

## D12 – DELIVERABLE 4.2.0

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**Local zoological provider software and metadata mapping functional for all data sources**

**D12 – C4.2.0**

**Consistent with MS09**

**Revision: 4a**

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P	Public	X
C	Confidential, only for members of the consortium and the Commission Services	

## 0 REVISION AND DISTRIBUTION HISTORY AND STATEMENT OF ORIGINALITY

### Revision History

Revision	Date	Author	Organisation	Description
Draft 1 C4.2.0/C5.2.0	2012-07-03	B. Jacob, J. Hoffmann, M. Kempa, F. Theeten	MRAC, MFN, IBSAS	First draft, including information on provider software technical set-up
Draft 2 C4.2.0/C5.2.0	2012-08-06	B. Jacob, F. Theeten	MRAC	Inclusion of discussion outcomes and recommendation, update of provider software technical set-up
Draft 3 only C4.2.0	2012-08-13	J. Hoffmann, B. Jacob	MFN, MRAC	Incorporation of changes and comments from WP4 and WP5 coordination team
Draft 4 only C4.2.0	2012-08-21	J. Hoffmann, B. Jacob, W. Addink	MfN, MRAC, ETI	Incorporation of changes, comments and further explanations from NM, BGBM, ETI, LANDOOE and BioCAsE Helpdesk
4a	2012-08-30	Coordination Team	BGBM	Minor editing

### Statement of Originality

This deliverable contains original unpublished work except where clearly indicated otherwise. Acknowledgement of previously published material and of the work of others has been made through appropriate citation, quotation or both.

### Distribution

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WP4 Content Providers, BioCAsE Helpdesk	2012-08-14	Draft 3	YES
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## 1 INTRODUCTION

This deliverable documents the status of the technical set up for the local content provision in Work package 4 (WP4) for zoological, paleontological, mineralogical and anthropological content by the end of project month 18. In particular, this addresses the installation of the BioCASE Provider Software<sup>1</sup> (BPS) and the completion of the mapping of at least one data source per WP4 content provider to the ABCD schema<sup>2</sup> (Access to Biological Collection Databases) or its extension ABCDEFG<sup>3</sup> (Access to Biological Collection Databases Extended for Geosciences).

The BPS allows harvesting of the content provider's data sources by the OpenUp! harvesting tool (HIT). The metadata is then stored in a centralized OpenUp! metadatabase serving as the basis for the transformation process to ESE (Europeana Semantic Elements). The most recent version of the BPS is version 3.2, but older versions are still in use among partners of the OpenUp! project without any problems<sup>4</sup>.

The Natural History domain standard ABCD and its extension ABCDEFG were chosen to unify the content provider's metadata available in a number of different metadata schemas and providing a standardized basis for the transformation to the Europeana standards ESE and in a next step to EDM<sup>5</sup> (Europeana Data Model). The ABCD schema is an accepted standard of the organization of Biodiversity Information Standards (TDWG) and widely used to provide data to the Global Biodiversity Information Facility<sup>6</sup> (GBIF). In OpenUp! ABCD 2.06 is used. Furthermore, the EFG extension of the ABCD schema (ABCDEFG 1.0) was chosen as the standard for paleontological, mineralogical and anthropological content in the OpenUp! project<sup>7</sup>.

A general transformation schema of ABCD 2.06 to ESE was developed in the OpenUp! project, which is documented in the OpenUp! Guidelines<sup>8</sup>. It is continuously updated accommodating content providers and Europeana requirements and was extended by the EFG concepts relevant for paleontological, mineralogical and anthropological content<sup>9</sup>. Quality assurance of provider's metadata mappings, for example check of mandatory concepts, takes place along the framework provided by the transformation schema.

The BioCASE Monitor Service<sup>10</sup> was developed by WP4 and WP7 in OpenUp! and allows a constant monitoring of multimedia objects by partner and data source provided through the BPS installation. Furthermore, it enables a quick and easy quality check of the content provider's mappings<sup>11</sup>. Because of the identical technical setup (BPS, ABCD standard) and, in some cases, the provision of zoological and botanical

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<sup>1</sup> BPS description: [http://www.biocase.org/products/provider\\_software/](http://www.biocase.org/products/provider_software/)

<sup>2</sup> ABCD schema description: <http://www.tdwg.org/standards/115/>

<sup>3</sup> ABCDEFG schema description: <http://www.geocase.eu/efg>

<sup>4</sup> BPS version history: <http://wiki.bgbm.org/bps/index.php/VersionHistory>

<sup>5</sup> OpenUp! C3.2.1 - Domain specific vocabularies for EUROPEANA - interim Concept for inclusion of domain specific metadata vocabularies and contribution to improving access to scientific information via EDM (Version 1)

