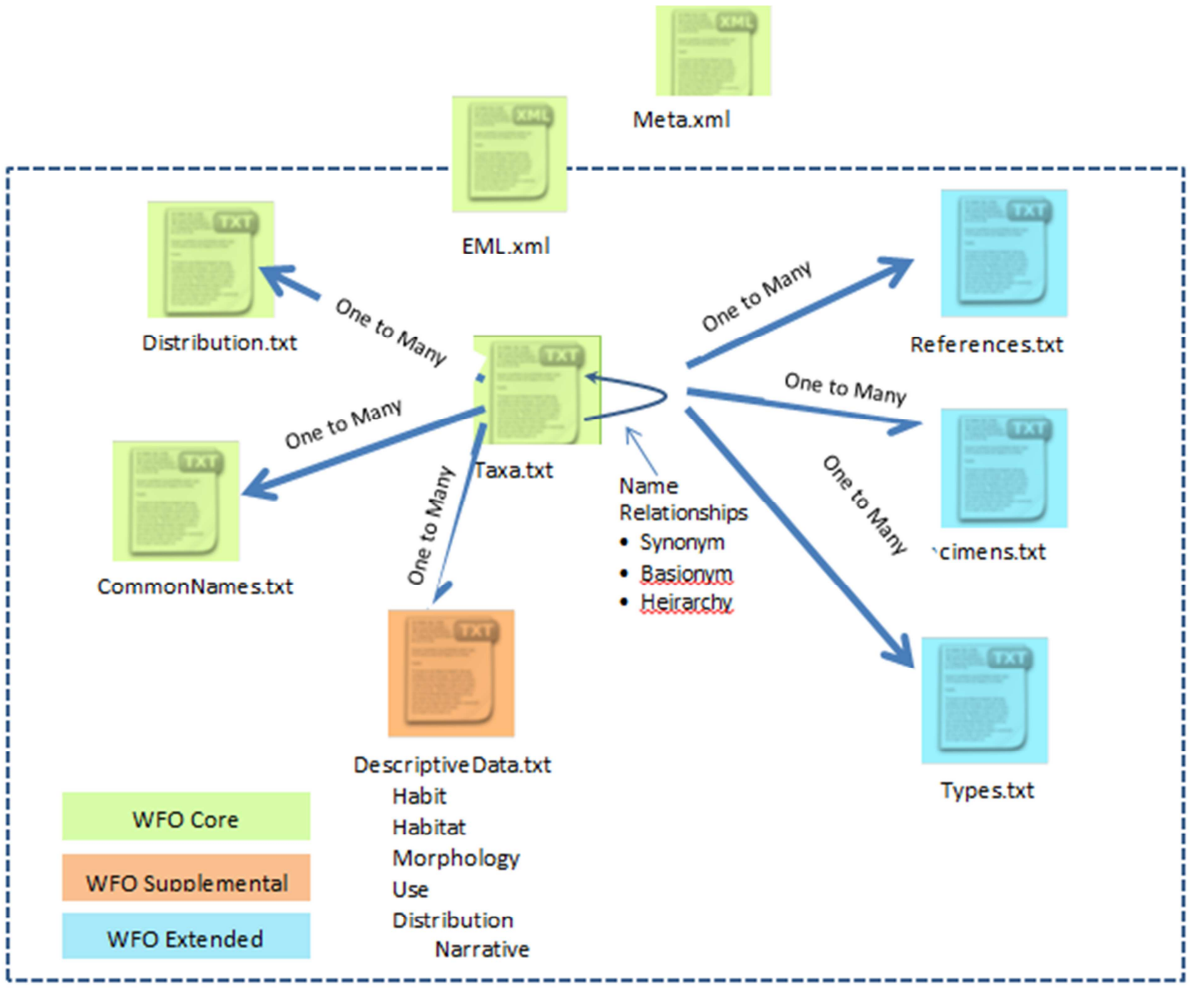
Darwin Core Archive Model for the World Flora Online (WFO)

This document defines the structure of a Darwin Core Archive set of files for ingestion of flora/monograph data into the World Flora Online.

SUMMARY DIAGRAM

This is a summary diagram of the structure of a Darwin Core Archive for WFO.



Darwin Core Archive File Definitions for World Flora Online

The following tables list the files and the data elements to be included in the Minimal and Extended versions of the WFO DwCA data exchange for ingestion of flora/monograph datasets into the World Flora Online. The Darwin Core Archive format was created by the Global Biodiversity Information Facility (GBIF) and is comprised of a core file with extension files all linked together via one taxonID for each name record in the core file in a one-to-many star relationship.

This WFO DwCA model does not include a method for ingestion of atomized dichotomous or matrix identification keys. A different approach will be needed for ingestion of those types of data, such as the Structured Descriptive Data (SDD) XML schema.

Note: The TermSource value of "wfo" refers to data elements that have been discovered and defined by the World Flora Online project as needed for the ingestion of flora/monograph datasets but not available from other data standards, such as Darwin Core (dwc), Dublin Core (dc), Taxonomic Concept Transfer Schema (tcs), Plinian Core (plic), and Audubon Core (ac). When officially adopted by the WFO, these terms will be submitted for ratification by one of the standards.

Taxa.txt

This is the core file of the WFO DwC Archive.

Legend:
dwc & dcterms= Darwin Core, dc=Dublin Core, tcs=Taxonomic Concept Transfer Schema, plic=Plinian Core, ac=Audubon Core, gbif=Global Biodiversity Information Facility, eol=Encyclopedia of Life, adobe=Adobe Corporation, iptc=International Press Telecommunications Council

	TermSource	WFO Core/ Supplemental	**Minimal** Data Elements	**Extended** Data Elements	Data Kind	Description
Record Information						
1	dwc	Core	taxonID			The ID for the data in this record (Note that in spite of the use of taxon here this can be a synonym record.)
33	dwc			taxonRemarks		Unstructured text with notes on the taxon or name.

Nomenclatural Information						
2	wfo			ipniID		The globally unique IPNI ID for the plant name, if a seed plant or lycophyte.
3	wfo			bryoID		A globally unique ID for the plant name, if a bryophyte.
5	dwc	Core	scientificName			Full scientific name including authors. Could be a name with a rank from Kingdom to Subvariety.
6	dwc	Core	taxonRank			The rank of the scientificName (Must use the GBIF controlled vocabulary: English rank term followed by the latin designation in parenthesis: order (ordo)")
7	dwc			verbatimTaxonRank		The rank of the scientificName as it appears in the original record (e.g. subsp., ssp.)
17	dwc	Core	specificEpithet			The second or species part of a name of rank species or below
18	dwc	Core	infraspecificEpithet			The third or infraspecific part of a name of rank below species.
19	dwc	Core	scientificNameAuthorship			The authorship of the entire scientificName
20	dwc			nomenclaturalStatus		Nom cons, etc.
21	wfo			nomenclaturalNote		Unstructured text phrase specifically concerning the nomenclature.
24	dwc		namePublishedIn			The nomenclatural reference citation (abbreviated in accordance with botanical community practice)
30	dwc			originalNameUsage		A text string. The basionym or replaced synonom for the scientificName, if it is a new combination or a nomen novum.
31	dwc			originalNameUsageID		A taxonID.

						The taxonID of a basionym or replaced synonom for the scientificName, if the name is a new combination or a nomen novum. [This is a "recursion" with another name's taxonID. The Taxon.txt file must include a record with this taxonID, or violate referential integrity.]
32	plic			typification		Unstructured text phrase describing the type(s). Itemized type specimens go in a Types.txt extension file.
Taxonomic Status						
26	dwc	Core	taxonomicStatus			Controlled values for taxonomicStatus: Accepted , Synonym, Uncertain?. Will names without taxonicStatus be ingested? [Misapplied names will not be ingested]
27	wfo			taxonomicStatusReference		If the reference is different than the source of the dataset stated in the EML.xml metadata. This can be used to uniquely cite the systematist for the taxonomicStatus separately from the EML.xml source entities.
Synonym Information (the following data items apply only to names that are not accepted)						
28	dwc	Core	acceptedNameUsage			A text string. For other than a taxonomicStatus of Accepted, the ScientificName of the accepted name for this record.
29	dwc	Core	acceptedNameUsageID			A taxonID. For taxonomicStatus other than Accepted, the taxonID of the accepted name record

						in this dataset. [This is a "recursion" with another name's taxonID. The Taxon.txt file must include a record with this taxonID, or violate referential integrity.]
Taxon Information (all the following data items apply only to accepted names, or uncertain)						
8	dwc	Core		parentNameUsage		Actually "Name of Next Higher Rank". The full scientific name including authorship of the taxon at the next higher rank in the classification used here. Question of whether this is Core? Not a required field.
9	dwc	Core	parentNameUsageID			Not a required field.
14	dwc	Core	family			The family of the taxon.
15	dwc	Core	genus			For names at species and subspecies rank, the first or generic part of a name. Otherwise the genus of the taxon.
34	wfo	Core	scientificDescription			Unstructured text. This is the non-atomized description in the flora/monograph for the taxon in this record. . Note: Categorized description elements would need to go into an as-yet undefined extension file.
35	wfo			scientificDescriptionAuthor		If the author is different than the source of the dataset stated in the EML.xml metadata.This can be used to uniquely cite the author for the scientificDescription separately from the EML.xml source entities.
36	wfo			scientificDescriptionGeographicRange		Unstructured text describing the geographic range to which the scientific description applies.

37	wfo			morphology		Unstructured text describing morphology. Alternatively, can be provided in Descriptions.txt extension file.
38	plic	Supplemental	habit			Unstructured text describing habit/life form. No controlled vocabulary. Alternatively, can be provided in Descriptions.txt extension file Note: Multiple habits, categorized, should go into a Descriptions.txt extension file.
39	dwc	Supplemental	habitat			Unstructured text describing the habitat. Alternatively, can be provided in Descriptions.txt extension file Note: Multiple habitats, categorized, should go into a Habitats.txt extension file.
40	wfo	Core	verbatimDistribution			Unstructured text describing the distribution of the scientific name. Note: Categorized distributions should go into a Distribution.txt extension file.
41	wfo			verbatimDistributionSource		If the distribution source is different than the source of the dataset stated in the EML.xml metadata.
42	dwc	Supplemental	verbatimElevation			Summary elevation description from the source. Elevations itemized by country should be included in the Distributions.txt extension file.
43	dwc			minimumElevationInMeters	Number	Summary value. Elevations itemized by country should be included in the Distributions.txt extension file.
44	dwc			maximumElevationInMeters	Number	Summary value. Elevations itemized by country should be included in the Distributions.txt extension file.
45	wfo			verbatimSpecimenList		Unstructured text. Note: Categorized specimens should go in a Specimens.txt extension file.

