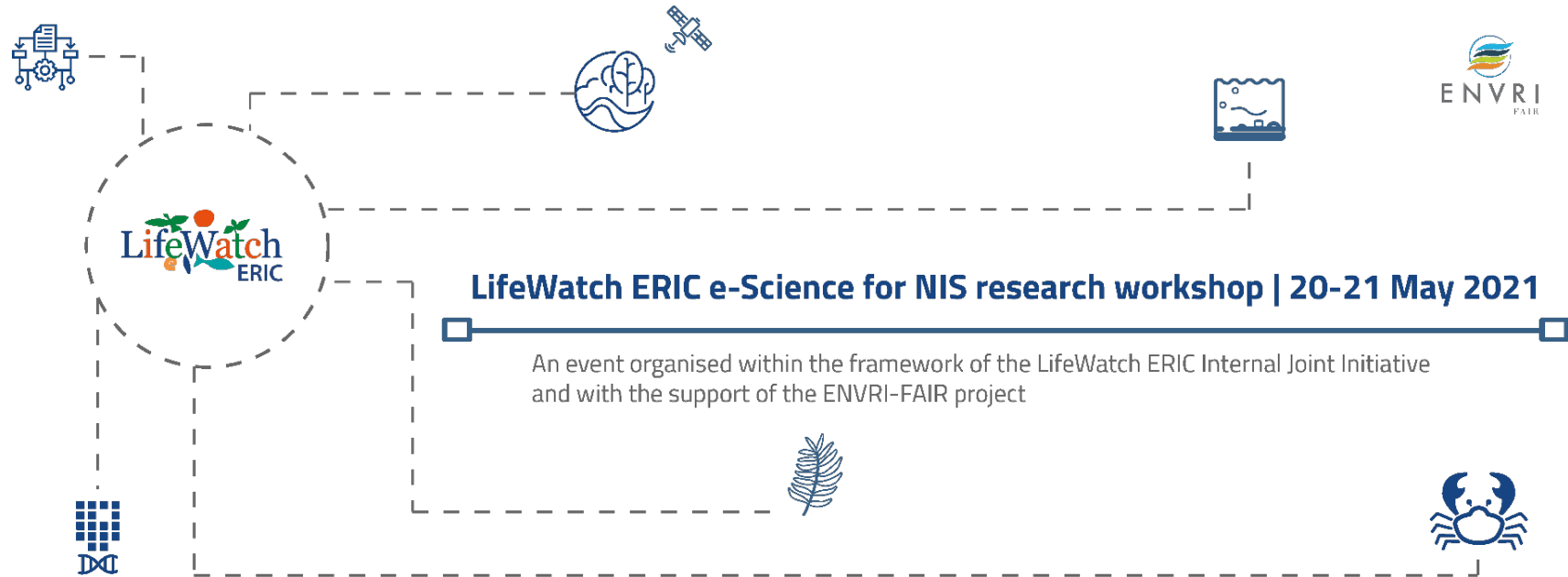




Training Session

LifeWatch ERIC Metadata Catalogue

4 June 2021



Lucia Vaira | LifeWatch ERIC Service Centre
Xeni Kechagioglou | LifeWatch ERIC Service Centre