<sup>6</sup> <http://www.gbif.org/>

<sup>7</sup> OpenUp! C4.5.0 - Model for the integration of content from the areas of paleontology and mineralogy, M9: [http://open-up.eu/sites/open-up.eu/files/u2/C450\\_Model\\_for\\_the\\_integration\\_of\\_content\\_palaontology\\_mineralogy\\_NM.pdf](http://open-up.eu/sites/open-up.eu/files/u2/C450_Model_for_the_integration_of_content_palaontology_mineralogy_NM.pdf)

<sup>8</sup> D09 – Deliverable 7.1.4 Guidelines for users and content providers v.1:

[http://open-up.eu/sites/open-up.eu/files/u2/D09-D714\\_Guidelines\\_for\\_users\\_and\\_content\\_providers\\_v1\\_MRAC.PDF](http://open-up.eu/sites/open-up.eu/files/u2/D09-D714_Guidelines_for_users_and_content_providers_v1_MRAC.PDF)

<sup>9</sup> Standard conformance (Europeana): <http://open-up.eu/content/transformation-and-standard-conformance-europeana>

<sup>10</sup> BioCASE Monitor Service v.1: <http://edit.africamuseum.be/biocasemonitor/>

<sup>11</sup> OpenUp! C4.4.1 - Data quality check feedback (zoology) (Draft)

content by the same content provider the Monitor Service is commonly used by both OpenUp! Work packages, WP4 (zoology) and WP5 (botany).

## 2 OVERVIEW OF TECHNICAL STATUS

This chapter shows the state-of-the-art of the BPS technical set-up and the mapping of the data sources to ABCD/ABCDEFG in compliance with ESE in WP4.

The information on the content provider's BPS installations and data sources have been continuously compiled in a working document ("Data Provision Plan: Technical Setup") since the beginning of the project. In addition, the BioCAsE Monitor Service v.1 has been developed to monitor the number of multimedia objects provided via the BPS per data source and to perform compliance check (ABCD to ESE) of the provider's mappings. This is an ongoing process as continuously new data sources are added by OpenUp! content providers and new content providers will be connected in future.

The minimum requirement for completion of Milestone 09 is the successful installation of the BPS and the set-up of an ESE compliance mapping of at least one data source per WP4 content provider as proof of concept.

### 2.1 Provider software technical set-up

Table 1 gives an overview over the technical set-up of the BPS of all WP4 content providers. Currently, all 12 partners have set up a BPS and provided an access point URL.

**Table 1: Overview of BPS installations of all WP4 content providers, status: August 28<sup>th</sup>, 2012.**

Beneficiary No.	Acronym	Access point URL (public)	BPS version
2	NHM	<a href="http://services.nhm.ac.uk/BioCAsE/">http://services.nhm.ac.uk/BioCAsE/</a>	3.0
3	MFN	<a href="http://biocase.naturkundemuseum-berlin.de/current/index.cgi">http://biocase.naturkundemuseum-berlin.de/current/index.cgi</a>	2.6.0
6	MRAC	<a href="http://193.190.223.55/biocase_rmca/">http://193.190.223.55/biocase_rmca/</a>	3.1
7	NM	<a href="http://pm.nm.cz/biocase/">http://pm.nm.cz/biocase/</a>	3.0 RC2
8	ETI	<a href="http://openup.etibioinformatics.nl/biocase/">http://openup.etibioinformatics.nl/biocase/</a>	2.6.0
9	ZMFK	<a href="http://biocase.zfmk.de/">http://biocase.zfmk.de/</a>	2.6.0
10	RBINS	<a href="http://biocase.biodiversity.be/">http://biocase.biodiversity.be/</a>	3.1
12	UCPH	<a href="http://develprovider.danbif.dk/biocase/">http://develprovider.danbif.dk/biocase/</a>	3.0
15	UH	<a href="http://pontikka.fmnh.helsinki.fi/biocase/">http://pontikka.fmnh.helsinki.fi/biocase/</a>	3.0
17	NCBN	<a href="http://openup.naturalis.nl/biocase/">http://openup.naturalis.nl/biocase/</a> <a href="http://132.229.167.153:8080/biocase/">http://132.229.167.153:8080/biocase/</a> (test)	3.2
20	UT-NHM	<a href="http://hermes.ut.ee/biocase/">http://hermes.ut.ee/biocase/</a>	3.2
23	LandOOE	<a href="http://www.zobodat.at/biocase/">http://www.zobodat.at/biocase/</a>	3.0

## 2.2 Mapping

Table 2 lists information on the data sources of each WP4 content provider. Currently, all 12 content providers have finalized the mapping of least one data source in compliance with the ESE requirements. In total, we have 58 registered data sets in WP4, where at the moment 57 of them are providing images and have been (test) harvested for Europeana. The variable number of data sources per content provider is discussed in Chapter 3.2.

