

Canadensys

Mobilizing biodiversity
data across Canada

Anne Bruneau, Luc Brouillet, Guy Baillargeon,
James Macklin, Doug Hyde & Peter Desmet



A network

Of people and collections

Academic

11 universities, 5 botanical
gardens & 2 museums



Headquarters

Université de Montréal
Biodiversity Centre

35+ researchers

mostly systematists





13 million specimens

Goal

Mobilize 3 million specimen records (20%) by 2013

Why?

Specimen data are incredibly useful

Primary data

What, when, where and who
of a species

Canada's natural history collections represent a vast source of biodiversity information. Allowing increased access to that information for all its users in academia, government, and non-governmental and private sectors will greatly enhance our knowledge generating capacity in many, if not all, areas of life and environmental sciences. A broad variety of life science fields are highly dependent on access to quality biodiversity information, ranging from taxonomy, botany, zoology, etc., to large scale ecology projects and environmental research (e.g., invasive species, climate change, habitat loss), forestry and agricultural research, and research on food, bioproduct, bioprocess and drug discovery and development. Access to the data will also increase our ability to: manage our natural resources sustainably; mitigate and adapt to environmental changes; ensure that essential ecological services are maintained and species at risk protected. This support a range of important regional, national and international science initiatives (Council of Canadian Academies, 2010). Finally, access to quality biodiversity information is essential for clear, science-based policies and regulations and to streamline environmental assessments and permit permissions. This is necessary to minimize uncertainty, to provide innovative, evidence-based solutions for natural resource industries while ensuring an appropriate balance between socio-economic costs and environmental protection.

We need data to answer questions

How?

Collect
Prepare
Digitize
Standardize
Publish
Aggregate
Download
Use

Collect

Prepare

Digitize

Standardize

Publish

Aggregate

Download

Use

Digitize

In each individual collection (2 years)

Share experience & best practices

bit.ly/Canadensys-forum

Time consuming!
Imaging + citizen science?
Georeferencing?
Get metadata first?