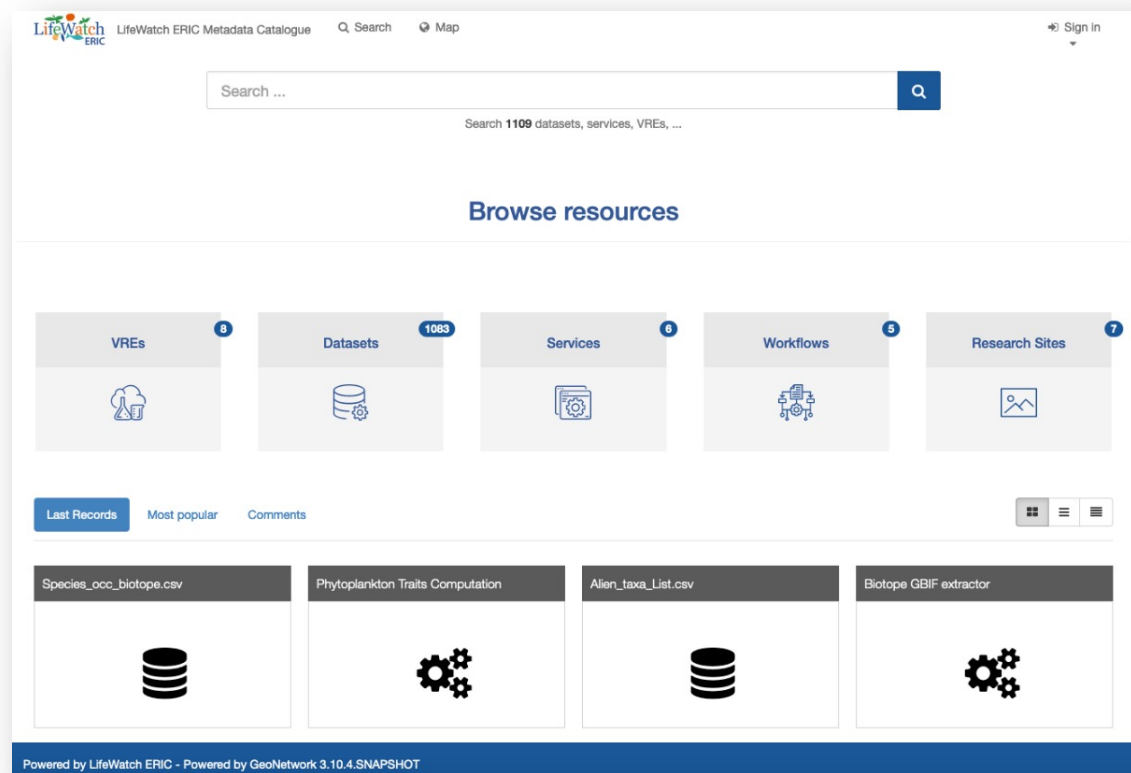


LifeWatch ERIC e-Science for NIS research workshop | 20-21 May 2021

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LifeWatch ERIC Metadata Catalogue



<https://metadatalogue.lifewatch.eu>



LifeWatch ERIC Metadata Catalogue

- The LifeWatch ERIC Metadata Catalogue is a standard-based information management system based on GeoNetwork 3.10, designed and implemented to enable access to several resources from a variety of providers through descriptive metadata, enhancing and promoting the information exchange and sharing among organisations and research infrastructures
- The catalogue allows to manage descriptive metadata related to **datasets** (EML 2.2.0 standard), **research sites**, **services**, **Virtual Research Environments**, and **workflows** (ISO 19139 standard). Metadata attributes can be optional/mandatory and can require single/multiple values
- The catalogue allows (upon validation and verification) the creation of Digital Object Identifiers (DOIs) for resources that do not have it, by exploiting the GeoNetwork – DataCite connection.



<https://metadatalogue.lifewatch.eu>



LifeWatch ERIC Metadata Catalogue

The LifeWatch ERIC Metadata Catalogue allows to:

- discover resources with advanced filters (e.g., according to providers, groups, etc.)
- manage users with the corresponding profiles and privileges



Admin:

has all privileges within the Catalogue



Content reviewer:

editor privileges + can review content, authorize publication and request a DOI within its group



Editor:

