	0	2
SpeciesSynonyms	4	0	1
SpeciesPopulationUnits	3	0	0
SpeciesPopulationType	3	0	0
SpeciesPopulationAssesment	3	0	0
SpeciesPopularNames	4	0	1
SpeciesNomenclature	5	0	0
SpeciesIsolation	3	0	0
SpeciesGroupsNatura2000	4	0	0
SpeciesBibliography	7	0	3
Species	17	0	2
Representativity	4	0	0
RelativeSurface	4	0	0
RedListCategories	3	0	0
Ownership	3	0	0
Nuts	3	0	0
Impacts	4	0	0
ImpactRanks	3	0	0
ImpactPollutions	3	0	0
ImpactOccurance	3	0	0
Habitats	6	0	0
HabitatClasses	4	0	0
GlobalAssesment	4	0	0
Designations	4	0	0
DataQuality	4	0	0

Tables	Columns	Indexes	Foreign keys
Conventions	3	0	0
Conservation	4	0	0
Categories	4	0	0
Birds	13	1	0
BioGeographicalRegions	3	0	0
SpeciesPerSites	15	0	10
SpeciesEndemicOccurancesImages	6	0	1
SpeciesEndemicOccurances	13	0	2
SpeciesEndemic	14	0	3
Sites	20	0	0
SiteResponsibleInstitution	3	0	2
SiteOwnership	3	0	0
SiteNutsRegions	3	0	2
SiteImpacts	6	0	0
SiteDesignationTypes	3	0	0
SiteConventions	7	0	2
SiteBioGeo	3	1	2
HabitatsPerSites	13	0	3
HabitatClassesPerSite	4	0	0
WaterSheds	6	0	0
StateBorder	6	0	1
Settlements	9	0	2
RoadType	2	0	0
Roads	8	0	2
Rivers	7	0	2
NUTSregions	9	0	2
Municipalities	8	0	1
Lakes	6	0	1
CartographicSheets	7	0	1
BioGeoRegions	9	0	2
Users	5	0	0
Settlements	5	0	1
Municipalities	5	0	1
Localities	9	0	3
InstitutionTypes	3	0	0
Institution	8	0	2
DepartmentsPerInstitution	7	0	1
Countries	4	0	0
ContactPersons	9	0	2
TextBibliographyType	3	0	0
TextBibliography	11	0	1
MultimediaBibliographyType	3	0	0
MultimediaBibliography	8	0	1

ANNEX 3
BIODIVERSITY TABLES DETAILS

BioGeographicalRegions

Owner/module:	References
Target DB name:	Biodiversity
Number of columns:	3
Number of indexes:	0
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_BioGeographicalRegion	INTEGER	Not allowed	
BioGeoName	LONGVARBINARY	Not allowed	
BioGeoCode	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_BioGeoRegions_BioGeographical-Regions	BioGeoRegions.ID_BioGeographical-Region	ID_BioGeographicalRegion
SITE_BIOGEO_IBFK_2	SiteBioGeo.ID_BioGeographicalRe-gion	ID_BioGeographicalRegion

BioGeoRegions

Owner/module:	GIS
Target DB name:	Biodiversity
Number of columns:	9
Number of indexes:	0
Number of foreign keys:	2
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_BioGeoRegion	INTEGER	Not allowed	
BioGeoRegionName	LONGVARBINARY	Allowed	
BioGeoRegionCode	LONGVARBINARY	Allowed	
BioGeoRegionObject	LONGVARBINARY	Allowed	
PrecisionCentimeters	INTEGER	Allowed	
BioGeoRegionRemark	LONGVARBINARY	Allowed	
ID_Institution (FK)	INTEGER	Allowed	
InspireID	LONGVARBINARY	Allowed	
ID_BioGeographicalRegion (FK)	INTEGER	Allowed	

Foreign keys	Child	Parent
FK_BioGeoRegions_Institution	ID_Institution	Institution.ID_Institution
FK_BioGeoRegions_BioGeographical-Regions	ID_BioGeographicalRegion	BioGeographicalRegions.ID_BioGeo-graphicalRegion

Birds

Owner/module:	References
Target DB name:	Biodiversity
Number of columns:	13
Number of indexes:	1
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_Biirds	INTEGER	Not allowed	
BiirdsCode (I1)	LONGVARBINARY	Allowed	
BiirdsNameLocal	LONGVARBINARY	Allowed	
BiirdsNameLatin	LONGVARBINARY	Allowed	
BiirdsNameLatinNew	LONGVARBINARY	Allowed	
BiirdsNameEnglish	LONGVARBINARY	Allowed	
SpeciesResolution6	BIT	Allowed	
BirdsDirectiveAnnexI	TINYINT	Allowed	
BirdsDirectiveAnnexIIPA	TINYINT	Allowed	
BirdsDirectiveAnnexIIPB	TINYINT	Allowed	
BirdsDirectiveAnnexIIIPA	TINYINT	Allowed	
BirdsDirectiveAnnexIIIPB	TINYINT	Allowed	
Remarks	LONGVARBINARY	Allowed	

Indexes	Columns	Sort order
REF_BIRD_CODE (I1)	BiirdsCode	Ascending

CartographicSheets

Owner/module:	GIS
Target DB name:	Biodiversity
Number of columns:	7
Number of indexes:	0
Number of foreign keys:	1
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_CartographicSheet	INTEGER	Not allowed	
CartographicSheetScale	LONGVARBINARY	Allowed	
CartographicSheetObject	LONGVARBINARY	Allowed	
CartographicSheetCentimeters	INTEGER	Not allowed	
CartographicSheetDescription	LONGVARBINARY	Allowed	
ID_Institution (FK)	INTEGER	Allowed	
InspireID	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_CartographicSheets_Institution	ID_Institution	Institution.ID_Institution

Categories

Owner/module:	References
Target DB name:	Biodiversity
Number of columns:	4
Number of indexes:	0
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_Category	INTEGER	Not allowed	
CategoryName	LONGVARBINARY	Allowed	
CategoryCode	LONGVARBINARY	Allowed	
CategorySpecies	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_SpeciesPerSites_Categories	SpeciesPerSites.ID_Category	ID_Category

Conservation

Owner/module:	References
Target DB name:	Biodiversity
Number of columns:	4
Number of indexes:	0
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_Conservation	INTEGER	Not allowed	
ConservationCode	LONGVARBINARY	Allowed	
ConservationDescription	LONGVARBINARY	Allowed	
Remarks	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_SpeciesPerSites_Conservation	SpeciesPerSites.ID_Conservation	ID_Conservation

