



Bridging Data with Information and Knowledge: Libraries as Data Management Partners

European Commission, Publications Office

July 8, 2025

Connecting the Dots: Linking Research and Discovery Systems at ULiège

François Renaville

University of Liège, ULiège Library

With the help of Lyne Van de Vyvere (ULiège RISE), Judith Biernaux (Belnet / ULiège RISE) and Myriam Bastin (ULiège Library)



Abstract

At the University of Liège Library, ensuring interoperability between research and discovery systems is a central aspect of supporting open science and research workflows. This presentation examines the current state of integration between key platforms in the ULiège research ecosystem: the Alma library system and Primo discovery layer, the ORBi institutional repository for publications, and the ULiège Dataverse for research data. Particular attention is given to the role of persistent identifiers (such as DOIs, Handles, ORCID, and IdRef) and metadata standards (including Dublin Core, MARC, and OAI-PMH) in enabling connections across systems. The presentation outlines the ways in which metadata is shared and reused, the current limitations of cross-platform discovery, and the implications for researcher visibility and citation. Ongoing efforts to improve data quality, automate linking, and expand discoverability are discussed, including the potential integration of software outputs. By highlighting both achievements and unresolved challenges, this presentation aims to contribute to a broader reflection on metadata interoperability in academic institutions.



Interoperability Matters



Supporting research at ULiège

Not just a matter of money or funding

Also about **raising awareness** among researchers

And training in **best practices** is essential

Guiding principles: FAIR data, Open Science, "as open as possible, as closed as necessary"

→ **Training sessions and internal reviews** (GDPR, copyright, ethical issues, metadata completeness...) are organised

But also: Systems need to be well connected and interoperable



Systems involved:

Alma & Primo VE

ORBi (publications)

Dataverse (research data)

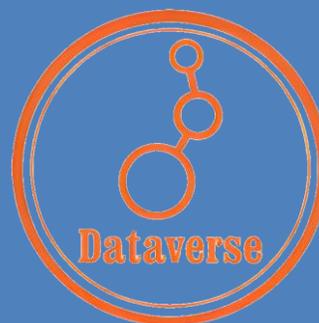


The Ecosystem of Research & Discovery at ULiège



ORBi

Institutional archive for publications (using Handle IDs for records, ROR IDs for funders, ORCID IDs for researchers)



ULiège Dataverse

Research data repository (using DOIs via DataCite and ORCID IDs)



Alma/Primo VE

Library management system and discovery layer (using IdRef authorities in Alma + ORCID IDs from ORBi records)



Key interoperability enablers: persistent identifiers (DOI, ORCID, Handle) and metadata standards (DC, MARC, OAI-PMH)



The Role of Persistent Identifiers

- DOIs (Dataverse), Handles (ORBi), and ORCID IDs ensure:
 - Reliable citation and referencing
 - Cross-platform linking (e.g. from Primo)
 - Attribution and visibility
- These PIDs are the "**connective tissue**" of interoperability.





Linking Publications and Datasets

From ORBi



From ORBi

- The 'Data Set' metadata field can point to a Dataverse DOI, or not to any other data repository.
- Field can be repeated

Data Set 

URL:	<input type="text" value="Dataset persistent URL"/>		
Name:	<input type="text"/>		
Comments:	<input type="text"/>		

- Availability indicated:



ARTICLE (SCIENTIFIC JOURNALS)

Multispecies detection and identification of African mammals in aerial imagery using convolutional neural networks

Delplanque, Alexandre ; Foucher, Samuel; Lejeune, Philippe  *et al.*

2021 • In *Remote Sensing in Ecology and Conservation*, p. 14

 Peer Reviewed verified by ORBi  Dataset

Data Set : **Dataset & Code for paper: "Multispecies detection and identification of African mammals in aerial imagery using convolutional neural networks"**

This dataset contains aerial images, model result files and the code used in the paper: "Multispecies detection and identification of African mammals in aerial imagery using convolutional neural networks". It is divided into 3 main parts: 1) The code, which contains the mmdetection v1.0.0 package as well as the adapted version and Jupyter notebooks; 2) The data ('general_dataset.zip'), which contains all the images and annotations of the general dataset used for training the deep learning models in the paper; 3) The results ('results_files.zip'), which contain the models' outputs on the general dataset.