can create/edit/delete content within its group

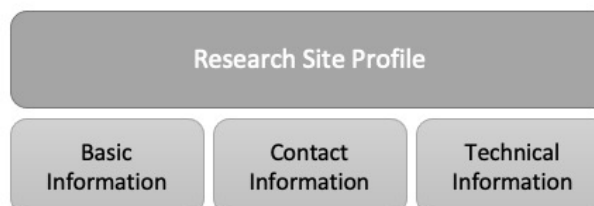
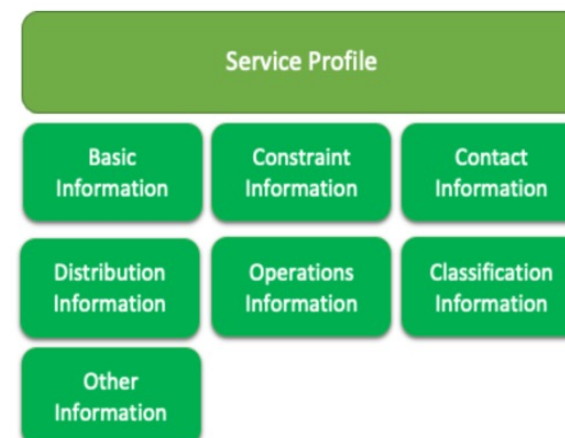
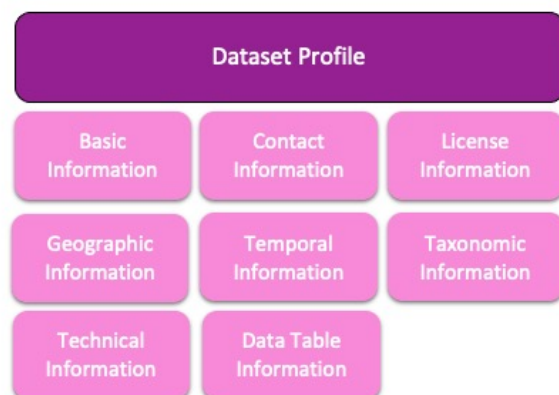
Registered users

For this training session, a specific group «**NIS Workshop**» has been created and your accounts have been added as Editor in this group

Public users: can browse the catalogue and download public metadata



LifeWatch ERIC Metadata Catalogue





The Metadata Catalogue and the LW ERIC Semantic Services

Semantic Services

- attend to semantic and syntactic interoperability of resources originating in diverse and distributed contexts
- in order to provide unified access to them and meaningful integration in Biodiversity analyses,
- ultimately achieving better data, content, and knowledge management on one hand and FAIR resources on the other.

The ***LifeWatch ERIC Metadata Catalogue***

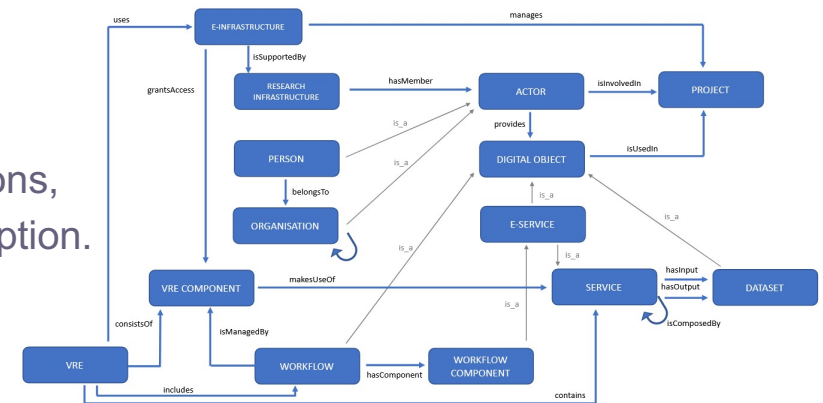
- is the scientists' entry point for finding and accessing such resources,
- caters for syntactic interoperability through its Schema for datasets, services, virtual research environments and workflows to achieve unified resource access, and
- facilitates semantic interoperability through references to the ***LifeWatch ERIC Upper Ontology – LUPO***.



The Metadata Catalogue and the LW ERIC Semantic Services

The *LifeWatch ERIC Upper Ontology*

- unifies everything LifeWatch ERIC in a Knowledge Graph
- describes every type of LifeWatch resource and interconnections,
- assigns a Uniform Resource Identifier to each resource description.