ContactPersons

Owner/module:	General
Target DB name:	Biodiversity
Number of columns:	9
Number of indexes:	0
Number of foreign keys:	2
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_ContactPerson	INTEGER	Not allowed	
Name	LONGVARBINARY	Not allowed	
LastName	LONGVARBINARY	Not allowed	
Phone	LONGVARBINARY	Allowed	
Address	LONGVARBINARY	Allowed	
ID_Institution (FK)	INTEGER	Allowed	
ID_Department (FK)	INTEGER	Allowed	
Position	LONGVARBINARY	Allowed	
Remarks	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_ContactPersons_Departments-PerInstitution	ID_Department	DepartmentsPerInstitution.ID_DepartmentPerInstitution
FK_ContactPersons_Institution	ID_Institution	Institution.ID_Institution

Conventions

Owner/module:	References
Target DB name:	Biodiversity
Number of columns:	3
Number of indexes:	0
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_Convention	INTEGER	Not allowed	
ConventionName	LONGVARBINARY	Allowed	
ConventionsCode	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_SiteConventions_Conventions	SiteConventions.ID_Convention	ID_Convention

Countries

Owner/module:	General
Target DB name:	Biodiversity
Number of columns:	4
Number of indexes:	0
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_Country	INTEGER	Not allowed	
CountryName	LONGVARBINARY	Not allowed	
CountryNameAbbrevation	LONGVARBINARY	Not allowed	
InspireID	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_Localities_Countries	Localities.ID_Country	ID_Country
FK_Municipalities_Countries	Municipalities.ID_Country	ID_Country

DataQuality

Owner/module:	References
Target DB name:	Biodiversity
Number of columns:	4
Number of indexes:	0
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_DataQuality	INTEGER	Not allowed	
DataQualityName	LONGVARBINARY	Allowed	
DataQualityCode	LONGVARBINARY	Allowed	
DataQualitySpecies	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_SpeciesPerSites_DataQuality	SpeciesPerSites.ID_DataQuality	ID_DataQuality

DepartmentsPerInstitution

Owner/module:	General
Target DB name:	Biodiversity
Number of columns:	7
Number of indexes:	0
Number of foreign keys:	1
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_DepartmentPerInstitution	INTEGER	Not allowed	
ID_Institution (FK)	INTEGER	Allowed	
DepartmentName	LONGVARBINARY	Not allowed	
DepartmentAddress	LONGVARBINARY	Allowed	
DepartmentEmail	LONGVARBINARY	Allowed	
DepartmentContact	LONGVARBINARY	Allowed	
ID_Settlemeny	INTEGER	Allowed	

Foreign keys	Child	Parent
FK_DepartmentsPerInstitution_Institution	ID_Institution	Institution.ID_Institution
FK_ContactPersons_DepartmentsPerInstitution	ContactPersons.ID_Department	ID_DepartmentPerInstitution

Designations

Owner/module:	References
Target DB name:	Biodiversity
Number of columns:	4
Number of indexes:	0
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_Designation	INTEGER	Not allowed	
DesignationCode	LONGVARBINARY	Allowed	
DesignationDescription	LONGVARBINARY	Allowed	
DesignationCategory	LONGVARBINARY	Allowed	

GlobalAssesment

Owner/module:	References
Target DB name:	Biodiversity
Number of columns:	4
Number of indexes:	0
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_GlobalAssesment	INTEGER	Not allowed	
GlobalAssesmentCode	LONGVARBINARY	Allowed	
GlobalAssesmentDescription	LONGVARBINARY	Allowed	
Remarks	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_SpeciesPerSites_GlobalAssesment	SpeciesPerSites.ID_GlobalAssesment	ID_GlobalAssesment

HabitatClasses

Owner/module:	References
Target DB name:	Biodiversity
Number of columns:	4
Number of indexes:	0
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_HabitatClasses	INTEGER	Not allowed	
HabitatClassesCode	LONGVARBINARY	Allowed	
HabitatClassesDescriptionLocal	LONGVARBINARY	Allowed	
HabitatClassesDescriptionEn	LONGVARBINARY	Allowed	

HabitatClassesPerSite

Owner/module:	ProtectedAreas
Target DB name:	Biodiversity
Number of columns:	4
Number of indexes:	0
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_HabitatClass	INTEGER	Not allowed	
ID_Site	INTEGER	Not allowed	
HabitatClassPersentage	FLOAT	Allowed	
Remarks	LONGVARBINARY	Allowed	

Habitats

Owner/module:	References
Target DB name:	Biodiversity
Number of columns:	6
Number of indexes:	0
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_Habitat	INTEGER	Not allowed	
HabitatCode	LONGVARBINARY	Allowed	
HabitatDirectiveAnnexI	BIT	Allowed	
HabitatNameLocal	LONGVARBINARY	Allowed	
HabitatNameLatin	LONGVARBINARY	Allowed	
HabitatNameEnglish	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_HabitatsPerSites_Habitats	HabitatsPerSites.ID_Habitat	ID_Habitat

HabitatsPerEvent

Owner/module:	Surveys
Target DB name:	Biodiversity
Number of columns:	4
Number of indexes:	0
Number of foreign keys:	1
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_HabitatPerEvent	INTEGER	Not allowed	
ID_SurveyEvent (FK)	INTEGER	Not allowed	
ID_Habitat	INTEGER	Not allowed	
HabitatDescription	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_HabitatsPerEvent_SurveyEvents	ID_SurveyEvent	SurveyEvents.ID_SurveyEvent

HabitatsPerSites

Owner/module:	ProtectedAreas
Target DB name:	Biodiversity
Number of columns:	13
Number of indexes:	0
Number of foreign keys:	3
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_Site (FK)	INTEGER	Not allowed	
ID_Habitat (FK)	INTEGER	Not allowed	
HabitatPriority	BIT	Allowed	
HabitatNotLongerPresent	BIT	Allowed	
AreaCoverHa	FLOAT	Allowed	
AreaCoverPercentage	FLOAT	Allowed	
NumberOfCaves	INTEGER	Allowed	
ID_DataQuality	INTEGER	Allowed	
ID_Representativity (FK)	INTEGER	Allowed	
ID_RelativeSurface	INTEGER	Allowed	
ID_Conservation	INTEGER	Allowed	
ID_GlobalAssesment	INTEGER	Allowed	
Remarks	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_HabitatsPerSites_Sites	ID_Site	Sites.ID_Site
FK_HabitatsPerSites_Habitats	ID_Habitat	Habitats.ID_Habitat
FK_HabitatsPerSites_Representativity	ID_Representativity	Representativity.ID_Representativity

ImagesPerEvent

Owner/module:	Surveys
Target DB name:	Biodiversity
Number of columns:	4
Number of indexes:	0
Number of foreign keys:	1
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_ImagePerEvent	INTEGER	Not allowed	
ID_SurveyEvent (FK)	INTEGER	Not allowed	
Image	VARBINARY(0)	Not allowed	
ImageDescription	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_ImagesPerEvent_SurveyEvents	ID_SurveyEvent	SurveyEvents.ID_SurveyEvent

ImpactOccurance

Owner/module:	References
Target DB name:	Biodiversity
Number of columns:	3
Number of indexes:	0
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_ImpactOccurance	INTEGER	Not allowed	
ImpactOccuranceDescription	LONGVARBINARY	Allowed	
ImpactOccuranceCode	LONGVARBINARY	Allowed	