bit.ly/mt-inventory-blog

Collecting
quantitative metadata
by counting all specimens in a
herbarium

Peter

Desmet



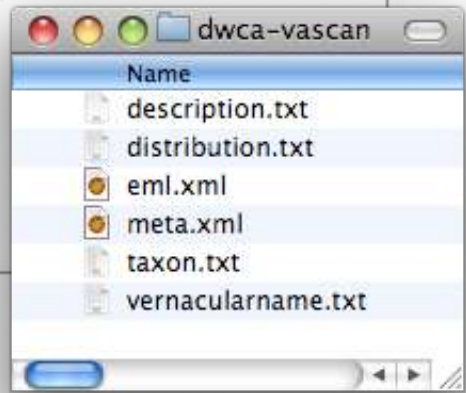
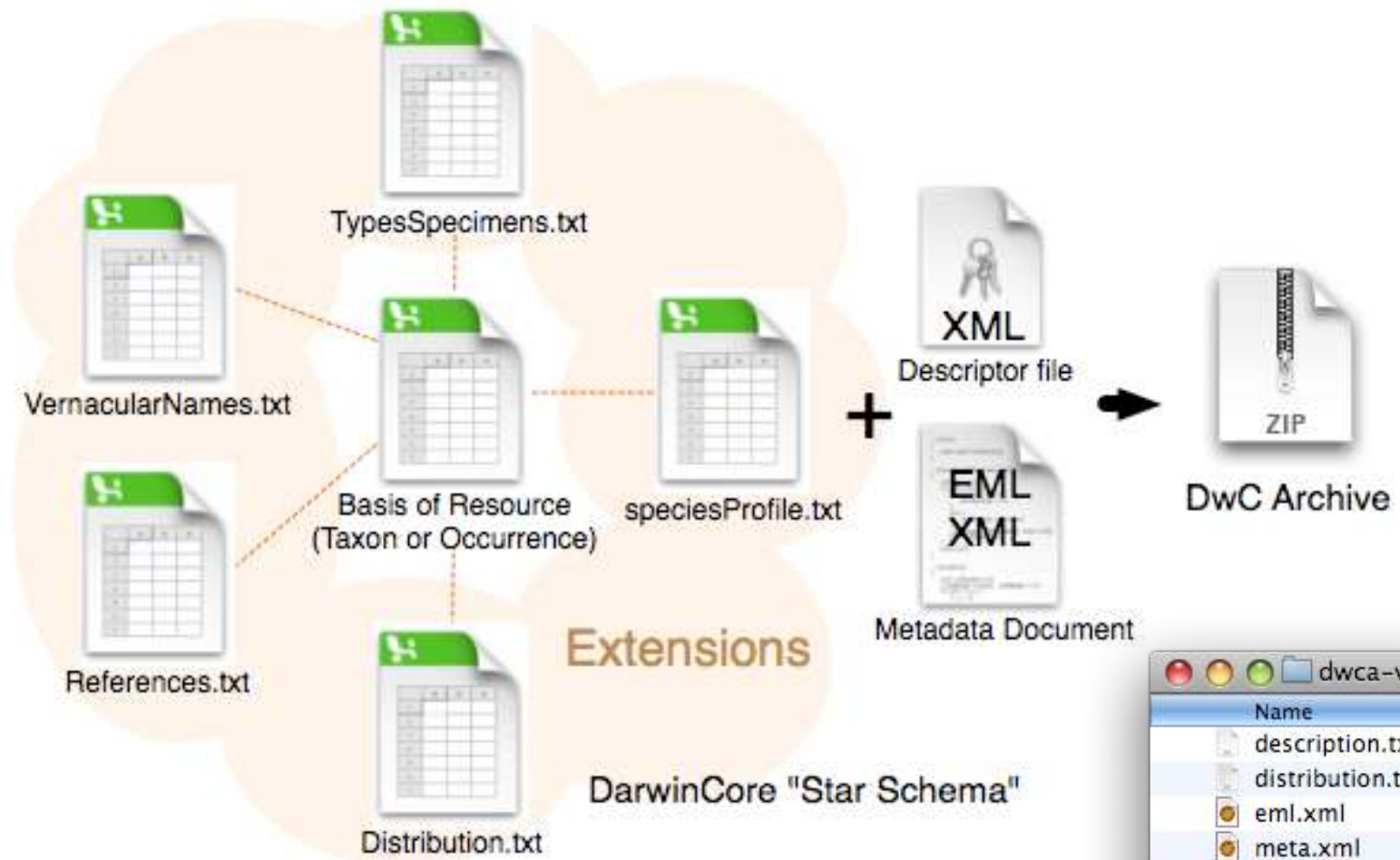
Standardize

Different database systems

Darwin Core Archives

bit.ly/DarwinCore

Darwin Core Archive Components



Publish

Make available online

GBIF Integrated Publishing Toolkit (IPT)

data.canadensys.net/ipt



Ressources disponibles

Liste des ressources publiques de cette instance IPT.

Logo	Nom	Institution	Type	Sous-type	Taille	Dernière modification	Dernière publication
	Inventory of the Marie-Victorin Herbarium (MT)	Non enregistré	Occurrence	Specimen	22,298	2011-11-28	2011-11-22
	Ouellet-Robert entomological collection (QMOR)	Université de Montréal Biodiversity Centre	Occurrence	Specimen	38,295	2011-11-28	2011-11-22
	Database of Vascular Plants of Canada (VASCAN)	Université de Montréal Biodiversity Centre	Checklist	Regional inventory	24,627	2011-11-28	2011-11-22
	Wildlife Sightings	Wildlife Sightings	Occurrence	Observation	685	2011-11-25	2011-11-24

Les ressources récemment mises à jour sont également disponibles sous forme de Flux RSS.



Ouellet–Robert entomological collection (QMOR)

The Ouellet–Robert entomological collection (QMOR) is one of the larger Canadian university entomological collections and the second largest in Quebec. It comprises 1.5 million specimens, covering more than 20,000 species. Aquatic insects from many regions of the world are particularly well–represented. This dataset includes all 38,295 digitized specimens from the collection (192,000+ individuals), representing the orders Odonata, Trichoptera and Ephemeroptera.