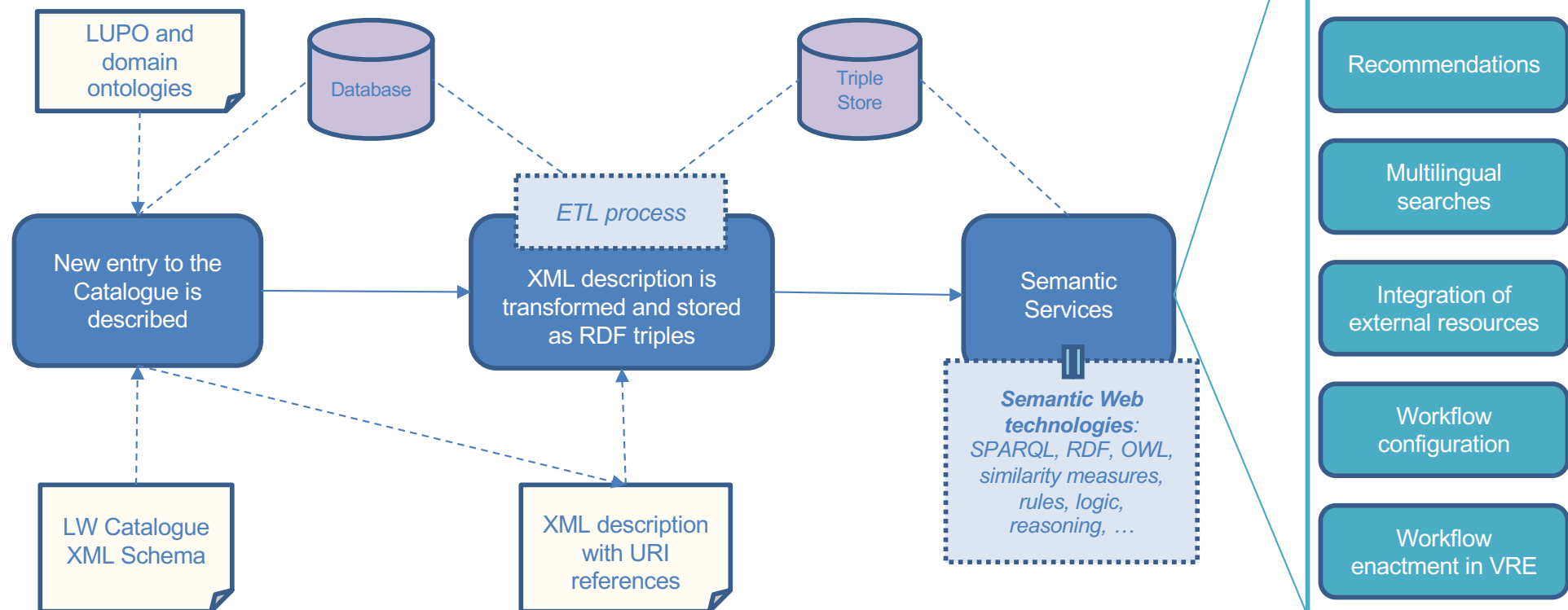


The *LifeWatch ERIC Metadata Catalogue* then

- makes reference to the URIs of the resource descriptions,
- thus rendering catalogue entries semantically meaningful both to humans and machines, and
- aiding development of further semantic services.

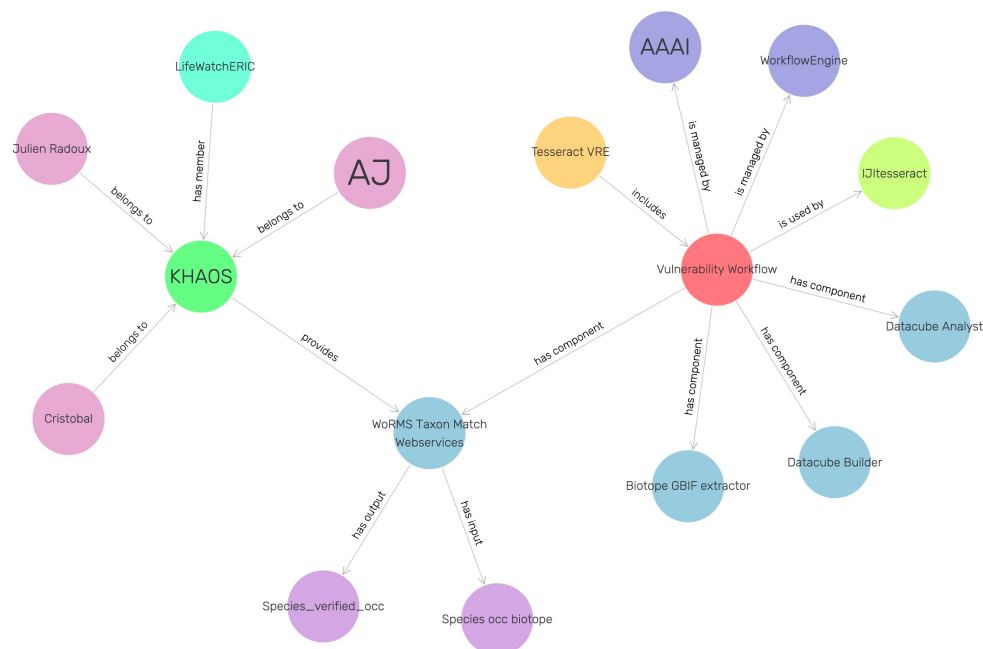


How?