ImpactPollutions

Owner/module:	References
Target DB name:	Biodiversity
Number of columns:	3
Number of indexes:	0
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_ImpactPollution	INTEGER	Not allowed	
ImpactPollutionName	LONGVARBINARY	Allowed	
ImpactPollutionCode	LONGVARBINARY	Allowed	

ImpactRanks

Owner/module:	References
Target DB name:	Biodiversity
Number of columns:	3
Number of indexes:	0
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_ImpactRank	INTEGER	Not allowed	
ImpactRankName	LONGVARBINARY	Allowed	
ImpactRankCode	LONGVARBINARY	Allowed	

Impacts

Owner/module:	References
Target DB name:	Biodiversity
Number of columns:	4
Number of indexes:	0
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_Impact	INTEGER	Not allowed	
ImpactCode	LONGVARBINARY	Allowed	
ImpactDescription	LONGVARBINARY	Allowed	
ImpactRemarks	LONGVARBINARY	Allowed	

Institution

Owner/module:	General
Target DB name:	Biodiversity
Number of columns:	8
Number of indexes:	0
Number of foreign keys:	2
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_Institution	INTEGER	Not allowed	
ID_InstitutionType (FK)	INTEGER	Allowed	
InstitutionName	LONGVARBINARY	Not allowed	
InstitutionAddress	LONGVARBINARY	Allowed	
InstitutionEmail	LONGVARBINARY	Allowed	
InstitutionContact	LONGVARBINARY	Allowed	
InstitutionCity	LONGVARBINARY	Allowed	
ID_Settlemeny (FK)	INTEGER	Allowed	

Foreign keys	Child	Parent
FK_Institution_InstitutionTypes	ID_InstitutionType	InstitutionTypes.ID_InstitutionType
FK_Institution_Settlements	ID_Settlemeny	Settlements.ID_Settlement
FK_ContactPersons_Institution	ContactPersons.ID_Institution	ID_Institution
FK_DepartmentsPerInstitution_Institution	DepartmentsPerInstitution.ID_Institution	ID_Institution
FK_BioGeoRegions_Institution	BioGeoRegions.ID_Institution	ID_Institution
FK_CartographicSheets_Institution	CartographicSheets.ID_Institution	ID_Institution
FK_Lakes_Institution	Lakes.ID_Institution	ID_Institution
FK_Municipalities_Institution	Municipalities.ID_Institution	ID_Institution
FK_NUTSregions_Institution	NUTSregions.ID_Institution	ID_Institution
FK_Rivers_Institution	Rivers.ID_Institution	ID_Institution
FK_Roads_Institution	Roads.ID_Institution	ID_Institution

Foreign keys	Child	Parent
FK_Settlements_Institution	Settlements.ID_Institution	ID_Institution
FK_StateBorder_Institution	StateBorder.ID_Institution	ID_Institution
FK_SiteResponsibleInstitution_Institution	SiteResponsibleInstitution.ID_Institution	ID_Institution
FK_SpeleologyObjects_Institution	SpeleologyObjects.ID_Institution	ID_Institution

InstitutionTypes

Owner/module:	General
Target DB name:	Biodiversity
Number of columns:	3
Number of indexes:	0
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_InstitutionType	INTEGER	Not allowed	
InstitutionTypeDescription	LONGVARBINARY	Not allowed	
InstitutionTypeRemark	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_Institution_InstitutionTypes	Institution.ID_InstitutionType	ID_InstitutionType

Lakes

Owner/module:	GIS
Target DB name:	Biodiversity
Number of columns:	6
Number of indexes:	0
Number of foreign keys:	1
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_Lake	INTEGER	Not allowed	
LakeObject	LONGVARBINARY	Allowed	
PrecisionCentimeters	INTEGER	Not allowed	
LakeName	LONGVARBINARY	Allowed	
ID_Institution (FK)	INTEGER	Allowed	
InspireID	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_Lakes_Institution	ID_Institution	Institution.ID_Institution

Localities

Owner/module:	General
Target DB name:	Biodiversity
Number of columns:	9
Number of indexes:	0
Number of foreign keys:	3
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_Locality	INTEGER	Not allowed	
ID_Country (FK)	INTEGER	Allowed	
ID_Municipality (FK)	INTEGER	Allowed	
ID_Settlement (FK)	INTEGER	Allowed	
LocalityName	LONGVARBINARY	Not allowed	
LocalityDescription	LONGVARBINARY	Allowed	
CentroidLongitudeX	DECIMAL(10,7)	Allowed	
CentroidLatitudeY	DECIMAL(10,7)	Allowed	
InspireID	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_Localities_Countries	ID_Country	Countries.ID_Country
FK_Localities_Municipalities	ID_Municipality	Municipalities.ID_Municipality
FK_Localities_Settlements	ID_Settlement	Settlements.ID_Settlement
FK_SpeciesEndemicOccurances_Localities	SpeciesEndemicOccurances.ID_Locality	ID_Locality

MultimediaBibliography

Owner/module:	Bibliography
Target DB name:	Biodiversity
Number of columns:	8
Number of indexes:	0
Number of foreign keys:	1
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_MultimediaBibliography	INTEGER	Not allowed	
ID_MultimediaBibliographyType (FK)	INTEGER	Not allowed	
Description	LONGVARBINARY	Not allowed	
Author	LONGVARBINARY	Allowed	
Source	LONGVARBINARY	Allowed	
Year	INTEGER	Allowed	
Url	LONGVARBINARY	Allowed	
Remarks	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_MultimediaBibliography_Multi-mediaBibliographyType	ID_MultimediaBibliographyType	MultimediaBibliographyType.ID_Mul-timediaBibliographyType
FK_SpeciesBibliography_Multimedia-Bibliography	SpeciesBibliography.ID_Multimedia-Bibliography	ID_MultimediaBibliography

MultimediaBibliographyType

Owner/module:	Bibliography
Target DB name:	Biodiversity
Number of columns:	3
Number of indexes:	0
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_MultimediaBibliographyType	INTEGER	Not allowed	
Description	LONGVARBINARY	Not allowed	
Remarks	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_MultimediaBibliography_Multi-mediaBibliographyType	MultimediaBibliography.ID_Multime-diaBibliographyType	ID_MultimediaBibliographyType

Municipalities

Owner/module:	GIS
Target DB name:	Biodiversity
Number of columns:	8
Number of indexes:	0
Number of foreign keys:	1
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_Municipality	INTEGER	Not allowed	
MunicipalityCode	CHAR(3)	Not allowed	
MunicipalityName	LONGVARBINARY	Allowed	
MunicipalityObject	LONGVARBINARY	Allowed	
PrecisionCentimeters	INTEGER	Not allowed	
MunicipalityRemark	LONGVARBINARY	Allowed	
ID_Institution (FK)	INTEGER	Allowed	
InspireID	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_Municipalities_Institution	ID_Institution	Institution.ID_Institution
FK_Settlements_Municipalities	Settlements.ID_Municipality	ID_Municipality