<https://hdl.handle.net/2268/262566>

Applied Filters

with dataset



References ^

- in open access 680
- with full-text 788
- peer review 595
- editorial reviewed 74

+ See all

Year issued ^

- In press 3
- 2025 61
- 2024 178
- 2023 252
- 2022 236

+ See all

Author ^

- Attia, Shady 29
- Lange, André 24
- Van Droogenbroeck, Marc 16
- Donnet, Benoît 15
- Desset, François 13

+ See all

Document type ^

- Article (Scientific journals) 519
- Textual, factual or bibliographical database (Computer developments) 47
- Paper published in a book 40

LIMIT TO

EXCLUDE



Attia, Shady

Results: 29 ref.



Lange, André

Results: 24 ref.



Van Droogenbroeck, Marc

Results: 16 ref.

SEE MORE AUTHORS >

Results 1-10 of 882



by issue date (descending)



EXPORT



ARTICLE (SCIENTIFIC JOURNALS)

Predicting body length and assessing the shape of tail-propelled Mesozoic marine reptiles

Fischer, Valentin

In press • In *Biology Letters*

Peer Reviewed verified by ORBi

Dataset



ARTICLE (SCIENTIFIC JOURNALS)

Vingt ans de discours médiatiques autour des salles de consommation à moindre risques : analyse textométrique de la presse francophone belge

Roose, Vincent ; André, Sophie ; Jauffret-Roustide, Marie *et al.*

In press • In *Déviance et Société*. 49/1 (1), p. 39-72

Peer reviewed

Dataset



ARTICLE (SCIENTIFIC JOURNALS)

Repenser la Belt and Road Initiative - Une lecture diachronique de la projection économique chinoise

Riga, Dealan

In press • In *The Journal of Cross-Regional Dialogues*

Peer Reviewed verified by ORBi

Dataset

Internal review
for metadata
quality!



OAI - Availability info of the datasets?



- OAI - <https://orbi.uliege.be/oai>
- Metadata Formats: qdc, mods, mets, oai_dc

qdc	mods	mets	oai_dc
None	Main info	Main info	<p>Limited</p> <p>Only the DOI or URL to the dataset</p> <p>Linking to Dataverse is missing if data stored elsewhere</p>
N/A	<pre><mods:relatedItem type="constituent"> <mods:typeOfResource>dataset</mods:typeOfResource> <mods:location> <mods:url>https://doi.org/10.58119/ULG/MIRUU5</mods:url> </mods:location> <mods:titleInfo> <mods:title>Dataset & Code for paper: "Multispecies detection and identification of African mammals in aerial imagery using convolutional neural networks"</mods:tit le> </mods:titleInfo> </mods:relatedItem></pre>		<pre><dc:relation>https://doi.org/10.58119/ULG/MIRUU5</dc:r elation></pre>

ORBi > Primo: Datasets



ORBi's OAI-PMH feed exposes limited data-related metadata



Research data available via ORBi remain invisible in the discovery interface



Primo harvests only publication-level metadata from ORBi (oai_dc is used)



No integration between ORBi datasets and Primo VE at this stage



ARTICLE

Multispecies detection and identification of African mammals in aerial imagery using convolutional neural networks

Delplanque, Alexandre ; Foucher, Samuel ; Lejeune, Philippe ; Linchant, Julie ; Théau, Jérôme

2021 | Remote Sensing in Ecology and Conservation, 14 (2021-07)

Publication / contribution by an ULiège member

PEER REVIEWED OPEN ACCESS

Available Online >

Details

Title	Multispecies detection and identification of African mammals in aerial imagery using convolutional neural networks
Author	Delplanque, Alexandre > Foucher, Samuel > Lejeune, Philippe > Linchant, Julie > Théau, Jérôme >
Creation Date	2021
Publisher	Wiley
Language	English
Description	Survey and monitoring of wildlife populations are among the key elements in nature conservation. The use of unmanned aerial vehicles and light aircrafts as aerial image acquisition systems is growing, as they are cheaper alternatives to
Is Part Of	Remote Sensing in Ecology and Conservation, 14 (2021-07)
Subject	African mammals > CNNs > deep learning > multispecies > UAV > wildlife monitoring > Life sciences > Agriculture & agronomy > Engineering, computing & technology > Sciences du vivant > Agriculture & agronomie > Ingénierie, informatique & technologie >
Type	Article
ORCID	Delplanque, Alexandre Lejeune, Philippe
Identifier	2056-3485 10.1002/rse2.234 oai:orbi.ulg.ac.be:2268/262566 https://orbi.uliege.be/handle/2268/262566
Source	Université de Liège (ORBi)