Occasionally, there is short-term downtime of content provider's servers due to maintenance or updates. Although the majority of the data sources are finalized and no changes are foreseen, data source URLs might be subject to change in the future due to internal institutional decisions. OpenUp! content providers are asked to inform the Work package 4 coordination about these changes well in advanced.

**Table 2: Overview of data source of all WP4 content providers, status: August 30<sup>th</sup>, 2012**

No	Acronym (partner No.)	Data set title	Data source description	Access point URL (public)	Domain	Schema & Version
1	NHM (2)	ABCD_Create	test version	<a href="http://services.nhm.ac.uk/BioCASE/pywrapper.cgi?dsa=ABCD_Create">http://services.nhm.ac.uk/BioCASE/pywrapper.cgi?dsa=ABCD_Create</a>	Zoology & Paleontology	ABCD 2.06
2	MFN (3)	Tierstimmenarchiv	Animal Sound Archive Berlin	<a href="http://biocase.naturkundemuseum-berlin.de/current/pywrapper.cgi?dsa=tierstimmenarchiv">http://biocase.naturkundemuseum-berlin.de/current/pywrapper.cgi?dsa=tierstimmenarchiv</a>	Zoology	ABCD 2.06
3	MFN (3)	GloBIS_img_MfN	Global Butterfly Information System (GloBIS)	<a href="http://biocase.naturkundemuseum-berlin.de/current/pywrapper.cgi?dsa=GloBIS_img_MfN">http://biocase.naturkundemuseum-berlin.de/current/pywrapper.cgi?dsa=GloBIS_img_MfN</a>	Zoology	ABCD 2.06
4	MRAC (6)	RMCA_Amphibians_OpenUp	Holotypes of Amphibians from RMCA's Herpetology collection	<a href="http://193.190.223.55/biocase_rmca/pywrapper.cgi?dsa=RMCA_Amphibians_OpenUp">http://193.190.223.55/biocase_rmca/pywrapper.cgi?dsa=RMCA_Amphibians_OpenUp</a>	Zoology	ABCD 2.06
5	NM (7)	Anthropology	Anthropological collection of the National Museum	<a href="http://pm.nm.cz/biocase/pywrapper.cgi?dsa=Anthropology">http://pm.nm.cz/biocase/pywrapper.cgi?dsa=Anthropology</a>	Anthropology	ABCDEFG 2.06
6	NM (7)	Botany	Botanical collection of the National Museum	<a href="http://pm.nm.cz/biocase/pywrapper.cgi?dsa=Botany">http://pm.nm.cz/biocase/pywrapper.cgi?dsa=Botany</a>	Botany	ABCD 2.06
7	NM (7)	Entomology	Entomological collection of the National Museum	<a href="http://pm.nm.cz/biocase/pywrapper.cgi?dsa=Entomology">http://pm.nm.cz/biocase/pywrapper.cgi?dsa=Entomology</a>	Entomology	ABCD 2.06
8	NM (7)	Mineralogy	Mineralogical collection of the National Museum	<a href="http://pm.nm.cz/biocase/pywrapper.cgi?dsa=Mineralogy">http://pm.nm.cz/biocase/pywrapper.cgi?dsa=Mineralogy</a>	Mineralogy	ABCDEFG 2.06
9	NM (7)	Paleontologie Fauna	Paleontological collection of the National Museum	<a href="http://pm.nm.cz/biocase/pywrapper.cgi?dsa=Paleontologie_Fauna">http://pm.nm.cz/biocase/pywrapper.cgi?dsa=Paleontologie_Fauna</a>	Paleontology	ABCDEFG 2.06