Owner/module:	General
Target DB name:	Biodiversity
Number of columns:	5
Number of indexes:	0
Number of foreign keys:	1
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_Municipality	INTEGER	Not allowed	
MunicipalityName	LONGVARBINARY	Not allowed	
MunicipalityCode	LONGVARBINARY	Not allowed	
ID_Country (FK)	INTEGER	Allowed	
InspireID	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_Municipalities_Countries	ID_Country	Countries.ID_Country
FK_Localities_Municipalities	Localities.ID_Municipality	ID_Municipality
FK_Settlements_Municipalities	Settlements.ID_Municipality	ID_Municipality

Nuts

Owner/module:	References
Target DB name:	Biodiversity
Number of columns:	3
Number of indexes:	0
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_Nuts	INTEGER	Not allowed	
NutsCode	LONGVARBINARY	Allowed	
NutsDescription	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_NUTSregions_Nuts	NUTSregions.ID_Nuts	ID_Nuts
FK_SiteNutsRegions_Nuts	SiteNutsRegions.ID_Nuts	ID_Nuts

NUTSregions

Owner/module:	GIS
Target DB name:	Biodiversity
Number of columns:	9
Number of indexes:	0
Number of foreign keys:	2
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_NUTSregion	INTEGER	Not allowed	
NUTSregionLevel	INTEGER	Not allowed	
NUTSregionName	LONGVARBINARY	Allowed	
NUTSregionObject	LONGVARBINARY	Allowed	
PrecisionCentimeters	INTEGER	Allowed	
NUTSregionRemark	LONGVARBINARY	Allowed	
ID_Institution (FK)	INTEGER	Allowed	
InspireID	LONGVARBINARY	Allowed	
ID_Nuts (FK)	INTEGER	Allowed	

Foreign keys	Child	Parent
FK_NUTSregions_Institution	ID_Institution	Institution.ID_Institution
FK_NUTSregions_Nuts	ID_Nuts	Nuts.ID_Nuts

Ownership

Owner/module:	References
Target DB name:	Biodiversity
Number of columns:	3
Number of indexes:	0
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_Ownership	INTEGER	Not allowed	
OwnershipType	LONGVARBINARY	Not allowed	
OwnershipCode	LONGVARBINARY	Allowed	

RedListCategories

Owner/module:	References
Target DB name:	Biodiversity
Number of columns:	3
Number of indexes:	0
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_RedListCategory	INTEGER	Not allowed	
CategoryName	LONGVARBINARY	Not allowed	
CategoryDescription	LONGVARBINARY	Not allowed	

RelativeSurface

Owner/module:	References
Target DB name:	Biodiversity
Number of columns:	4
Number of indexes:	0
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_RelativeSurface	INTEGER	Not allowed	
RelativeSurfaceCode	LONGVARBINARY	Allowed	
RelativeSurfaceDescription	LONGVARBINARY	Allowed	
Remarks	LONGVARBINARY	Allowed	

Representativity

Owner/module:	References
Target DB name:	Biodiversity
Number of columns:	4
Number of indexes:	0
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_Representativity	INTEGER	Not allowed	
RepresentativityCode	LONGVARBINARY	Allowed	
RepresentativityDescription	LONGVARBINARY	Allowed	
Remarks	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_HabitatsPerSites_Representativity	HabitatsPerSites.ID_Representativity	ID_Representativity

Rivers

Owner/module:	GIS	
Target DB name:	Biodiversity	
Number of columns:	7	
Number of indexes:	0	
Number of foreign keys:	2	
Codes:	0	

Columns	Data type	Allow NULLs	Value/Range
ID_River	INTEGER	Not allowed	
riverObject	LONGVARBINARY	Allowed	
PrecisionCentimeters	INTEGER	Not allowed	
RiverName	LONGVARBINARY	Allowed	
ID_WaterShed (FK)	INTEGER	Allowed	
ID_Institution (FK)	INTEGER	Allowed	
InspireID	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_Rivers_Institution	ID_Institution	Institution.ID_Institution
FK_Rivers_WaterSheds	ID_WaterShed	WaterSheds.ID_WaterShed

Roads

Owner/module:	GIS	
Target DB name:	Biodiversity	
Number of columns:	8	
Number of indexes:	0	
Number of foreign keys:	2	
Codes:	0	

Columns	Data type	Allow NULLs	Value/Range
ID_Road	INTEGER	Not allowed	
RoadObject	LONGVARBINARY	Allowed	
PrecisionCentimeters	INTEGER	Not allowed	
RoadName	LONGVARBINARY	Allowed	
RoadCode	LONGVARBINARY	Allowed	
ID_RoadType (FK)	INTEGER	Allowed	
ID_Institution (FK)	INTEGER	Allowed	
InspireID	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_Roads_Institution	ID_Institution	Institution.ID_Institution
FK_Roads_RoadType	ID_RoadType	RoadType.ID_RoadType

RoadType

Owner/module:	GIS
Target DB name:	Biodiversity
Number of columns:	2
Number of indexes:	0
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_RoadType	INTEGER	Not allowed	
RoadTypeName	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_Roads_RoadType	Roads.ID_RoadType	ID_RoadType

Settlements

Owner/module:	General
Target DB name:	Biodiversity
Number of columns:	5
Number of indexes:	0
Number of foreign keys:	1
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_Settlement	INTEGER	Not allowed	
SettlementName	LONGVARBINARY	Not allowed	
SettlementPostalCode	CHAR(4)	Not allowed	
ID_Municipality (FK)	INTEGER	Not allowed	
InspireID	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_Settlements_Municipalities	ID_Municipality	Municipalities.ID_Municipality
FK_Institution_Settlements	Institution.ID_Settlemeny	ID_Settlement
FK_Localities_Settlements	Localities.ID_Settlement	ID_Settlement

Owner/module: GIS
Target DB name: Biodiversity
Number of columns: 9
Number of indexes: 0
Number of foreign keys: 2
Codes: 0

Columns	Data type	Allow NULLs	Value/Range
ID_Settlement	INTEGER	Not allowed	
SettlementName	LONGVARBINARY	Not allowed	
SettlementPostalCode	CHAR(4)	Not allowed	
SettlementObject	LONGVARBINARY	Allowed	
PrecisionCentimeters	INTEGER	Not allowed	
SettlementRemark	LONGVARBINARY	Allowed	
ID_Municipality (FK)	INTEGER	Allowed	
ID_Institution (FK)	INTEGER	Allowed	
InspireID	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_Settlements_Institution	ID_Institution	Institution.ID_Institution
FK_Settlements_Municipalities	ID_Municipality	Municipalities.ID_Municipality

