CETAF stable identifiers for specimens

A PRODUCT OF THE CETAF INFORMATION SCIENCE AND TECHNOLOGY COMMITTEE (CETAF–ISTC)

Anton Güntsch (BGBM), Gregor Hagedorn (MfN), Roger Hyam (RBGE) & Dominik Röpert (BGBM)
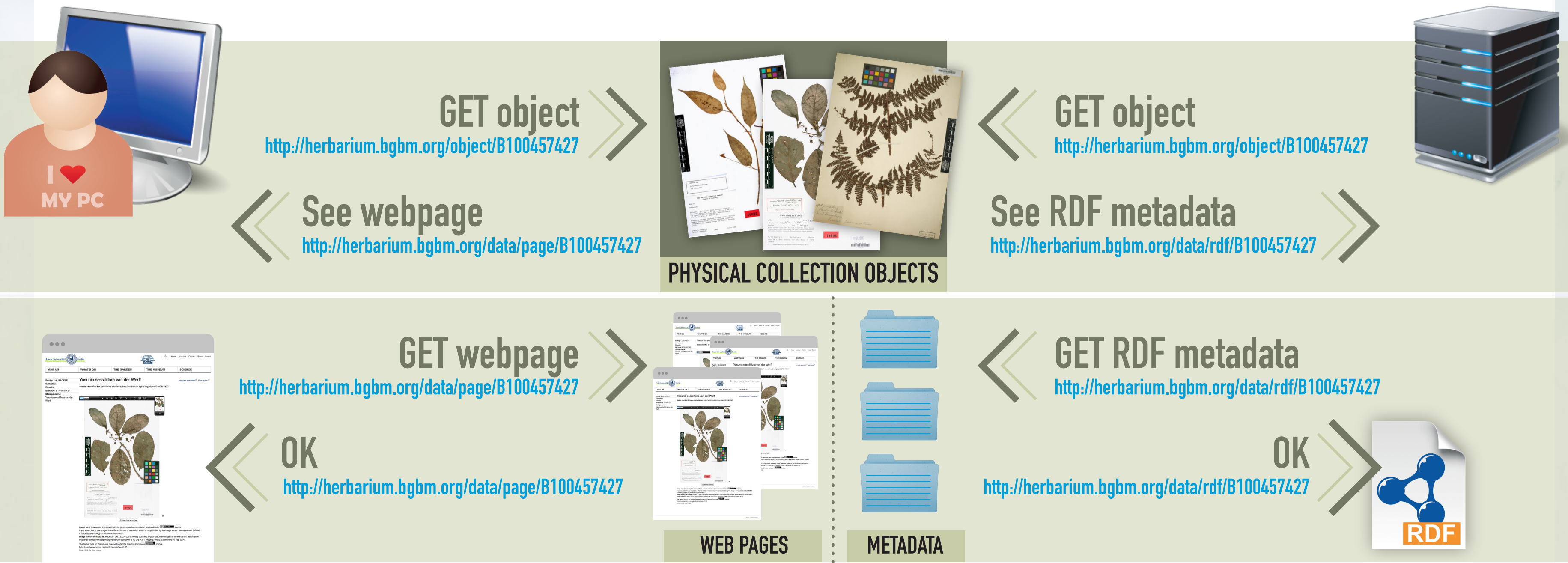
GET object
http://herbarium.bgbm.org/object/B100457427

See webpage
http://herbarium.bgbm.org/data/page/B100457427

PHYSICAL COLLECTION OBJECTS

GET object
http://herbarium.bgbm.org/object/B100457427

See RDF metadata
http://herbarium.bgbm.org/data/rdf/B100457427

GET webpage
http://herbarium.bgbm.org/data/page/B100457427

OK
http://herbarium.bgbm.org/data/page/B100457427

WEB PAGES

GET RDF metadata
http://herbarium.bgbm.org/data/rdf/B100457427

OK
http://herbarium.bgbm.org/data/rdf/B100457427

METADATA

Fig.: *Resolving URI-based collection identifiers using standard HTTP-redirection mechanisms. Requests for specimen information are redirected to HTML-or RDF- representations depending on client requirements (examples taken from the Herbarium of the BGBM).*

Why?

Natural history and botanical collections are estimated to contain more than **2.5 billion specimens** worldwide and CETAF institutions throughout Europe hold the major proportion of this priceless heritage:
— the only physical evidence of the past occurrence of organisms in space and time.
— a tremendously important basis for biodiversity research.

Biological collection objects need to be consistently referenced with globally **unique and stable identifiers**, to ideally, redirect users and systems to the images, websites, and metadata of the specimen of interest.

The Information, Science and Technology Committee (ISTC) of CETAF (www.cetaf.org), in collaboration with the pro-iBiosphere project (www.pro-ibiosphere.eu) has defined a simple and future-oriented identifier system for specimen based on **HTTP-URIs and Linked Data principles**, building a bridge to rapidly developing semantic web technologies.

What?

Each individual collection object as well as its associated information resources (e.g. multimedia, RDF, webpages) is designated by a URI chosen and maintained by the institution owning the specimen. Identifiers are typically composed of an intuitions' web domain, a meaningful subdomain, a path to classes of similar objects, and local objects identifiers (e.g. the object barcode). Since physical objects cannot be transferred via the Internet, users trying to access an object using a web-browser will be redirected to a **human-readable representation** of the object, typically an html web-page. Likewise, software-systems requiring machine-processable representations will be redirected to an **RDF-encoded metadata record** (*see figure*).

Who?

In 2012, the **Royal Botanic Garden of Edinburgh** (RBGE) published a paper (Hyam et al. [1]) on using Linked Data principles to issue HTTP URIs for their specimens. In 2013, **CETAF-ISTC** started a pilot implementation across CETAF institutions and beyond, co-organizing with **pro-iBiosphere** several hackathons and workshops to give to make assessments and give guidance in the process of implementing them. Today, six CETAF member organisations have successfully implemented HTTP-URI-based identifiers and several more members are underway.

Where?

Guidelines for implementation of a system of stable identifiers for a collection:

Contacts: Anton Güntsch (BGBM), Gregor Hagedorn (MfN), Roger Hyam (RBGE) & Dominik Röpert (BGBM)

Best practices for stable URIs, at a wiki page (http://wiki.pro-ibiosphere.eu/wiki/Best_practices_for_stable_URIs)

Source code and example documents, at GitHub-site (https://sourceforge.net/projects/stablecollectionidentifiers/)

FURTHER READING

[1] Hyam, R., Drinkwater R. E. & Harris, D. J. (2012): Stable citations for herbarium specimens on the internet: an illustration from a taxonomic revision of Duboscia (Malvaceae). Phytotaxa 73: 17–30

[2] Hyam, R. (2013) Stable identifiers for Specimens Workshop. [http://stories.rbge.org.uk/archives/3846]

[3] Güntsch, A. & Hagedorn, G. (2013): Stable identifiers for specimens – A CETAF ISTC initiative supported by pro-iBiosphere. [http://www.pro-ibiosphere.eu/news/4296_stable identifiers for specimens - a cetaf istc initiative supported by pro-ibiosphere/]

[4] Hagedorn, G. (2013): DOI or LOD or DOI and LOD. [http://wiki.pro-ibiosphere.eu/wiki/DOI_or_LOD_or_DOI_and_LOD]

CETAF
CONSORTIUM OF EUROPEAN TAXONOMIC FACILITIES

EXPLORING AND DOCUMENTING DIVERSITY IN NATURE

www.cetaf.org
info@cetaf.org

Royal Botanic Garden Edinburgh

museum für naturkunde berlin

BGBM