No	Acronym (partner No.)	Data set title	Data source description	Access point URL (public)	Domain	Schema & Version
10	NM (7)	Paleontologie Flora	Paleontological collection of the National Museum	<a href="http://pm.nm.cz/biocase/pywrapper.cgi?dsa=PaleontologieFlora">http://pm.nm.cz/biocase/pywrapper.cgi?dsa=PaleontologieFlora</a>	Paleontology	ABCDEFGG 2.06
11	NM (7)	Zoology	Zoological collection of the National Museum	<a href="http://pm.nm.cz/biocase/pywrapper.cgi?dsa=Zoology">http://pm.nm.cz/biocase/pywrapper.cgi?dsa=Zoology</a>	Zoology	ABCD 2.06
12	ETI (8)	AEI_Agro	Arthropods of Economic Importance: Agromyzidae of the World	<a href="http://openup.etibioinformaticsnl/biocase/pywrapper.cgi?dsa=AEI_Agro">http://openup.etibioinformaticsnl/biocase/pywrapper.cgi?dsa=AEI_Agro</a>	Zoology	ABCD 2.06
13	ETI (8)	AEI_Diasp	Arthropods of Economic Importance: Diaspididae of the World	<a href="http://openup.etibioinformaticsnl/biocase/pywrapper.cgi?dsa=AEI_Diasp">http://openup.etibioinformaticsnl/biocase/pywrapper.cgi?dsa=AEI_Diasp</a>	Zoology	ABCD 2.06
14	ETI (8)	AEI_ET	Arthropods of Economic Importance: Eurasian Tortricidae	<a href="http://openup.etibioinformaticsnl/biocase/pywrapper.cgi?dsa=AEI_ET">http://openup.etibioinformaticsnl/biocase/pywrapper.cgi?dsa=AEI_ET</a>	Zoology	ABCD 2.06
15	ETI (8)	Bats	Bats of the Indian Subcontinent	<a href="http://openup.etibioinformaticsnl/biocase/pywrapper.cgi?dsa=Bats">http://openup.etibioinformaticsnl/biocase/pywrapper.cgi?dsa=Bats</a>	Zoology	ABCD 2.06
16	ETI (8)	BRIS	Bird Remains Identification System	<a href="http://openup.etibioinformaticsnl/biocase/pywrapper.cgi?dsa=BRIS">http://openup.etibioinformaticsnl/biocase/pywrapper.cgi?dsa=BRIS</a>	Zoology	ABCD 2.06
17	ETI (8)	Bloch	Bloch's Fishes (1782-1795) revisited	<a href="http://openup.etibioinformaticsnl/biocase/pywrapper.cgi?dsa=Bloch">http://openup.etibioinformaticsnl/biocase/pywrapper.cgi?dsa=Bloch</a>	Zoology	ABCD 2.06
18	ETI (8)	Brac	Braconidae - An illustrated key to all subfamilies	<a href="http://openup.etibioinformaticsnl/biocase/pywrapper.cgi?dsa=Brac">http://openup.etibioinformaticsnl/biocase/pywrapper.cgi?dsa=Brac</a>	Zoology	ABCD 2.06
19	ETI (8)	ChirEx	Chironomidae exuviae - A key to pupal exuviae of the West Palaearctic Region	<a href="http://openup.etibioinformaticsnl/biocase/pywrapper.cgi?dsa=ChirEx">http://openup.etibioinformaticsnl/biocase/pywrapper.cgi?dsa=ChirEx</a>	Zoology	ABCD 2.06
20	ETI (8)	ChirLarv	Chironomidae Larvae - Key to the Higher Taxa and Species of the Lowlands of NW Europe	<a href="http://openup.etibioinformaticsnl/biocase/pywrapper.cgi?dsa=ChirLarv">http://openup.etibioinformaticsnl/biocase/pywrapper.cgi?dsa=ChirLarv</a>	Zoology	ABCD 2.06
21	ETI (8)	Cop	Copepods - Aetideidae of the World Ocean	<a href="http://openup.etibioinformaticsnl/biocase/pywrapper.cgi?dsa=Cop">http://openup.etibioinformaticsnl/biocase/pywrapper.cgi?dsa=Cop</a>	Zoology	ABCD 2.06