SiteBioGeo

Owner/module: ProtectedAreas
Target DB name: Biodiversity
Number of columns: 3
Number of indexes: 1
Number of foreign keys: 2
Codes: 0

Columns	Data type	Allow NULLs	Value/Range
ID_Site (FK)	INTEGER	Allowed	
ID_BioGeographicalRegion (FK,I1)	INTEGER	Not allowed	
BioGeoPercentage	FLOAT	Not allowed	

Indexes	Columns	Sort order
BIOGEO_ID (I1)	ID_BioGeographicalRegion	Ascending

Foreign keys	Child	Parent
FK_SiteBioGeo_Sites	ID_Site	Sites.ID_Site
SITE_BIOGEO_IBFK_2	ID_BioGeographicalRegion	BioGeographicalRegions.ID_BioGeo-graphicalRegion

SiteConventions

Owner/module:	ProtectedAreas
Target DB name:	Biodiversity
Number of columns:	7
Number of indexes:	0
Number of foreign keys:	2
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_Site (FK)	INTEGER	Not allowed	
ID_Convention (FK)	INTEGER	Not allowed	
DateDesignation	DATE	Allowed	
DateProposal	DATE	Allowed	
DateConfirmation	DATE	Allowed	
AreaPercentage	FLOAT	Allowed	
Remarks	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_SiteConventions_Sites	ID_Site	Sites.ID_Site
FK_SiteConventions_Conventions	ID_Convention	Conventions.ID_Convention

SiteDesignationTypes

Owner/module:	ProtectedAreas
Target DB name:	Biodiversity
Number of columns:	3
Number of indexes:	0
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_Site	INTEGER	Not allowed	
ID_Designation	INTEGER	Not allowed	
DesignationPercentage	FLOAT	Not allowed	

SiteImpacts

Owner/module:	ProtectedAreas
Target DB name:	Biodiversity
Number of columns:	6
Number of indexes:	0
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_Site	INTEGER	Allowed	
ID_Impact	INTEGER	Allowed	
ImpactType	LONGVARBINARY	Allowed	
ID_ImpactRank	INTEGER	Allowed	
ID_ImpactPollution	INTEGER	Allowed	
ID_ImpactOccurance	INTEGER	Allowed	

SiteNutsRegions

Owner/module:	ProtectedAreas
Target DB name:	Biodiversity
Number of columns:	3
Number of indexes:	0
Number of foreign keys:	2
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_Site (FK)	INTEGER	Allowed	
ID_Nuts (FK)	INTEGER	Not allowed	
Remarks	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_SiteNutsRegions_Sites	ID_Site	Sites.ID_Site
FK_SiteNutsRegions_Nuts	ID_Nuts	Nuts.ID_Nuts

SiteOwnership

Owner/module:	ProtectedAreas
Target DB name:	Biodiversity
Number of columns:	3
Number of indexes:	0
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_Site	INTEGER	Allowed	
ID_Ownership	INTEGER	Not allowed	
OwnershipPercentage	FLOAT	Not allowed	

SiteResponsibleInstitution

Owner/module:	ProtectedAreas
Target DB name:	Biodiversity
Number of columns:	3
Number of indexes:	0
Number of foreign keys:	2
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_Site (FK)	INTEGER	Allowed	
ID_Institution (FK)	INTEGER	Not allowed	
Remarks	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_SiteResponsibleInstitution_Institution	ID_Institution	Institution.ID_Institution
FK_SiteResponsibleInstitution_Sites	ID_Site	Sites.ID_Site

Sites

Owner/module:	ProtectedAreas
Target DB name:	Biodiversity
Number of columns:	20
Number of indexes:	0
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_Site	INTEGER	Not allowed	
SiteCode	LONGVARBINARY	Not allowed	
SiteName	LONGVARBINARY	Allowed	
DateCompilation	DATE	Allowed	
DateLastUpdate	DATE	Allowed	
SiteCenterLongitudeX	FLOAT	Allowed	
SiteCenterLatitudeY	FLOAT	Allowed	
AreaHa	FLOAT	Allowed	
LenghtKm	FLOAT	Allowed	
OtherSiteCharacteristics	LONGVARBINARY	Allowed	
SiteQualityAndImportance	LONGVARBINARY	Allowed	
SiteDesignation	LONGVARBINARY	Allowed	
DateSiteCreated	DATE	Allowed	
DateSiteDeleted	DATE	Allowed	
DateSiteUpdated	DATE	Allowed	
DateSiteProposed	DATE	Allowed	
DateSiteConfirmed	DATE	Allowed	
DateSiteDesignationStatus	DATE	Allowed	
SiteLegalBacgroundDescription	LONGVARBINARY	Allowed	
Remarks	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_HabitatsPerSites_Sites	HabitatsPerSites.ID_Site	ID_Site
FK_SiteBioGeo_Sites	SiteBioGeo.ID_Site	ID_Site
FK_SiteConventions_Sites	SiteConventions.ID_Site	ID_Site
FK_SiteNutsRegions_Sites	SiteNutsRegions.ID_Site	ID_Site
FK_SiteResponsibleInstitution_Sites	SiteResponsibleInstitution.ID_Site	ID_Site
FK_SpeciesPerSites_Sites	SpeciesPerSites.ID_Site	ID_Site

Species

Owner/module:	References
Target DB name:	Biodiversity
Number of columns:	17
Number of indexes:	0
Number of foreign keys:	2
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_Species	INTEGER	Not allowed	
ID_SpeciesNomenclature (FK)	INTEGER	Allowed	
ID_SpeciesGroupsNatura2000 (FK)	INTEGER	Allowed	
SpeciesCode	LONGVARBINARY	Allowed	
SpeciesNameLocal	LONGVARBINARY	Allowed	
SpeciesNameLatin	LONGVARBINARY	Allowed	
SpeciesNameLatinNew	LONGVARBINARY	Allowed	
SpeciesNameEnglish	LONGVARBINARY	Allowed	
SpeciesNameInitials	LONGVARBINARY	Allowed	
SpeciesAuthorShip	LONGVARBINARY	Allowed	
SpeciesAuthorShipYear	INTEGER	Allowed	
HabitatDirectiveAnnexII	LONGVARBINARY	Allowed	
HabitatDirectiveAnnexIV	LONGVARBINARY	Allowed	
HabitatDirectiveAnnexV	LONGVARBINARY	Allowed	
Remarks	LONGVARBINARY	Allowed	
Kingdom	LONGVARBINARY	Allowed	
Family	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_Species_SpeciesGroupsNatura2000	ID_SpeciesGroupsNatura2000	SpeciesGroupsNatura2000.ID_SpeciesGroupsNatura2000
FK_Species_SpeciesNomenclature	ID_SpeciesNomenclature	SpeciesNomenclature.ID_SpeciesNomenclature
FK_SpeciesEndemic_Species	SpeciesEndemic.ID_Species	ID_Species
FK_SpeciesPerSites_Species	SpeciesPerSites.ID_Species	ID_Species
FK_SpeciesBibliography_Species	SpeciesBibliography.ID_Species	ID_Species
FK_ID_SpeciesPopularName_Species	SpeciesPopularNames.ID_Species	ID_Species
FK_SpeciesSynonyms_Species	SpeciesSynonyms.ID_Species	ID_Species