46	wfo	Core	sourceCitation			Full citation for this name in the source, including page number.
47	wfo			sourcePageURL		URL to an image of the source page for the taxon.
48	wfo			sourceStartPage		First page of the source citation for this taxon in the source in the EML.xml metadata
49	wfo			sourceEndPage		Last page of the source citation for this taxon in the source in the EML.xml metadata
Metadata (could be copied from the dataset metadata by default)						
23	dcterms			bibliographicCitation		The full citation of the source publication for this record.
50	dc			license		The license given by the rightsHolder for this name record. It can be CC0 or Public Domain.
51	dcterms			rights		Information about rights held in and over this name record. A full-text, readable copyright statement, as required by the national legislation of the copyright holder.
52	dcterms			rightsHolder		Person or organization owning or managing rights over this name record
54	dc		created			Date of creation of this taxon record.
55	dcterms		modified			The most recent date-time on which the taxon record was changed. For Darwin Core, recommended best practice is to use an encoding scheme, such as ISO 8601:2004(E).

Distribution.txt

This is an extension file to associate multiple geographical distribution data values to a name in the core Taxa.txt file.
Unstructured text describing the distribution of the scientific name should go in verbatimDescription in the Taxa.txt file not in the DescriptiveData.txt extension file.
At least one of countryCode, TDWGCode, or verbatimAreaName are required to have a meaningful Distribution record
To record .

Term Source	WFO Core/ Supplemental	**Minimal** Data Elements	**Extended** Data Elements	Data Kind	Description
dwc	Core	taxonID			Must match a taxonID in the Taxon.txt file or break referential integrity.
dwc	Core	countryCode			ISO standard code
wfo			TDWGCode		Geographical code from TDWG Standard World Geographical Scheme for Recording Plant Distributions (1992)
wfo			verbatimAreaName		As stated in the source. Could be verbatim country name
dwc	Supplemental	establishmentMeans			Limit vocabulary to native, introduced, uncertain (**Not:** invasive, naturalized, managed)?
dwc	Supplemental	verbatimElevation			Elevation for this distribution record
dwc			minimumElevationInMeters	Number	For this distribution record
dwc			maximumElevationInMeters	Number	For this distribution record
wfo			isNaturalized		The taxonID is naturalized in this distribution record
wfo			isCultivated		The taxonID is cultivated in this distribution record
wfo			isInvasive		The taxonID is invasive to this distribution record
wfo			endemicTo		The taxonID is endemic to this distribution record
wfo			isWithinScope		This distribution record is within the

					geographic scope of the source dataset for the name
dwc			occurrenceStatus		For example: present, absent, common, irregular, rare. Do not use doubtful
dwc			occurrenceRemarks		Unstructured text for this distribution record
wfo			distributionSource		Unstructured text, If the source(s) of this distribution record is/are different than the source of the dataset in the EML.xml metadata.
dc		created			Date of creation of the distribution record
dcterms		modified			The most recent date-time on which the distribution record was changed. For Darwin Core, recommended best practice is to use an encoding scheme, such as ISO 8601:2004(E).

CommonNames.txt

This is an extension file to associate multiple vernacular/common names data to a name in the core Taxa.txt file.

Term Source	WFO Core/ Supplemental	**Minimal** Data Elements	**Extended** Data Elements	Data Kind	Description
dwc	Supplemental	taxonID			Must match a taxonID in the Taxa.txt file or break referential integrity.
dwc	Supplemental	vernacularName			A common or vernacular name. From the source dataset in the EML.xml metadata.
dc		language			If the language of the vernacular name is different than the source of the dataset stated in the EML.xml metadata. In this case, there is only one use of the language term. Use ISO Standard 639-1/2/3 term?
dc		created			Date of creation of the common name record

dcterms		modified			The most recent date-time on which the common name record was changed. For Darwin Core, recommended best practice is to use an encoding scheme, such as ISO 8601:2004(E).

Images.txt

This is an extension file to associate data for multiple image files to a name in the core Taxa.txt file.
Many of these terms can be found at http://terms.tdwg.org/wiki/Audubon_Core_Term_List

Term Source	WFO Core/ Supplemental	**Minimal** Data Elements	**Extended** Data Elements	Data Kind	Description
dwc	Core	taxonID			Must match a taxonID in the Taxon.txt file or break referential integrity.
wfo	Core	imageID			A unique identifier for the image. Is Audubon Core providerManagedID (http://terms.tdwg.org/wiki/ac:providerManagedID) the right term to use here?
dc		title			The title of the image
dc		creator			The creator of the image.
dcterms		rightsHolder			Person or organization owning or managing rights over this image.
dcterms		rights			Information about rights held in and over this image. A full-text, readable copyright statement, as required by the national legislation of the copyright holder. On collections, this applies to all contained objects, unless the object itself has a different statement. Examples: “Copyright XY 2008, all rights reserved”, “© 2008 XY Museum” , "Public Domain.", "Copyright unknown." Do not place just the name of the copyright holder(s) here! That belongs in a list in the xmpRights:Owner field,

					which should be supplied if dc:rights is not 'Public Domain', which is appropriate only if the resource is known to be not under copyright. **See also** the entry for **dcterms:rights** in this document and see the **DCMI FAQ on DC and DCTERMS Namespaces** for discussion of the rationale for terms in two namespaces. Normal practice is to use the same Label if both are provided. Labels have no effect on information discovery and are only suggestions.
dc		created			Date of creation of the image record
dcterms		modified			The most recent date-time on which the image record was changed. For Darwin Core, recommended best practice is to use an encoding scheme, such as ISO 8601:2004(E).
dc			description		Short description/title of the image
wfo			ImageRefersTo		Eg. Identification, Habitat – Is Audubon Core subjectCategory, subjectPart (http://terms.tdwg.org/wiki/ac:subjectPart) the right term to use here?
dc			type		photo, specimen, illustration, map, diagram, diagnostic aid From Audubon Core: A full URI preferably from among the type URIs specified in the DCMI Type Vocabulary. Recommended terms are those URIs whose labels are Collection, StillImage, Sound, MovingImage, InteractiveResource, or Text (e.g. http://purl.org/dc/dcmitype/Collection). Also recommended are the full URIs of

					ac:PanAndZoomImage, ac:3DStillImage, and ac: 3DMovingImage. Values MUST NOT be a string, but a URI with full namespace (e. g. http://purl.org/dc/dcmitype/StillImage) from a controlled vocabulary. Implementers and communities of practice may determine whether specific controlled vocabularies must be used. If the resource is a Collection, this item does *not* identify what types of objects it may contain. Following the DC recommendations at http://purl.org/dc/dcmitype/Text, images of text should be with this URI.
ac			subtype		The subtype should provide more specialization than the type. Possible values are community-defined. For examples see the non-normative page AC_Subtype_Examples.
dc			format		The file format, physical medium, or dimensions of the resource.
ac			accessURI		A URI that uniquely identifies a service that provides a representation of the underlying resource. If this resource can be acquired by an http request, its http URL should be given. If not, but it has some URI in another URI scheme, that may be given here.
eol			thumbnailURI		Cannot find this term at EOL anywhere. A URL to a thumbnail of the image
ac			furtherInformationURL		The URL of a Web site that provides additional information about the version of the media resource that is provided by the Service Access Point.
ac			derivedFrom		A reference to an original resource from

					which the current one is derived.
wfo			imageResolution		Dots per inch
adobe/xmp			createDate		Is this the same as dc:created? The date of the creation of the original resource from which the digital media was derived or created. The date and time must comply with the World Wide Web Consortium (W3C) datetime practice, which requires that date and time representation correspond to ISO 8601:1998, but with year fields always comprising 4 digits. This makes datetime records compliant with 8601:2004. AC datetime values may also follow 8601:2004 for ranges by separating two IS0 8601 datetime fields by a solidus ("forward slash", '/'). See also the wikipedia IS0 8601 entry for further explanation and examples.
Adobe/xmprights			usageTerms		Is this same as dc:license? The license statement defining how resources may be used. Information on a collection applies to all contained objects unless the object has a different statement.
dc			license		The license the rightsHolder is giving for the image. Could be "CC0" or "Public Domain"
dcterms			bibliographicCitation		The full citation for the image
dc			publisher		
dc			contributor		
iptc			locationCreated		The IPTC "locationCreated" is actually a group of terms for the location where the photographer was standing when the image was created.

W3			geo:lat		Latitude of the image creation. Using xmlns:geo="http://www.w3.org/2003/01/geo/wgs84_pos#"
W3			geo:long		Longitude of the image creation. Using xmlns:geo="http://www.w3.org/2003/01/geo/wgs84_pos#"
W3			alt		Altitude (elevation?) of the image creation

DescriptiveData.txt

This is an extension file to associate single or multiple descriptive data to a name in the core Taxa.txt file.

Term Source	WFO Core/ Supplemental	**Minimal** Data Elements	**Extended** Data Elements	Data Kind	Description
dwc	Supplemental	taxonID			Must match a taxonID in the Taxon.txt file or break referential integrity.
dc		type			GBIF controlled values. Viz.. Narrative distribution, morphology, habit, habitat, use
dc	Supplemental	description			Description appropriate to the type
dc		creator			The person attributed for the description
dc		created			Date of creation of the description record
dcterms		modified			The most recent date-time on which the description record was changed. For Darwin Core, recommended best practice is to use an encoding scheme, such as ISO 8601:2004(E).

References.txt

This is an extension file to associate multiple references data to a name in the core Taxa.txt file.

Term Source	WFO Core/ Supplemental	**Minimal** Data Elements	**Extended** Data Elements	Data Kind	Description
dwc			taxonID		Must match a taxonID in the Taxon.txt file or break referential integrity.

dcterms			bibliographicCitation		Citation of a bibliographic reference for the taxon as cited in the flora/monograph
dc			created		Date of creation of the reference record
dcterms			modified		The most recent date-time on which the reference record was changed. For Darwin Core, recommended best practice is to use an encoding scheme, such as ISO 8601:2004(E).

