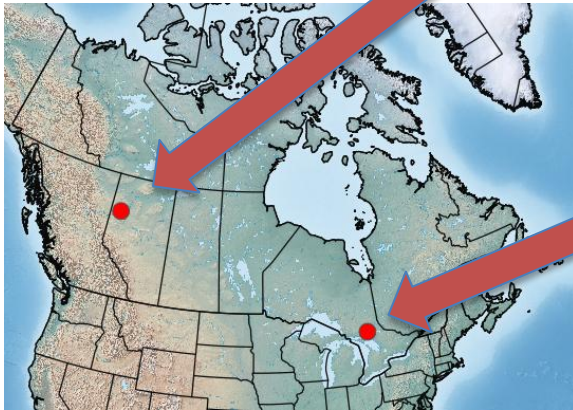


Sharing Data in a Standardized Way: The Darwin Core Vocabulary











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University of Montreal

BACKGROUND



HISTORY OF DARWIN CORE

Darwin Core Versions

Name	Namespace	Number of terms	XML Schema	Date Issued
Darwin Core 1.0	Not Applicable	24	(Z39.50 GRS-1)	1998
Darwin Core 1.2 (Classic)	http://digir.net/schema/conceptual/darwin/2003/1.0 	46	[2] 	2001-09-11
Darwin Core 1.21 (MaNIS/HerpNet/ORNIS/FishNet2)	http://digir.net/schema/conceptual/darwin/2003/1.0 	63	[3] 	2003-03-15
Darwin Core OBIS	http://www.iobis.org/obis 	27	[4] 	2005-07-10
Darwin Core 1.4 (Draft Standard)	http://rs.tdwg.org/dwc/dwcore/ 	45	[5] 	2005-07-10
Darwin Core Terms (properties)	http://rs.tdwg.org/dwc/terms/ 	172	[6] 	2009-10-09

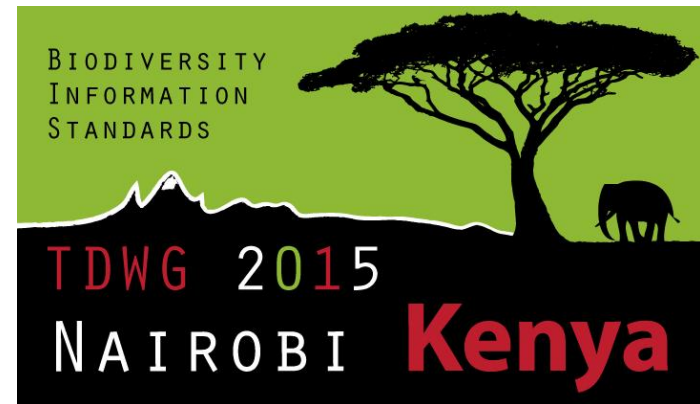
CHARACTERISTICS OF THE DARWIN CORE STANDARD

- Glossary of 200 terms, « Simple Darwin Core »
 - properties, fields, columns, attributes
 - Based on Dublin Core
 - Some terms populated with controlled vocabularies
- Definitions and commentaries to promote consistent use
- Decoupled from their application
 - Can be represented in XML, RDF, CSV, others
- Can be extended by adding new terms
- Maintenance authority: Biodiversity Information Standards (TDWG)

BIODIVERSITY INFORMATION STANDARDS (TDWG)

Biodiversity
Information
Standards
TDWG

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



September 28 - October 1, 2015

[dcterms:type](#) | [dcterms:modified](#) | [dcterms:language](#) | [dcterms:rights](#) | [dcterms:rightsHolder](#) | [dcterms:accessRights](#) | [dcterms:bibliographicCitation](#) | [dcterms:references](#)

[institutionID](#) | [collectionID](#) | [datasetID](#) | [institutionCode](#) | [collectionCode](#) | [datasetName](#) | [ownerInstitutionCode](#) | [basisOfRecord](#) | [informationWithheld](#) | [dataGeneralizations](#) | [dynamicProperties](#)

[occurrenceID](#) | [catalogNumber](#) | [occurrenceRemarks](#) | [recordNumber](#) | [recordedBy](#) | [individualID](#) | [individualCount](#) | [sex](#) | [lifeStage](#) | [reproductiveCondition](#) | [behavior](#) | [establishmentMeans](#) | [occurrenceStatus](#) | [preparations](#) | [disposition](#) | [otherCatalogNumbers](#) | [previousIdentifications](#) | [associatedMedia](#) | [associatedReferences](#) | [associatedOccurrences](#) | [associatedSequences](#) | [associatedTaxa](#)