ORBi > Primo: ORCID

- ULiège researchers can link their ORBi profile with ORCID
 - Done by 2,826 ULiège researchers, as of July 7, 2025
- A link to ORCID is available in their ORBi records

Author, co-author : **Delplanque, Alexandre**  ID; Université de Liège - ULiège > Département GxABT > Gestion des ressources forestières et des milieux naturels
Foucher, Samuel
Lejeune, Philippe  ID; Université de Liège - ULiège > Département GxABT > Gestion des ressources forestières et des milieux naturels
Linchant, Julie  ID; Université de Liège - ULiège > TERRA Research Centre
Théau, Jérôme

- These ORCID IDs are pushed into the OAI output

```
<dc:creator xml:id="https://orcid.org/0000-0003-3722-7076">Delplanque, Alexandre</dc:creator>  
<dc:creator>Foucher, Samuel</dc:creator>  
<dc:creator xml:id="https://orcid.org/0000-0001-9987-9673">Lejeune, Philippe</dc:creator>  
<dc:creator>Linchant, Julie</dc:creator>  
<dc:creator>Théau, Jérôme</dc:creator>
```



- Links to ORCID are displayed in Primo

Type	Article
ORCID	Delplanque, Alexandre  Lejeune, Philippe 
Identifier	2056-3485 10.1002/rse2.234 oai:orbi.ulg.ac.be:2268/262566 https://orbi.uliege.be/handle/2268/262566
Source	Université de Liège (ORBi)

- Displayed in a local field
 - Not possible into the Creator or Contributor fields
- With Discovery Normalization Rules
 - One rule per expected ORCID ID

```
1 rule "Copy local38 ORCID 3".
2 when
3 exist "//*[local-name()='creator'][3]/attribute::xml:id"
4 then
5 copy "concat ('<a target=\"_blank\" href=\"\",//*[local-name()='creator
6 '][3]/attribute::xml:id, '\>',//*[local-name()='creator'][3]/text(), '
7 ', '<img src=\"https://img.lib.uliege.be/primove/orcid_id_17x17.png \
8 \"/>', '</a>')" to "discovery"."local38"
9 end
10
11 rule "Copy local38 ORCID 2".
12 when
13 exist "//*[local-name()='creator'][2]/attribute::xml:id"
14 then
15 copy "concat ('<a target=\"_blank\" href=\"\",//*[local-name()='creator
16 '][2]/attribute::xml:id, '\>',//*[local-name()='creator'][2]/text(), '
17 ', '<img src=\"https://img.lib.uliege.be/primove/orcid_id_17x17.png \
18 \"/>', '</a>')" to "discovery"."local38"
19 end
20
21 rule "Copy local38 ORCID 1".
22 when
23 exist "//*[local-name()='creator'][1]/attribute::xml:id"
24 then
25 copy "concat ('<a target=\"_blank\" href=\"\",//*[local-name()='creator
26 '][1]/attribute::xml:id, '\>',//*[local-name()='creator'][1]/text(), '
27 ', '<img src=\"https://img.lib.uliege.be/primove/orcid_id_17x17.png \
28 \"/>', '</a>')" to "discovery"."local38"
29 end
30
```

How coherent will future ORCID IDs in CDI (if any!) be with local metadata?



Linking Publications and Datasets

From Dataverse



From Dataverse

- The 'Related Publication' metadata field can point to an ORBi handle or journal DOI.
- Field can be repeated
- Possible ID types: ark, arXiv, bibcode, doi, ean13, eissn, handle, isbn, issn, istc, lissn, lsid, pmid, purl, upc, url, urn



Are all these types of identifiers clear to all researchers? Risks of misunderstanding or confusion?

Citation ?



ID Type ?

ID Number ?

URL ?