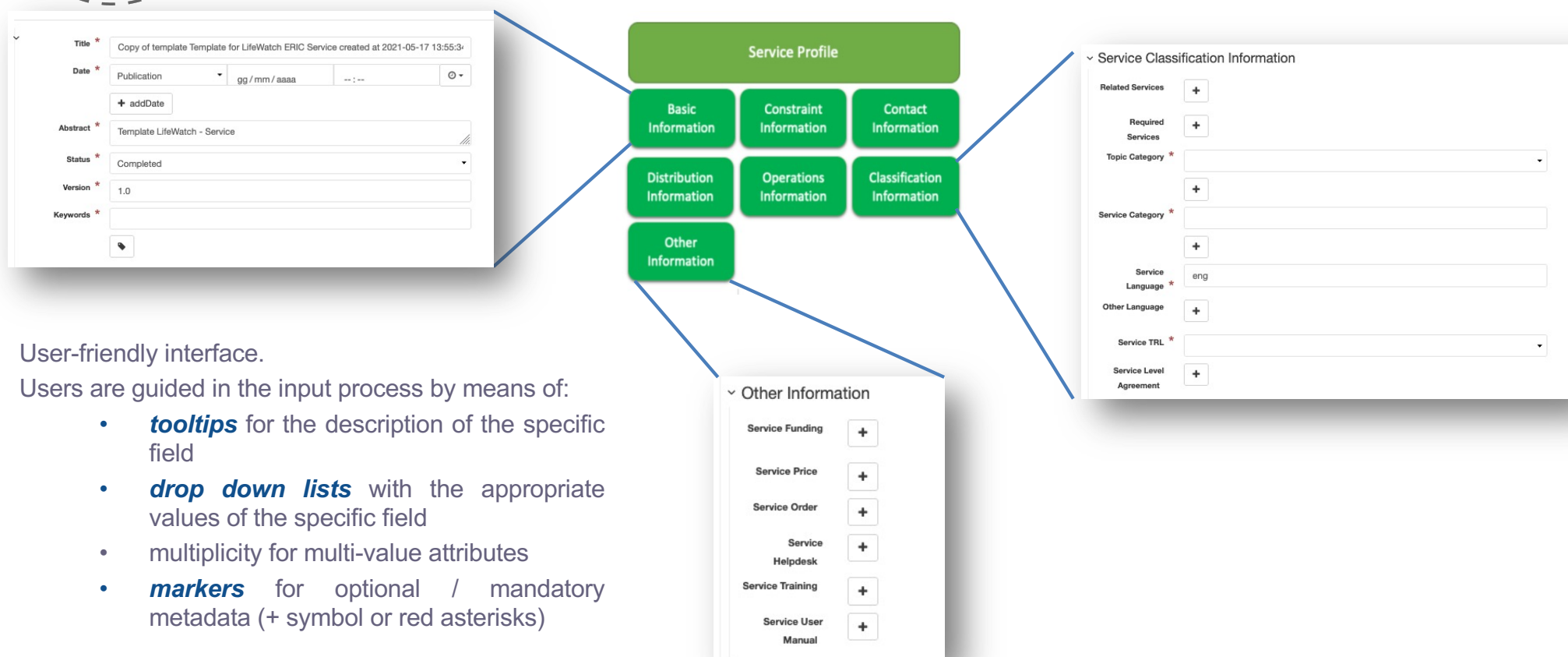


Example - Vulnerability Workflow – Implementation of L.U.P.O.





LifeWatch ERIC Metadata Catalogue



User-friendly interface.

