Comparison of species information TDWG standards from the point of view of the Plinian Core specification

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PLINIAN CORE

Biodiversity Information Standards TDWG

Symposium: S02 Species-centered projects, tools and methods

25 August to 1 September. Dunedin, New Zealand

OTAGOmuseum

University of Otago

Te Whare Wānanga o Otāgo

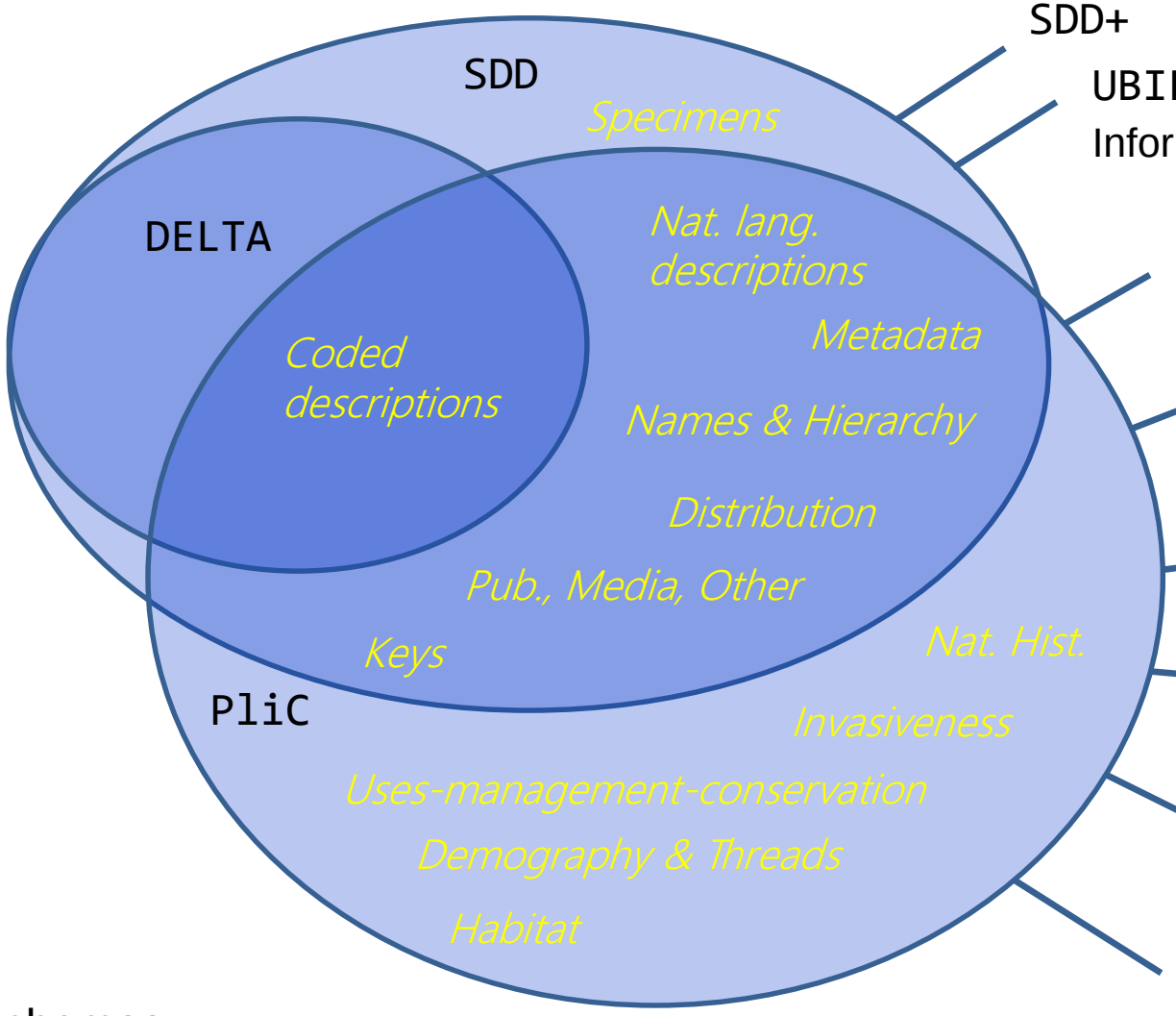
SPNHC.TDWG

DUNEDIN 2018

Summary

- Species-level standards Universe
- Metodology
- Coded descriptions in DELTA/SDD and PliC
  - Conclusions 1
- Natural Language descriptions
  - Conclusions 2
- Tools , flavours and outputs in DELTA/SDD and PliC
  - Conclusions 3

Species level standards Universe



SDD+

UBIF. Unified Biosciences Information Framework

DC. Dublin Core

EML. Ecological Metadata Language

TSC. Taxon Concept Schema

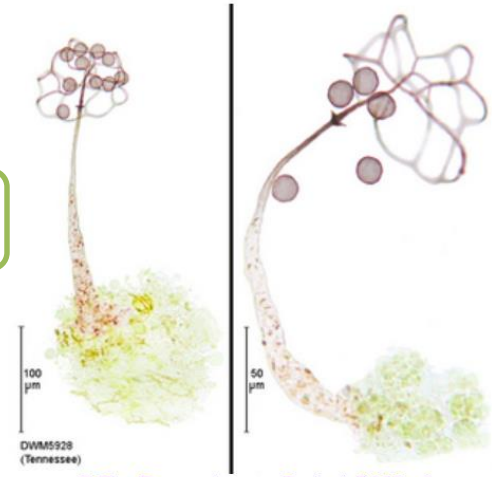
DwC. Darwin Core

EOL. Encyclopedia of Life

GISIN. Global Invasive Species Information Network

Contents & schemas

Methodology



DELTA files
Chars
Items
Specs

Content

Biodiversity workbench

Dallwitz's CONFOR etc.

GBIF.ES/MAPAMA Data Entry tool

Matrix

XMLSpy

Nat. Lang. Descr.