Specimens.txt

This is an extension file to associate multiple cited specimens data to a name in the core Taxa.txt file.
Note: This is not specimen label data, but flora/monograph specimens cited

Term Source	WFO Core/ Supplemental	**Minimal** Data Elements	**Extended** Data Elements	Data Kind	Description
dwc			taxonID		Must match a taxonID in the Taxon.txt file or break referential integrity.
tcs			specimenID		Specimen identifier used in a flora/monograph other than collector and collection number.
dwc			recordedBy		The collector. From the flora/monograph
dwc			recordNumber		The collector's collection number.
wfo?			verbatimHerbaria		Unstructured text. List of one or more herbaria
wfo?			herbariumCode		Code of the herbarium for the specimen. Different than Institution Code. Allow multiple values or require duplicate records except

					herbariumCode.
wfo			verbatimAreaName		Unstructured text
dwc			countryCode		ISO Country code
dwc			locality		Unstructured text
dwc			year		
wfo			wasSeen		Specimen was seen by the flora/monograph author
dc			created		Date of creation of the reference record
dcterms			modified		The most recent date-time on which the reference record was changed. For Darwin Core, recommended best practice is to use an encoding scheme, such as ISO 8601:2004(E).

Types.txt

This is an extension file to associate multiple cited type specimens data to a name in the core Taxa.txt file.
Note: These are the types cited in the flora/monograph

Term Source	WFO Core/ Supplemental	**Minimal** Data Elements	**Extended** Data Elements	Data Kind	Description
dwc			taxonID		Must match a taxonID in the Taxon.txt file or break referential integrity.
tcs			specimenID		Specimen identifier used in a flora/monograph other than collector and collection number
plic			TypeSpecimenType		Type description. It could be: Holotype, Isotype, Isolectotype, Kleptotype, Paratype, Sintype…

wfo			typeMaterial		Specimen, illustration, etc.
dwc			recordedBy		The collector. From the flora/monograph
dwc			recordNumber		The collector's collection number.
wfo			verbatimHerbaria		Unstructured text. List of one or more herbaria
wfo			herbariumCode		Code of the herbarium for the type specimen. Different than Institution Code. Allow multiple values or require duplicate records except herbariumCode
wfo			verbatimAreaName		Unstructured text
dwc			countryCode		ISO Country code
dwc			locality		Unstructured text
dwc			year		
wfo			wasSeen		Specimen was seen by the flora/monograph author
dc			created		Date of creation of the reference record
dcterms			modified		The most recent date-time on which the reference record was changed. For Darwin Core, recommended best practice is to use an encoding scheme, such as ISO 8601:2004(E).

EML.xml

This is an XML file that provides the metadata for the entire DwCA dataset included in the archive ZIP file – i.e. the flora/monograph ingestion dataset.

The GBIF DwCA guideline suggests using the Ecological Modelling Language standard for this file. EML is an XML Schema, not a CSV list of terms, so it has hierarchical structure with repeating elements. It needs more careful analysis, because the GBIF examples are very oriented toward specimen/observation list data. For instance, GBIF does not include publisher data which is essential.

The EML standard (https://knb.ecoinformatics.org/#external//emlparser/docs/eml-2.1.1/./index.html) includes several modules that we will need to use to capture the metadata for a WFO data ingestion file.

- Dataset
- Party
- Literature
- Project
- Physical

EML Dataset Module

This module provides the description of the EML dataset.
(https://knb.ecoinformatics.org/#external//emlparser/docs/eml-2.1.1/./eml-dataset.html)

Module Documentation: eml-dataset

The eml-dataset module - Dataset specific information

The eml-dataset module contains general information that describes dataset resources. It is intended to provide overview information about the dataset: broad information such as the title, abstract, keywords, contacts, maintenance history, purpose, and distribution of the data themselves. The eml-dataset module also imports many other modules that are used to describe the dataset in fine detail. Specifically, it uses the eml-methods module to describe methodology used in collecting or processing the dataset, the eml-project module to describe the overarching research context and experimental design, the eml-access module to define access control rules for the data and metadata, and the eml-entity module to provide detailed information about the logical structure of the dataset. A dataset can be (and often is) composed of a series of data entities (tables) that are linked together by particular integrity constraints. The eml-dataset module, like other modules, may be "referenced" via the <references> tag. This allows a dataset to be described once, and then used as a reference in other locations within the EML document via its ID.

Module details

Recommended Usage:	all datasets
Stand-alone:	yes
Imports:	eml-documentation, eml-resource, eml-party, eml-access, eml-entity, eml-dataTable, eml-project, eml-methods, eml-spatialRaster, eml-spatialVector, eml-storedProcedure, eml-text, eml-view
Imported By:	
View an image of the schema:	eml-dataset image

Element Definitions:

dataset
Content of this field:
Type: DatasetType

This element has no default value.

Description of this field:
The dataset field encompasses all information about a single dataset. A dataset is defined as all of the information describing a data collection event. This event may take place over some period of time and include many actual collections (a time series or remote sensing application) or it could be just one actual collection (a day in the field).

purpose
Content of this field:
Type: txt:TextType

This element has no default value.

Description of this field:
A description of the purpose of this dataset. Note that this element requires DocBook style formatting. See eml-text for more information.

maintenance
Content of this field:
Type:
MaintenanceType

This element has no default value.

Description of this field:
A description of the maintenance of this data resource. This includes information about the frequency of update, and whether there is ongoing data collection.

contact
Content of this field:
Type:
rp:ResponsibleParty

This element has no default value.

Description of this field:
The contact field contains contact information for this dataset. This is the person or institution to contact with questions about the use, interpretation of a data set.

publisher
Content of this field:
Type:
rp:ResponsibleParty

This element has no default value.

Description of this field:
The publisher of this data set. At times this is a traditional publishing house, but it may also simply be an institution that is making the data available in a published (ie, citable) format.

pubPlace
Content of this field:
Type:
res:NonEmptyStringType

This element has no default value.

Description of this field:
The pubPlace field is the location where the resource was published, which may be different from where the resource was

created.
Example(s):
San Francisco, CA, USA
New York, NY, USA

methods
Content of this field:
Type:
md:MethodsType

This element has no default value.

Description of this field:
The methods field documents scientific methods used in the collection of this dataset. It includes information on items such as tools, instrument calibration and software.

project
Content of this field:
Type:
proj:ResearchProjectType

This element has no default value.

Description of this field:
The project field contains information on the project in which this dataset was collected. It includes information such as project personnel, funding, study area, project design and related projects. The project description can also contain documentation on subprojects.

dataTable
Content of this field:
Type:
dat:DataTableType

This element has no default value.

Description of this field:
The dataTable field documents the dataTable(s) that make up this dataset. A dataTable could be anything from a Comma Separated Value (CSV) file to a spreadsheet to a table in an RDBMS.

spatialRaster
Content of this field:
Type:
sr:SpatialRasterType

This element has no default value.

Description of this field:
The spatialRaster field describes any spatial raster images included in this dataset.

spatialVector
Content of this field:
Type:
sv:SpatialVectorType

This element has no default value.

Description of this field:
The spatialVector field describes any spatial vectors included in this dataset.

storedProcedure
Content of this field:
Type:
sp:StoredProcedureType

This element has no default value.

Description of this field:
The storedProcedure field contains information about any stored procedures included with this dataset. This usually implies that the dataset is stored in a DBMS or some other data management system capable of processing your dataset.

This element has no default value.

view
Content of this field:
Type: v:ViewType

Description of this field:
The view field contains information about any view included with this dataset. This usually implies that the dataset is stored in a DBMS or some other data management system capable of processing your dataset.

This element has no default value.

otherEntity
Content of this field:
Type:
ent:OtherEntityType

Description of this field:
The otherEntity field contains information about any entity in the dataset that is not any of the preceding entities. (i.e. it is not a table, spatialRaster, spatialVector, storedProcedure or view.) OtherEntity allows the documentation of basic entity fields as well as a plain text field to allow you to type your entity.

This element has no default value.

description
Content of this field:
Type: txt:TextType

Description of this field:
A text description of the maintenance of this data resource. Note that this field must be marked up using DocBook like tagging. See eml-text for more information.

This element has no default value.

maintenanceUpdate Frequency
Content of this field:
Type:
MaintUpFreqType

Description of this field:
Frequency with which changes and additions are made to the dataset after the initial dataset is completed. The values for this field must come from the enumeration MaintUpFreqType.

This element has no default value.

changeHistory
Content of this field:

Elements:	Use:	How many:
A sequence of (		
changeScope	required	
oldValue	required	
changeDate	required	
comment	optional	
)		

Description of this field:
A description of changes made to the data since its release.

This element has no default value.

changeScope
Content of this field:
Type:
res:NonEmptyStringT

Description of this field:
The expression should unambiguously identify the entity(s) and attribute(s) that

ype

were changed.

oldValue
Content of this field:
Type:
res:NonEmptyStringT
ype

This element has no default value.

Description of this field:
The previous value or an expression that describes the previous value of the data.

changeDate
Content of this field:
Type: xs:date

This element has no default value.

Description of this field:
The date the changes were applied.

comment
Content of this field:
Type:
res:NonEmptyStringT
ype

This element has no default value.

Description of this field:
Explanation or justification for the change made to the data.

Attribute Definitions:

id
Type: res:IDType
Use: optional

system
Type:
res:SystemType
Use: optional

scope
Type: res:ScopeType
Use: optional
Default value:
document

Complex Type Definitions:

DatasetType
Content of this field:
Elements: Use:

A choice of (
A sequence of (

Description of this field:
DatasetType is the base type for the dataset element. The dataset field encompasses all information about a single dataset. A dataset is defined as all of the information describing a data collection event. This event may take place over some period of time and include many actual collections (a time series or remote sensing application) or it could be just one actual collection (a day in the field).

res:ResourceGroup		
purpose	optional	
maintenance	optional	
contact	required	urbcurrcoeo
publisher	optional	
pubPlace	optional	
methods	optional	
project	optional	
A choice of (		
dataTable	required	
OR		
spatialRaster	required	
OR		
spatialVector	required	
OR		
storedProcedure	required	
OR		
view	required	
OR		
otherEntity	required	
)		
)		
OR		
res:ReferencesGroup		
)		
Attributes:	Use:	Defaultvalue:
id	optional	
system	optional	
scope	optional	co

c
u
r
e
r
t

MaintenanceType

Content of this field:			Description of this field:
Elements:	Use:	How many:	The maintenance type defines the fields for the maintenance element.
A sequence of (			
description	required		
maintenanceUpdateFrequency	optional		
changeHistory	optional	unbounded	
)			

Simple Type Definitions:

MaintUpFreqType

Derived from: xs:string (by xs:restriction)

Allowed values:
annually
asNeeded
biannually
continually
daily
irregular
monthly
notPlanned
weekly
unkown
otherMaintenancePeriod

EML Party Module

EML provides a “party” module for people and organisation information (https://knb.ecoinformatics.org/#external//emlparser/docs/eml-2.1.1/./eml-party.html). Using this, the GBIF EML profile distinguishes three essential contacts:

Resource Contact

The resource contact is the person or organisation that should be contacted to get more information about the resource, that curates the resource or to whom putative problems with the resource or its data should be addressed.