Users are guided in the input process by means of:

- **tooltips** for the description of the specific field
- **drop down lists** with the appropriate values of the specific field
- multiplicity for multi-value attributes
- **markers** for optional / mandatory metadata (+ symbol or red asterisks)



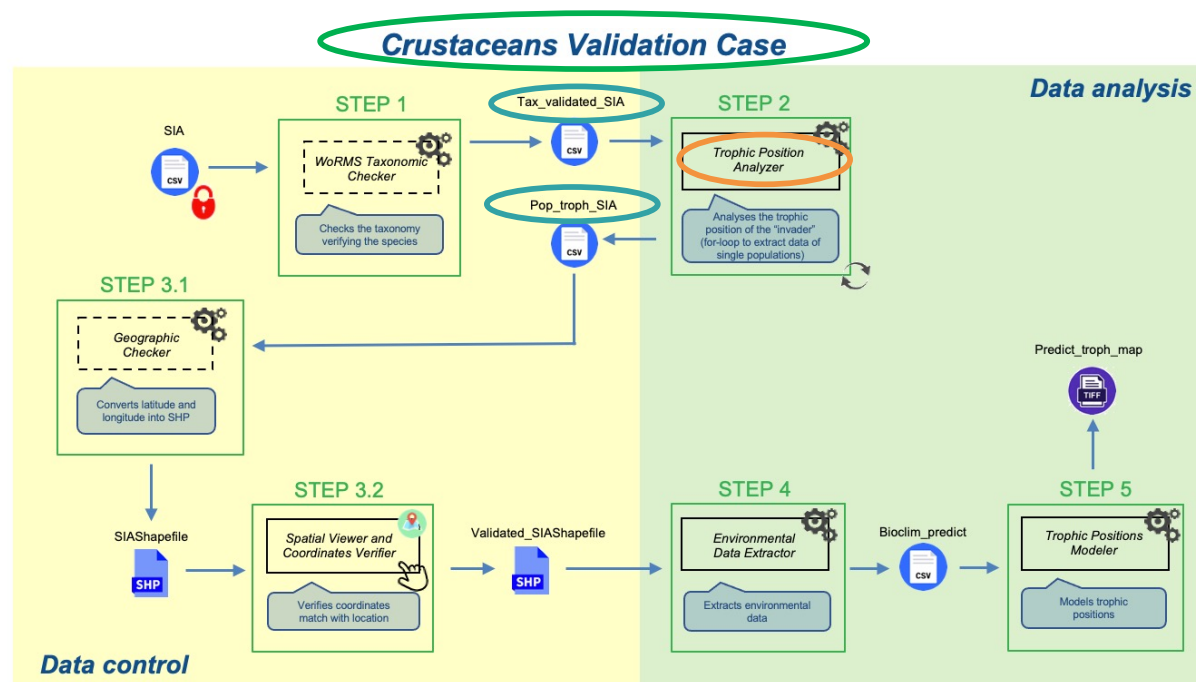
LifeWatch ERIC Metadata Catalogue

Example

Step 2 of the Crustaceans validation case

We have three kind of resources:

- the workflow
- the service
- the two (input/output) datasets





LifeWatch ERIC Metadata Catalogue

Crustaceans Workflow - Functional biogeography of invaders: the case of two widely distributed omnivorous crustaceans

Biological invasions are to date acknowledged as significant environmental and economic threats, yet the identification of key ecological traits determining species invasiveness has remained elusive. One unappreciated source of variation concerns dietary flexibility and the ability to shift trophic position within invaded food webs. Trophic plasticity may greatly influence invasion success as it negates resource availability as a functional constraint for introduced individuals; in addition, the impact of an invader might increase with its dietary plasticity since a greater proportion of the resident assemblage of species and multiple trophic levels are affected. The validation case will focus on two invasive crustaceans widely distributed in marine and freshwater European waters, i.e., the Atlantic blue crab *Callinectes sapidus* and the Louisiana crayfish *Procambarus clarkii*. Key questions that will be addressed are:

- Does the trophic position of *C. sapidus* vary between invaded Mediterranean and native west Atlantic habitats, testifying the occurrence of significant post-invasion shifts in dietary habits?
- Does the trophic position of *P. clarkii* vary in invaded habitats, and which are the main ecological factors involved?
- Do bioclimatic drivers influence broad-scale spatial patterns of variation in the trophic position of *C. sapidus* and *P. clarkii*?

workflow

About this resource

Status: Under development / Pre operational

Version: 1.0

Info page: <https://www.lifewatch.eu/ji-4-callinectes-sapidus>

Contain Services

Service 1

Name: Crustaceans WoRMS Taxonomic Checker

Description: A service that aims at verifying the species names (performing the taxonomy check) by using the input file SIA.csv. It represents the Step 1.

