



The LifeWatch ERIC Biodiversity
& Ecosystem eScience Conference

PLOVDIV, BULGARIA

7-10 JULY 2026

Advancing semantic interoperability through cross-domain services

Presenter: Cristina Di Muri

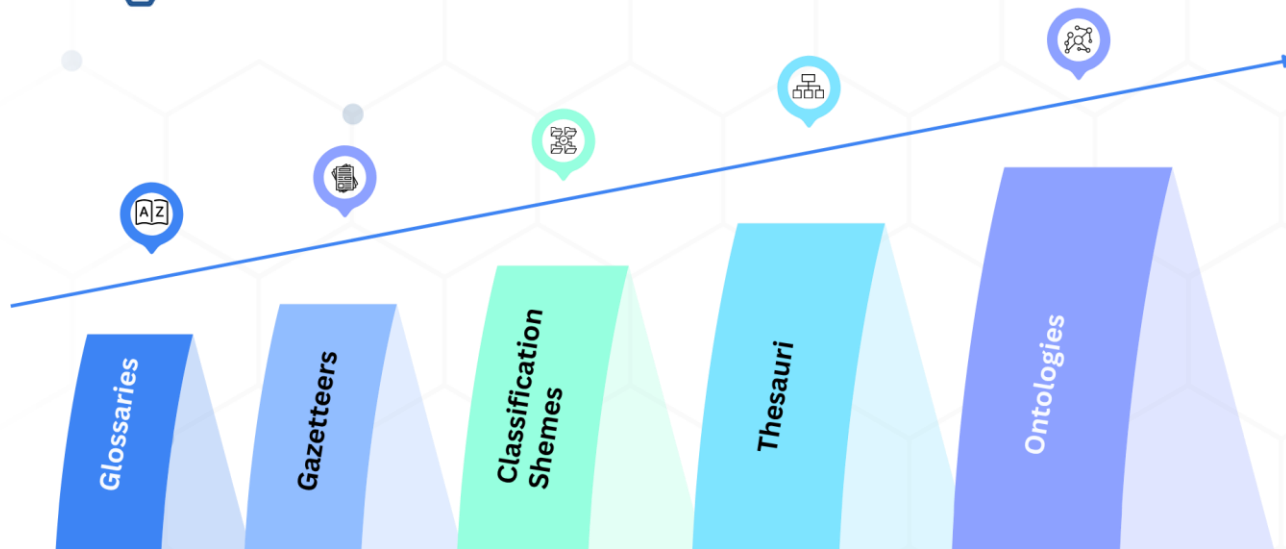


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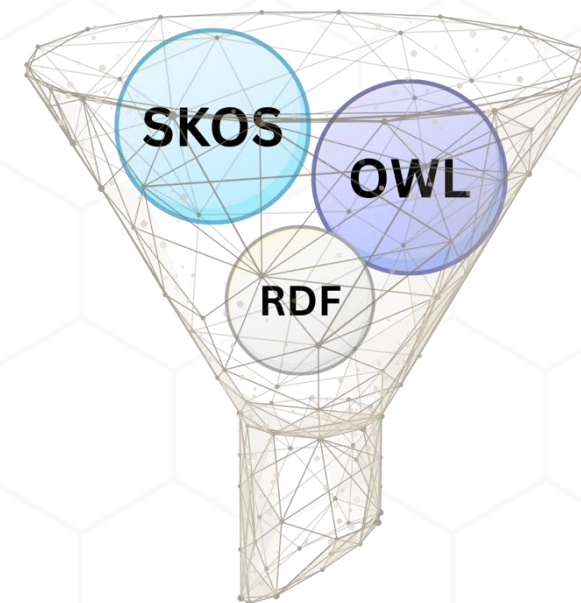
08 July 2026