Resource Creator
The resource creator is the person or organisation responsible for the original creation of the resource content. When there are multiple creators, the one that bears the greatest responsibility is the resource creator and others should be added as associated parties with role 'originator' or 'content provider'.

Metadata Provider
The metadata provider is the person or organisation responsible for producing the resource metadata.

Associated Parties
There is also an “associated parties” section where additional persons in some way associated with the resource being described by the metadata can be listed.

Module Documentation: eml-party

The eml-party module - People and organization information
The eml-party module describes a responsible party and is typically used to name the creator of a resource or metadata document. A responsible party may be an individual person, an organization or a named position within an organization. The eml-party module contains detailed contact information. It is used throughout the other EML modules where detailed contact information is needed.
The eml-party module, like other modules, may be "referenced" via the <references> tag. This allows a party to be described once, and then used as a reference in other locations within the EML document via its ID.
Module details

Recommended Usage:	all datasets
Stand-alone:	yes
Imports:	eml-documentation, eml-resource
Imported By:	
View an image of the schema:	eml-party image

Element Definitions:

individualName	**This element has no default value.**
Content of this field:	Description of this field:
Type: Person	The individualName field contains subfields so that a person's name can be broken down into parts. Note that the the content model for the containing type allows a sequence of choices for the first element(s): <individualName>, <organizationName> and/or <positionName>. This means that a parent element (e.g., creator) may use combinations of the 3 sub-elements to make up a single logical party. For example, a creator with only the individualName of 'Joe Smith' is NOT the same as a creator with the individualName of 'Joe Smith' and the

	organizationName of 'NSF'. To include both a positionName and an organizationName as children of a <contact> implies that anyone currently occupying that positionName at that organizationName is an appropriate contact. The positionName should not be used in conjunction with individualName unless only that specific individual at that position would be considered appropriate for that designation. Example(s): Because this is an 'elementOnly' field, please look at the examples for the subfields 'givenName' and 'surName'.
organizationName	**This element has no default value.**
Content of this field: Type: res:i18nNonEmptyStringType	Description of this field: The responsible party field contains the full name of the organization that is associated with the resource. This field is intended to describe which institution or overall organization is associated with the resource being described. Note that the the content model for the containing type allows a sequence of choices for the first element(s): <individualName>, <organizationName> and/or <positionName>. This means that a parent element (e.g., creator) may use combinations of the 3 sub-elements to make up a single logical party. For example, a creator with only the individualName of 'Joe Smith' is NOT the same as a creator with the individualName of 'Joe Smith' and the organizationName of 'NSF'. To include both a positionName and an organizationName as children of a <contact> implies that anyone currently occupying that positionName at that organizationName is an appropriate contact. The positionName should not be used in conjunction with individualName unless only that specific individual at that position would be considered appropriate for that designation. Example(s): National Center for Ecological Analysis and Synthesis
positionName	**This element has no default value.**
Content of this field: Type: res:i18nNonEmptyStringType	Description of this field: This field is intended to be used instead of a particular person or full organization name. If the associated person who holds the role changes frequently, then Position Name would be used for consistency. Note that the the content model for the containing type allows a sequence of choices for the first element(s): <individualName>, <organizationName> and/or

	<positionName>. This means that a parent element (e.g., creator) may use combinations of the 3 sub-elements to make up a single logical party. For example, a creator with only the individualName of 'Joe Smith' is NOT the same as a creator with the individualName of 'Joe Smith' and the organizationName of 'NSF'. To include both a positionName and an organizationName as children of a <contact> implies that anyone currently occupying that positionName at that organizationName is an appropriate contact. The positionName should not be used in conjunction with individualName unless only that specific individual at that position would be considered appropriate for that designation. Example(s): Niwot Ridge Data Manager
address	**This element has no default value.**
Content of this field: Type: Address	Description of this field: The address field is a container for multiple subfields that describe the physical or electronic address of the responsible party for a resource. Example(s): Please see the subfield examples.
phone	**This element has no default value.**
Content of this field: Attributes: Use: Default Value: phonetype optional voice	Description of this field: The phone field describes information about the responsible party's telephone, be it a voice phone, fax, or TTD/TTY type telephone. This field contains an attribute used to identify the type. Example(s): 805-555-2500
electronicMailAddress	**This element has no default value.**
Content of this field: Type: res:i18nNonEmptyStringType	Description of this field: The electronic mail address is the email address for the party. It is intended to be an Internet SMTP email address, which should consist of a username followed by the @ symbol, followed by the email server domain name address. Other address types are allowable. Example(s): my-email@mydomain.edu
onlineUrl	**This element has no default value.**
Content of this field: Type: xs:anyURI	Description of this field: A link to associated online information, usually a web site. When the party represents an organization, this is the URL to a website or other online information about the organization. If the party is an individual, it might

	be their personal web site or other related online information about the party. Example(s): http://www.yourdomain.edu/~doe
userId	**This element has no default value.**
Content of this field: Attributes: Use: Default Value: directory required	Description of this field: An identifier that links this party to a directory of personnel. Although specific contact information for a party might change, the underlying correspondence to a real individual does not. This identifier provides a pointer within a personnel directory that may contain further, and possibly more current, information about the party. Example(s): uid=jtown,o=NCEAS,dc=ecoinformatics,dc=org
salutation	**This element has no default value.**
Content of this field: Type: res:i18nNonEmptyStringType	Description of this field: The salutation field is used in addressing an individual with a particular title, such as Dr., Ms., Mrs., Mr., etc. Example(s): Dr.
givenName	**This element has no default value.**
Content of this field: Type: res:i18nNonEmptyStringType	Description of this field: The given name field can be used for first name of the individual associated with the resource, or for any other names that are not intended to be alphabetized, (as appropriate). Note that while it is possible to include all given names in one field (as in the example below), it may be not be good practice to do so. For example, if an XSL transformation stylesheet were to abbreviate the content of a givenName to just the first initial, a givenName element that contained more than one name would not be transformed correctly. Example(s): Juan Luis Jane
surName	**This element has no default value.**
Content of this field: Type: res:i18nNonEmptyStringType	Description of this field: The surname field is used for the last name of the individual associated with the resource. This is typically the family name of an individual, for example, the name by which s/he is referred to in citations. Example(s): San Gil Curtis-Ainsworth Tao

deliveryPoint	**This element has no default value.**
Content of this field: Type: res:i18nNonEmptyStringType	Description of this field: The delivery point field is used for the physical address for postal communication. This field is used to accommodate the many different international conventions that are the equivalent to a U.S. 'street address'. Example(s): 7209 Coast Drive, Building 44

city	**This element has no default value.**
Content of this field: Type: res:i18nNonEmptyStringType	Description of this field: The city field is used for the city name of the contact associated with a particular resource. Example(s): San Francisco

administrativeArea	**This element has no default value.**
Content of this field: Type: res:i18nNonEmptyStringType	Description of this field: The administrative area field is the equivalent of a 'state' in the U.S., or Province in Canada. This field is intended to accommodate the many types of international administrative areas. Example(s): Colorado

postalCode	**This element has no default value.**
Content of this field: Type: res:i18nNonEmptyStringType	Description of this field: The postal code is equivalent to a U.S. zip code, or the number used for routing to an international address. The U.S. postal code should include the 5 digit code plus the 4 digit extension. Example(s): 93106-2231

country	**This element has no default value.**
Content of this field: Type: res:i18nNonEmptyStringType	Description of this field: The country field is used for the name of the contact's country. Example(s): U.S.A.

party	**This element has no default value.**
Content of this field: Type: ResponsibleParty	Description of this field: The responsible party contains multiple subfields that are used to describe a person, organization, or position within an organization. It is intended to be used to fully document contact information for many types of associations, such as owner, manager, steward, curator, etc.

Attribute Definitions:

phonetype

Type: xs:string Use: optional Default value: voice	This attribute gives the type of phone to which this number applies. By default, this is assumed to be of type "voice", but other possibilities include "facsimile" and "tdd".

directory

Type: xs:string Use: required	This attribute names the directory system to which this userId applies. This will generally be a URL that shows how to look up information, for example an LDAP url. However, it could also be a non-parsable description of the directory system if that is all that is available. Example(s): ldap:///ldap.ecoinformatics.org/dc=ecoinformatics,dc=org

id

Type: res:IDType
Use: optional

system

Type: res:SystemType
Use: optional

scope

Type: res:ScopeType
Use: optional
Default value: document

id

Type: res:IDType
Use: optional

system

Type: res:SystemType
Use: optional

scope

Type: res:ScopeType
Use: optional
Default value: document

Complex Type Definitions:

ResponsibleParty

Content of this field:			Description of this field:
Elements: A choice of (A sequence of (	Use:	How many:	The ResponsibleParty Type contains elements that are used to describe the person, organization or position within an organization that is associated in some way with the resource. It is intended to be used to fully document contact information for many types

A choice of (			of associations, such as owner, manager, steward, curator, etc. Note that the content model for a responsible party type allows a sequence of choices for the first element(s): <individualName>, <organizationName> and/or <positionName>. This means that a parent element (e.g., creator) may use combinations of the 3 sub-elements to make up a single logical party. For example, a creator with only the individualName of 'Joe Smith' is NOT the same as a creator with the individualName of 'Joe Smith' and the organizationName of 'NSF'. To include both a positionName and an organizationName as children of a <contact> implies that anyone currently occupying that positionName at that organizationName is an appropriate contact. The positionName should not be used in conjunction with individualName unless only that specific individual at that position would be considered appropriate for that designation. Example(s): Please see the examples for the particular subfields.
individualName	required		
OR			
organizationName	required		
OR			
positionName	required		
)			
address	optional	unbounded	
phone	optional	unbounded	
electronicMailAddress	optional	unbounded	
onlineUrl	optional	unbounded	
userId	optional	unbounded	
)			
OR			
res:ReferencesGroup			
)			
Attributes:	Use:	Default Value:	
id	optional		
system	optional		
scope	optional	document	

Person

Content of this field:			Description of this field:
			The person Type is used to enter the salutation, and two types of name parts for an individual associated with the resource. It uses these three subfields to help parse the person's entire name. The two elements, <givenName> and <surName>, allow parsing of many types of names, even though distinct elements do not exist for concepts like "middle name" and "compound surname". <givenName> should be used for parts of the name that are often shortened to a first initial, or are not used for ordering, and typically includes first and middle names. The <surName> field is intended to be used for the part of the name that is generally displayed in its entirety and/or is alphabetized or otherwise ordered when appropriate. Note that only one <surName> is allowed,
Elements:	Use:	How many:	
A sequence of (			
salutation	optional	unbounded	
givenName	optional	unbounded	
surName	required		
)			

			and is required, while <givenName>s are optional and unbounded. The arrangement and content of the sub-elements is entirely up to the EML document's author, who presumably has first-hand knowledge of how the names are to be constructed. For example, if element position is important (e.g., the list of a book's authors), then EML authors should put the creators in that order. If it is appropriate for a resource to have its creators sorted alphabetically, then the EML author should construct the name parts so that the<surName> field may be used for this purpose. At this time, EML is not able to express cultural conventions so that authors may indicate the correct order for <givenName>s and <surName> when the whole name is expressed. However support for international names is under consideration for a future version of EML, along with other internationalization features. Example(s): Please see the examples within each subfield.