[Download dataset](#)



[Download metadata as EML](#)



[Download metadata as RTF](#)



feedback

Summary

Keywords	QMOR; Ouellet–Robert entomological collection; Collection entomologique Ouellet–Robert; Université de Montréal; Canadensys; Canada; collection; specimens; entomology
Resource Language	eng
Last Publication	Version 2 from Oct 14, 2011
Darwin Core Archive	download , 38,295 records
EML	download
RTF	download
GBIF Registration	ada5d0b1–07de–4dc0–83d4–e312f0fb81cb
Organisation	Université de Montréal Biodiversity Centre
Endorsing Node	Canada

External Links

Resource Homepage	http://www.biodiversite.umontreal.ca/collection-entomologique-ouellet-robert?lang=en
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Database of Vascular Plants of Canada (VASCAN)

VASCAN is the Database of Vascular Plants of Canada (<http://data.canadensys.net/vascan>). It is a comprehensive list of all vascular plants reported in Canada, Greenland (Denmark) and Saint Pierre and Miquelon (France). VASCAN is literature-based, though recent additions are sometimes specimen-based. For every core taxon (species, subspecies or variety) we provide the accepted scientific name (Latin), the accepted French and English vernacular name, and their synonyms/alternatives in Canada. We indicate the distribution status (native, introduced, etc.) of the plant for each province or territory, and the habit (tree, shrub, herb or vine) of the plant in Canada. For reported hybrids (nothotaxa or hybrid formulas), we also provide the hybrid parents (not included in the dataset for technical reasons), except for introduced hybrids. All taxa are linked to a classification. We refer to a source for all name, classification and distribution information.

Download dataset



Download metadata as EML



Download metadata as RTF



feedback

Summary

Keywords	VASCAN; Université de Montréal; Canadensys; Canada; Greenland; Saint Pierre and Miquelon; checklist; taxonomy; synonymy; hybrids; vernacular names; English; French; distribution; provinces; habit
Resource Language	eng
Last Publication	Version 9 from Sep 26, 2011
Darwin Core Archive	download , 23,662 records
EML	download
RTF	download
GBIF Registration	3f8a1297-3259-4700-91fc-acc4170b27ce
Organisation	Université de Montréal Biodiversity Centre
Endorsing Node	Canada

External Links

Resource Homepage <http://data.canadensys.net/vascan/>

Data paper

Database of Vascular Plants of Canada (VASCAN)

Luc Brouillet¹, Peter Desmet¹, Frédéric Courso², Marc Favreau³, Marilyn Anions⁴, Pierre Bélisle¹, Christian Gendreau¹

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Corresponding author(s): Luc Brouillet (luc.brouillet@umontreal.ca), Peter Desmet (peter.desmet@umontreal.ca)

Received {date}; Revised {date}; Accepted {date}; Published {date}

Citation: Combination of authors, year of data paper publication (in parenthesis), Title, Journal Name, Volume, Issue number (in parenthesis), and doi of the data paper.

Abstract

VASCAN is the Database of Vascular Plants of Canada (<http://data.canadensys.net/vascan>). It is a comprehensive list of all vascular plants reported in Canada, Greenland (Denmark) and Saint Pierre and Miquelon (France). VASCAN is literature-based, though recent additions are sometimes specimen-based.

For every core taxon (species, subspecies or variety) we provide the accepted scientific name (Latin), the accepted French and English vernacular name, and their synonyms/alternatives in Canada. We indicate the distribution status (native, introduced, etc.) of the plant for each province or territory, and the habit (tree, shrub, herb or vine) of the plant in Canada. For reported hybrids (nothotaxa or hybrid formulas), we also provide the hybrid parents (not included in the dataset for technical reasons), except for introduced hybrids. All taxa are linked to a classification. We refer to a source for all name, classification and distribution information.

Keywords: VASCAN, Université de Montréal, Canadensys, Canada, Greenland, Saint Pierre and Miquelon, checklist, taxonomy, synonymy, hybrids, vernacular names, English, French, distribution, provinces, habit

General description

Purpose: VASCAN developed from the need to validate data from eastern Canada (Ontario and eastward), Greenland and Saint Pierre and Miquelon for the Flora of North America

Literature based species occurrence data of birds of northeast India

Sujit Narwade¹, Mohit Kalra¹, Rajkumar Jagdish¹, Divya Varier¹, Sagar Satpute¹,
Noor Khan¹, Gautam Talukdar², V. B. Mathur², Karthikeyan Vasudevan²,
Dinesh Singh Pundir², Vishwas Chavan³, Rajesh Sood³

