Species level information handling in the GBIF's Integrated Publishing Toolkit (IPT) using Plinian Core extensions

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Plinian Core aims to be a standard for publishing and sharing species information (https://github.com/PlinianCore/Documentation). By "species information" we refer to all kinds of properties and traits related to taxa (of any rank), including descriptions, nomenclature, conservation status, management, natural history, etc. Plinian Core was designed as a hierarchical schema in order to integrate all this information in an easy way to use, self-contained and able to support data integration from multiple databases.

We present here a set of Plinian Core extensions (http://tools.gbif.org/dwca-validator/extensions.do) already registered through GBIF (http://rs.gbif.org/extension/) to be used in the Integrated Publishing Toolkit (IPT) (http://www.gbif.org/ipt), a tool to publish biodiversity information on the GBIF network (http://www.gbif.org), so Plinian Core Terms can be embedded in Darwin Core Archives (https://en.wikipedia.org/wiki/Darwin_Core_Archive). The purpose of these extensions (still in test mode) is to enrich the core file information, providing a set of terms that defines different attributes to integrate comprehensive information about species in a Darwin Core Archive.

Plinian Core & IPT

playing together

After reaching a stable version of Plinian Core in 2015, the next step was to create a group of extensions that would allow IPT users to share information about species in Plinian Core standard. In order to achieve this goal a group of extensions complementing the information in Taxon Core were created. The list of these extensions are Plinian Core Extension, Plinian Core Extension Distribution, Plinian Core Extension ManagementAndConservation, Plinian Core Extension Synonyms, Plinian Core Extension ThreatStatus and Plinian Core Extension Uses. All of these new extensions have their own fields with their definitions, cardinalities, controlled vocabularies and examples.
These extensions can of course be complemented by other extensions that already exist in the IPT such as Measurement Or Facts, Multimedia or References following the Darwin Core Archive standard.

Thanks to these new extensions of the IPT, the community would be able to register the information of their species in a more complete and flexible way.

In this image, the kids want to catch species through a pokeball (aka IPT), but this pokeball does not have all the power to share and publish a complete description of the characteristics of all species. For this reason the species escape all the time…

> Hey Dave, I can't catch these flowers. I think I need a super ball that allows me to storage all information I have about this species.

> Indeed Marie, with this poke ball it is not possible to store the information related with the species legislation such as name, status, type, norm and where it is applicable. Who could help us?
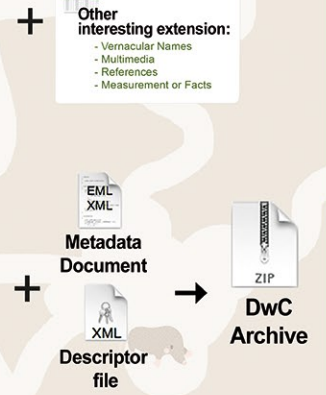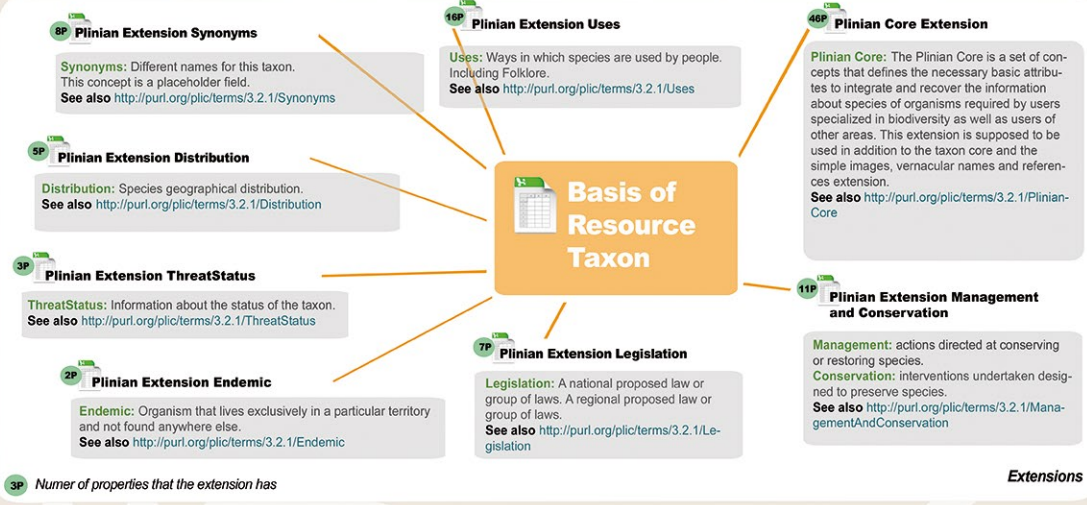
> Let's go guys!! Help them to create an accurate standard which they can share species information.

Welcome to Arenal Volcano

…meanwhile an army of little moles are working hard under the ground.