No	Acronym (partner No.)	Data set title	Data source description	Access point URL (public)	Domain	Schema & Version
22	ETI (8)	CrabsJ	Crabs of Japan	<a href="http://openup.etibioinformati.cs.nl/biocase/pywrapper.cgi?dsa=CrabsJ">http://openup.etibioinformati.cs.nl/biocase/pywrapper.cgi?dsa=CrabsJ</a>	Zoology	ABCD 2.06
23	ETI (8)	DecCh	Decápodos de Chile	<a href="http://openup.etibioinformati.cs.nl/biocase/pywrapper.cgi?dsa=DecCh">http://openup.etibioinformati.cs.nl/biocase/pywrapper.cgi?dsa=DecCh</a>	Zoology	ABCD 2.06
24	ETI (8)	IntDuik	De Interactieve Duikgids - Nederland onder water gezien	<a href="http://openup.etibioinformati.cs.nl/biocase/pywrapper.cgi?dsa=IntDuik">http://openup.etibioinformati.cs.nl/biocase/pywrapper.cgi?dsa=IntDuik</a>	Zoology	ABCD 2.06
25	ETI (8)	Euph	Euphausiids of the World Ocean	<a href="http://openup.etibioinformati.cs.nl/biocase/pywrapper.cgi?dsa=Euph">http://openup.etibioinformati.cs.nl/biocase/pywrapper.cgi?dsa=Euph</a>	Zoology	ABCD 2.06
26	ETI (8)	FaMaIMRC	Fauna Malesiana, Indo-Malayan reef corals	<a href="http://openup.etibioinformati.cs.nl/biocase/pywrapper.cgi?dsa=FaMaIMRC">http://openup.etibioinformati.cs.nl/biocase/pywrapper.cgi?dsa=FaMaIMRC</a>	Zoology	ABCD 2.06
27	ETI (8)	FELAMW	Fish Eggs and Larvae from Asian Mangrove Waters	<a href="http://openup.etibioinformati.cs.nl/biocase/pywrapper.cgi?dsa=FELAMW">http://openup.etibioinformati.cs.nl/biocase/pywrapper.cgi?dsa=FELAMW</a>	Zoology	ABCD 2.06
28	ETI (8)	FNAM	Fishes of the NE Atlantic and the Mediterranean	<a href="http://openup.etibioinformati.cs.nl/biocase/pywrapper.cgi?dsa=FNAM">http://openup.etibioinformati.cs.nl/biocase/pywrapper.cgi?dsa=FNAM</a>	Zoology	ABCD 2.06
29	ETI (8)	FONWE	Freshwater Oligochaeta of North-West Europe	<a href="http://openup.etibioinformati.cs.nl/biocase/pywrapper.cgi?dsa=FONWE">http://openup.etibioinformati.cs.nl/biocase/pywrapper.cgi?dsa=FONWE</a>	Zoology	ABCD 2.06
30	ETI (8)	IEu	Insecten van Europa	<a href="http://openup.etibioinformati.cs.nl/biocase/pywrapper.cgi?dsa=IEu">http://openup.etibioinformati.cs.nl/biocase/pywrapper.cgi?dsa=IEu</a>	Zoology	ABCD 2.06
31	ETI (8)	IntButEu	Interactive Guide to Butterflies of Europe	<a href="http://openup.etibioinformati.cs.nl/biocase/pywrapper.cgi?dsa=IntButEu">http://openup.etibioinformati.cs.nl/biocase/pywrapper.cgi?dsa=IntButEu</a>	Zoology	ABCD 2.06
32	ETI (8)	Krom	Nature and Culture in the Tropics, Krommenhoek	<a href="http://openup.etibioinformati.cs.nl/biocase/pywrapper.cgi?dsa=Krom">http://openup.etibioinformati.cs.nl/biocase/pywrapper.cgi?dsa=Krom</a>	Botany	ABCD 2.06
33	ETI (8)	LMC	Lemurs of Madagascar and the Comoros	<a href="http://openup.etibioinformati.cs.nl/biocase/pywrapper.cgi?dsa=LMC">http://openup.etibioinformati.cs.nl/biocase/pywrapper.cgi?dsa=LMC</a>	Zoology	ABCD 2.06
34	ETI (8)	MBNS	Macrobenthos of the North Sea	<a href="http://openup.etibioinformati.cs.nl/biocase/pywrapper.cgi?dsa=MBNS">http://openup.etibioinformati.cs.nl/biocase/pywrapper.cgi?dsa=MBNS</a>	Zoology	ABCD 2.06
35	ETI (8)	MLW	Marine Lobsters of the World	<a href="http://openup.etibioinformati.cs.nl/biocase/pywrapper.cgi?dsa=MLW">http://openup.etibioinformati.cs.nl/biocase/pywrapper.cgi?dsa=MLW</a>	Zoology	ABCD 2.06
36	ETI (8)	MaMa	Marine Mammals of the World	<a href="http://openup.etibioinformati.cs.nl/biocase/pywrapper.cgi?dsa=MaMa">http://openup.etibioinformati.cs.nl/biocase/pywrapper.cgi?dsa=MaMa</a>	Zoology	ABCD 2.06