Dataset & Code for paper: "Multispecies detection and identification of African mammals in aerial imagery using convolutional neural networks"

Version 1.0



Delplanque, Alexandre; Foucher, Samuel; Lejeune, Philippe; Linchant, Julie; Théau, Jérôme, 2023, "Dataset & Code for paper: "Multispecies detection and identification of African mammals in aerial imagery using convolutional neural networks"", <https://doi.org/10.58119/ULG/MIRUU5>, ULiège Open Data Repository, V1, UNF:6:cV/uw5pGcUHZctn8ROmotg== [fileUNF]

[Cite Dataset](#) ▾

[Learn about Data Citation Standards.](#)

[Access Dataset](#) ▾

[Link Dataset](#)

[Contact Owner](#)

[Share](#)

[Dataset Metrics](#) ?

313 Downloads ?

Description ?

This dataset contains aerial images, model result files and the code used in the paper: "Multispecies detection and identification of African mammals in aerial imagery using convolutional neural networks". It is divided into 3 main parts: 1) The code, which contains the mmdetection v1.0.0 package as well as the adapted version and Jupyter notebooks; 2) The data ('general_dataset.zip'), which contains all the images and annotations of the general dataset used for training the deep learning models in the paper; 3) The results ('results_files.zip'), which contain the models' outputs on the general dataset.

Subject ?

Agricultural Sciences; Computer and Information Science; Earth and Environmental Sciences

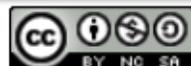
Keyword ?

aerial imagery, wildlife detection, deep learning, african mammals, convolutional neural network

Related Publication ?

Delplanque, A., Foucher, S., Lejeune, P., Linchant, J. and Théau, J. (2022), Multispecies detection and identification of African mammals in aerial imagery using convolutional neural networks. *Remote Sens Ecol Conserv*, 8: 166-179. <https://doi.org/10.1002/rse2.234> doi: [10.1002/rse2.234](https://doi.org/10.1002/rse2.234)

License/Data Use Agreement



CC BY-NC-SA 4.0

In this case, no link to ORBi ☹️, only to the journal page



OAI - Availability info of the Related Publication?

- OAI - <https://dataverse.uliege.be/oai>
- Metadata Formats: oai_dc, oai_datacite



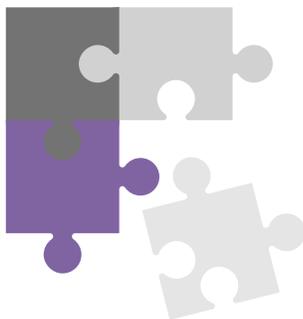
oai_dc	oai_datacite
None	Limited Only the DOI or URL to the publication, no additional info Linking to ORBi is missing if not recorded
N/A	<pre><relatedIdentifiers> <relatedIdentifier relationType="IsCitedBy" relatedIdentifierType="DOI">10.1002/rse2.234</rela tedIdentifier> </relatedIdentifiers></pre>

Dataverse > Primo

- OAI-PMH output from Dataverse has not been integrated into the Primo index (so far)
- As a result, research data from Dataverse is currently not discoverable via Primo

→ On the roadmap!