SpeciesBibliography

Owner/module:	References
Target DB name:	Biodiversity
Number of columns:	7
Number of indexes:	0
Number of foreign keys:	3
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_SpeciesBibliography	INTEGER	Not allowed	
ID_Species (FK)	INTEGER	Not allowed	
ID_TextBibliography (FK)	INTEGER	Allowed	
Description	LONGVARBINARY	Allowed	
TextBibliographyPages	LONGVARBINARY	Allowed	
ID_MultimediaBibliography (FK)	INTEGER	Allowed	
Remarks	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_SpeciesBibliography_Multimedia-Bibliography	ID_MultimediaBibliography	MultimediaBibliography.ID_Multime-diaBibliography
FK_SpeciesBibliography_TextBibli-ography	ID_TextBibliography	TextBibliography.ID_TextBibliography
FK_SpeciesBibliography_Species	ID_Species	Species.ID_Species

SpeciesEndemic

Owner/module:	ProtectedAreas
Target DB name:	Biodiversity
Number of columns:	14
Number of indexes:	0
Number of foreign keys:	3
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_SpeciesEndemic	INTEGER	Not allowed	
ID_Species (FK)	INTEGER	Not allowed	
ID_TextBibliographyFirstDocumen-tation (FK)	INTEGER	Allowed	
FirstDocumentationPages	LONGVARBINARY	Allowed	
FirstDocumentationPage	LONGVARBINARY	Allowed	
FirstDocumentationOriginalName	LONGVARBINARY	Allowed	
FirstDocumentationLocality	LONGVARBINARY	Allowed	
FirstDocumentationDistribution	LONGVARBINARY	Allowed	
Authorship	LONGVARBINARY	Allowed	
ID_TextBibliographyOfficial (FK)	INTEGER	Allowed	
OfficialPages	LONGVARBINARY	Allowed	
OfficialPage	LONGVARBINARY	Allowed	
Endemism	LONGVARBINARY	Allowed	
Remarks	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_SpeciesEndemic_TextBibliography	ID_TextBibliographyFirstDocumentation	TextBibliography.ID_TextBibliography
FK_SpeciesEndemic_TextBibliography1	ID_TextBibliographyOfficial	TextBibliography.ID_TextBibliography
FK_SpeciesEndemic_Species	ID_Species	Species.ID_Species
FK_SpeciesEndemicOccurances_SpeciesEndemic	SpeciesEndemicOccurances.ID_SpeciesEndemic	ID_SpeciesEndemic

SpeciesEndemicOccurances

Owner/module: ProtectedAreas
Target DB name: Biodiversity
Number of columns: 13
Number of indexes: 0
Number of foreign keys: 2
Codes: 0

Columns	Data type	Allow NULLs	Value/Range
ID_SpeciesEndemicOccurances	INTEGER	Not allowed	
ID_SpeciesEndemic (FK)	INTEGER	Not allowed	
ID_Locality (FK)	INTEGER	Allowed	
OccuranceDate	DATE	Allowed	
LocalityDescription	LONGVARBINARY	Allowed	
VerbatimCoordinates	LONGVARBINARY	Allowed	
LongitudeX	DECIMAL(10,7)	Allowed	
LatitudeY	DECIMAL(10,7)	Allowed	
CoordinatesProjection	LONGVARBINARY	Allowed	
CoordinatesAccuracyMeters	INTEGER	Allowed	
GeoReferencedBy	LONGVARBINARY	Allowed	
GeoReferenceRemarks	LONGVARBINARY	Allowed	
Remarks	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_SpeciesEndemicOccurances_Localities	ID_Locality	Localities.ID_Locality
FK_SpeciesEndemicOccurances_SpeciesEndemic	ID_SpeciesEndemic	SpeciesEndemic.ID_SpeciesEndemic
FK_SpeciesEndemicOccurancesImages_SpeciesEndemicOccurances	SpeciesEndemicOccurancesImages.ID_SpeciesEndemicOccurances	ID_SpeciesEndemicOccurances

SpeciesEndemicOccurancesImages

Owner/module: ProtectedAreas
Target DB name: Biodiversity
Number of columns: 6
Number of indexes: 0
Number of foreign keys: 1
Codes: 0

Columns	Data type	Allow NULLs	Value/Range
ID_SpeciesEndemicOccurancesImages	INTEGER	Not allowed	
ID_SpeciesEndemicOccurances (FK)	INTEGER	Not allowed	
Image	LONGVARBINARY	Not allowed	
ImageDate	DATE	Allowed	
ImageDescription	LONGVARBINARY	Allowed	
Remarks	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_SpeciesEndemicOccurancesImages_SpeciesEndemicOccurances	ID_SpeciesEndemicOccurances	SpeciesEndemicOccurances.ID_SpeciesEndemicOccurances

SpeciesGroupsNatura2000

Owner/module: References
Target DB name: Biodiversity
Number of columns: 4
Number of indexes: 0
Number of foreign keys: 0
Codes: 0

Columns	Data type	Allow NULLs	Value/Range
ID_SpeciesGroupsNatura2000	INTEGER	Not allowed	
GroupDescription	LONGVARBINARY	Allowed	
GroupCode	LONGVARBINARY	Allowed	
GroupSpecies	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_Species_SpeciesGroupsNatura2000	Species.ID_SpeciesGroupsNatura2000	ID_SpeciesGroupsNatura2000

SpeciesIsolation

Owner/module:	References
Target DB name:	Biodiversity
Number of columns:	3
Number of indexes:	0
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_SpeciesIsolation	INTEGER	Not allowed	
SpeciesIsolationCode	LONGVARBINARY	Allowed	
SpeciesIsolationDescription	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_SpeciesPerSites_SpeciesIsolation	SpeciesPerSites.ID_SpeciesIsolation	ID_SpeciesIsolation

SpeciesNomenclature

Owner/module:	References
Target DB name:	Biodiversity
Number of columns:	5
Number of indexes:	0
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_SpeciesNomenclature	INTEGER	Not allowed	
NameLocal	LONGVARBINARY	Allowed	
NameLatin	LONGVARBINARY	Allowed	
NameEnglish	LONGVARBINARY	Allowed	
ID_SpeciesNomenclatureParent	INTEGER	Allowed	

Foreign keys	Child	Parent
FK_Species_SpeciesNomenclature	Species.ID_SpeciesNomenclature	ID_SpeciesNomenclature