No	Acronym (partner No.)	Data set title	Data source description	Access point URL (public)	Domain	Schema & Version
37	ETI (8)	MPW	Marine Planarians of the World	<a href="http://openup.etibiointformatics.nl/biocase/pywrapper.cgi?dsa=MPW">http://openup.etibiointformatics.nl/biocase/pywrapper.cgi?dsa=MPW</a>	Zoology	ABCD 2.06
38	ETI (8)	MPO	Marine Planktonic Ostracods	<a href="http://openup.etibiointformatics.nl/biocase/pywrapper.cgi?dsa=MPO">http://openup.etibiointformatics.nl/biocase/pywrapper.cgi?dsa=MPO</a>	Zoology	ABCD 2.06
39	ETI (8)	Mormyr	Mormyridae and other Osteoglossomorpha	<a href="http://openup.etibiointformatics.nl/biocase/pywrapper.cgi?dsa=Mormyr">http://openup.etibiointformatics.nl/biocase/pywrapper.cgi?dsa=Mormyr</a>	Zoology	ABCD 2.06
40	ETI (8)	NASC	North Australian Sea Cucumbers	<a href="http://openup.etibiointformatics.nl/biocase/pywrapper.cgi?dsa=NASC">http://openup.etibiointformatics.nl/biocase/pywrapper.cgi?dsa=NASC</a>	Zoology	ABCD 2.06
41	ETI (8)	ONSF	Otoliths of North Sea Fish	<a href="http://openup.etibiointformatics.nl/biocase/pywrapper.cgi?dsa=ONSF">http://openup.etibiointformatics.nl/biocase/pywrapper.cgi?dsa=ONSF</a>	Zoology	ABCD 2.06
42	ETI (8)	PMol	Pelagic Molluscs of the World	<a href="http://openup.etibiointformatics.nl/biocase/pywrapper.cgi?dsa=PMol">http://openup.etibiointformatics.nl/biocase/pywrapper.cgi?dsa=PMol</a>	Zoology	ABCD 2.06
43	ETI (8)	Sharks	Sharks	<a href="http://openup.etibiointformatics.nl/biocase/pywrapper.cgi?dsa=Sharks">http://openup.etibiointformatics.nl/biocase/pywrapper.cgi?dsa=Sharks</a>	Zoology	ABCD 2.06
44	ETI (8)	SpNEA	Sponges of the NE Atlantic	<a href="http://openup.etibiointformatics.nl/biocase/pywrapper.cgi?dsa=SpNEA">http://openup.etibiointformatics.nl/biocase/pywrapper.cgi?dsa=SpNEA</a>	Zoology	ABCD 2.06
45	ETI (8)	TurbW	Turbellaria of the World	<a href="http://openup.etibiointformatics.nl/biocase/pywrapper.cgi?dsa=TurbW">http://openup.etibiointformatics.nl/biocase/pywrapper.cgi?dsa=TurbW</a>	Zoology	ABCD 2.06
46	ETI (8)	Turtles	Turtles of the World	<a href="http://openup.etibiointformatics.nl/biocase/pywrapper.cgi?dsa=Turtles">http://openup.etibiointformatics.nl/biocase/pywrapper.cgi?dsa=Turtles</a>	Zoology	ABCD 2.06
47	ETI (8)	ZMNS	Zooplankton and Micronekton of the North Sea	<a href="http://openup.etibiointformatics.nl/biocase/pywrapper.cgi?dsa=ZMNS">http://openup.etibiointformatics.nl/biocase/pywrapper.cgi?dsa=ZMNS</a>	Zoology	ABCD 2.06
48	ETI (8)	ZSAO	Zooplankton of the South Atlantic Ocean	<a href="http://openup.etibiointformatics.nl/biocase/pywrapper.cgi?dsa=ZSAO">http://openup.etibiointformatics.nl/biocase/pywrapper.cgi?dsa=ZSAO</a>	Zoology	ABCD 2.06
49	ZMFK (9)	ZFMK	ZFMK Coleoptera collection	<a href="http://biocase.zfmk.de/pywrapper.cgi?dsa=ZFMK">http://biocase.zfmk.de/pywrapper.cgi?dsa=ZFMK</a>	Zoology	ABCD 2.06
50	RBINS (10)	OpenUp_RBINS	Pictorial beetle collection of the Royal Belgian Institute of Natural Sciences	<a href="http://biocase.biodiversity.be/pywrapper.cgi?dsa=OpenUp_RBINS">http://biocase.biodiversity.be/pywrapper.cgi?dsa=OpenUp_RBINS</a>	Zoology	ABCD 2.06
51	UCPH (12)	kinorrhynca	Kinorrhynca types at Natural History Museum of Denmark	<a href="http://develprovider.danbif.dk/biocase/pywrapper.cgi?dsa=kinorrhynca">http://develprovider.danbif.dk/biocase/pywrapper.cgi?dsa=kinorrhynca</a>	Zoology	ABCD 2.06

No	Acronym (partner No.)	Data set title	Data source description	Access point URL (public)	Domain	Schema & Version
52	UH (15)	notebooks	Images from Notebooks data source (digitized collector's notebook pages) / Palmén, A. Seppälä, Väinö Aatu (1890-1949)	<a href="http://pontikka.fmnh.helsinki.fi/biocase/pywrapper.cgi?dsa=notebooks">http://pontikka.fmnh.helsinki.fi/biocase/pywrapper.cgi?dsa=notebooks</a>	Zoology	ABCD 2.06
53	UH (15)	sahlberg	Images from Sahlberg data source (type specimens)	<a href="http://pontikka.fmnh.helsinki.fi/biocase/pywrapper.cgi?dsa=sahlberg">http://pontikka.fmnh.helsinki.fi/biocase/pywrapper.cgi?dsa=sahlberg</a>	Zoology	ABCD 2.06
54	NCBN (17)	NBCN-zoology		<a href="http://132.229.167.153:8080/biocase/dsa_info.cgi?dsa=NBCN-zoology">http://132.229.167.153:8080/biocase/dsa_info.cgi?dsa=NBCN-zoology</a>	Zoology	ABCD 2.06
55	NCBN (17)	NBCN-zoology-sounds	Animal sounds	<a href="http://132.229.167.153:8080/biocase/pywrapper.cgi?dsa=NBCN-zoology-sounds">http://132.229.167.153:8080/biocase/pywrapper.cgi?dsa=NBCN-zoology-sounds</a>	Zoology	ABCD 2.06
56	NCBN (17)	NBCN-zoology-artwork	zoology artwork	<a href="http://132.229.167.153:8080/biocase/pywrapper.cgi?dsa=NBCN-zoology-artwork">http://132.229.167.153:8080/biocase/pywrapper.cgi?dsa=NBCN-zoology-artwork</a>	Zoology	ABCD 2.06
57	UT-NHM (20)	University_of Tartu_Natural History_museum_botanical_openup	Zoological collections of the University of Tartu	<a href="http://hermes.ut.ee/biocase/dsa_info.cgi?dsa=University_of_Tartu_Natural_History_museum_botanical_openup">http://hermes.ut.ee/biocase/dsa_info.cgi?dsa=University_of_Tartu_Natural_History_museum_botanical_openup</a>	Zoology	ABCD 2.06
58	LandOOE (23)	openup	Zoological Botanical Database (ZOBODAT)	<a href="http://www.zobodat.at/biocase/pywrapper.cgi?dsa=openup">http://www.zobodat.at/biocase/pywrapper.cgi?dsa=openup</a>	Zoology	ABCD 2.06