<u>eventID</u>	<u>samplingProtocol</u>	<u>samplingEffort</u>	<u>eventDate</u>	<u>eventTime</u>	<u>startDayOfYear</u>	<u>endDayOfYear</u>	<u>year</u>	<u>month</u>	<u>day</u>	<u>verbatimEventDate</u>	<u>habitat</u>	<u>fieldNumber</u>	<u>fieldNotes</u>	<u>eventRemarks</u>
----------------	-------------------------	-----------------------	------------------	------------------	-----------------------	---------------------	-------------	--------------	------------	--------------------------	----------------	--------------------	-------------------	---------------------

200 terms

[geologicalContext](#) | [lowestEpochOrLowestSeries](#) | [earliestEpochOrLowestSeries](#) | [latestEpochOrHighestSeries](#) | [earliestEpochOrLowestStage](#) | [latestEpochOrHighestStage](#) | [lowestBiostratigraphicZone](#) | [highestBiostratigraphicZone](#) | [lithostratigraphicTerms](#) | [group](#) | [formation](#) | [member](#) | [bed](#)

IdentificationID	identifiedBy	dateIdentified	identificationReferences	identificationVerificationStatus	identificationRemarks	identificationQualifier	typeStatus
------------------	--------------	----------------	--------------------------	----------------------------------	-----------------------	-------------------------	------------

[taxonID](#) | [scientificNameID](#) | [acceptedNameUsageID](#) | [parentNameUsageID](#) | [originalNameUsageID](#) | [nameAccordingToID](#) | [namePublishedInID](#) | [taxonConceptID](#) | [scientificName](#) | [acceptedNameUsage](#) | [parentNameUsage](#) | [originalNameUsage](#) | [nameAccordingTo](#) | [namePublishedIn](#) | [namePublishedInYear](#) | [higherClassification](#) | [kingdom](#) | [phylum](#) | [class](#) | [order](#) | [family](#) | [genus](#) | [subgenus](#) | [specificEpithet](#) | [infraspecificEpithet](#) | [taxonRank](#) | [verbatimTaxonRank](#) | [scientificNameAuthorship](#) | [vernacularName](#) | [nomenclaturalCode](#) | [taxonomicStatus](#) | [nomenclaturalStatus](#) | [taxonRemarks](#)

ResourceRelationship

resourceRelationshipID	resourceID	relatedResourceID	relationshipOfResource	relationshipAccordingTo	relationshipEstablishedDate	relationshipRemarks
------------------------	------------	-------------------	------------------------	-------------------------	-----------------------------	---------------------