Semantic artefacts



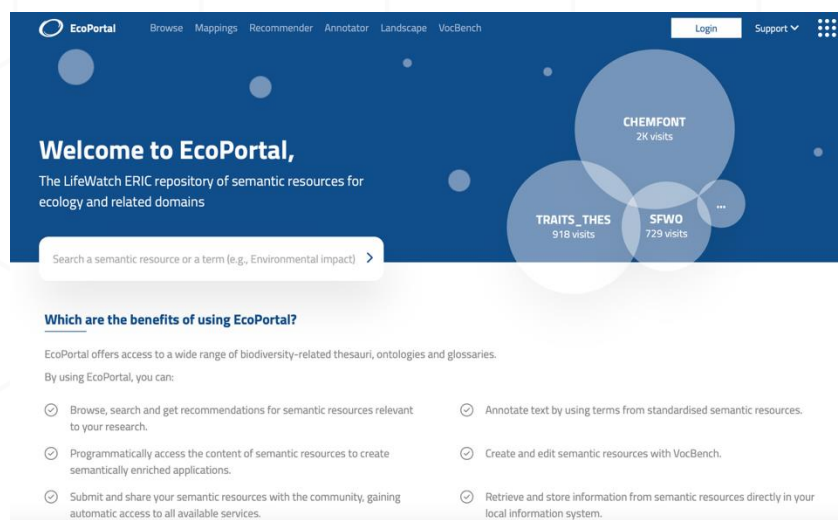
Catalogues of semantic artefacts



Consume



By dwiangga.icon - Flaticon



The screenshot shows the EcoPortal website interface. The header includes navigation links: Browse, Mappings, Recommender, Annotator, Landscape, and VocBench. The main content area features a welcome message and a search bar. A section titled 'Which are the benefits of using EcoPortal?' lists several advantages, such as browsing, searching, and getting recommendations for semantic resources relevant to research.

Welcome to EcoPortal,
The LifeWatch ERIC repository of semantic resources for ecology and related domains

Search a semantic resource or a term (e.g., Environmental impact) >

Which are the benefits of using EcoPortal?

EcoPortal offers access to a wide range of biodiversity-related thesauri, ontologies and glossaries. By using EcoPortal, you can:

- Browse, search and get recommendations for semantic resources relevant to your research.
- Programmatically access the content of semantic resources to create semantically enriched applications.
- Submit and share your semantic resources with the community, gaining automatic access to all available services.
- Annotate text by using terms from standardised semantic resources.
- Create and edit semantic resources with VocBench.
- Retrieve and store information from semantic resources directly in your local information system.

EcoPortal features:

- Access → Browse & Search
- Create & Edit → VocBench
- Submit & Share
- FAIR assessment, Annotator, Recommender

EcoPortal in numbers

78	38K	1M	3K	3	54K	175
Semantic resources	Classes	Individuals	Properties	Projects	Mappings	Users

[See details](#)

EcoPortal part of the OntoPortal Alliance



Catalogues of semantic artefacts
covering different scientific domains and
sharing the same technology

Jonquet C. *et al.* (2023).

Ontology Repositories and Semantic Artefact Catalogues with the OntoPortal Technology.

DOI: [10.1007/978-3-031-47243-5_3](https://doi.org/10.1007/978-3-031-47243-5_3)

EcoPortal part of the OntoPortal Federation



Agronomy and related domains



By Freepik - Flaticon



Ecology and related domains



By dwiangga.icon - Flaticon



Earth sciences



By Freepik - Flaticon



Biodiversity



By tifaeksa - Flaticon



Federated Browse



Federated Search



Federated API



EcoPortal part of the OntoPortal Federation



Agronomy and related domains



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Ecology and related domains



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Earth sciences



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Biodiversity



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Federated Browse



Federated Search



Federated API



Technical federation



Governance & Collaboration

Other catalogues of semantic artefacts based on different technologies and standards...