Web

html

Ident. keys

PliC.db

PliC.DwC-A

SDD.xml

PliC.xml

html

PliC.rdf

Cross-Nature

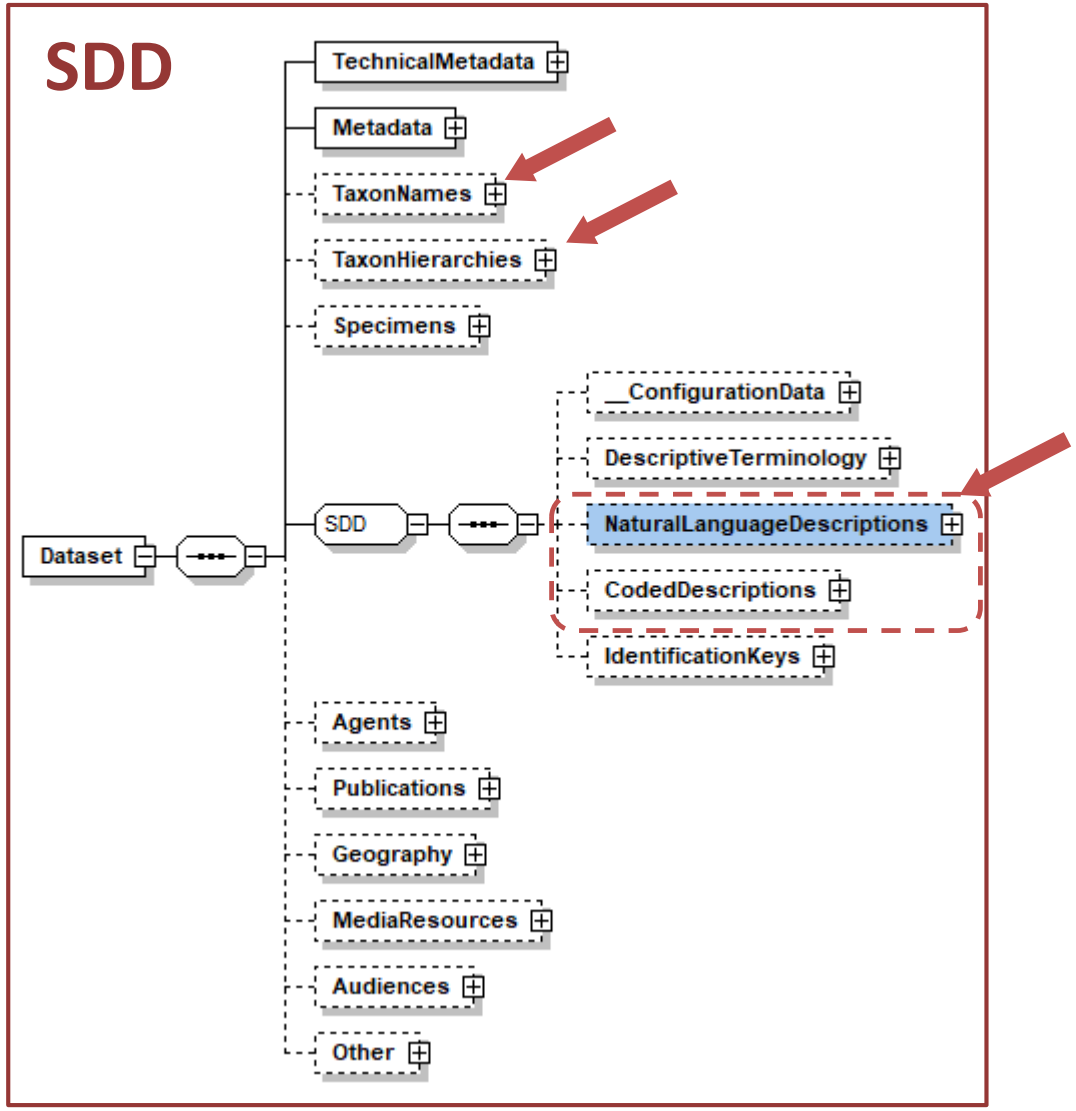
Web

GBIF IPT

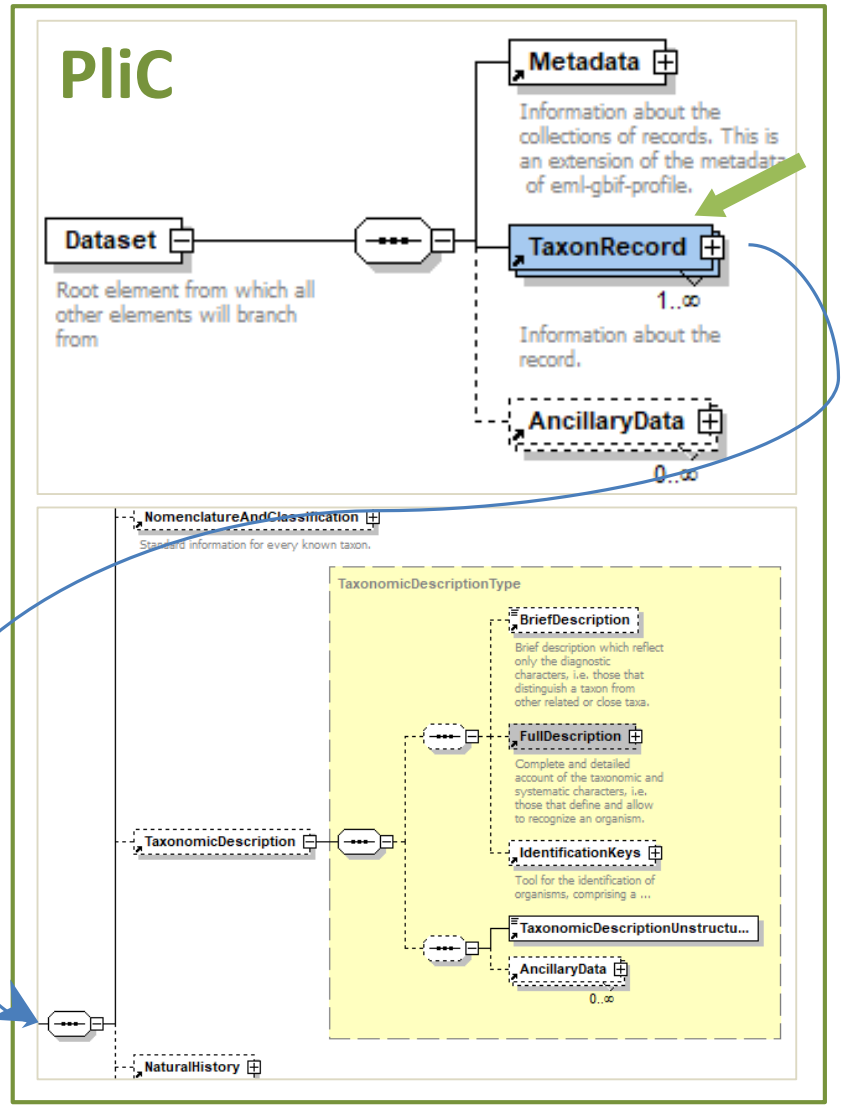
INSPIRE GML

Sparql Endpoint

Conceptual approaches

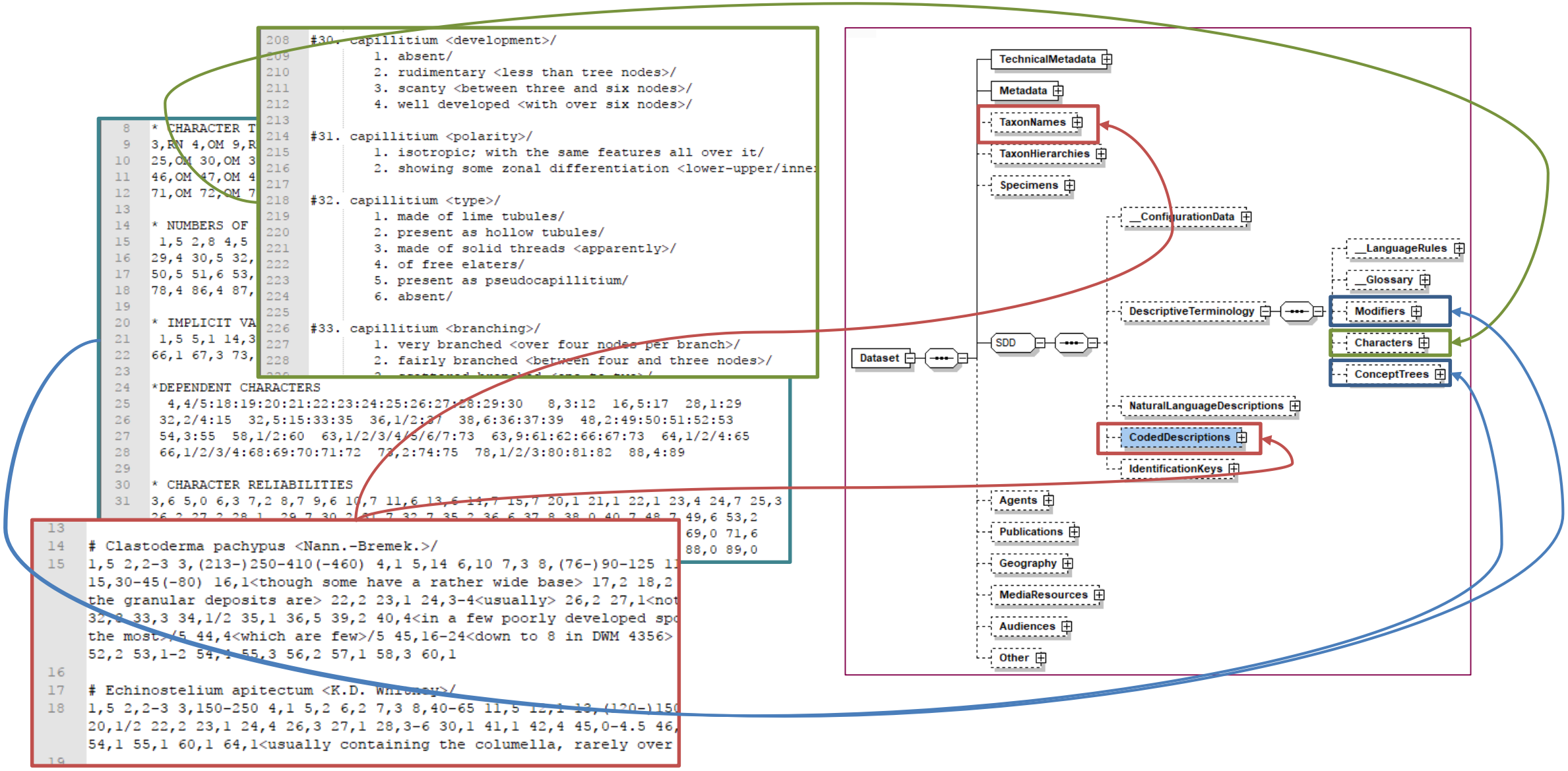


The unit is the Dataset

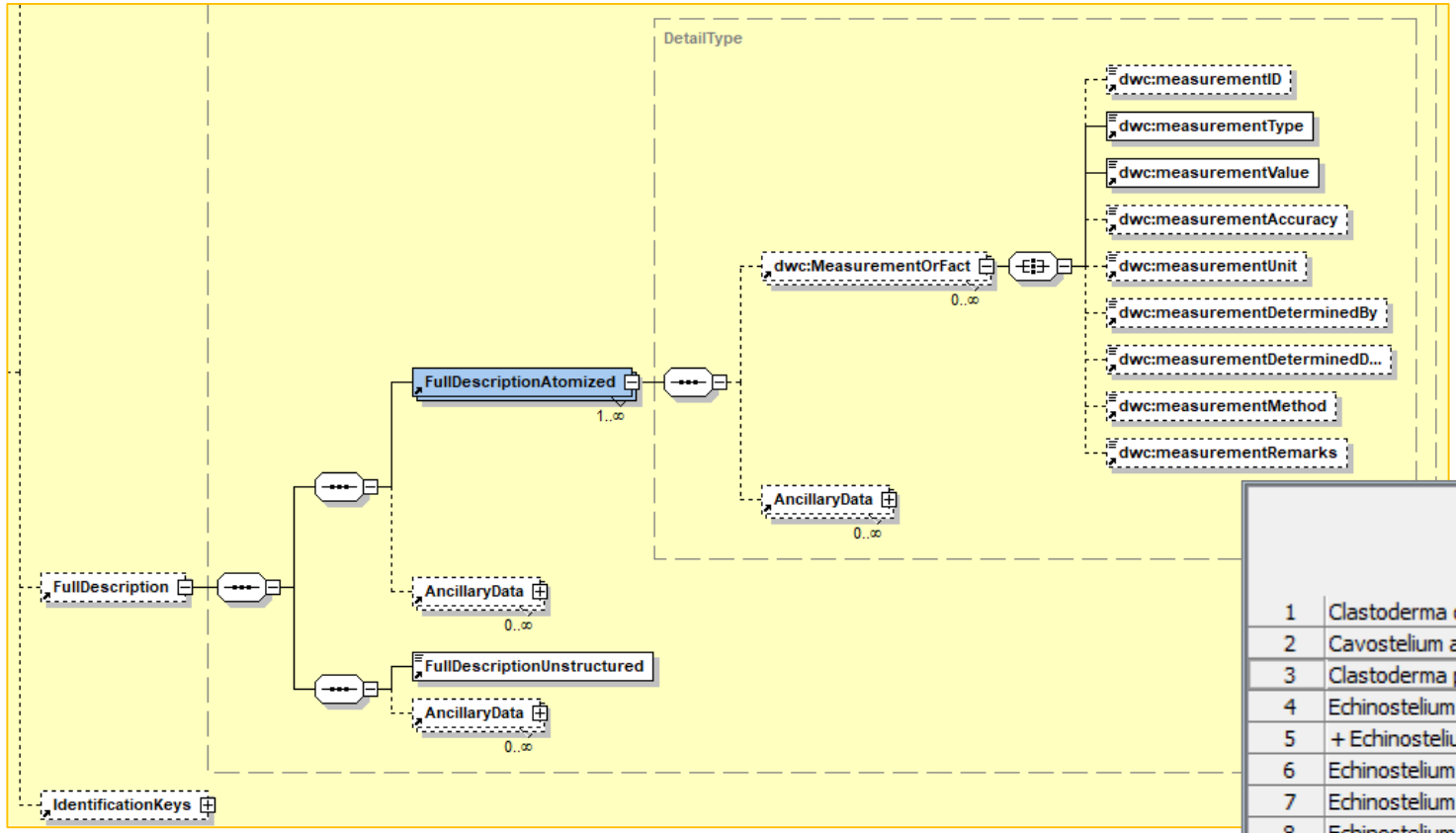


The unit is the TaxonRecord

DELTA / SDD (Coded descriptions)



PliC (Coded descriptions)



		56	57	58	59
		spores in mass	spores by transmitted light <color>	spores <shape>	spores <diam.>
1	Clastoderma debaryanum...	8	8	5	8-10(-12)
2	Cavostelium apophysatu...				
3	Clastoderma pachypus N...		8	5	(9-)10-12(-13)
4	Echinostelium apitectum K...	3/5	1/4	1	10-12
5	+ Echinostelium apitectu...				7-8
6	Echinostelium arboreum H...	5	1/2/3	1	(5-)6-9
7	Echinostelium bisporum (...	3	1	1	7-10
8	Echinostelium brooksii Wh...		1/4	1	10-14
9	Echinostelium coelocephal...	5	1	1/2	9-12
10	Echinostelium collicullosu...	4	1	1	9-13
11	Echinostelium corynophor...	4	1	1	(7-)9-15(-16)
12	Echinostelium cribrarioide...	5	1-3	1	8-10

(9-)10-12(-13)

R µm in diam

"this taxon has this state/value fot this character"

Conclusions (1)

Coded descriptions on the basis of a list of characters, for which a set of states or a range of values are present in items (taxa, OTUs) being described.