measurementID	measurementType	measurementValue	measurementAccuracy	measurementUnit	measurementDeterminedDate	measurementDeterminedBy	measurementMethod	measurementRemarks
1	Temperature	25.5	±0.5	°C	2023-10-27	John Doe	Thermometer	Room temperature
2	Humidity	65	±2	%	2023-10-27	John Doe	Humidity sensor	Relative humidity
3	Pressure	1013	±1	hPa	2023-10-27	John Doe	Barometer	Atmospheric pressure
4	WindSpeed	12	±1	m/s	2023-10-27	John Doe	Anemometer	Wind speed
5	WindDirection	135	±5	°	2023-10-27	John Doe	Wind vane	Wind direction
6	CloudCover	80	±5	%	2023-10-27	John Doe	Visual observation	Cloud cover percentage
7	Precipitation	0	±0.1	mm	2023-10-27	John Doe	Rain gauge	Precipitation amount
8	UVIndex	5	±1	UVI	2023-10-27	John Doe	UV sensor	UV radiation index
9	AirQuality	150	±10	µg/m³	2023-10-27	John Doe	AQ sensor	Air quality index
10	SoilMoisture	45	±5	%	2023-10-27	John Doe	Soil moisture sensor	Soil moisture content
11	SoilTemperature	15	±0.5	°C	2023-10-27	John Doe	Soil temperature sensor	Soil temperature
12	WaterLevel	1.2	±0.1	m	2023-10-27	John Doe	Water level sensor	Water level height
13	WaterFlow	0.5	±0.05	m³/s	2023-10-27	John Doe	Flow meter	Water flow rate
14	WaterQuality	10	±1	mg/L	2023-10-27	John Doe	Water quality sensor	Water quality index
15	LightIntensity	1000	±50	lux	2023-10-27	John Doe	Light sensor	Light intensity
16	SoundLevel	60	±2	dB	2023-10-27	John Doe	Sound level meter	Sound level
17	Temperature	18	±0.5	°C	2023-10-28	John Doe	Thermometer	Room temperature
18	Humidity	55	±2	%	2023-10-28	John Doe	Humidity sensor	Relative humidity
19	Pressure	1015	±1	hPa	2023-10-28	John Doe	Barometer	Atmospheric pressure
20	WindSpeed	8	±1	m/s	2023-10-28	John Doe	Anemometer	Wind speed
21	WindDirection	225	±5	°	2023-10-28	John Doe	Wind vane	Wind direction
22	CloudCover	60	±5	%	2023-10-28	John Doe	Visual observation	Cloud cover percentage
23	Precipitation	0	±0.1	mm	2023-10-28	John Doe	Rain gauge	Precipitation amount
24	UVIndex	3	±1	UVI	2023-10-28	John Doe	UV sensor	UV radiation index
25	AirQuality	120	±10	µg/m³	2023-10-28	John Doe	AQ sensor	Air quality index
26	SoilMoisture	35	±5	%	2023-10-28	John Doe	Soil moisture sensor	Soil moisture content
27	SoilTemperature	12	±0.5	°C	2023-10-28	John Doe	Soil temperature sensor	Soil temperature
28	WaterLevel	1.1	±0.1	m	2023-10-28	John Doe	Water level sensor	Water level height
29	WaterFlow	0.4	±0.05	m³/s	2023-10-28	John Doe	Flow meter	Water flow rate
30	WaterQuality	12	±1	mg/L	2023-10-28	John Doe	Water quality sensor	Water quality index
31	LightIntensity	800	±50	lux	2023-10-28	John Doe	Light sensor	Light intensity
32	SoundLevel	55	±2	dB	2023-10-28	John Doe	Sound level meter	Sound level
33	Temperature	22	±0.5	°C	2023-10-29	John Doe	Thermometer	Room temperature
34	Humidity	70	±2	%	2023-10-29	John Doe	Humidity sensor	Relative humidity
35	Pressure	1018	±1	hPa	2023-10-29	John Doe	Barometer	Atmospheric pressure
36	WindSpeed	15	±1	m/s	2023-10-29	John Doe	Anemometer	Wind speed
37	WindDirection	315	±5	°	2023-10-29	John Doe	Wind vane	Wind direction
38	CloudCover	40	±5	%	2023-10-29	John Doe	Visual observation	Cloud cover percentage
39	Precipitation	0	±0.1	mm	2023-10-29	John Doe	Rain gauge	Precipitation amount
40	UVIndex	4	±1	UVI	2023-10-29	John Doe	UV sensor	UV radiation index
41	AirQuality	110	±10	µg/m³	2023-10-29	John Doe	AQ sensor	Air quality index
42	SoilMoisture	25	±5	%	2023-10-29	John Doe	Soil moisture sensor	Soil moisture content
43	SoilTemperature	10	±0.5	°C	2023-10-29	John Doe	Soil temperature sensor	Soil temperature
44	WaterLevel	1.0	±0.1	m	2023-10-29	John Doe	Water level sensor	Water level height
45	WaterFlow	0.3	±0.05	m³/s	2023-10-29	John Doe	Flow meter	Water flow rate</

200 terms

<http://rs.tdwg.org/dwc/terms/>

DARWIN CORE: AN EVOLVING COMMUNITY STANDARD



John Wieczorek



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OPEN ACCESS | PEER-REVIEWED

RESEARCH ARTICLE


Darwin Core: An Evolving Community-Developed Biodiversity Data Standard

John Wieczorek, David Bloom , Robert Guralnick, Stan Blum, Markus Döring, Renato Giovanni, Tim Robertson, David Vieglais