Domain-specific



Generalist

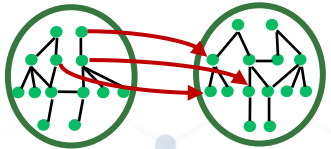


Challenges

Semantic artefacts in environmental sciences



 Distributed in different catalogues → different access points



 Existing redundancies → lack of mappings



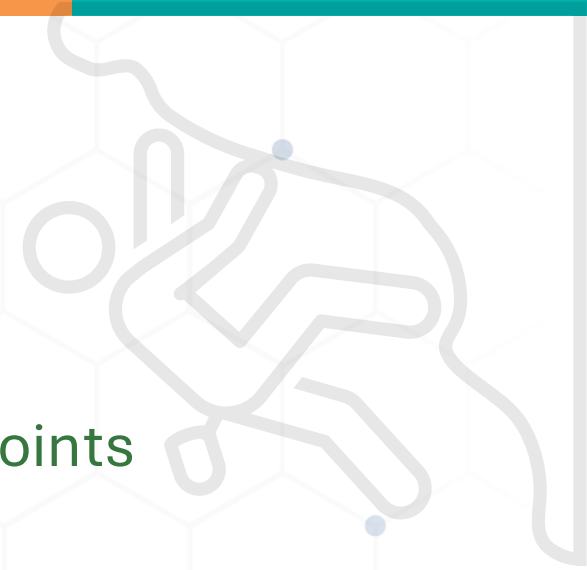
 Inconsistent versioning across catalogues → no version control