Coded descriptions is a powerful tool in taxonomic research:

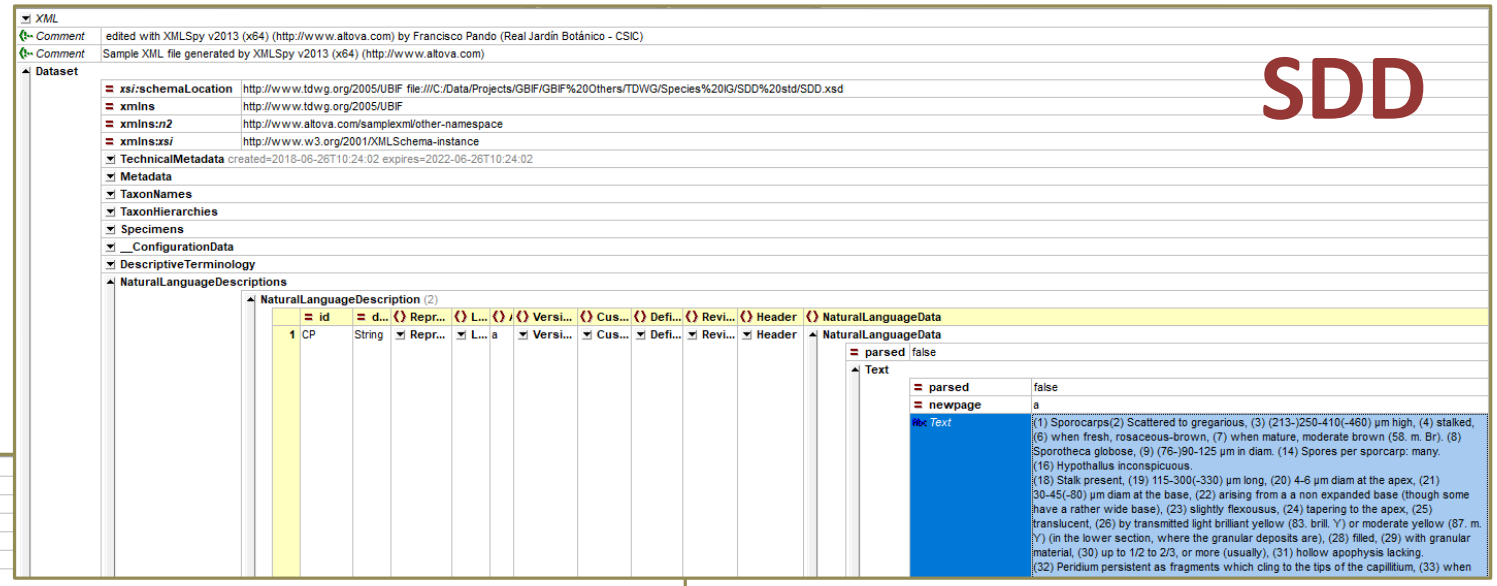
- They provide coherence (all taxonomic products -- descriptions, diagnoses, identification keys, etc.-- are originated from the same elements)
- They make explicit the information elements on which taxonomic decisions are taken (taxon circumscription, classifications)
- They allow for analyses

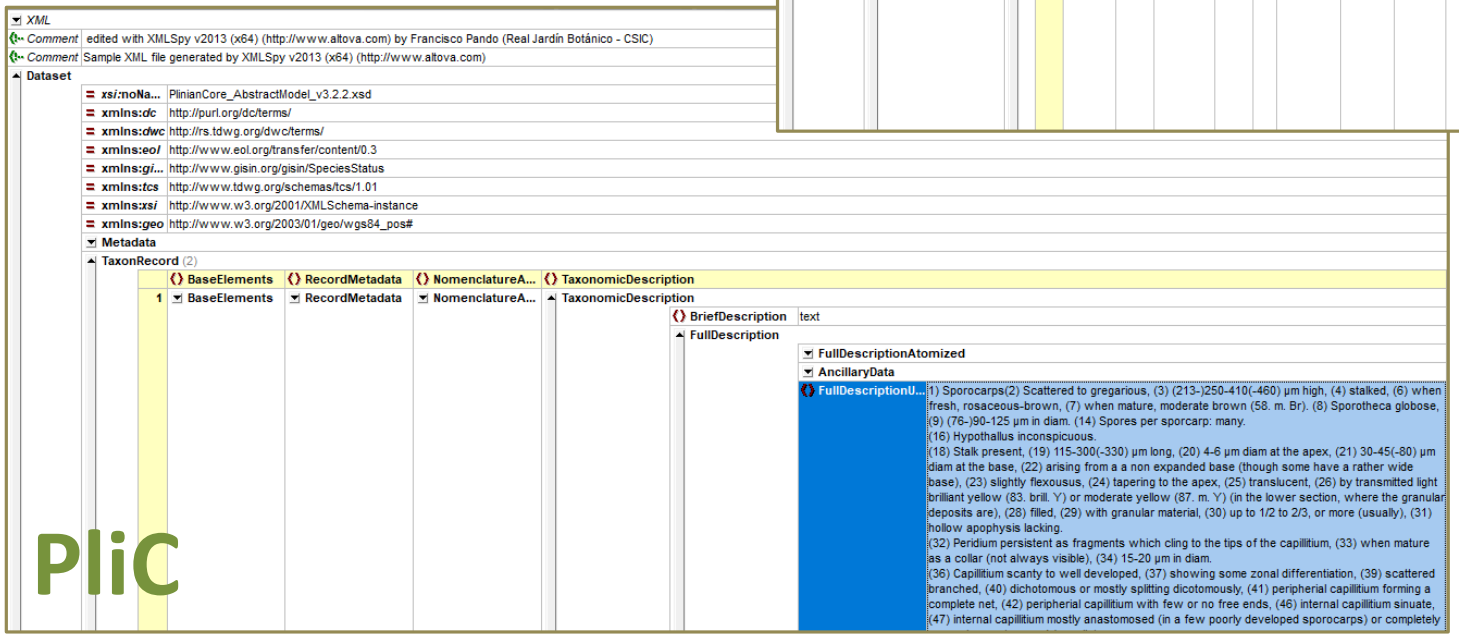
SDD (and DELTA) are very well suited to represent coded descriptions with all their nuances.
It is possible to store coded descriptions in PliC as "item-character-state/value“. However, features built in DELTA (and SDD), that make description data handling easier, such as codification for:

- Implicit values
- Descriptions with multiple states in characters
- Character dependency

…are missing in PliC (though it is possible in convoluted ways, e.g. via the AncilliaryData" element)
PlIC is not the ideal specification to represent coded descriptions