Published: January 6, 2012 • DOI: 10.1371/journal.pone.0029715


<http://doi.org/10.1371/journal.pone.0029715>

https://github.com/tdwg/dwc/issues

 This repository Search

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 **tdwg / dwc**

Watch 24 Star 17 Fork 8

Issues Pull requests Labels Milestones

Filters is:issue is:open New Issue

55 Open 38 Closed

Author Labels Milestones Assignee Sort

! acceptedNameUsageID should explicitly specify dwc:taxonID as the referenced values change term Taxon 8

#105 opened 17 days ago by mdoering

! What term to use for invasive species management information? question 1

#104 opened on Aug 7 by peterdesmet

! Report of broken link 2

#103 opened on Aug 7 by peterdesmet

! recordedByID new term 1

#102 opened on Jul 24 by timrobertson100

! identifiedByID new term Taxon 6

#101 opened on Jul 24 by timrobertson100

! DD-MM-YYYY and MM-DD-YYYY in eventDate 0

#100 opened on Jul 16 by ramorrimorris

! Discuss basisOfRecord values 5

#99 opened on Jun 26 by pmergen

! vegetation monitoring plots DwC 4

#98 opened on Jun 18 by camiplata

! Update Link to RDF Ancillary documents page RDF 4

#94 opened on Jun 2 by tucotuco

KEY PROJECTS USING DARWIN CORE

The Global Biodiversity Information Facility

The Ocean Biogeographic Information System

The Atlas of Living Australia

HerpNet

FishNet

VertNet

Canadensys

Encyclopedia of Life

Catalogue of Life

Darwin Core Terms are not sufficient for all use-cases

1 : ∞

Photographic images, tissues sampled, multiple determinations

EXTENSIONS TO THE DARWIN CORE

Darwin Core Identification History

Species Distribution

Literature References

Vernacular Names

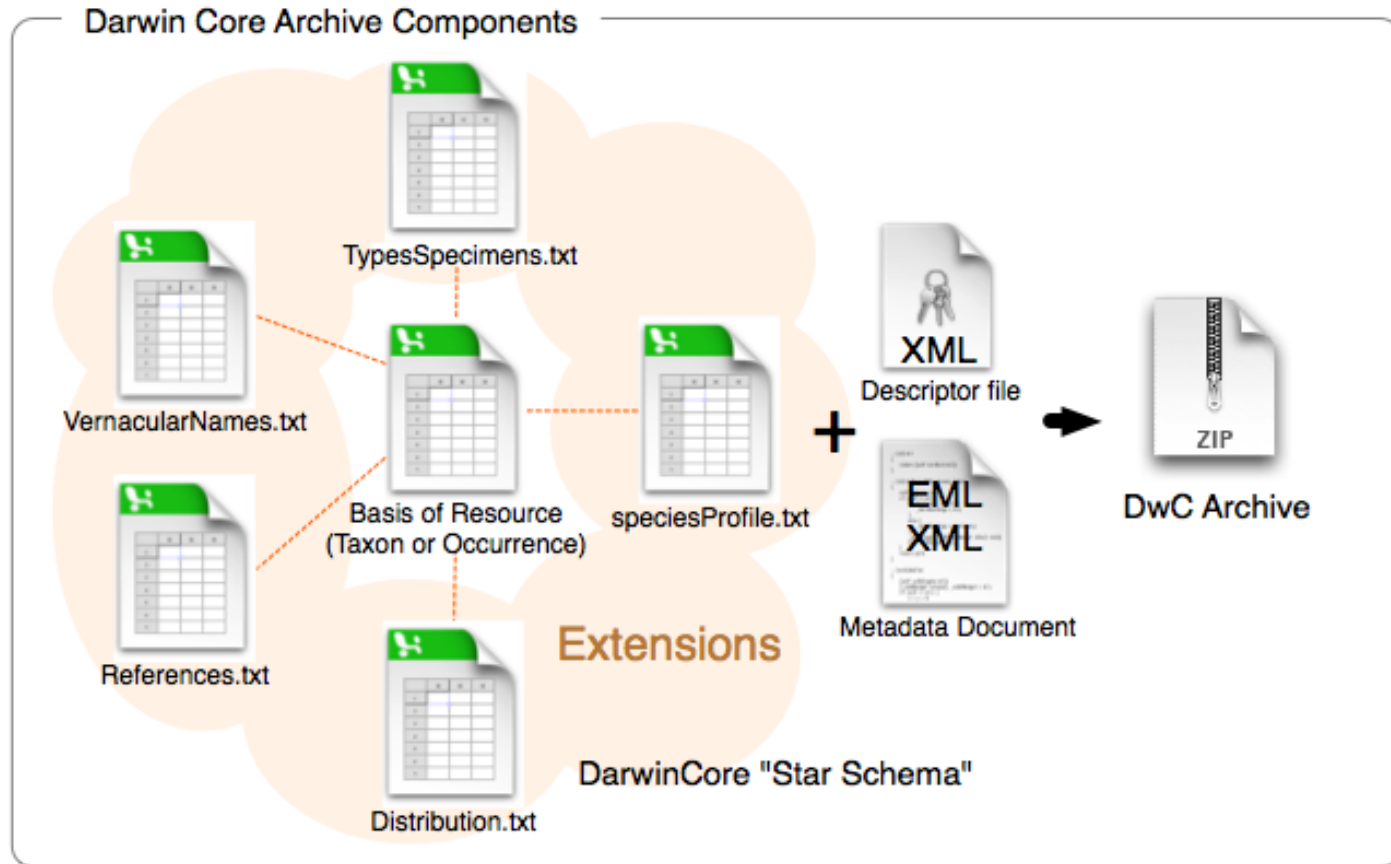
Taxon Description

Simple Multimedia & Audubon Media Description

Darwin Core Resource Relationship

Darwin Core Measurement or Facts

DARWIN CORE ARCHIVE (DwC-A)



HOW CAN YOU USE A DwC-A?

Import directly into an IPT

Consume a DwC-A into a relational database

<https://github.com/Canadensys/dwca2sql>

Visualize a DwC-A in the browser

<http://bit.ly/1itZto3>

Import into R

<https://github.com/ropensci/finch>

HOW CAN YOU DEVELOP APPLICATIONS?

Python

<https://github.com/BelgianBiodiversityPlatform/python-dwca-reader>

Ruby gem

<https://github.com/GlobalNamesArchitecture/dwc-archive>


Java Library

<https://github.com/gbif/dwca-io>

Feed into Portals

<https://github.com/WingLongitude/lontra-harvester>