 Missing key metadata → lack of FAIRness

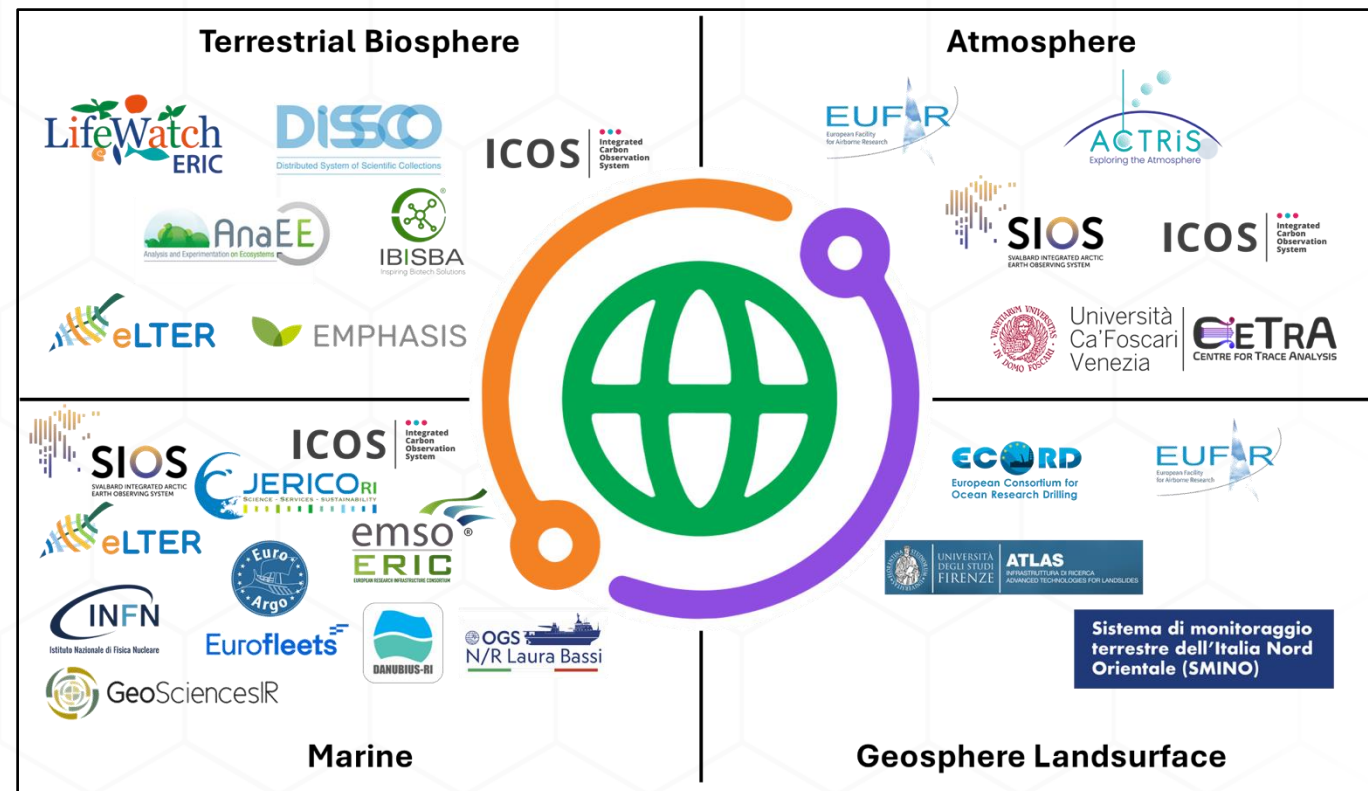


 Often under-used for data annotation → lack of interoperability



ITINERIS – Italian INtegrated Environmental Research Infrastructures System

- 22 Research Infrastructures;
- Scope: Italian Hub of ERIs;
- WP2: Access to facilities, FAIR data and services;
- Activity 2.4: Interdisciplinary semantic interoperability.