Natural language descriptions



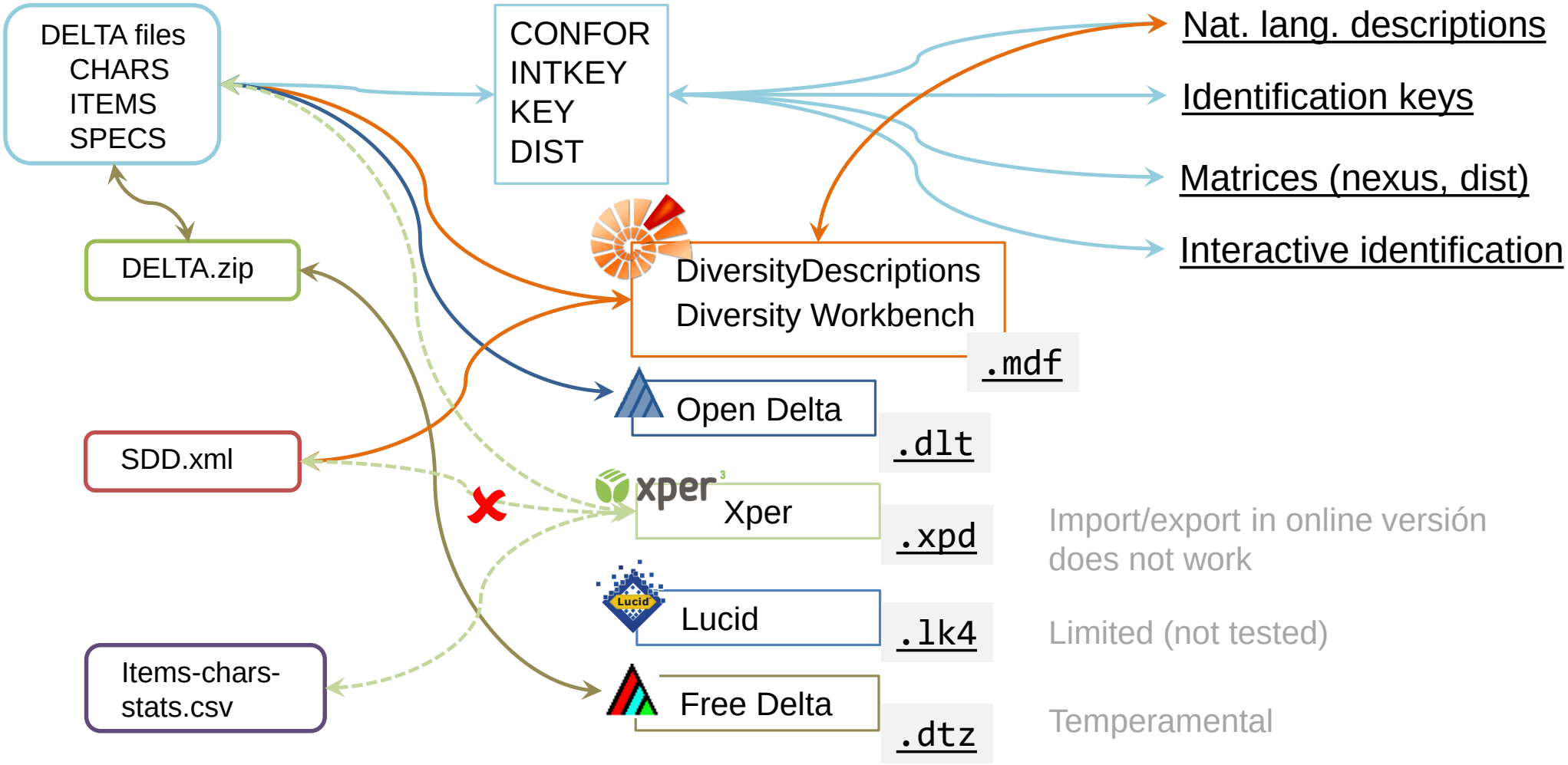


(xml)

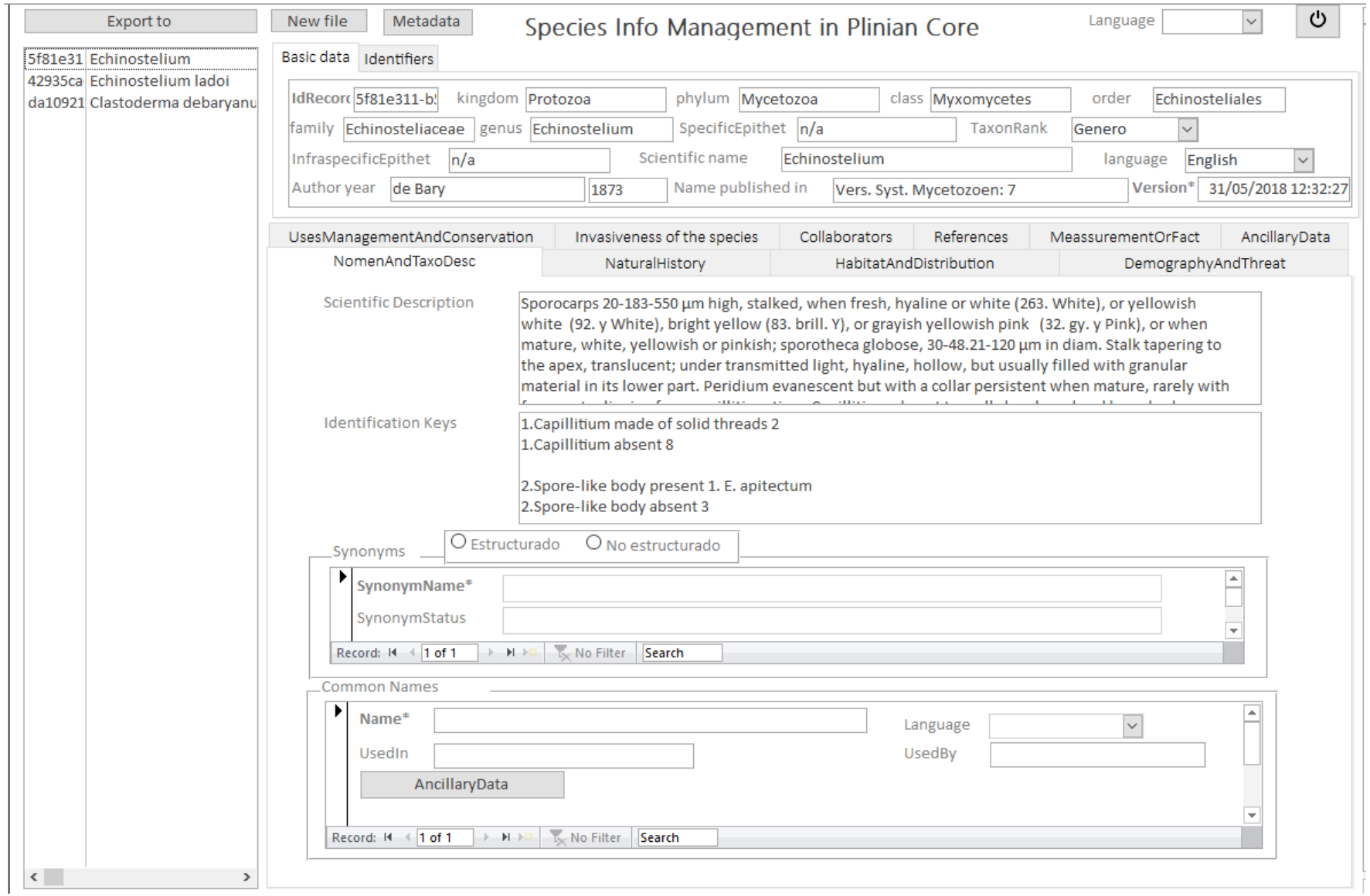
Conclusions (2)

- Natural language descriptions (NLD) and identification keys can be easily mapped and transferred between SDD and PliC.
- However, using SDD for storing NLD is complicated (no tools available for it, more of this later) and it is a waste of the capabilities of SDD.

