



Mapping

It is inevitable to **map** both the **DNA** extension **and** some **specimen** details to **verify** the relatedness of the DNA sample to its specimen.

Mapping the ABCDDNA schema requires two triple identifiers: one for the DNA sample (Fig. 2) and another for the underlying specimen (Fig. 3).

Triple identifiers and wrapper URLs are both defining **unique record references**.

SourceID ◉	2
Mapping1: metadata.SourceID(text) ◉◉	
SourceInstitutionID ◉	
Mapping1: metadata.SourceInstitutionID(text) ◉◉	
UnitID ◉	
Mapping1: dnabanknumbers.DNA_Bank_Number(text) ◉◉	

Associations	3
UnitAssociation ◉	
AssociatedUnitID ◉	
Mapping1: specimencache.UnitID_Specimen(text) ◉◉	
AssociatedUnitSourceInstitutionCode ◉	
Mapping1: specimencache.InstitutionCode_Specimen(text) ◉◉	
AssociatedUnitSourceName ◉	
Mapping1: specimencache.CollectionCode_Specimen(text) ◉◉	
AssociationType ◉	
Mapping1: dnabanknumbers.RelationDNA_Voucher(text) ◉◉	

Figure 2 and 3. Triple Identifiers of the DNA sample (2) and the respective specimen (3)

In addition, the 'Gathering' and 'Identification' parts need to be mapped, so that the data can get loaded into the web index of the DNA Bank Network's webportal. If data such as 'Taxon Name' or 'Country' are not in the web index it is not possible to search for it.

Open access

ABCDDNA is developed as an open access product at the Botanic Garden and Botanical Museum Berlin-Dahlem (BGBM). The file can be downloaded from our website. It can be used with the DNA Module provided by the DNA Bank Network as well as with your own database management system.

Useful links

Mapping example

www.dnabank-network.org/Mapping.php

Complete ABCDDNA schema including comments

<http://www.dnabank-network.org/schemas/ABCDDNA/ABCDDNA.html>

TDWG standards (ABCDDNA currently draft standard)

<http://www.tdwg.org/standards>

Further information is available at our website or contact us at:

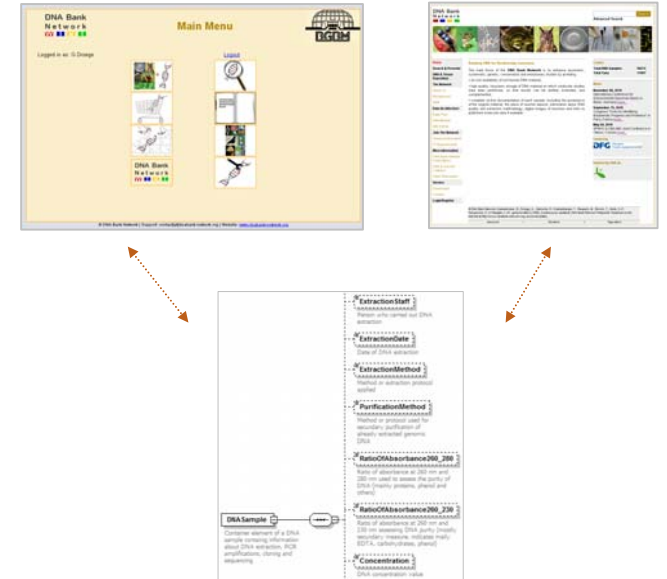
www.dnabank-network.org

contact@dnabank-network.org

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DNA Bank Network

- ABCDDNA -

Standardisation of DNA data for online exchange



DNA Bank Network

A service to facilitate open access to DNA samples and voucher data worldwide

What is ABCDDNA?

ABCD (Access to Biological Collection Data) is a data transfer standard schema and part of the BioCASE Provider Software (BPS). ABCD is a comprehensive standard to exchange specimen and observation data (primary biodiversity data) stored in online accessible databases.