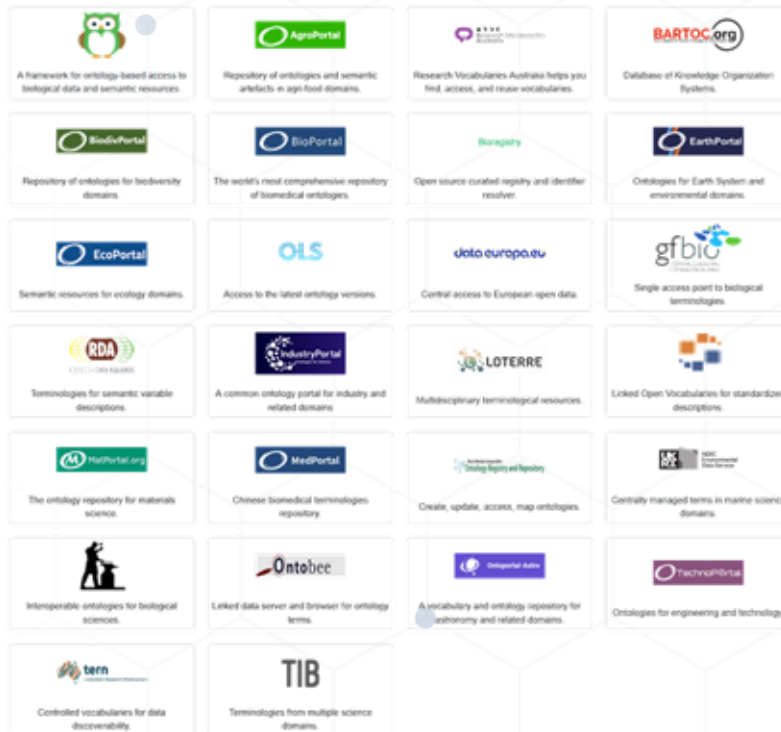
Cross-domain search



By Eucalyp - Flaticon



<https://terminologyservice.itineris.cnr.it/>



Unique access point to distributed semantic artefacts

20 connectors were developed to query 28 catalogues

Discovery capability

Version monitoring capability

Cross-domain annotation



<https://terminologyservice.itineris.cnr.it/>

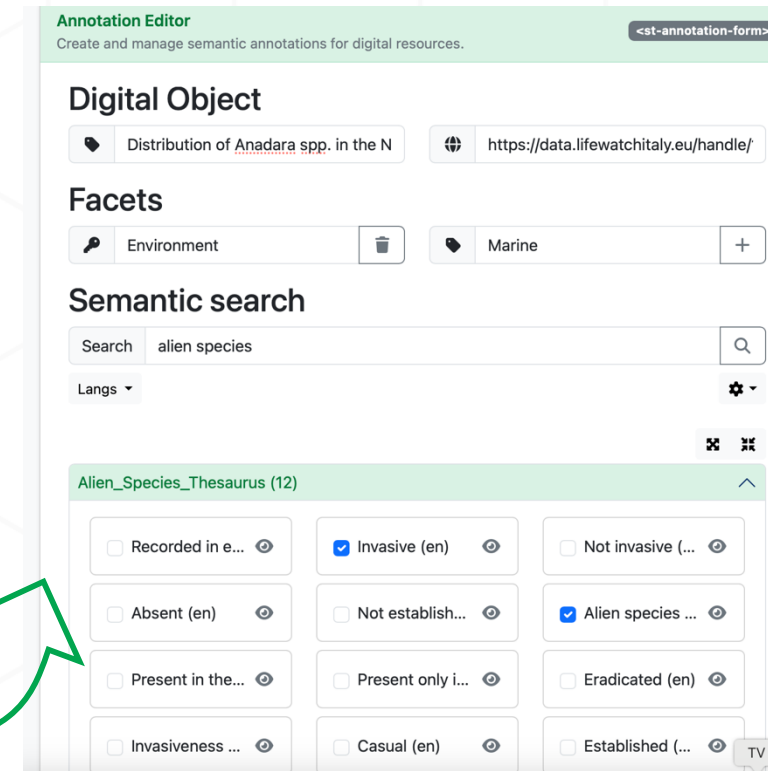


By HAIICON - Flaticon

Search and annotation widgets
available for integration into external applications

- Three use cases:
- LifeWatch Italy Data Portal and
 - LifeWatch Italy Metadata Catalogue
 - ITINERIS metaDATA HUB

Widgets playground available from main website!