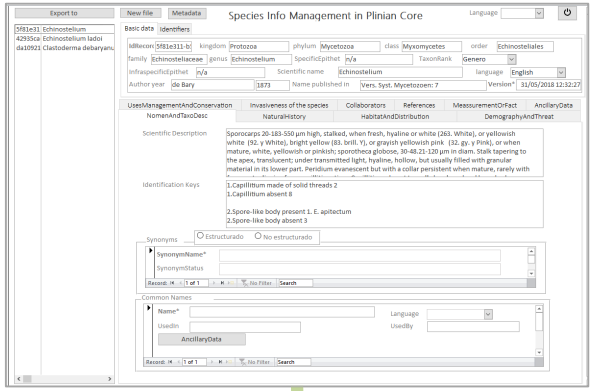
Tools DELTA / SDD



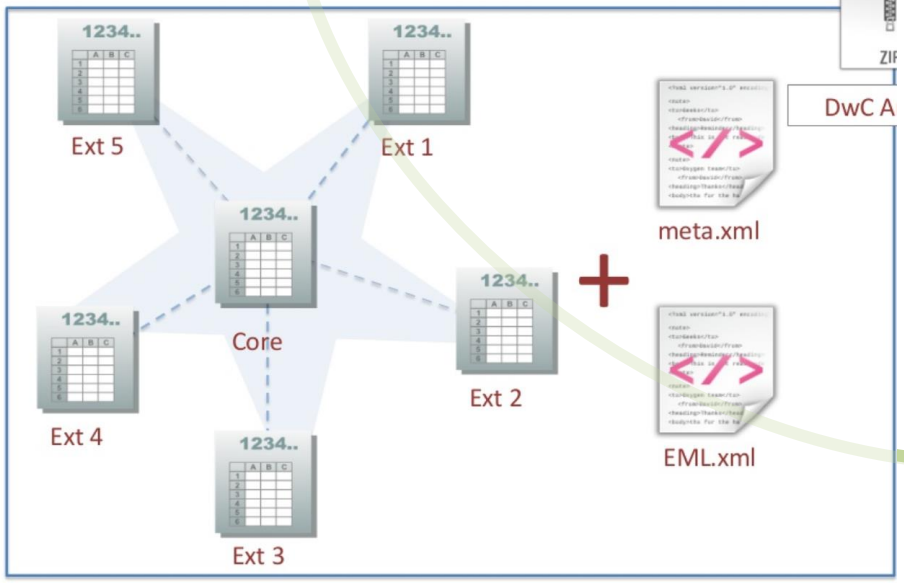
Tools PliC


Export to
New file
Metadata
Species Info Management in Plinian Core
Language
5f81e31 Echinostelium
42935ca Echinostelium ladoi
da10921 Clastoderma debaryanu
Basic data
Identifiers
IdRecor 5f81e311-b!
kingdom Protozoa
phylum Mycetozoa
class Myxomycetes
order Echinosteliales
family Echinosteliaceae
genus Echinostelium
SpecificEpithet n/a
TaxonRank Genero
InfraspecificEpithet n/a
Scientific name Echinostelium
language English
Author year de Bary
1873
Name published in Vers. Syst. Mycetozoen: 7
Version* 31/05/2018 12:32:27
UsesManagementAndConservation
Invasiveness of the species
Collaborators
References
MeassurementOrFact
AncillaryData
NomenAndTaxoDesc
NaturalHistory
HabitatAndDistribution
DemographyAndThreat
Scientific Description
Sporocarps 20-183-550 µm high, stalked, when fresh, hyaline or white (263. White), or yellowish white (92. y White), bright yellow (83. brill. Y), or grayish yellowish pink (32. gy. y Pink), or when mature, white, yellowish or pinkish; sporotheca globose, 30-48.21-120 µm in diam. Stalk tapering to the apex, translucent; under transmitted light, hyaline, hollow, but usually filled with granular material in its lower part. Peridium evanescent but with a collar persistent when mature, rarely with
Identification Keys
1.Capillitium made of solid threads 2
1.Capillitium absent 8
2.Spore-like body present 1. E. apitectum
2.Spore-like body absent 3
Synonyms
Estructurado
No estructurado
SynonymName*
SynonymStatus
Record: 1 of 1
No Filter
Search
Common Names
Name*
Language
UsedIn
UsedBy
AncillaryData
Record: 1 of 1
No Filter
Search

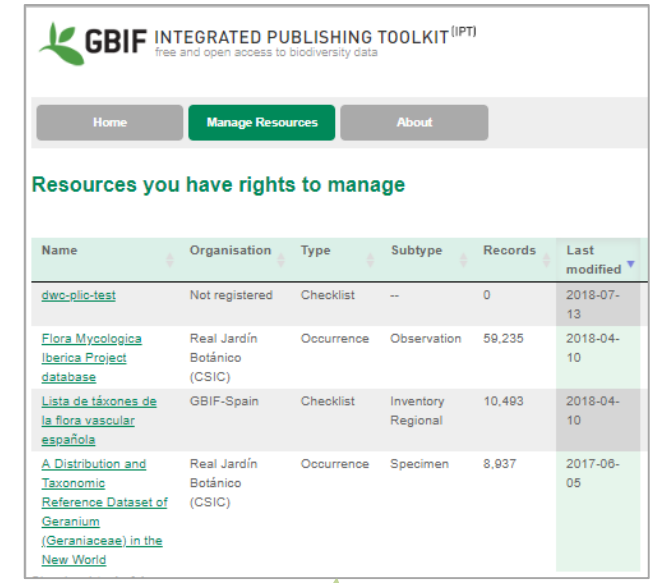
PliC & IPT



DARWIN CORE ARCHIVE - STAR SCHEMA



- Plinian Distribution Extension
- Plinian Endemicity Extension
- Plinian Legislation Extension
- Plinian ManagementAndConservation Extension
- Plinian Core Simple Extension
- Plinian Synonym Extension
- Plinian ThreatStatus Extension
- Plinian Uses Extension