BACKGROUND

2005 GREEN LIGHT BETWEEN INBIO & GBIF-SPAIN

2012 PLINIAN CORE FLAT VERSION

2013 WORKING IN A NEW DEVELOPMENT (FLORENCE 2013)

2015 PLINIAN CORE VERSION 2.3.1 (STABLE)

2016 PLINIAN CORE INTEGRATED IN IPT (COSTA RICA 2016)

PLINIAN CORE INTEGRATED IN ATLAS OF LIVING AUSTRALIA

TDWG FLORENCE

DARWIN CORE ARCHIVE COMPONENTS AND PLINIAN CORE EXTENSIONS

8P Plinian Extension Synonyms
Synonyms: Different names for this taxon. This concept is a placeholder field.
See also http://purl.org/plic/terms/3.2.1/Synonyms

16P Plinian Extension Uses
Uses: Ways in which species are used by people. Including Folklore.
See also http://purl.org/plic/terms/3.2.1/Uses

46P Plinian Core Extension
Plinian Core: The Plinian Core is a set of concepts that defines the necessary basic attributes to integrate and recover the information about species of organisms required by users specialized in biodiversity as well as users of other areas. This extension is supposed to be used in addition to the taxon core and the simple images, vernacular names and references extension.
See also http://purl.org/plic/terms/3.2.1/Plinian-Core

5P Plinian Extension Distribution
Distribution: Species geographical distribution.
See also http://purl.org/plic/terms/3.2.1/Distribution

3P Plinian Extension ThreatStatus
ThreatStatus: Information about the status of the taxon.
See also http://purl.org/plic/terms/3.2.1/ThreatStatus

2P Plinian Extension Endemic
Endemic: Organism that lives exclusively in a particular territory and not found anywhere else.
See also http://purl.org/plic/terms/3.2.1/Endemic

Basis of Resource Taxon

7P Plinian Extension Legislation
Legislation: A national proposed law or group of laws. A regional proposed law or group of laws.
See also http://purl.org/plic/terms/3.2.1/Legislation

11P Plinian Extension Management and Conservation
Management: actions directed at conserving or restoring species.
Conservation: interventions undertaken designed to preserve species.
See also http://purl.org/plic/terms/3.2.1/ManagementAndConservation

3P *Numer of properties that the extension has*

Extensions

Other interesting extension:
- Vernacular Names
- Multimedia
- References
- Measurement or Facts

EML XML - Metadata Document
XML - Descriptor file
→ ZIP DwC Archive

COMING DEVELOPMENTS PLINIAN CORE in ALA

Once the IPT supports the Plinian Core extensions, one of the next steps will be to get the community to not only share information in a standard format, but to also make the information accessible and interoperable. In order to reach this goal, we plan to use the Atlas of Living Australia (ALA) - an open source system that is being implemented as national data portal by many GBIF Nodes - to display species information in Plinian Core standard.

The ALA platform already provides a module to display and manage species information (https://github.com/AtlasOfLivingAustralia/generic-bie). But in order to index the information of species pages in Plinian Core standard some customization of several ALA modules is required. This will give users the ability to see and download the data in their own ALA data portals too. Furthermore, thanks to this portal which is based on Web Services we will be able to provide interoperability. It will be possible to access to each field of a species profile in Plinian Core and work with this data in many scenarios.

Currently there are at least 20 countries around the world interested in using ALA technology in their national contexts. This means that this new development could benefit a big community that could share the species information in a new and more complete format.

ATLAS OF LIVING AUSTRALIA sharing biodiversity knowledge
www.ala.org.au

CONCLUSIONS

It is already possible using the IPT in test mode to generate Darwin Core Archives with Plinian Core extensions. To get this functionality implemented in the IPT production mode some reviews are needed.

The interaction between Plinian Core with the IPT tool and ALA portal is essential to make this standard visible, accessible and broadly used throughout the whole community as Darwin Core or Dublin Core.

TDWG2017 PLINIAN & ALA

HAVE A LOOK IPT

DOWNLOAD POSTER!

TDWG Biodiversity Information Standards Costa Rica 2016
PLINIAN CORE INTERCHANGE INFORMATION ABOUT SPECIES
GOBIERNO DE ESPAÑA MINISTERIO DE ECONOMÍA Y COMPETITIVIDAD
CSIC CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS
REAL JARDÍN BOTÁNICO
gbif.es
ATLAS OF LIVING AUSTRALIA sharing biodiversity knowledge www.ala.org.au
GBIF

References: Plinian Core Quick Reference Guide - https://github.com/PlinianCore/Documentation/wiki/PlinianCore_Terms
Plinian Core Abstract Model (.xsd) Current version (3.2.1) - https://raw.githubusercontent.com/PlinianCore/Sources/master/xsd/abstract+models/stable+version/PlinianCore_AbstractModel_v3.2.1.xsd

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