1 *Bombay Natural History Society (BNHS), Shaheed Bhagatsingh Road, 400001, Mumbai, India* **2** *Wildlife Institute of India (WII), Post Box No 18, Chandrabani, 248001, Dehradun, India* **3** *Global Biodiversity Information Facility (GBIF), Universitetsparken 15, DK 2100, Copenhagen, Denmark*

Corresponding author: *Sujit Narwade* (bnhs@envs.nic.in)

Academic editor: *L. Penev* | Received 2 September 2011 | Accepted 24 November 2011 | Published 28 November 2011

Citation: Narwade S, Kalra M, Jagdish R, Varier D, Satpute S, Khan N, Talukdar G, Mathur VB, Vasudevan K, Pundir DS, Chavan V, Sood R (2011) Literature based species occurrence data of birds of northeast India. In: Smith V, Penev L (Eds) *e-Infrastructures for data publishing in biodiversity science*. ZooKeys 150: 407–417. doi: 10.3897/zookeys.150.2002

Abstract

The northeast region of India is one of the world's most significant biodiversity hotspots. One of the richest bird areas in India, it is an important route for migratory birds and home to many endemic bird species. This paper describes a literature-based dataset of species occurrences of birds of northeast India. The occurrence records documented in the dataset are distributed across eleven provinces of India, viz.: Arunachal Pradesh, Assam, Bihar, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura, Uttar Pradesh and West Bengal. The geospatial scope of the dataset represents 24 to 29 degree North latitude and 78 to 94 degree East longitude, and it comprises over 2400 occurrence records. These records have been collated from scholarly literature published between 1915 and 2008, especially from the *Journal of the Bombay Natural History Society* (JBNHS). The temporal scale of the dataset represents bird observations recorded between 1909 and 2007. The dataset has been developed by employing MS Excel. The key elements in the database are scientific name, taxonomic classification, temporal and geospatial details including geo-coordinate precision, data collector, basis of record and primary source of the data record. The temporal and geospatial quality of more than 50% of the data records has been enhanced retrospectively. Where possible, data records are annotated with geospatial coordinate precision to the nearest minute. This dataset is being constantly updated with the addition of new data records, and quality enhancement of documented occurrences. The dataset can be used in species distribution and niche modeling studies. It is planned to expand the scope of the dataset to collate bird species occurrences across the Indian peninsula.



Ouellet–Robert entomological collection (QMOR)

This is the overview page for the *Ouellet–Robert entomological collection (QMOR)* resource. Please start by filling in at least the mandatory metadata. Then you can upload and map source data to generate and publish a Darwin Core archive. Published resources can be registered with the GBIF Network. Registered resources can be removed, but they cannot be reverted to a private state.

Metadata

Edit

The Ouellet–Robert entomological collection (QMOR) is one of the larger Canadian university entomolo...

Keywords QMOR; Ouellet–Robert entomological collection; Collection entomologique Ouellet–Robert; Un...

Taxonomic Coverages Odonata, Trichoptera, Ephemeroptera

Geographic Coverage Global coverage (except Antartica). Over 90% of the specimens are collected in Canada, of ...

Source Data

Choose File No file chosen

Clear

Connect to DB

Your data sources for generating a Darwin Core Archive. You can upload delimited text files (csv, tab, and files using any other delimiter) either directly or compressed (zip or gzip). To (re)upload a file, please select the local file then click "Add".

Alternatively, you can configure *SQL views* to databases in your local network. To create a new SQL source, please click "Connect to DB" without any file chosen.

qmor–identifications [file] 6.4 MB, 38,937 rows, 20 columns. 14/10/11 [Edit](#)

qmor–occurrences [file] 19.2 MB, 38,295 rows, 67 columns. 14/10/11 [Edit](#)

Darwin Core Mappings

Darwin Core Occurrence

Add

Your mapping between the source data and Darwin Core terms.

Darwin Core Occurrence 66 terms mapped to qmor–occurrences [Edit](#)

Darwin Core Identification History 18 terms mapped to qmor–identifications [Edit](#)

feedback



Basic Metadata: *Ouellet–Robert entomological collection (QMOR)*

You must fill in at least these basic metadata before you can make this resource public.

For each contact you must supply at least a last name, a position, or an organisation. Title and Description are required.

Title

Description

The Ouellet–Robert entomological collection (QMOR) is one of the larger Canadian university entomological collections and the second largest in Quebec. It comprises 1.5 million specimens, covering more than 20,000 species. Aquatic insects from many regions of the world are particularly well–represented. This dataset includes all 38,295 digitized specimens from the collection (192,000+ individuals), representing the orders Odonata, Trichoptera and Ephemeroptera.