GBIF Darwin Core Archive Validator

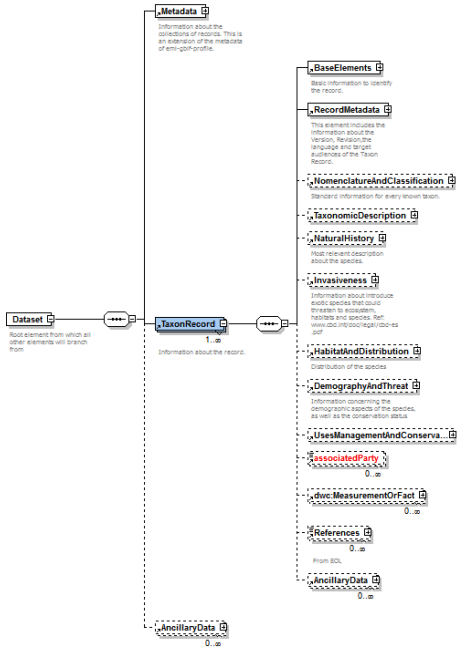
Registered Extensions

Under Development

PliC IPT extensions need to be moved from “in development” to “stable”

https://tools.gbif.org/dwca-validator/extensions.do

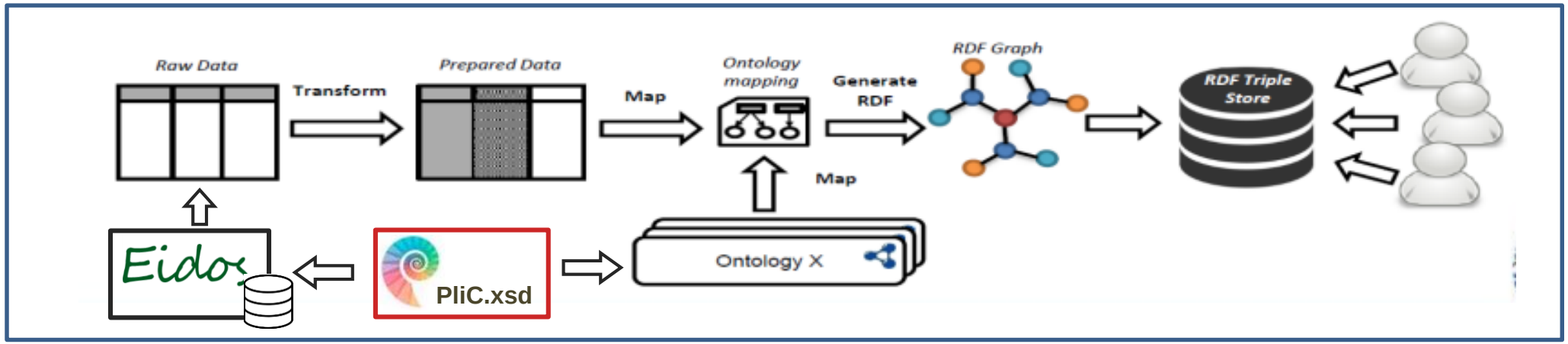
PLIC → RDF



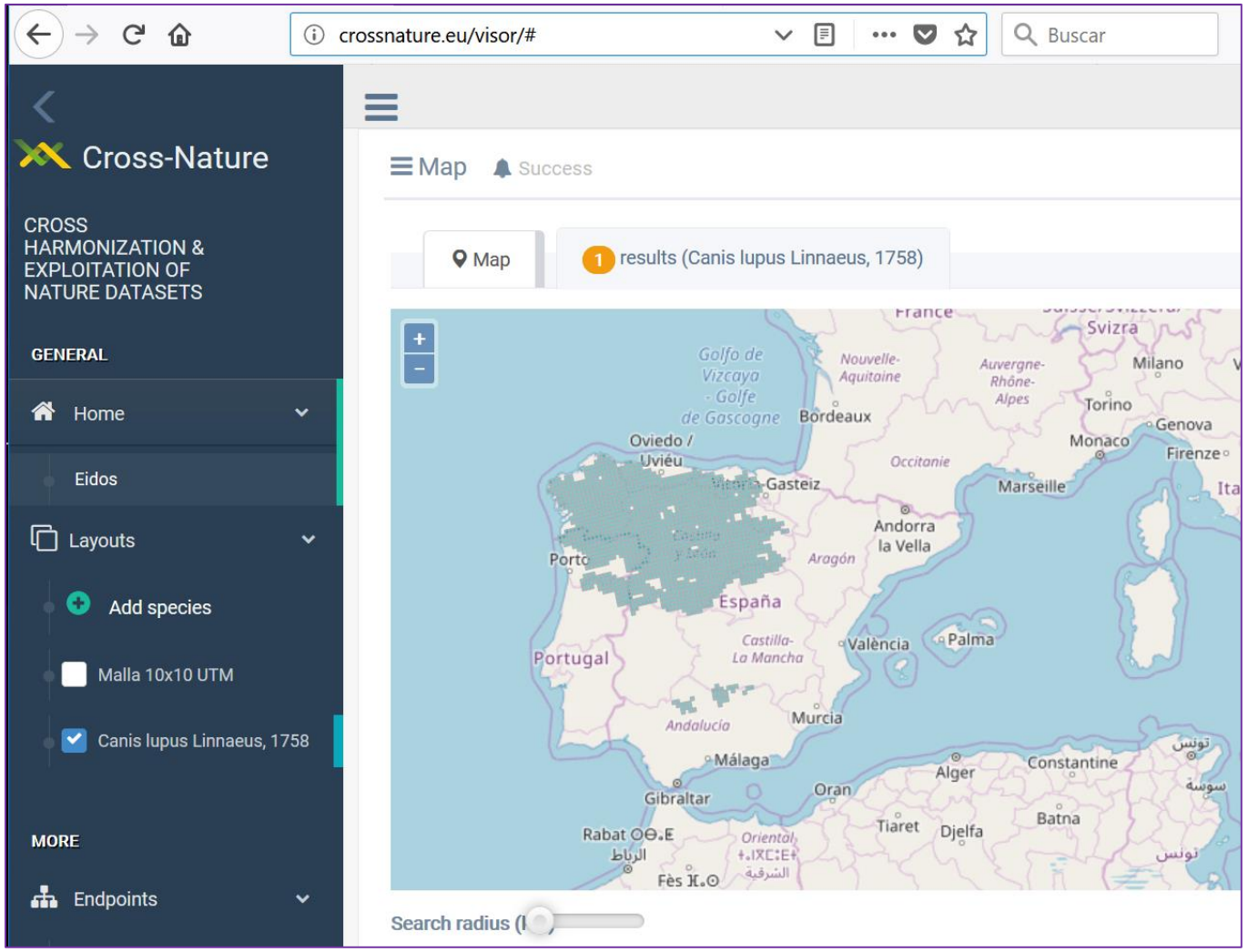
https://github.com/tdwg/PlinianCore

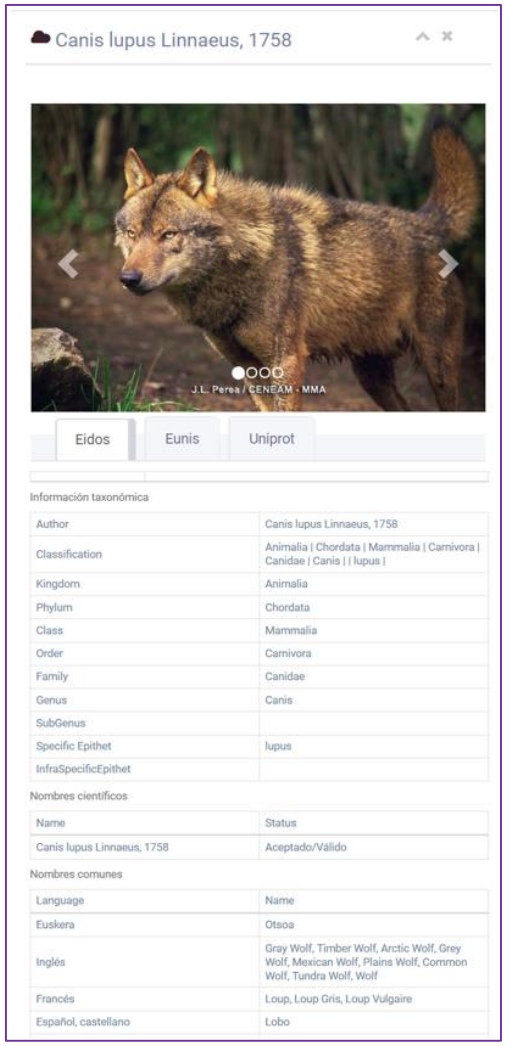
http://www.mapama.gob.es/es/biodiversidad/servicios/banco-datos-naturaleza/Eidos_acceso.aspx