DARWIN CORE ARCHIVE VALIDATION



Darwin Core Archive Validator

[home](#) [eml](#) [extensions](#) [api](#) [about](#)

Darwin Core Archive Validator

To validate a [Darwin Core Archive](#) file either provide a url to an archive or upload an archive including data files for validation.

Please note that we limit the size of uploaded files to 100MB, so reduce your data files if necessary. We will happily pull bigger archives from a url provided.

Validate archive URL:

Upload local archive:

No file chosen

<http://tools.gbif.org/dwca-validator/>

EVIDENCE OF DwC USE IN EIAs



email login [ENGLISH](#)

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GBIF Registration

Keywords

Contacts

Geographic Coverage

Taxonomic Coverage

Temporal Coverage

Sampling Methods

Bibliographic Citations

Additional Metadata

Environmental impact assessment of oil pollution accident in Gialova lagoon and Navarino Bay

Latest version published by Test Organisation #1 on Apr 24, 2015

National Project on the consequences of the Navarino Oil spill, in 1994. A data set of benthic brackish water invertebrates from Gialova lagoon (SW Peloponnese), Ionian Sea, Greece, collected on four sampling periods between April 1995 and March 1996. Includes seven sampling stations, each with five replicates for abundance counts for each sampling period and also biomass (dry weight and ash-free) for each station/sampling period. A set of 18 environmental variables, including temp, pH, Rdx, particulate organic matter, dissolved oxygen, salinity, chlorophyll-a, were also measured for each sampling station-sampling period combination.

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EML

RTF

Versions

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Downloads

Download the latest version of the resource data as a Darwin Core Archive (DwC-A) or the resource metadata as EML or RTF:

Data as a DwC-A file [download](#) 168 records in English (94 KB) - Update frequency: unknown

Metadata as an EML file [download](#) in English (8 KB)

Metadata as an RTF file [download](#) in English (9 KB)

HANDS-ON EXERCISES

Critically examine Darwin Core terms

Evaluate the applicability of your data as checklist, occurrence, or sampling event

Critically examine the Metadata creation actions in the IPT

Evaluate the usability of Data Preview, Mapping/Correspondence & Publication actions in the IPT