### 3 DISCUSSION AND RECOMMENDATION

#### 3.1 Usage of different BioCASE Provider Software versions

Five different versions of the BioCASE provider software are currently used by OpenUp! content providers (Table 3). The main difference between these versions is that versions 3.0 and above are compatible with the DarwinCore Archive, the new format used by GBIF, which is not a 'XML over HTTP' format anymore, but a downloadable ZIP file<sup>12</sup>. Version 3.2 fully integrates the DarwinCore Archive generator, while version 3.0 and 3.1 require a free external plugin. Furthermore, version 3.2 features corrections of some minor bugs.

<sup>12</sup> <http://wiki.bgbm.org/bps/index.php/Archiving>

In general, OpenUp! partners who are experienced in using the BioCASE provider software and have set up their installations before the start of the OpenUp! project, work with pre-3.0 versions in order to maintain compatibility with older platforms. Upgrading to a higher version of the BPS may go along with a minor change in the configuration of the connection from BPS to the database, but not in the mapping itself.

Although it is recommended to use the most current version (3.2 at the moment), no compatibility problems between any of the used BPS versions (version 2.6.0 being the oldest one in use) and the OpenUp! system have been detected so far. This is because the BioCASE XML protocol for querying the data source is stable and left unchanged in newer versions. The upgrading procedure is explained in more detail in a forum post on the OpenUp! Helpdesk<sup>13</sup> and technical assistance is assured by the BioCASE Helpdesk<sup>14</sup>.

**Table 3: Overview of installed BPS versions**

BPS Version	No. of partners	Partner's acronym
2.6.0	3	MFN, ETI, ZMFK
3.0	4	NHM, UCPH, UH, LandOOE
3.0 RC2	1	NM
3.1	2	RBINS, MRAC
3.2	2	UT-NHM, NCBN

### 3.2 Usage of multiple data sources per provider

Some content providers connect multiple data sources via the BPS to Europeana. This is useful if content providers have both zoological and botanical content and want to keep them separated due to organisational reasons or because of the different standard schemas used for mapping of content in the different domains (ABCD vs. ABCDEFG).

Another reason is that in some cases content providers host external content or content of a collaborative, across-institution initiative (project), like the MFN does with the GloBIS data set.

The vast majority of data sources are provided by ETI. Here each data source represents one of ETI's products, i.e. a CD-ROM on Arthropods of Economic Importance - Agromyzidae of the World. Unfortunately, the large amount of data sources complicates necessary checks and updates, as every data source has to be monitored individually.

### 3.3 Separate data sources for OpenUp! and GBIF

In order to improve sustainability it is suggested to have only one mapping for data provision to both aggregators, Europeana and GBIF. In the course of the project and due to the changes in the Europeana's Licensing Framework towards publishing Europeana Metadata under the Creative Commons Zero Public

<sup>13</sup> See: [http://open-up.cybertaxonomy.africamuseum.be/forum\\_topic/upgrading\\_biocase\\_installation](http://open-up.cybertaxonomy.africamuseum.be/forum_topic/upgrading_biocase_installation)

<sup>14</sup> [http://www.biocase.org/help\\_desk](http://www.biocase.org/help_desk)

Domain Dedication (CC0)<sup>15</sup>, several content providers decided to not provide all of their (meta)data to Europeana, which they plan to provide to GBIF. As a consequence they split their data sources into a data source for Europeana and a data source for GBIF. While this is in agreement with Europeana's intention, that every content provider should only provide the set of metadata to Europeana they want to be published under the CC0 license, it produces additional work for the content providers in the set up and management of the data provision. From the OpenUp! perspective this is not a sustainable approach as it increases the management and support efforts for content provision to Europeana also after the end of the project.