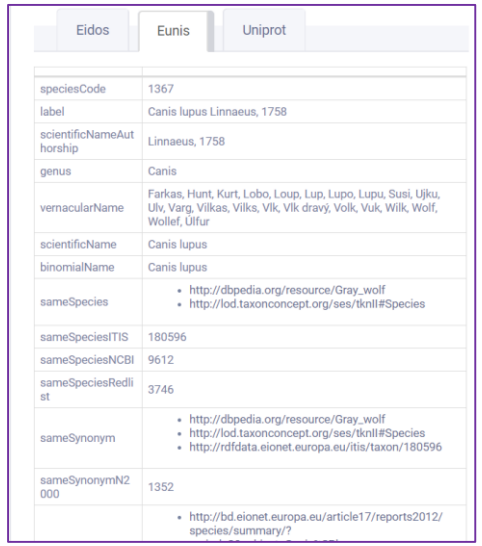
Cross harmonization & exploitation of nature datasets https://crossnatureblog.wordpress.com/

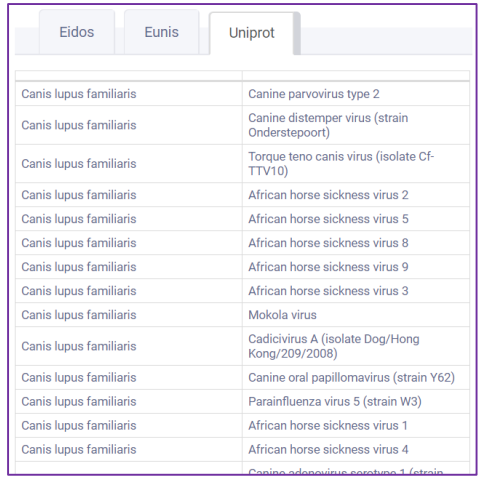


Combining data from three RDF repositories





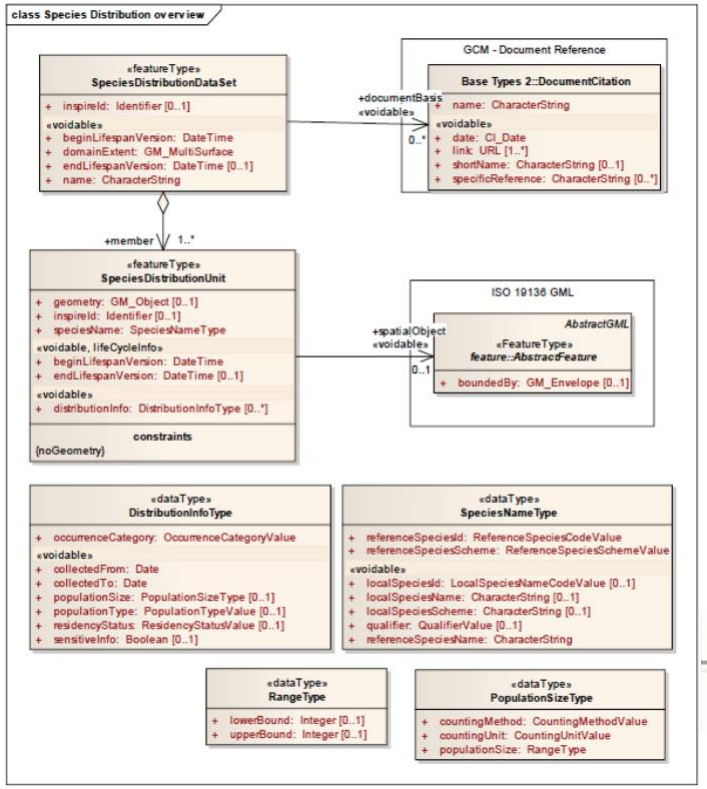


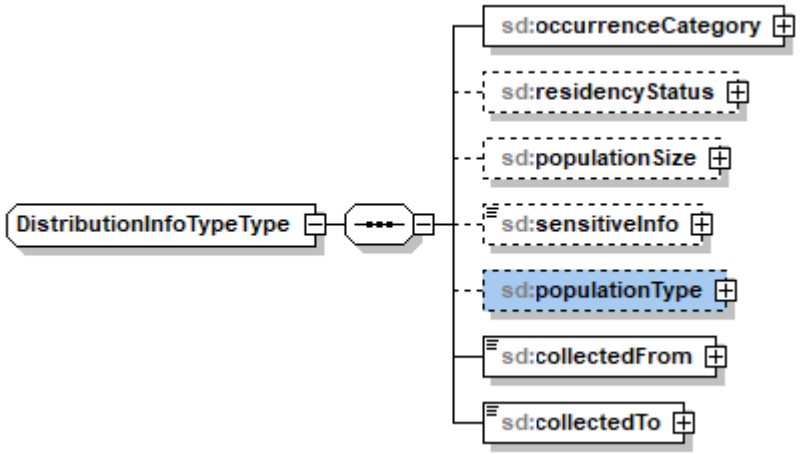


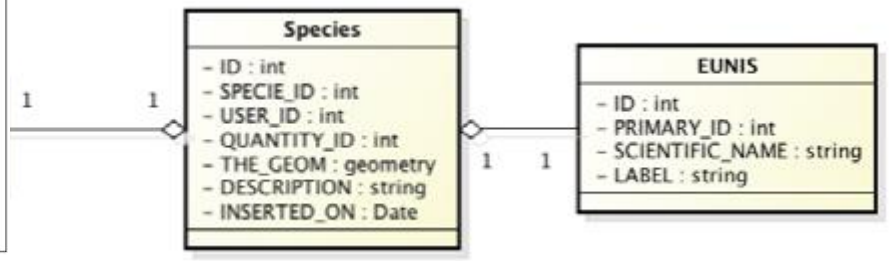
http://crossnature.eu/visor

PliC →INSPIRE

- MAPAMA gateway EIDOS > INSPIRE "species distribution" GML







EIDOS > transformation needed between grid identifiers and WKT polygons

Conclusions (and 3)

- More than an overlap or a redundancy between SDD-DELTA and PliC there is a contact point (coded descriptions).
- SDD and PliC have different strengths, and are intended for different audiences; they are complementary.
- There is no urgent need for a XSLT for transferring descriptions between these standards as there are less technologically demanding options.
- Coded descriptions (and subsequently SDD and DELTA) is information "from taxonomists, for taxonomist“.
- PliC is focused on visualization, publication and post-taxonomy integration and interoperability of taxonomic information. It is "Taxonomic information (and more), for non-taxonomist“.

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TDWG Species Information Interest:
https://github.com/tdwg/species-information

Plinian Core Task Group:
https://github.com/tdwg/PlinianCore

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