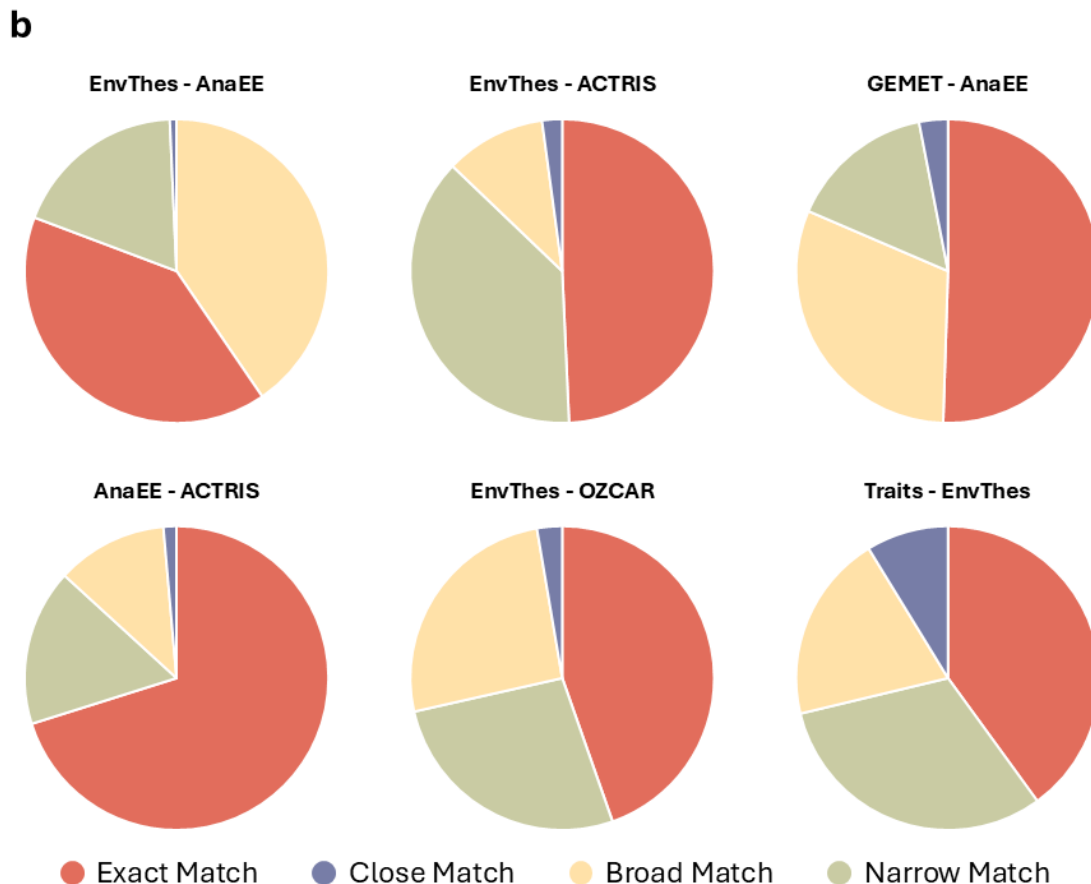
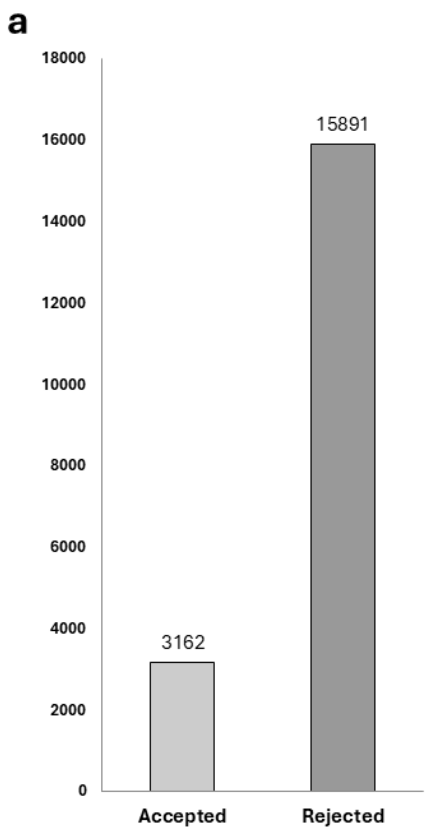


A screenshot of the 'Annotation Editor' web interface. The header shows the title 'Annotation Editor' and a subtitle 'Create and manage semantic annotations for digital resources.' Below this, the 'Digital Object' section contains a dropdown menu with 'Distribution of *Anadara* spp. in the N' and a URL 'https://data.lifewatchitaly.eu/handle/'. The 'Facets' section shows two facets: 'Environment' and 'Marine'. The 'Semantic search' section has a search bar with 'alien species' and a 'Langs' dropdown. Below this is a section titled 'Alien_Species_Thesaurus (12)' containing a grid of checkboxes for various species characteristics, such as 'Recorded in e...', 'Invasive (en)', 'Not invasive (...)', 'Absent (en)', 'Not establish...', 'Alien species ...', 'Present in the...', 'Present only i...', 'Eradicated (en)', 'Invasiveness ...', 'Casual (en)', and 'Established (...)'.

Cross-domain alignment



By brick-stock - Flaticon



Semi-automatic alignment tools



Resource managers and KOS experts engaged in alignment activities



3,162 alignments built for six semantic artefacts considered



Future developments & wishes

Enhancing available services

Continue alignment activities

Engage stakeholders in the adoption of available services

Promote the reuse of existing OPEN approaches and services



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THANK YOU!

Questions?

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