- With display of ORCID IDs too



```
<OAI-PMH xmlns="http://www.openarchives.org/OAI/2.0/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.openarchives.org/OAI/2.0/ http://www.openarchives.org/OAI/2.0/OAI-PMH.xsd">
  <responseDate>2025-07-04T15:08:25Z</responseDate>
  <request verb="GetRecord" identifier="doi:10.58119/ULG/MIRUU5" metadataPrefix="oai_datacite">https://dataverse.uliege.be/oai</request>
  <GetRecord>
    <record>
      <header>
        <identifier>doi:10.58119/ULG/MIRUU5</identifier>
        <timestamp>2024-10-21T13:59:05Z</timestamp>
      </header>
      <metadata>
        <resource xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://datacite.org/schema/kernel-4"
xsi:schemaLocation="http://datacite.org/schema/kernel-4 http://schema.datacite.org/meta/kernel-4.1/metadata.xsd">
          <identifier identifierType="DOI">10.58119/ULG/MIRUU5</identifier>
          <creators>
            <creator>
              <creatorName nameType="Personal">Delplanque, Alexandre</creatorName>
              <givenName>Alexandre</givenName>
              <familyName>Delplanque</familyName>
              <nameIdentifier nameIdentifierScheme="ORCID">0000-0003-3722-7076</nameIdentifier>
              <affiliation>University of Liège, Gembloux Agro-Bio Tech</affiliation>
            </creator>
            <creator>
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              <givenName>Samuel</givenName>
              <familyName>Foucher</familyName>
              <nameIdentifier nameIdentifierScheme="ORCID">0000-0001-9557-6907</nameIdentifier>
              <affiliation>University of Sherbrooke, Department of applied geomatics</affiliation>
            </creator>
            <creator>
              <creatorName nameType="Personal">Lejeune, Philippe</creatorName>
              <givenName>Philippe</givenName>
              <familyName>Lejeune</familyName>
              <affiliation>University of Liège, Gembloux Agro-Bio Tech</affiliation>
            </creator>
            <creator>
              <creatorName nameType="Personal">Linchant, Julie</creatorName>
              <givenName>Julie</givenName>
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              <affiliation>University of Liège, Gembloux Agro-Bio Tech</affiliation>
            </creator>
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              <givenName>Jérôme</givenName>
              <familyName>Théau</familyName>
              <nameIdentifier nameIdentifierScheme="ORCID">0000-0001-5052-6308</nameIdentifier>
              <affiliation>University of Sherbrooke, Department of applied geomatics</affiliation>
            </creator>
          </creators>
          <titles>
            <title>Dataset & Code for paper: "Multispecies detection and identification of African mammals in aerial imagery using
convolutional neural networks"</title>
          </titles>
        </resource>
      </metadata>
    </record>
  </GetRecord>
</OAI-PMH>
```



Linking Publications and Datasets

Alma & IdRef



IdRef

- ULiège Library has been using the IdRef authority database in Alma since 2020
- IdRef is managed by the French Abes agency
 - With partnering institutions that can create and edit authority records (French universities, ULiège, SLSP...)
- Alma records are linked with IdRef IDs (since 2022)
- A link to the IdRef URI is displayed in Primo

Genre	Thèses et écrits académiques > Academic theses. >
Type	Dissertation
IdRef Authorities	Bauwens, Sébastien, 19..-....  Lejeune, Philippe professeur 1962-....  Gourlet-Fleury, Sylvie, 1962-.... 
Source	Alma ULiège



<http://www.idref.fr/198290403/id>

https://explore.lib.uliege.be/permalink/32ULG_INST/1iuiq0/alma9922874437702321

- Adding IdRef identifiers into ORBi records is under analysis



Level [00]: [00] Default Level Record New 67 MARC21 Bib

LDR 07289nam#a2200325##4500

005 20250704162654.0

008 230911s2022####be#aob###m####000#0#eng#d

040 \$\$a BeLU \$\$b fre \$\$c BeLU \$\$e rda

041 0 \$\$a eng

044 \$\$a be

100 1 \$\$a Bauwens, Sébastien, \$\$d 19...-...., \$\$e auteur \$\$2 idref \$\$4 aut \$\$0 (IDREF)271891572 \$\$1 http://www.idref.fr/271891572/id

245 1 0 \$\$a 3D stem modelling in tropical forest : \$\$b towards improved biomass and biomass change estimates / \$\$c Sébastien Bauwens.

246 1 1 \$\$a Modélisation 3D des troncs irréguliers en forêt tropicale : vers une meilleure estimation de la biomasse et des changements dans la biomasse.

264 0 \$\$c 2022.

300 \$\$a xxii, 122 pages : \$\$b illustrations ; \$\$c 24 cm

336 \$\$a texte \$\$b txt \$\$2 rdacontent

337 \$\$a sans médiation \$\$b n \$\$2 rdamedia

338 \$\$a volume \$\$b nc \$\$2 rdacarrier

500 \$\$a Dissertation originale présentée en vue de l'obtention du grade de docteur en sciences agronomiques et ingénierie biologique.

502 \$\$b (Doctorat) \$\$g Unité de Gestion des Ressources forestières et des Milieux naturels \$\$c Gembloux Agro-Bio Tech, Université de Liège \$\$d 2022.

504 \$\$a Contient des références bibliographiques.