Reference: <https://metadatalogue.lifewatch.eu/en/catalog.search#/metadatalogue/2c4f6b1a-38ad-4ec7-a710-ef0d9c2b381e>

Service 2

Name: Trophic Position Analyzer

Description: A service that aims at analyzing the trophic position of the "invader" by using a Bayesian model to estimate the NA values of the trophic position that corresponds to the column 13 "TP" of the "Tax_validated_SIA.csv" file by means of a loop that allows extracting data of single populations. It represents the Step 2.

Reference: <https://metadatalogue.lifewatch.eu/en/catalog.search#/metadatalogue/cfa8a24b-5912-48af-8244-bdf301d77b41>

Service 3

Trophic Position Analyzer

A service that aims at analyzing the trophic position of the "invader" by using a Bayesian model to estimate the NA values of the trophic position that corresponds to the column 13 "TP" of the "Tax_validated_SIA.csv" file by means of a loop that allows extracting data of single populations. It represents the Step 2 of the Crustaceans Workflow within the Internal Joint Initiative.

service

About this resource

Keywords: functional trait, alien invasive species, native species, trophic position, Crustaceans, IJL

Status: Under development / Pre operational

Version: 1.0

Contain Operations

Operation 1

Name: Tax_validated_SIA.csv

Website: <http://metadatalogue.lifewatch.eu/en/catalog.search#/metadatalogue/46d57ac-4c92-433f-a213-b59553ce4f5>

Description: It is an intermediate file of the Crustaceans workflow that contains the validated SIA file by identifying the native and invasive species.

Function: Input file

Operation 2

Name: Pop_troph_SIA.csv

Website: <http://metadatalogue.lifewatch.eu/en/catalog.search#/metadatalogue/79776718-d418-4838-b36d-c15ed8b9b191>

Description: It is an intermediate file of the Crustaceans workflow that contains the trophic position of the invader identified in Step 1 (Crustaceans WoRMS Taxonomic Checker) of the Workflow.

Function: Output file

Service Classification Information

Topic Categories: Service Category 1

Service TRL: TRL 4 – Technology validated in lab

Other Information

Service Helpdesk: <https://www.lifewatch.eu/help-desk>

Tax_validated_SIA.csv

dataset

It is an intermediate file of the Crustaceans Workflow within the Internal Joint Initiative.

About this resource

Language: English

Alternative Identifier: 06d77ac-4c92-a213-b59553ce4f5

Creator: University of Salento

Position Name: Researcher

Electronic Mail Address: google.marchetti@unisalento.it

Online URL: <https://www.unisalento.it/it/ricerca/centro-google>

Metadata Provider

Metadata Provider 1: University of Salento

Individual Name: Google

First Name: Google

Surname: Marchetti

Pop_troph_SIA.csv

dataset

It is an intermediate file of the Crustaceans Workflow within the Internal Joint Initiative.

About this resource

Language: English

Alternative Identifier: 79776718-d418-4838-b36d-c15ed8b9b191

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Position Name: Researcher

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Online URL: <https://www.unisalento.it/it/ricerca/centro-google>

Metadata Provider

Metadata Provider 1: University of Salento

Individual Name: Google

First Name: Google

Surname: Marchetti

Link to access the dataset



Demo

Workflow NIS

Dataset input NIS



Name	Surname
David	Smith
Susan	Martins
...	...

Service NIS

Concats the first
two columns of
the input file

Dataset output NIS



Full name
David Smith
Susan Martins
...

In order to correctly put and connect all our NIS resources into the Metadata Catalogue, we need to create:

- the “Dataset input NIS” metadata record
- the “Dataset output NIS” metadata record
- the “Service NIS” metadata record
- the “Workflow NIS” metadata record



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Hands-on

XXX

XXX



XXX



XXX



Just try by yourself!

Create some metadata records and connect them each other.

You have received by email your temporary credentials.

Log in at <https://metadatacatalogue.lifewatch.eu>



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Thank you

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