SpeciesPerEvent

Owner/module:	Surveys
Target DB name:	Biodiversity
Number of columns:	4
Number of indexes:	0
Number of foreign keys:	1
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_SpeciesPerEvent	INTEGER	Not allowed	
ID_SurveyEvent (FK)	INTEGER	Not allowed	
ID_Species	INTEGER	Not allowed	
SpeciesDescription	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_SpeciesPerEvent_SurveyEvents	ID_SurveyEvent	SurveyEvents.ID_SurveyEvent

SpeciesPerSites

Owner/module:	ProtectedAreas
Target DB name:	Biodiversity
Number of columns:	15
Number of indexes:	0
Number of foreign keys:	10
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_Site (FK)	INTEGER	Not allowed	
ID_Species (FK)	INTEGER	Not allowed	
SpeciesSensitive	BIT	Allowed	
SpeciesNotPresent	BIT	Allowed	
ID_SpeciesPopulationType (FK)	INTEGER	Allowed	
SpeciesSizeMin	INTEGER	Allowed	
SpeciesSizeMax	INTEGER	Allowed	
ID_SpeciesPopulationUnit (FK)	INTEGER	Allowed	
ID_Category (FK)	INTEGER	Allowed	
ID_DataQuality (FK)	INTEGER	Allowed	
ID_SpeciesPopulationAssesment (FK)	INTEGER	Allowed	
ID_Conservation (FK)	INTEGER	Allowed	
ID_SpeciesIsolation (FK)	INTEGER	Allowed	
ID_GlobalAssesment (FK)	INTEGER	Allowed	
ID_Conventions	INTEGER	Allowed	

Foreign keys	Child	Parent
FK_SpeciesPerSites_Sites	ID_Site	Sites.ID_Site
FK_SpeciesPerSites_Categories	ID_Category	Categories.ID_Category
FK_SpeciesPerSites_Conservation	ID_Conservation	Conservation.ID_Conservation
FK_SpeciesPerSites_DataQuality	ID_DataQuality	DataQuality.ID_DataQuality
FK_SpeciesPerSites_GlobalAssesment	ID_GlobalAssesment	GlobalAssesment.ID_GlobalAssesment
FK_SpeciesPerSites_Species	ID_Species	Species.ID_Species
FK_SpeciesPerSites_SpeciesIsolation	ID_SpeciesIsolation	SpeciesIsolation.ID_SpeciesIsolation
FK_SpeciesPerSites_SpeciesPopulationAssesment	ID_SpeciesPopulationAssesment	SpeciesPopulationAssesment.ID_SpeciesPopulationAssesment
FK_SpeciesPerSites_SpeciesPopulationType	ID_SpeciesPopulationType	SpeciesPopulationType.ID_SpeciesPopulationType
FK_SpeciesPerSites_SpeciesPopulationUnits	ID_SpeciesPopulationUnit	SpeciesPopulationUnits.ID_SpeciesPopulationUnit

SpeciesPopularNames

Owner/module:	References
Target DB name:	Biodiversity
Number of columns:	4
Number of indexes:	0
Number of foreign keys:	1
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_SpeciesPopularName	INTEGER	Not allowed	
ID_Species (FK)	INTEGER	Not allowed	
PopularName	LONGVARBINARY	Not allowed	
Remarks	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_ID_SpeciesPopularName_Species	ID_Species	Species.ID_Species

SpeciesPopulationAssesment

Owner/module:	References
Target DB name:	Biodiversity
Number of columns:	3
Number of indexes:	0
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_SpeciesPopulationAssesment	INTEGER	Not allowed	
SpeciesPopulationAssesmentCode	LONGVARBINARY	Allowed	
SpeciesPopulationAssesmentDescription	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_SpeciesPerSites_SpeciesPopulationAssesment	SpeciesPerSites.ID_SpeciesPopulationAssesment	ID_SpeciesPopulationAssesment

SpeciesPopulationType

Owner/module:	References
Target DB name:	Biodiversity
Number of columns:	3
Number of indexes:	0
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_SpeciesPopulationType	INTEGER	Not allowed	
SpeciesPopulationTypeName	LONGVARBINARY	Allowed	
SpeciesPopulationTypeCode	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_SpeciesPerSites_SpeciesPopulationType	SpeciesPerSites.ID_SpeciesPopulationType	ID_SpeciesPopulationType

SpeciesPopulationUnits

Owner/module:	References
Target DB name:	Biodiversity
Number of columns:	3
Number of indexes:	0
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_SpeciesPopulationUnit	INTEGER	Not allowed	
SpeciesPopulationUnitName	LONGVARBINARY	Not allowed	
SpeciesPopulationUnitCode	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_SpeciesPerSites_SpeciesPopulationUnits	SpeciesPerSites.ID_SpeciesPopulationUnit	ID_SpeciesPopulationUnit

SpeciesSynonyms

Owner/module:	References
Target DB name:	Biodiversity
Number of columns:	4
Number of indexes:	0
Number of foreign keys:	1
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_SpeciesSynonym	INTEGER	Not allowed	
ID_Species (FK)	INTEGER	Not allowed	
SynonymName	LONGVARBINARY	Not allowed	
Remarks	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_SpeciesSynonyms_Species	ID_Species	Species.ID_Species

SpeleologyObjects

Owner/module:	Speleology
Target DB name:	Biodiversity
Number of columns:	8
Number of indexes:	0
Number of foreign keys:	2
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_SpeleologyObjects	INTEGER	Not allowed	
SpeleologyObjectsName	LONGVARBINARY	Not allowed	
ID_SpeleologyObjectsType (FK)	INTEGER	Allowed	
YearOfEvidence	INTEGER	Allowed	
DepthMeters	DECIMAL(6,0)	Allowed	
WidthMeters	DECIMAL(6,0)	Allowed	
ID_Institution (FK)	INTEGER	Allowed	
SpeleologyObjectsRemarks	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_SpeleologyObjects_Institution	ID_Institution	Institution.ID_Institution
FK_SpeleologyObjects_SpeleologyO-bjectType	ID_SpeleologyObjectsType	SpeleologyObjectType.ID_SpeleologyObjectType

SpeleologyObjectType

Owner/module:	Speleology
Target DB name:	Biodiversity
Number of columns:	3
Number of indexes:	0
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_SpeleologyObjectType	INTEGER	Not allowed	
SpeleologyObjectTypeName	LONGVARBINARY	Not allowed	
SpeleologyObjectTypeRemarks	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_SpeleologyObjects_SpeleologyO-bjectType	SpeleologyObjects.ID_SpeleologyO-bjectsType	ID_SpeleologyObjectType

StateBorder

Owner/module:	GIS
Target DB name:	Biodiversity
Number of columns:	6
Number of indexes:	0
Number of foreign keys:	1
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_StateBorder	INTEGER	Not allowed	
StateBorderObject	LONGVARBINARY	Allowed	
PrecisionCentimeters	INTEGER	Not allowed	
StateBorderDescription	LONGVARBINARY	Allowed	
ID_Institution (FK)	INTEGER	Allowed	
InspireID	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_StateBorder_Institution	ID_Institution	Institution.ID_Institution