Address

Content of this field:			Description of this field:
Elements:	Use:	How many:	The address field is provides detailed information for communicating with a party contact via electronic mail or postal mail, including the physical delivery location. Example(s): Please see the examples for each subfield
A choice of (			
A sequence of (			
deliveryPoint	optional	unbounded	
city	optional		
administrativeArea	optional		
postalCode	optional		
country	optional		
)			
OR			
res:ReferencesGroup			
)			
Attributes:	Use:	Default Value:	
id	optional		
system	optiona		

scope	optional	document

Simple Type Definitions:

RoleType

The role code field provides information on how a person or organization is related to a resource. There may be many people associated, including an 'originator' of a dataset, an 'author', 'editor', or 'publisher' of a literature resource, or an organization that is a 'distributor'. the full list of choices is included in the example.
Example(s):
author, contentProvider, custodianSteward, distributor, editor, metadataProvider, originator, pointOfContact, principalInvestigator, processor, publisher, or user.

EML Literature

EML provides a literature module for citation information (https://knb.ecoinformatics.org/#external//emlparser/docs/eml-2.1.1/./eml-literature.html)
This could be used to describe publications associated with the data set, inc the original flora publication. Note that the GBIF EML profile itself only implements a simplified bibliography field (i.e., not atomised into components).

*In addition, **Darwin Core** provides two fields for references:*

- *dcterms:references*

A related resource that is referenced, cited, or otherwise pointed to by the described resource.

- *associatedReferences*

A list (concatenated and separated) of identifiers (publication, bibliographic reference, global unique identifier, URI) of literature associated with the Occurrence.

Module Documentation: eml-literature

Back to EML Contents

The eml-literature module - Citation specific information
The eml-literature module contains information that describes literature resources. It is intended to provide overview information about the literature citation, including title, abstract, keywords, and contacts. Citation types follow the conventions laid out by
EndNote
, and there is an attempt to represent a compatible subset of the EndNote citation types. These citation types include: article, book, chapter, edited book, manuscript, report, thesis, conference proceedings, personal communication, map, generic, audio visual, and presentation. The "generic" citation type would be used when one of the other types will not work.
The eml-literature module, like other modules, may be "referenced" via the <references> tag. This allows a citation to be described once, and then used as a reference in other locations within the EML document via its ID.
Module details

Recommended Usage:	All datasets with literary citations
Stand-alone:	yes
Imports:	eml-documentation, eml-resource, eml-coverage, eml-party, eml-access, eml-project
Imported By:	
View an image of the schema:	eml-literature image

Element Definitions:

citation	**This element has no default value.**
Content of this field: Type: CitationType	Description of this field: The citation element contains general information about a literature resource that is being documented, or a piece of literature that is being cited in support of a given resource, such as a dataset. It contains sub-elements that are specific to a literature resource such as a book, a journal article, a thesis, etc. It extends the generic resource elements with literature specific fields.

contact	**This element has no default value.**
Content of this field: Type: rp:ResponsibleParty	Description of this field: The contact field contains information about an alternate person to be contacted about this citation. Usually, the first author serves as the contact for a citation resource, e.g., a reprint request. In some cases, an alternate individual(s) may serve that function, and can be indicated here. Since contact is of the type rp:ResponsibleParty, a reference may be used.

article	**This element has no default value.**
Content of this field: Type: Article	Description of this field: The article field provides sub-fields for a full citation of an article in a journal or other periodical.

book	**This element has no default value.**
Content of this field: Type: Book	Description of this field: The book field provides sub-fields for a full citation of a book.

chapter	**This element has no default value.**
Content of this field: Type: Chapter	Description of this field: The book chapter allows citation of a single chapter or section of a book. The "creator" for a book chapter are the chapter's authors, while the "editor" is the book editors. Likewise, "title" is the chapter title, while "bookTitle" is the title of the whole book.

editedBook	**This element has no default value.**

Content of this field:	Description of this field:
Type: Book	The edited book represents a book which was edited by one or more editors, but whose chapters were possibly authored by others. The editors of an edited book should be listed in the "creator" field.

manuscript **This element has no default value.**

Content of this field:	Description of this field:
Type: Manuscript	The manuscript field provides sub-fields for a full citation of an unpublished manuscript.

report **This element has no default value.**

Content of this field:	Description of this field:
Type: Report	The report may be self published by the institution or through a publisher. They usually are available by request to the institution or can be purchased from the publisher.

thesis **This element has no default value.**

Content of this field:	Description of this field:
Type: Thesis	Information about a thesis that has been written as part of a degree requirement and is frequently published in small numbers by the degree awarding institution.

conferenceProceedings **This element has no default value.**

Content of this field:	Description of this field:
Type: ConferenceProceedings	The published notes, papers, presentations, etc..., of a conference.

personalCommunication **This element has no default value.**

Content of this field:	Description of this field:
Type: PersonalCommunication	This could be a widely distributed memo, an e-mail, a transcript from a conversation or interview, etc...

map **This element has no default value.**

Content of this field:	Description of this field:
Type: Map	This element describes the map that is being cited or cataloged, including its geographic coverage and scale.

generic **This element has no default value.**

Content of this field:	Description of this field:
Type: Generic	This reference type was created for references that do not fit in to the other existing reference types.

audioVisual **This element has no default value.**

Content of this field:	Description of this field:

Type: AudioVisual	This reference type is meant to cover all forms of audio and visual media, including film, video, broadcast, other electronic media.

presentation	**This element has no default value.**
Content of this field: Type: Presentation	Description of this field: An unpublished presentation from a conference, workshop, workgroup, symposium, etc. It will be provided upon request in either in paper and/or electronic form. If the presentation was actually published in a proceedings, use the conferenceProceedings type instead.

journal	**This element has no default value.**
Content of this field: Type: res:NonEmptyStringType	Description of this field: The name of the journal, magazine, newspaper, zine, etc... in which the article was published. Example(s): "Ecology" "New York Times" "Harper's"

volume	**This element has no default value.**
Content of this field: Type: res:NonEmptyStringType	Description of this field: The volume field is used to describe the volume of the journal in which the article appears. Example(s): "Volume I"

issue	**This element has no default value.**
Content of this field: Type: res:NonEmptyStringType	Description of this field: The issue field is used to describe the issue of the journal in which the article appears. Example(s): November 2001

pageRange	**This element has no default value.**
Content of this field: Type: res:NonEmptyStringType	Description of this field: The page range field is used for the beginning and ending pages of the journal article that is being documented. Example(s): 115-122

publisher	**This element has no default value.**
Content of this field: Type: rp:ResponsibleParty	Description of this field: The organization that physically puts together the article and publishes it. Example(s): Harper Collins University Of California Press

publicationPlace	**This element has no default value.**
Content of this field: Type: res:NonEmptyStringType	Description of this field: The location at which the work was published. This is usually the name of the city in which the publishing house produced the work. Example(s): New York London

ISSN	**This element has no default value.**
Content of this field: Type: res:NonEmptyStringType	Description of this field: The ISSN, or International Standard Serial Number that has been assigned to this literature resource. Example(s): ISSN 1234-5679

publisher	**This element has no default value.**
Content of this field: Type: rp:ResponsibleParty	Description of this field: The organization that physically puts together the book and publishes it. Example(s): Harper Collins University Of California Press

publicationPlace	**This element has no default value.**
Content of this field: Type: res:NonEmptyStringType	Description of this field: The location at which the work was published. This is usually the name of the city in which the publishing house produced the work. Example(s): New York London

edition	**This element has no default value.**
Content of this field: Type: res:NonEmptyStringType	Description of this field: The edition field is to document the edition of the book that is being described. Example(s): Second Edition

volume	**This element has no default value.**
Content of this field: Type: res:NonEmptyStringType	Description of this field: The volume field is used to describe the volume number of a book that is part of a multi-volume series of books. Example(s): Volume 2

numberOfVolumes	**This element has no default value.**
Content of this field:	Description of this field:

Type: res:NonEmptyStringType	Number of volumes in a collection Example(s): 12

totalPages	**This element has no default value.**
Content of this field: Type: res:NonEmptyStringType	Description of this field: The total pages field is used to describe the total number of pages in the book that is being described. Example(s): 628

totalFigures	**This element has no default value.**
Content of this field: Type: res:NonEmptyStringType	Description of this field: the total figures field is used to describe the total number of figures, diagrams, and plates in the book that is being documented. Example(s): 45

totalTables	**This element has no default value.**
Content of this field: Type: res:NonEmptyStringType	Description of this field: The total tables field is used to describe the total number of tables that are present in the book that is being documented. Example(s): 10

ISBN	**This element has no default value.**
Content of this field: Type: res:NonEmptyStringType	Description of this field: The ISBN, or International Standard Book Number that has been assigned to this literature resource. Example(s): ISBN 1-861003-11-0

chapterNumber	**This element has no default value.**
Content of this field: Type: res:NonEmptyStringType	Description of this field: The chapter number of the chapter of a book that is being described. Example(s): 7

editor	**This element has no default value.**
Content of this field: Type: rp:ResponsibleParty	Description of this field: The book editor field is used to document the name of the editor of the book that is being described. The editor may be a person, organization, or a role within an organization. Example(s): Tom Christiansen Institute of Marine Science

	Publication Manager
bookTitle	**This element has no default value.**
Content of this field: Type: res:NonEmptyStringType	Description of this field: The book title field is used to document the title of the book that is being described. Example(s): War and Peace
pageRange	**This element has no default value.**
Content of this field: Type: res:NonEmptyStringType	Description of this field: The page range field is used to document the beginning and ending pages of a chapter in a book. Example(s): 25-122
conferenceName	**This element has no default value.**
Content of this field: Type: res:NonEmptyStringType	Description of this field: The name of the conference whose proceedings have been published. Example(s): North American Science Symposium
conferenceDate	**This element has no default value.**
Content of this field: Type: res:NonEmptyStringType	Description of this field: The date the conference was held. Example(s): November 1-6, 1998
conferenceLocation	**This element has no default value.**
Content of this field: Type: rp:Address	Description of this field: The location where the conference was held.
institution	**This element has no default value.**
Content of this field: Type: rp:ResponsibleParty	Description of this field: The institution information field is used to provide contact and address information that would be needed to request an unpublished manuscript Example(s): Please see the individual sub-fields for specific examples.
totalPages	**This element has no default value.**
Content of this field: Type: res:NonEmptyStringType	Description of this field: The total pages field is used to describe the total number of pages in the manuscript that is being described. Example(s): 628
reportNumber	**This element has no default value.**