Another reason for separate data sources for GBIF and OpenUp! is that some providers have a lot of data not associated to multimedia objects, which they provide to GBIF, e.g. LAND OOE. Harvesting the full data source would significantly slow down the harvest process. Thus exclusively multimedia object associated data is compiled in the OpenUp! data source. A possible way avoiding this and assuring sustainability is the modification of the HIT tool for exclusive harvest of multimedia objects associated records. This approach is currently followed up by the technical team in OpenUp!.

### *3.4 Protection of high quality multimedia objects during thumbnail creation by Europeana<sup>16</sup>*

If partners wish to provide thumbnails to Europeana and OpenUp!, but preventing access to the original high-resolution material, it is suggested to set up two parallel data sources (i.e., access points) in the BPS. The first data source contains all metadata (in the Europeana sense) of the records and represents the main access point to the data. The second data source contains the links to the high resolution images, which can be made accessible for only certain IP addresses by configuring the firewall or Apache HTTP. This method can be used to ensure that only the Europeana harvesting system can access the original images.

Another solution to overcome this issue was developed by ETI BioInformatics (Wouter Addink, 2012). The Thumbnail Generator<sup>17</sup> is a free software tool (GNU general public license v3) developed for the OpenUp! project to return thumbnails for multimedia files for http requests from domains that should not have access to the original files because of copyright issues. Supported are images (jpg, png, gif), videos (mov) and sounds (mp3). The software has been tested on Windows 7 and on Linux Debian Squeeze (PHP 5.2). It generates and returns thumbnails for multimedia files to which access is restricted by Apache. Instead of giving a 403 Access denied error it will return the thumbnail. If the file does not exist, it will return a 404 file not found error. Copyright information can be added to the thumbnail in form of a watermark or within the file as IPTC metadata.

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<sup>15</sup> Institute for Information Law; Bibliotheque nationale de Luxembourg; Kennisland & Europeana: The Europeana Licensing Framework, p. 9 pp.

<sup>16</sup> As described in: <http://open-up.cybertaxonomy.africamuseum.be/ProtectionAndFirewall>

<sup>17</sup> More detailed explanation: <http://open-up.eu/content/thumbnail-generator-eti>

## 4 CONCLUSION OR OUTLOOK

The next steps are the improvement of the existing ABCD(EFG) mappings of data sources already connected via the BPS. In addition, new data sources will be connected both from existing and new content providers in order to achieve the project's goals. The progress in content provision of each partner will be constantly monitored with the BioCAsE Monitor Service.

A major milestone will be the shift from the existing ESE standard to the EDM, which may also require some changes in the existing mapping of OpenUp! data sources. The OpenUp! Helpdesk (WP7) and the content providing Work packages 4 and 5 will support the OpenUp! content providers in this task.

## 5 LIST OF REFERENCES

- Institute for Information Law; Bibliotheque nationale de Luxembourg; Kennisland & Europeana: The Europeana Licensing Framework: <http://pro.europeana.eu/documents/858566/7f14c82a-f76c-4f4f-b8a7-600d2168a73d>
- J. Holetschek, 2012: <http://wiki.bgbm.org/bps/index.php/Archiving>
- J. Holetschek, 2012: <http://wiki.bgbm.org/bps/index.php/VersionHistory>
- F. Theeten, P. Roca Ristol, B. Jacob & J. Jõgeva, 2012: Guidelines for users and content providers v. 1.: [http://open-up.eu/sites/open-up.eu/files/u2/D09-D714\\_Guidelines\\_for\\_users\\_and\\_content\\_providers\\_v1\\_MRAC.PDF](http://open-up.eu/sites/open-up.eu/files/u2/D09-D714_Guidelines_for_users_and_content_providers_v1_MRAC.PDF)
- F. Theeten, 2011: [http://open-up.cybertaxonomy.africamuseum.be/forum\\_topic/upgrading\\_biocase\\_installation](http://open-up.cybertaxonomy.africamuseum.be/forum_topic/upgrading_biocase_installation)
- F. Theeten, 2011: <http://open-up.cybertaxonomy.africamuseum.be/ProtectionAndFirewall>
- K. Zágoršek , J. Sejkora & J. Hoffmann, 2012: C4.5.0 - Model for the integration of content from the areas of palaeontology and mineralogy: [http://open-up.eu/sites/open-up.eu/files/u2/C450\\_Model\\_for\\_the\\_integration\\_of\\_content\\_palaeontology\\_mineralogy\\_NM.pdf](http://open-up.eu/sites/open-up.eu/files/u2/C450_Model_for_the_integration_of_content_palaeontology_mineralogy_NM.pdf)
- G. Koch, O. Benda, A. Höller & W. Koch: C3.2.1 - Domain specific vocabularies for EUROPEANA - Interim concept for inclusion of domain specific metadata vocabularies and contribution to improving access to scientific information via EDM (Version 1)

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