650 7 \$\$a Forêt pluviale. \$\$2 idref \$\$0 (IDREF)184186714 \$\$1 http://www.idref.fr/184186714/id

650 7 \$\$a Modélisation tridimensionnelle \$\$0 (IDREF)052590372 \$\$2 idref \$\$1 http://www.idref.fr/052590372/id

655 7 \$\$a Thèses et écrits académiques \$\$2 idref \$\$0 (IDREF)027253139 \$\$1 http://www.idref.fr/027253139/id

655 7 \$\$a Academic theses. \$\$2 lcgft \$\$0 (DLC)gf2014026039

700 1 \$\$a Lejeune, Philippe \$\$c professeur \$\$d 1962-.... \$\$e superviseur académique \$\$2 idref \$\$4 dgs \$\$0 (IDREF)198290403 \$\$1 http://www.idref.fr/198290403/id

700 1 \$\$a Gourlet-Fleury, Sylvie, \$\$d 1962-.... \$\$e superviseur académique \$\$2 idref \$\$4 dgs \$\$0 (IDREF)052509664 \$\$1 http://www.idref.fr/052509664/id



IdRef Record

Identifiant pérenne de la notice : 198290403 

URI de l'entité : <http://www.idref.fr/198290403/id> 

Notice de type Personne

Point d'accès autorisé

Lejeune, Philippe (1962-.... ; professeur)

Sur le web



Information

(par souci de protection des données à caractère personnel, le jour et le mois de naissance peuvent ne pas être affichés)

Langue d'expression : français

Pays : Belgique

Date de naissance : 1962

Genre : Masculin

Notes

Note publique d'information :

Professeur. Chef de service en charge de l'Unité des Ressources forestières à l'Université de Liège-Gembloux Agro-Bio-Tech

Identifiants externes

 Identifiant ORCID : 0000-0001-9987-9673

 Identifiant VIAF : <http://viaf.org/viaf/4099148947912454950000>

 Identifiant SCOPUS : 8700431500



Notices bibliographiques liées dans le Sudoc



Notices bibliographiques liées dans le catalogue ULiège Library

27 références ULiège Library : Tout voir dans ULiège Library

(affichage limité aux 10 premières références)

- 9922874437702321 3D stem modelling in tropical forest : towards improved biomass and biomass change estimates / Sébastien Bauwens.
- 9923238637502321 Caractérisation des forêts feuillues irrégulières et mélangées d'Ardenne (Belgique) à partir de données de LIDAR aérien / Louise Ledere.
- 990014418160502321 Choisir un scénario sylvicole pour les mélèzes. [S.l.] : [s.n.], 2002.
- 990016348800502321 Contribution à l'étude du comportement du sanglier en présence de nourrissage : cas des déplacements nocturnes au sein du massif de Saint Hubert / Gaëtan Tomaszkiwicz. [S.l.] : [chez l'auteur], 2009.
- 990014367580502321 Croissance et rentabilité des plantations de douglas en Région Wallonne. [S.l.] : [s.n.], 2000.
- 9919364183302321 Development of a methodology to map trees to harvest in low volume stands / Maxim Philipps.
- 990014417520502321 Développement de modèles prédictifs des proportions de duramen et d'écorce des espèces de mélèze cultivées en zones de basse altitude en Europe de l'Ouest (Larix kaempferi (Lambert) Carr., Larix decidua Miller et Larix eurolepis Henry). [S.l.] : [s.n.], 2003.
- 990014003910502321 Elaboration d'une banque de données cartographiques à vocation agronomique. 1988.
- 9919362187002321 Élaboration d'une cartographie de la capacité d'accueil pour le cerf à l'échelle des entités de gestion cynégétique validée par une série d'indicateurs de la performance physique des individus / Romain Candaele.
- 990014340870502321 Elaboration de courbes de croissance en hauteur dominante pour les mélèzes (Larix decidua Mill. et Larix kaempferi (Lamb.) Carr.) en Belgique méridionale. [S.l.] : [s.n.], 1999.