Content of this field:	Description of this field:
Type: res:NonEmptyStringType	The report number field is used to describe the unique identification number that has been issued by the report institution for the report being described. Example(s): 22

publisher	**This element has no default value.**
Content of this field:	Description of this field:
Type: rp:ResponsibleParty	The organization that physically put together the report and publishes it. Example(s): Harper Collins University Of California Press

publicationPlace	**This element has no default value.**
Content of this field:	Description of this field:
Type: res:NonEmptyStringType	The location at which the work was published. This is usually the name of the city in which the publishing house produced the work. Example(s): New York London

totalPages	**This element has no default value.**
Content of this field:	Description of this field:
Type: res:NonEmptyStringType	The total pages field is used to describe the total number of pages in the report that is being described. Example(s): 628

publisher	**This element has no default value.**
Content of this field:	Description of this field:
Type: rp:ResponsibleParty	The organization that physically puts together the communication and publishes it. Example(s): Harper Collins University Of California Press

publicationPlace	**This element has no default value.**
Content of this field:	Description of this field:
Type: res:NonEmptyStringType	The location at which the work was published. This is usually the name of the city in which the publishing house produced the work. Example(s): New York London

communicationType	**This element has no default value.**

Content of this field:	Description of this field:
Type: res:NonEmptyStringType	The type of personal communication. Could be an email, letter, memo, transcript of conversation either hardcopy or online. Example(s): memo letter email

recipient	**This element has no default value.**
Content of this field:	Description of this field:
Type: rp:ResponsibleParty	The person, place or thing the personal communication was sent to. Example(s): Schmedley, Joe jschmedley@lternet.edu

publisher	**This element has no default value.**
Content of this field:	Description of this field:
Type: rp:ResponsibleParty	The organization that physically puts together the map and publishes it. Example(s): Harper Collins

edition	**This element has no default value.**
Content of this field:	Description of this field:
Type: res:NonEmptyStringType	The edition field is to document the edition of the map that is being described. Example(s): Second Edition

geographicCoverage	**This element has no default value.**
Content of this field:	Description of this field:
Type: cov:GeographicCoverage	This element describes the geographic area which the map covers. Could be descriptive text or Cartesian coordinates of the area.

scale	**This element has no default value.**
Content of this field:	Description of this field:
Type: res:NonEmptyStringType	The Map's scale Example(s): 1:25,000

publisher	**This element has no default value.**
Content of this field:	Description of this field:
Type: rp:ResponsibleParty	Organization which actually distributes the video, film, the broadcaster etc... Example(s): LTER Network Office Public Broadcasting Pacifica Radio

publicationPlace	**This element has no default value.**
Content of this field: Type: res:NonEmptyStringType	Description of this field: The location at which the work was published. This is usually the name of the city in which the publishing house produced the work. Example(s): New York London

performer	**This element has no default value.**
Content of this field: Type: rp:ResponsibleParty	Description of this field: The performers involved in acting, narrating, or shown in the audio visual production. Example(s): Jim Nabors Sir Lawrence Olivier

ISBN	**This element has no default value.**
Content of this field: Type: res:NonEmptyStringType	Description of this field: The ISBN, or International Standard Book Number that has been assigned to this literature resource. Example(s): ISBN 1-861003-11-0

publisher	**This element has no default value.**
Content of this field: Type: rp:ResponsibleParty	Description of this field: The organization which physically puts together the reference and publishes it. Example(s): Harper Collins University Of California Press

publicationPlace	**This element has no default value.**
Content of this field: Type: res:NonEmptyStringType	Description of this field: The location at which the work was published. This is usually the name of the city in which the publishing house produced the work. Example(s): New York London

referenceType	**This element has no default value.**
Content of this field:	Description of this field: The reference type describes the type of reference this generic type is being used to represent. Example(s): zine film radio program

volume	**This element has no default value.**

Content of this field:	Description of this field:
Type: res:NonEmptyStringType	The volume field is used to describe the volume number of a reference that is part of a multi-volume series of references. Example(s): Volume 2

numberOfVolumes	**This element has no default value.**
Content of this field:	Description of this field:
Type: res:NonEmptyStringType	Number of volumes in a collection Example(s): "12"

totalPages	**This element has no default value.**
Content of this field:	Description of this field:
Type: res:NonEmptyStringType	The total pages field is used to describe the total number of pages in the references that is being described. Example(s): 628

totalFigures	**This element has no default value.**
Content of this field:	Description of this field:
Type: res:NonEmptyStringType	The total figures field is used to describe the total number of figures, diagrams, and plates in the reference that is being documented. Example(s): 45

totalTables	**This element has no default value.**
Content of this field:	Description of this field:
Type: res:NonEmptyStringType	The total tables field is used to describe the total number of tables that are present in the reference that is being documented. Example(s): 10

edition	**This element has no default value.**
Content of this field:	Description of this field:
Type: res:NonEmptyStringType	The edition field is to document the edition of the generic reference type that is being described. Example(s): Second Edition

originalPublication	**This element has no default value.**
Content of this field:	Description of this field:
Type: res:NonEmptyStringType	Supplemental information about the original publication of the current reference. Example(s): Date Publisher

reprintEdition	**This element has no default value.**
Content of this field: Type: res:NonEmptyStringType	Description of this field: Reference for current edition that was originally published under a different title. Example(s): Stream Research in the LTER Network, 1993

reviewedItem	**This element has no default value.**
Content of this field: Type: res:NonEmptyStringType	Description of this field: Use for articles, chapters, audio visual, etc. that are critical review of books, cinema, art, or other works. Example(s): Structure and Function of an Alpine Ecosystem Niwot Ridge, Colorado Edited by WILLIAM D. BOWMAN and TIMOTHY R. SEASTEDT, University of Colorado, Boulder

ISBN	**This element has no default value.**
Content of this field: Type: res:NonEmptyStringType	Description of this field: The ISBN, or International Standard Book Number that has been assigned to this literature resource. Example(s): ISBN 1-861003-11-0

ISSN	**This element has no default value.**
Content of this field: Type: res:NonEmptyStringType	Description of this field: The ISSN, or International Standard Serial Number that has been assigned to this literature resource. Example(s): ISSN 1234-5679

degree	**This element has no default value.**
Content of this field: Type: res:NonEmptyStringType	Description of this field: The degree field is used to describe the name or degree level for which the thesis was completed. Example(s): Ph.D. M.S. Master of Science

institution	**This element has no default value.**
Content of this field: Type: rp:ResponsibleParty	Description of this field: The degree institution field is used to name the institution from which the degree was awarded for the thesis being described. Example(s): Western Washington University

totalPages	**This element has no default value.**

Content of this field:	Description of this field:
Type: res:NonEmptyStringType	The total pages field is used to document the number of pages that are present in the thesis that is being described. Example(s): 356

conferenceName **This element has no default value.**

Content of this field:	Description of this field:
Type: res:NonEmptyStringType	The name of the conference at which this presentation was given. Example(s): North American Science Symposium

conferenceDate **This element has no default value.**

Content of this field:	Description of this field:
Type: res:NonEmptyStringType	The date the conference was held. Example(s): November 1-6, 1998

conferenceLocation **This element has no default value.**

Content of this field:	Description of this field:
Type: rp:Address Attribute Definitions:	The location where the conference was held.

id

Type: res:IDType
Use: optional

system

Type: res:SystemType
Use: optional

scope

Type: res:ScopeType
Use: optional
Default value: document
Complex Type Definitions:

CitationType

Content of this field:			Description of this field:
Elements:	Use:	How many:	
A choice of (			
A sequence of (			
res:ResourceGroup			
contact	optional	unbounded	
A choice of (			
article	required		
OR			
book	required		

OR		
chapter	required	
OR		
editedBook	required	
OR		
manuscript	required	
OR		
report	required	
OR		
thesis	required	
OR		
conferenceProceedings	required	
OR		
personalCommunication	required	
OR		
map	required	
OR		
generic	required	
OR		
audioVisual	required	
OR		
presentation	required	
)		
)		
OR		
res:ReferencesGroup		
)		
Attributes:	Use:	Default Value:
id	optional	
system	optional	
scope	optional	document

Article

Content of this field:			Description of this field:
Elements:	Use:	How many:	The article field provides sub-fields for a full citation of an article in a journal or other periodical.
A sequence of (			
journal	required		
volume	optional		
issue	optional		
pageRange	optional		
publisher	optional		
publicationPlace	optional		
ISSN	optional		
)			

Book

Content of this field:			Description of this field:
Elements:	Use:	How many:	The book field provides sub-fields for a full citation of a book.
A sequence of (			
publisher	required		
publicationPlace	optional		
edition	optional		
volume	optional		
numberOfVolumes	optional		
totalPages	optional		
totalFigures	optional		
totalTables	optional		
ISBN	optional		
)			

Chapter

Content of this field:			Description of this field:
Derived from: Book (by xs:extension)			The book chapter allows citation of a single chapter or section of a book. The "creator" for a book chapter are the chapter's authors, while the "editor" is the book editors. Likewise, "title" is the chapter title, while "bookTitle" is the title of the whole book.
Derived from: Book (by xs:extension)			
Elements:	Use:	How many:	
A sequence of (			
chapterNumber	optional		
editor	required	unbounded	
bookTitle	required		
pageRange	optional		
)			

ConferenceProceedings

Content of this field:			Description of this field:
Derived from: Chapter (by xs:extension)			The published notes, papers, presentations, etc..., of a conference.
Derived from: Chapter (by xs:extension)			
Elements:	Use:	How many:	
A sequence of (			
conferenceName	optional		
conferenceDate	optional		
conferenceLocation	optional		
)			

Manuscript

Content of this field:			Description of this field:
Elements:	Use:	How many:	The manuscript field provides sub-fields for a full citation of an unpublished manuscript.
A sequence of (			
institution	required	unbounded	
totalPages	optional		
)			

Report

Content of this field:			Description of this field:
Elements:	Use:	How many:	The report may be self published by the institution or through a publisher. They usually are available by request to the institution or can be purchased from the publisher.
A sequence of (			
reportNumber	optional		
publisher	optional		
publicationPlace	optional		
totalPages	optional		
)			