SurveyEvents

Owner/module:	Surveys
Target DB name:	Biodiversity
Number of columns:	10
Number of indexes:	0
Number of foreign keys:	1
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_SurveyEvent	INTEGER	Not allowed	
ID_Survey (FK)	INTEGER	Not allowed	
DescriptionEvent	LONGVARBINARY	Not allowed	
DescriptionLocation	LONGVARBINARY	Allowed	
DateStart	DATETIME	Allowed	
DateEnd	DATETIME	Allowed	
Remarks	LONGVARBINARY	Allowed	
LongitudeX	DECIMAL(18,10)	Allowed	
LatitudeY	DECIMAL(18,10)	Allowed	
ID_User	INTEGER	Not allowed	

Foreign keys	Child	Parent
FK_SurveyEvents_Surveys	ID_Survey	Surveys.ID_Survey
FK_HabitatsPerEvent_SurveyEvents	HabitatsPerEvent.ID_SurveyEvent	ID_SurveyEvent
FK_ImagesPerEvent_SurveyEvents	ImagesPerEvent.ID_SurveyEvent	ID_SurveyEvent
FK_SpeciesPerEvent_SurveyEvents	SpeciesPerEvent.ID_SurveyEvent	ID_SurveyEvent

SurveyorsPerSurvey

Owner/module:	Surveys
Target DB name:	Biodiversity
Number of columns:	4
Number of indexes:	0
Number of foreign keys:	2
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_SurveyorsPerSurvey	INTEGER	Not allowed	
ID_Survey (FK)	INTEGER	Not allowed	
ID_User (FK)	INTEGER	Not allowed	
Remarks	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_SurveyorsPerSurvey_Users	ID_User	Users.ID_User
FK_SurveyorsPerSurvey_Surveys	ID_Survey	Surveys.ID_Survey

Surveys

Owner/module:	Surveys
Target DB name:	Biodiversity
Number of columns:	7
Number of indexes:	0
Number of foreign keys:	3
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_Survey	INTEGER	Not allowed	
Description	LONGVARBINARY	Not allowed	
DateStart	DATETIME	Allowed	
DateEnd	DATETIME	Allowed	
ID_SurveyType (FK)	INTEGER	Allowed	
ID_SurveyStatus (FK)	INTEGER	Allowed	
ID_User (FK)	INTEGER	Not allowed	

Foreign keys	Child	Parent
FK_Surveys_Users	ID_User	Users.ID_User
FK_Surveys_SurveyStatus	ID_SurveyStatus	SurveyStatus.ID_SurveyStatus
FK_Surveys_SurveyType	ID_SurveyType	SurveyType.ID_SurveyType
FK_SurveyEvents_Surveys	SurveyEvents.ID_Survey	ID_Survey
FK_SurveyorsPerSurvey_Surveys	SurveyorsPerSurvey.ID_Survey	ID_Survey

SurveyStatus

Owner/module:	Surveys
Target DB name:	Biodiversity
Number of columns:	3
Number of indexes:	0
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_SurveyStatus	INTEGER	Not allowed	
Description	LONGVARBINARY	Not allowed	
Remarks	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_Surveys_SurveyStatus	Surveys.ID_SurveyStatus	ID_SurveyStatus

SurveyType

Owner/module:	Surveys
Target DB name:	Biodiversity
Number of columns:	3
Number of indexes:	0
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_SurveyType	INTEGER	Not allowed	
Description	LONGVARBINARY	Not allowed	
Remarks	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_Surveys_SurveyType	Surveys.ID_SurveyType	ID_SurveyType

sysdiagrams

Owner/module:	dbo
Target DB name:	Biodiversity
Number of columns:	5
Number of indexes:	1
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
name (U1)	LONGVARBINARY	Not allowed	
principal_id (U1)	INTEGER	Not allowed	
diagram_id	INTEGER	Not allowed	
version	INTEGER	Allowed	
definition	VARBINARY(0)	Allowed	

Indexes	Columns	Sort order
UK_principal_name (U1)	principal_id name	Ascending Ascending

TextBibliography

Owner/module:	Bibliography
Target DB name:	Biodiversity
Number of columns:	11
Number of indexes:	0
Number of foreign keys:	1
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_TextBibliography	INTEGER	Not allowed	
ID_TextBibliographyType (FK)	INTEGER	Not allowed	
Description	LONGVARBINARY	Not allowed	
Author	VARCHAR(250)	Allowed	
AutorCitation	LONGVARBINARY	Allowed	
Year	INTEGER	Allowed	
Title	LONGVARBINARY	Allowed	
Source	LONGVARBINARY	Allowed	
Url	LONGVARBINARY	Allowed	
Volume	LONGVARBINARY	Allowed	
Remarks	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_TextBibliography_TextBibliographyType	ID_TextBibliographyType	TextBibliographyType.ID_TextBibliographyType
FK_SpeciesEndemic_TextBibliography	SpeciesEndemic.ID_TextBibliographyFirstDocumentation	ID_TextBibliography
FK_SpeciesEndemic_TextBibliography1	SpeciesEndemic.ID_TextBibliographyOfficial	ID_TextBibliography
FK_SpeciesBibliography_TextBibliography	SpeciesBibliography.ID_TextBibliography	ID_TextBibliography

TextBibliographyType

Owner/module:	Bibliography
Target DB name:	Biodiversity
Number of columns:	3
Number of indexes:	0
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_TextBibliographyType	INTEGER	Not allowed	
Description	LONGVARBINARY	Not allowed	
Remarks	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_TextBibliography_TextBibliographyType	TextBibliography.ID_TextBibliographyType	ID_TextBibliographyType

Users

Owner/module:	General
Target DB name:	Biodiversity
Number of columns:	5
Number of indexes:	0
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_User	INTEGER	Not allowed	
Name	LONGVARBINARY	Not allowed	
LastName	LONGVARBINARY	Not allowed	
UserName	LONGVARBINARY	Not allowed	
Password	LONGVARBINARY	Not allowed	

Foreign keys	Child	Parent
FK_SurveyorsPerSurvey_Users	SurveyorsPerSurvey.ID_User	ID_User
FK_Surveys_Users	Surveys.ID_User	ID_User

WaterSheds

Owner/module:	GIS
Target DB name:	Biodiversity
Number of columns:	6
Number of indexes:	0
Number of foreign keys:	0
Codes:	0

Columns	Data type	Allow NULLs	Value/Range
ID_WaterShed	INTEGER	Not allowed	
WaterShedObject	LONGVARBINARY	Allowed	
PrecisionCentimeters	INTEGER	Not allowed	
WaterShedName	LONGVARBINARY	Allowed	
ID_Institution	INTEGER	Allowed	
InspireID	LONGVARBINARY	Allowed	

Foreign keys	Child	Parent
FK_Rivers_WaterSheds	Rivers.ID_WaterShed	ID_WaterShed