ID-based linking

(from IdRef IDs in Alma, via SRU server)



Articles et références dans HAL



Publications et communications dans ORBi

282 références ORBi :

(affichage limité aux 10 premières références)

- 40073 Lejeune Philippe, Lecomte Hugues, Prevot Hugues . Utilisation d'un S.I.G . pour la gestion des ressources forestières : exemple d'application à un inventaire forestier régional .
- 40073 Lejeune Philippe, Lecomte Hugues, Prevot Hugues. Utilisation d'un S.I.G. pour la gestion des ressources forestières : exemple d'application à un inventaire forestier régional.
- 61745 Lejeune Philippe . Modélisation de la croissance et du développement de peuplements forestiers d'âges multiples : application à la hêtraie wallonne. . 1994
- 61745 Lejeune Philippe. Modélisation de la croissance et du développement de peuplements forestiers d'âges multiples : application à la hêtraie wallonne.. 1994
- 61745 Lejeune Philippe . Modélisation de la croissance et du développement de peuplements forestiers d'âges multiples : application à la hêtraie wallonne. . 1994.
- 36373 Lejeune Philippe, Rondeux Jacques, Hebert Jacques . Evolution des principaux types d'aides à la décision en matière de gestion forestière. .
- 36373 Lejeune Philippe, Rondeux Jacques, Hebert Jacques. Evolution des principaux types d'aides à la décision en matière de gestion forestière..
- 99078 Lejeune Philippe, Hebert Jacques, Rondeux Jacques . Systèmes d'aide à la décision en gestion forestière . 1996
- 99078 Lejeune Philippe, Hebert Jacques, Rondeux Jacques. Systèmes d'aide à la décision en gestion forestière. 1996
- 40079 Rondeux Jacques, Lejeune Philippe, Thibaut André, Claessens Hugues . Tarifs de cubage et paramètres de forme . L'aune glutineux. .

Text-based linking

- Via OAI-PMH
- Work in progress (by Abes)
- Not based on ORCID
- More errors possible (homonyms)
- Possible duplicates

Abes still working on it



Articles et références dans ORCID



Challenges & Opportunities



Possibilities for Improvement

Automated Links and Integrations

- Often, datasets are added after articles, or vice versa
- Links are not always added by submitters
- Better linking workflows between ORBi and Dataverse: Automatically notifying authors to link ORBi and Dataverse when both exist?
- Harvesting of Dataverse into Primo

More data in more OAI formats

- Info is limited in the OAI outputs
- Adding the entire Citation for better discoverability
 - But limited availability within the IT team!