PersonalCommunication

Content of this field:			Description of this field:
Elements:	Use:	How many:	This could be a widely distributed memo, an e-mail, a transcript from a conversation or interview, etc...
A sequence of (			
publisher	optional		
publicationPlace	optional		
communicationType	optional		
recipient	optional	unbounded	
)			

Map

Content of this field:			Description of this field:
Elements:	Use:	How many:	This element describes the map that is being cited or cataloged, including its geographic coverage and scale.
A sequence of (			
publisher	optional		
edition	optional		
geographicCoverage	optional	unbounded	
scale	optional		
)			

AudioVisual

Content of this field:			Description of this field:
Elements:	Use:	How many:	This reference type is meant to cover all forms of audio and visual media, including film, video, broadcast, other electronic media.
A sequence of (			
publisher	required		
publicationPlace	optional	unbounded	
performer	optional	unbounded	
ISBN	optional		
)			

Generic

Content of this field:			Description of this field:
Elements:	Use:	How many:	
A sequence of (			
publisher	required		
publicationPlace	optional		
referenceType	optional		
volume	optional		

numberOfVolumes	optional
totalPages	optional
totalFigures	optional
totalTables	optional
edition	optional
originalPublication	optional
reprintEdition	optional
reviewedItem	optional
A choice of (	
ISBN	required
OR	
ISSN	required
)	
)	

Thesis

Content of this field:			Description of this field:
Elements:	Use:	How many:	Information about a thesis that has been written as part of a degree requirement and is frequently published in small numbers by the degree awarding institution.
A sequence of (			
degree	required		
institution	required		
totalPages	optional		
)			

Presentation

Content of this field:			Description of this field:
Elements:	Use:	How many:	
A sequence of (			
conferenceName	optional		
conferenceDate	optional		
conferenceLocation	optional		
)			

EML Project

The eml-project module - Research context information for resources (https://knb.ecoinformatics.org/#external//emlparser/docs/eml-2.1.1/./eml-project.html)
This could be used to describe the Flora behind the dataset.

Module Documentation: eml-project B

The eml-project module - Research context information for resources
The eml-project module describes the research context in which the dataset was created, including descriptions of over-all motivations and goals, funding, personnel, description of the study area etc. This is also the module to describe the design of the project: the scientific questions being asked, the architecture of the design, etc. This module is used to place the dataset that is being documented into its larger research context.
The eml-project module, like other modules, may be "referenced" via the <references> tag. This

allows a research project to be described once, and then used as a reference in other locations within the EML document via its ID.

Module details

Recommended Usage:	Use eml-project to document the research context of any dataset or project.
Stand-alone:	no
Imports:	eml-documentation, eml-resource, eml-party, eml-coverage, eml-literature, eml-text
Imported By:	
View an image of the schema:	eml-project image

Element Definitions:

researchProject	**This element has no default value.**
Content of this field: Type: ResearchProjectType	Description of this field: The root element of this module. This is used for testing or if you want to instantiate a stand-alone project file.

title	**This element has no default value.**
Content of this field: Type: res:NonEmptyStringType	Description of this field: A descriptive title for the research project. Example(s): Species diversity in Tennessee riparian habitats.

personnel	**This element has no default value.**
Content of this field: Derived from: rp:ResponsibleParty (by xs:extension) Elements: Use: How many: A sequence of (role required)	Description of this field: The Personnel field extends ResponsibleParty with role information and is used to document people involved in a research project by providing contact information and their role in the project. A project must have at least one originator.

role	**This element has no default value.**
Content of this field: Type: rp:RoleType	Description of this field: The role field contains information about role a person plays in a research project. There are a number of suggested roles, however, it is possible to add a role if the suggested roles are not adequate. Example(s): author contentProvider custodianSteward distributor editor metadataProvider originator

owner
pointOfContact
principalInvestigator
processor
publisher
user
fieldStationManager
informationManager

abstract	**This element has no default value.**
Content of this field: Type: txt:TextType	Description of this field: Descriptive abstract that summarizes information about the research project.

funding	**This element has no default value.**
Content of this field: Type: txt:TextType	Description of this field: The funding field is used to provide information about funding sources for the project such as: grant and contract numbers; names and addresses of funding sources. Other funding-related information may also be included.

studyAreaDescription	**This element has no default value.**
Content of this field: Elements: Use: How many: A choice of (descriptor required OR citation optional OR coverage optional)	Description of this field: The studyAreaDescription field documents the physical area associated with the research project. It can include descriptions of the geographic, temporal, and taxonomic coverage of the research location and descriptions of domains (themes) of interest such as climate, geology, soils or disturbances or reference to citable biological or geophysical classification systems such as the Bailey Ecoregions or the Holdridge Life Zones.

descriptor	**This element has no default value.**
Content of this field: Elements: Use: How many: A sequence of (descriptorValue required unbounded citation optional unbounded) Attributes: Use: Default Value: name required citableClassificationSystem required	Description of this field: The descriptor field is used to document domains (themes) of interest such as climate, geology, soils or disturbances or references to citable biological or geophysical classification systems such as the Bailey Ecoregions or the Holdridge Life Zones.

descriptorValue	**This element has no default value.**
Content of this field: Attributes: Use: Default Value:	Description of this field: The descriptorValue field contains the value of

name_or_id optional	a descriptor, describing some aspect of the study area. This may either be a general description in textual form or the value part of a "name/value" pair where the name is entered in the attribute "name_or_id". For example, if the value of the "name" attribute" of the element "descriptor" is "climate", and the value of the attribute "name_or_id" of the element "descriptorValue" is "Annual Precipitation" then the value of this element could be "12.5 inches". Example(s): 12.5 inches tundra-forest

citation	**This element has no default value.**
Content of this field: Type: cit:CitationType	Description of this field: A citation for this descriptor.

citation	**This element has no default value.**
Content of this field: Type: cit:CitationType	Description of this field: The citation for this descriptor.

coverage	**This element has no default value.**
Content of this field: Type: cov:Coverage	Description of this field: The coverage of this descriptor.

designDescription	**This element has no default value.**
Content of this field: Elements: Use: How many: A choice of (description required OR citation optional)	Description of this field: The field designDescription contains general textual descriptions of research design. It can include detailed accounts of goals, motivations, theory, hypotheses, strategy, statistical design, and actual work. Literature citations may also be used to describe the research design.

description	**This element has no default value.**
Content of this field: Type: txt:TextType	Description of this field: The field designDescription contains general textual descriptions of research design. It can include detailed accounts of goals, motivations, theory, hypotheses, strategy, statistical design, and actual work.

citation	**This element has no default value.**
Content of this field: Type: cit:CitationType	Description of this field: The citation field is a citation to literature that describes elements of the research design, such as goals, motivations, theory, hypotheses, strategy, statistical design, and actual work.

relatedProject	**This element has no default value.**
Content of this field: Type: ResearchProjectType Attribute Definitions:	Description of this field: This field is a recursive link to another project. This allows projects to be nested under one another for the case where one project spawns another.

name_or_id	
Type: xs:string Use: optional	The name_or_id field is the name part of a name/value pair of a descriptor; or ID portion of a classification, if applicable. The values of biogeophysical classification systems, e.g. Bailey-Ecoregions, often take the form of an ID or Code along with a text representation. For example, the ID/Code M131 refers to the phrase "Open Woodland -Tundra". M131 is an unambiguous reference to a more detailed description. If one is using a published classification system then there should be a corresponding citation to the source, e.g., Bailey,R.G., 1996 "Ecosystem Geography". Example(s): M131 Average Annual Rainfall

name	
Type: DescriptorType Use: required	The name of the descriptor system. The name can be either a theme such as climate or hydrology, or the name of a citable classification system.

citableClassificationSystem	
Type: xs:boolean Use: required	This boolean attribute defines whether this descriptor comes from a citable classification system or not.

id	
Type: res:IDType Use: optional	

system	
Type: res:SystemType Use: optional	

scope	
Type: res:ScopeType Use: optional Default value: document Complex Type Definitions:	

ResearchProjectType

Content of this field:			Description of this field:
Elements:	Use:	How many:	The researchProject complex type describes the structure for documenting the research context of a dataset or another project. It can include research goals, motivations, theory, hypotheses, etc., as well as a description of research efforts that form the basis for other work. (To document methods specific to a dataset use eml-methods.) This field can be associated with a dataset using the project field of eml-dataset, and can be associated with another project using the relatedProject field of eml-project (this module).
A choice of (			
A sequence of (			
title	required	unbounded	
personnel	required	unbounded	
abstract	optional		
funding	optional		
studyAreaDescription	optional		
designDescription	optional		
relatedProject	optional	unbounded	
)			
OR			
res:ReferencesGroup			
)			
Attributes:	Use:	Default Value:	
id	optional		
system	optional		
scope	optional	document	
Simple Type Definitions:			

DescriptorType

The DescriptorType is used to represent either the name of a citable classification system/controlled vocabulary such as the Bailey classification of ecoregions or a domain of physical descriptors such as climate or disturbances.
Example(s):
climate
soils
hydrology
"bailey"
biome
disturbance
geology