ABCDDNA is an extension for ABCD. The currently preferred schema version ABCD 2.06 lacks important features in its existing DNA part ('Sequences'). Therefore, a DNA extension called **ABCDDNA** was developed for ABCD 2.06, where the basic ABCD 2.06 version has remained unmodified.

The BPS, an XML data binding middleware, is used as an abstraction layer on databases. It is agnostic to the kind of data being exchanged (more information at www.biocase.org/products/provider_software). BPS "wraps" the database into a standard XML format.

What's the purpose of it?

The ABCDDNA schema enables the **transfer of DNA data via XML to other systems**, e.g. DNA Bank Network, GBIF, and other databases.

The data architecture of the DNA Bank Network is based on the GBIF and BioCASE infrastructure (Global Biodiversity Information Facility, www.gbif.org; Biological Collection Access Service, www.biocase.org). Via the GBIF portal hundreds of specimen databases worldwide can be searched by the use of wrapper software.

Using **wrapper** software is a powerful solution for **transforming** different types of **database** structures into **standard formats**.

The partners of the DNA Bank Network use their own local DNA databases which are connected to different specimen databases via the DNA Module (see DNA Module brochure for more details).

In the DNA Bank Network's central web portal specimen and DNA data are transferred live from their respective databases via two wrappers, one for specimen data (the same as GBIF uses) another for DNA data.

For internationally DNA data standardisation, **76** DNA specific **elements** were added to the ABCD schema, such as method and date of DNA **extraction**, **GenBank entries**, **publications** as well as an **'Amplification-Container'** by which data resulting from **cloning**, **PCR**, or **DNA sequencing data** can be organised (see Fig. 1).

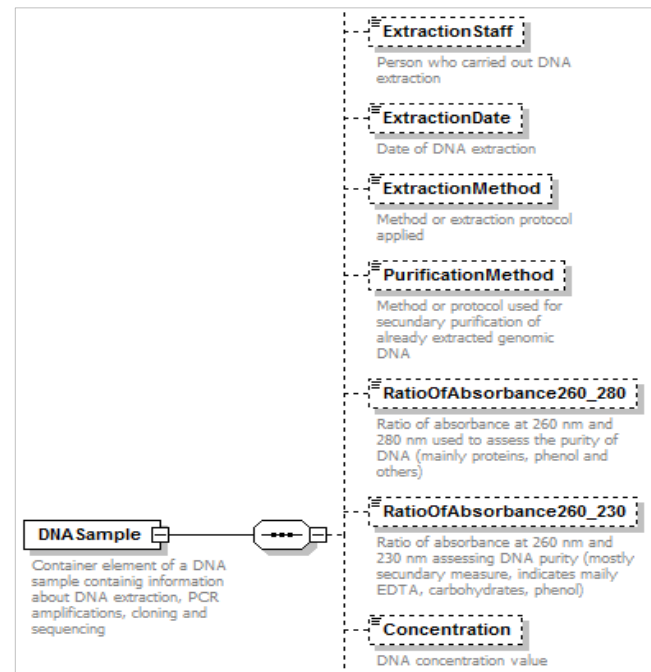


Figure 1. Detail of the DNA extension for ABCD

Technical Requirements

1. DNA database
2. Specimen database(s)

Both, DNA and the specimen **databases** require a **wrapper installation** called 'GBIF-Interoperability'.

DNA data can be mapped using the BPS and the ABCDDNA schema. To map specimen data, the BPS or DiGIR (an alternative wrapper software, <http://digir.sourceforge.net>) can be used.

You don't have a database for DNA data yet?

Then the **DNA Module** is the applicable software for you. Get more information about it. Read the DNA Module brochure, our web site or contact us.

You don't have a database for specimen data yet?

There are several software solutions to administrate specimen and observation data. The **DNA Module** also provides a small specimen administration tool (Specimen Tool).

The current BPS package does not include a DNA extension template. It requires a CMFile which is available via the download section of the DNA Bank Network's web portal. On that page you also find the installation manual for ABCDDNA.

For general information about mapping with the BPS please visit the BPS wiki at ww3.bgbm.org/bps2.