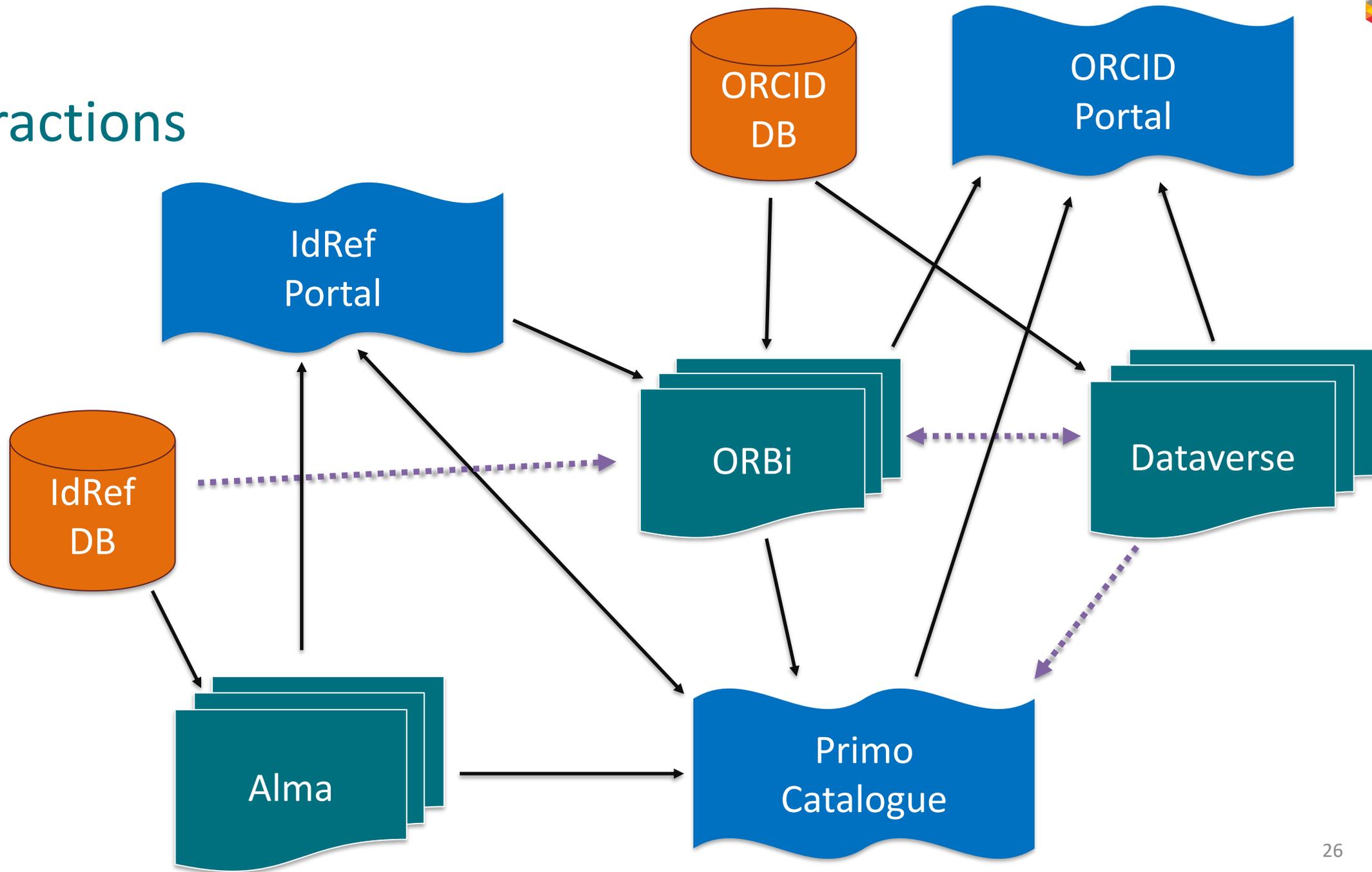
Possibilities for Improvement

What about open-source code?

- Code is often produced by different contributors than the data or paper authors.
 - Licensing models for software differ significantly and usually require separate publication
 - Need to strengthen connections between datasets and open-source code publications
 - Currently lacking a dedicated code repository with persistent identifiers
-
- Future goal: enable links from Dataverse datasets to related software publications (source code)
 - Ongoing discussions with Software Heritage to assign long-term identifiers (similar to DOIs) for source code



Interactions





Key Takeaways

- ULiège Dataverse and ORBi offer tailored support and quality control
- The library management system and discovery solution are part of the ecosystem
- Our systems are becoming more interconnected
- Identifiers and metadata standards are foundational
- The journey toward full interoperability is ongoing...





Further Readings

- Biernaux, J. (2023, October 27). *An ULiège research data repository – the ULiège Dataverse* [Paper presentation]. ULiège Open Science Day. <https://hdl.handle.net/2268/308479>
- Gruenpeter, M. (2025, February 20). *Building a community driven vision for Research Software (Marketplace presentation)*. Zenodo. <https://doi.org/10.5281/zenodo.15072665>
- Le Provost, A., Nicolas, Y., Mistral, F. (2017, August). *Linking to IdRef. A read/write network of authority data for/by humans and machine* [Paper presentation]. IFLA World Library and Information Congress 83th IFLA General Conference and Assembly, Aug 2017, Wrocław, Poland. <https://hal.science/hal-02139256>
- ORBi (n.d.). *OAI-PMH*. <https://orbi.uliege.be/page/oai-pmh-output>
- Richelle, L., Goukens, M., De Groof, R., & Renaville, F. (2022, September 14). *Enriching and aligning Alma bibliographic records with IdRef authority file: the ULiège Library experience* [Paper presentation]. Linked Data and International Standards for Cultural Heritage, Brussels, Belgium. <https://hdl.handle.net/2268/295105>
- Wilkinson, M., Dumontier, M., Aalbersberg, I. et al. (2016). The FAIR Guiding Principles for scientific data management and stewardship. *Sci Data* 3, 160018. <https://doi.org/10.1038/sdata.2016.18>