Here are some selected sections from the GBIF EML example:

```
<dataset>
        <alternateIdentifier>619a4b95-1a82-4006-be6a7dbe3c9b33c5</alternateIdentifier>
        <alternateIdentifier>doi:10.1093/ageing/29.1.57</alternateIdentifier>
        <alternateIdentifier>http://ageing.oxfordjournals.org/content/29/1/57</alternateIdentifier>

         <title xml:lang="en">Tanzanian Entomological Collection</title>
         <title xml:lang="de">Entymologische Sammlung Tansania</title>
```

```
<!-- The creator is the person who created the resource (not necessarily the
                author of this metadata about the resource) -->
<creator>
        <individualName>
          <givenName>David</givenName>
          <surName>Remsen</surName>
        </individualName>
        <organizationName>GBIF</organizationName>
        <positionName>ECAT Programme Officer</positionName>
        <address>
          <deliveryPoint>Universitestparken 15</deliveryPoint>
          <city>Copenhagen</city>
          <administrativeArea>Sjaelland</administrativeArea>
          <postalCode>2100</postalCode>
          <country>DK</country>
        </address>
        <phone>+4528261487</phone>
        <electronicMailAddress>dremsen@gbif.org</electronicMailAddress>
        <onlineUrl>http://www.gbif.org</onlineUrl>
      </creator>

 <!-- The responsible party for the creation of the metadata -->
<metadataProvider>
        <individualName>
              <givenName>Tim</givenName>
             <surName>Robertson</surName>
        </individualName>
        <address>
          <deliveryPoint>Universitestparken 15</deliveryPoint>
          <city>Copenhagen</city>
          <administrativeArea>Copenhagen</administrativeArea>
          <postalCode>2100</postalCode>
          <country>DK</country>
        </address>
        <phone>+4528261487</phone>
        <electronicMailAddress>trobertson@gbif.org</electronicMailAddress>
        <onlineUrl>http://www.gbif.org</onlineUrl>
      </metadataProvider>

<!-- Note that associated parties have roles -->
 <associatedParty>
        <individualName>
          <surName>Doering</surName>
        </individualName>
        <phone>4535321487</phone>
        <!-- The IPT will define a controlled vocabulary for this term -->
        <role>principleInvestigator</role>
      </associatedParty>
      <associatedParty>
        <individualName>
```

```
                    <surName>Hahn</surName>
                </individualName>
                <phone>4535321478</phone>
                <!-- The IPT will define a controlled vocabulary for this term -->
                <role>pointOfContact</role>
            </associatedParty>

        <!-- Identified in the Other section of the GBIF Extended Metadata Doc
        <pubDate>2010-02-02</pubDate>

        <!-- Identified in the Other section of the GBIF Extended Metadata Doc -->
        <!-- This is the RESOURCE language and not the metadata language which is at the
        bottom -->
        <language>en_US</language>

        <!-- The brief overview -->
        <abstract>
                <para>Specimens in jars</para>
            </abstract>

<!-- Identified in the Other section of the GBIF Extended Metadata Doc -->
 <intellectualRights>
        <para>Owner grants XXX a worldwide, non-exclusive right to: (i) use, reproduce,
perform,
            display, archive, transmit and distribute the Content (including any trademarks,
            tradenames and logos in the Content) in electronic form in connection with the Site,
            (ii) allow users of the Site to use, search, copy, download and transmit the
            Content, and (iii) modify and reformat the Content, but solely to the extent
            necessary and for the purposes of: (a) conforming to the format and "look and feel"
            of the Site, and (b) creating snippets, headlines or teasers consisting of selected
            lines or sections from the Content to be displayed on the Site (or displayed on
            other websites owned by XXX for the purposes of directing traffic to the Site).
        </para>
      </intellectualRights>


<!-- 3 types of coverage are supported with example repetition -->
   <coverage>
        <geographicCoverage>
            <geographicDescription>Bounding Box 1</geographicDescription>
            <boundingCoordinates>
                <westBoundingCoordinate>-1.564</westBoundingCoordinate>
                <eastBoundingCoordinate>0.703</eastBoundingCoordinate>
                <northBoundingCoordinate>23.975</northBoundingCoordinate>
                <southBoundingCoordinate>-22.745</southBoundingCoordinate>
            </boundingCoordinates>
        </geographicCoverage>
        <geographicCoverage>
            <geographicDescription>Bounding Box 2</geographicDescription>
            <boundingCoordinates>
```

```
            <westBoundingCoordinate>-10.703</westBoundingCoordinate>
            <eastBoundingCoordinate>11.564</eastBoundingCoordinate>
            <northBoundingCoordinate>43.975</northBoundingCoordinate>
            <southBoundingCoordinate>-32.745</southBoundingCoordinate>
         </boundingCoordinates>
      </geographicCoverage>
      <temporalCoverage>
            <rangeOfDates>
               <beginDate>
                  <calendarDate>2009-12-01</calendarDate>
               </beginDate>
               <endDate>
                  <calendarDate>2009-12-30</calendarDate>
               </endDate>
            </rangeOfDates>
         </temporalCoverage>
      <temporalCoverage>
            <singleDateTime>
               <calendarDate>2008-06-01</calendarDate>
            </singleDateTime>
         </temporalCoverage>
      <taxonomicCoverage>
            <generalTaxonomicCoverage>This is a general taxon coverage with only the
      scientific name</generalTaxonomicCoverage>
                  <taxonomicClassification>
                        <taxonRankValue>Mammalia</taxonRankValue>
                     </taxonomicClassification>
                     <taxonomicClassification>
                        <taxonRankValue>Reptilia</taxonRankValue>
                     </taxonomicClassification>
                  <taxonomicClassification>
                        <taxonRankValue>Coleoptera</taxonRankValue>
                     </taxonomicClassification>
         </taxonomicCoverage>
      <taxonomicCoverage>
         <generalTaxonomicCoverage>This is a second taxon coverage with all
fields</generalTaxonomicCoverage>
         <taxonomicClassification>
            <taxonRankName>Class</taxonRankName>
            <taxonRankValue>Aves</taxonRankValue>
            <commonName>Birds</commonName>
         </taxonomicClassification>
      </taxonomicCoverage>
   </coverage>

<contact>
      <individualName>
         <givenName>David</givenName>
         <surName>Remsen</surName>
      </individualName>
```

```
        <organizationName>GBIF</organizationName>
        <positionName>ECAT Programme Officer</positionName>
        <address>
                <deliveryPoint>Universitestparken 15</deliveryPoint>
          <city>Copenhagen</city>
          <administrativeArea>Sjaelland</administrativeArea>
          <postalCode>2100</postalCode>
          <country>DK</country>
        </address>
        <phone>+4528261487</phone>
        <electronicMailAddress>dremsen@gbif.org</electronicMailAddress>
        <onlineUrl>http://www.gbif.org</onlineUrl>
      </contact>


      <project>
        <title>Documenting Some Asian Birds and Insects</title>
        <personnel>
          <individualName>
            <surName>Remsen</surName>
          </individualName>
          <role>publisher</role>
        </personnel>
        <funding>
          <para>My Deep Pockets</para>
        </funding>
        <studyAreaDescription>
          <descriptor name="generic" citableClassificationSystem="false">
            <descriptorValue>Turkish Mountains</descriptorValue>
          </descriptor>
        </studyAreaDescription>
        <designDescription>
          <description><para>This was done in Avian Migration patterns</para></description>
        </designDescription>
      </project>

</dataset>


   <additionalMetadata>
      <metadata>
        <gbif>
          <!-- eml file creation date -->
          <dateStamp>2002-10-23T18:13:51.235+01:00</dateStamp>

          <!-- level to which the metadata dcoument applies; default for GBIF is "dataset";
"series" is the other common level -->
          <hierarchyLevel> dataset </hierarchyLevel>

          <!-- a citation for a "names" dataset -->
```

```
        <!-- Seems strange that there is no obvious place for citation in the /eml/dataset
          Could be this can find a better home in the future -->
        <citation identifier="doi:tims-ident.2135.ex43.33.d"> Tims assembled checklist
</citation>
        <!-- citations of resources used, e.g., in a checklist -->
        <bibliography>
           <citation>title 1</citation>
           <citation>title 2</citation>
           <citation>title 3</citation>
        </bibliography>
```

DEPRECATED DATA TERMS

	TermSource	WFO Core/ Supplemental	**Minimal** Data Elements	**Extended** Data Elements	Data Kind	Description
	TAXA.TXT					
	dwc			scientificNameID		Should be IPNI ID if in IPNI. But BryoID for bryophytes?
	wfo			gymnoID		A globally unique ID for the plant name, if a gymnosperm.
	wfo			nomenclaturalNoteSource	Needed?	If the source is different than the source of the dataset, EML.xml metadata. No secondary references, so is it needed?
10	dwc			kingdom		The Kingdom of the name as stated in the source of the dataset in the EML.xml metadata. Not WFO "backbone" Kingdom.. The Kingdom of the taxon [this and the following 6 terms only apply to taxa equal or lower in rank as the rank specified in the term name; if the name is of the same rank, repeat the name here] DEPRECATE
11	dwc			phylum		The Phylum of the name as stated in the source of the dataset in the EML.xml metadata. Not WFO "backbone" Phylum. The phylum of the taxon DEPRECATE
12	dwc			class		The Class of the name as stated in The class of the taxon. DEPRECATE

13	dwc			order		the source of the dataset in the EML.xml metadata. Not WFO "backbone" Class. The Order of the name as stated in the source of the dataset in the EML.xml metadata. Not WFO "backbone" Class.	The order of the taxon. DEPRECATE
16	dwc			subgenus		If rank is Subgenus	The subgenus of the taxon. DEPRECATE
	dwc			namePublishedInID		Specifically which identifier is unclear. URL of an online page, volume ISBN, publication (TL2 ID?)	
22	tcs			microReference		Micro citation used in conjunction with a botanical name. First publication of the name.	
25	dwc			namePublishedInYear		We appear to have overlooked this. DwC Definition: The four-digit year in which the scientificName was published	The four-digit year in which the scientificName was published. DEPRECATE, included in backbone.

	wfo			taxonomicStatusReference	Needed?	If the reference is other than the source of the dataset, EML.xml metadata. No secondary references to be allowed, so is it needed?
	wfo			taxonomicStatusReferenceID	Needed?	Using what reference identification system?
	wfo			acceptedNameUsageSource		If acceptedNameUsage opinion is from a source different than the source of the dataset, EML.xml metadata
	wfo			taxonRemarksSource		If different than the source of the dataset, metadata
	wfo			scientificDescriptionLanguage		Not required for single source dataset. Language is in the metadata. If the language used in the description is different than the language of the source of the dataset, metadata.
	wfo			morphologyLanguage		Not required for single source dataset. Language is in the metadata. If the language used in the morphology is different than the language of the source of the dataset, EML.xml metadata.
	wfo			habitLanguage		Not required for single source dataset. Language is in the mettadata.If the language used in the habit is different than the language of the source of the dataset, metadata.
	wfo			habitatLanguage		Not required for single source dataset. Language is in the mettadata.If the language used in the habitat is different than the

						language of the source of the dataset, metadata.
	wfo			verbatimDistributionLanguage		Not required for single source dataset. Language is in the metadata.If the language used in the verbatimDistribution is different than the language of the source of the dataset, metadata.
	53	wfo			CreationDateTime	

DISTRIBUTION.TXT					
wfo			wfoID		
COMMON NAMES.TXT					
wfo			wfoID		
IMAGES.TXT					
wfo			wfoID		
dc			language		Does this apply to an image?
eol			agentID		What is the source of the agentID? AgentIDs are not part of WFO yet.
dc			spatial		What is this?
Iptc			CVTerm		IPTC Controlled Vocabulary term. Even Audubon Core doesn't agree on what this term means.
HABITS.TXT					
wfo			wfoID		
HABITATS.TXT					
wfo			wfoID		

REFERENCES.TXT					
wfo			wfoID		
wfo			referenceID		Which identifier would this be?
SPECIMENTS.TXT					
wfo			wfoID		
TYPES.TXT					
wfo			wfoID		