Metadata Language

English

Resource Language

English

Subtype

specimen resource

Resource Contact

First Name

Last Name

Position

Organisation

Address

City

- Basic Metadata
- Geographic Coverage
- Taxonomic Coverages
- Temporal Coverages
- Other Keywords
- Associated Parties
- Project Data
- Sampling Methods
- Citations
- Collection Data
- External links
- Additional Metadata

feedback



Darwin Core Occurrence

The category of information pertaining to evidence of an occurrence in nature, in a collection, or in a dataset (specimen, observation, etc.).

Link: <http://rs.tdwg.org/dwc/terms/index.htm#Occurrence>

[back to resource overview page](#)

Mapping Source `qmor-occurrences`

For each property you can assign a dynamic value taken from the specified column of your data source `qmor-occurrences` or provide a fixed, static value that is used for all records.

Hide Unmapped Fields

occurrenceID ⓘ

The column in your source that holds a unique key for every record/row, also known as the "core id". If you want to map other sources, this identifier is required and will be used to link your source rows together.

Source Sample : 1 | 2 | 3 | 4 | 5

Filter ⓘ

You can define a filter to exclude records from the generated archive. Specify the criterion that matches the records to be included.

[Record Level](#) [Occurrence](#) [Event](#) [Location](#) [GeologicalContext](#) [Identification](#) [Taxon](#)

Record Level

Download

Per dataset

Not very flexible

Download dataset



Aggregate

Can be done by anyone

Global Biodiversity Information Facility

www.gbif.org

A world map showing the distribution of insect records in the Global Biodiversity Information Facility (GBIF). The map is overlaid with a grid of small colored squares, primarily in shades of yellow, orange, and red, indicating the presence of insect records. The density of records is highest in North America, Europe, and parts of Asia and Africa. Major geographical features and country names are labeled on the map.

313 mil. records

Map shows insects in GBIF

eol.org/pages/344/maps

Registration from IPT

[Edit](#)

entomolog...

Keywords QMOR; Ouellet-Robert entomological collection; Collection entomologique Ouellet-Robert; Un...

Taxonomic Coverages Odonata, Trichoptera, Ephemeroptera

Geographic Coverage Global coverage (except Antarctica). Over 90% of the specimens are collected in Canada, of ...

Source Data

[Choose File](#) No file chosen

[Clear](#)

[Connect to DB](#)

Your data sources for generating a Darwin Core Archive. You can upload delimited text files (csv, tab, and files using any other delimiter) either directly or compressed (zip or gzip). To (re)upload a file, please select the local file then click "Add".

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qmor-identifications [file] 6.4 MB, 38,937 rows, 20 columns. 14/10/11 [Edit](#)

qmor-occurrences [file] 19.2 MB, 38,295 rows, 67 columns. 14/10/11 [Edit](#)

Darwin Core Mappings

Darwin Core Occurrence

[Add](#)

Darwin Core Occurrence 66 terms mapped to qmor-occurrences [Edit](#)

Darwin Core Identification History 18 terms mapped to qmor-identifications [Edit](#)

Visibility **Registered**

[Update Registration](#)

This public resource is registered with GBIF. To change this status you must delete the entire resource and contact the [GBIF Help Desk](#).

Resource Key ada5d0b1-07de-4dc0-83d4-e312f0fb81cb **GBRDS**

Organisation Université de Montréal Biodiversity Centre

Organisation Contact Peter Desmet, peter.desmet@umontreal.ca

Organisation Key ff7bd5db-b724-4932-b496-10ea298851f9

Endorsing Node Canada

Published Release

[Publish](#)

When publishing a new release, a new EML version and a Darwin Core Archive (DwC-A) will be created.

A DwC-A bundles all data sources with mappings and metadata in one zipped archive.

Last Publication

Version 2 from 14/10/11 [Publication Log](#)

Download

Explore and search across datasets

data.gbif.org

Collect

Prepare

Digitize

Standardize

Publish

Aggregate

Download

Use

Complete workflow

Standardize, publish, register, available

Since 2011, thanks to IPT!



Wildlife Sightings

Citizen science observations

www.junponline.com

Checklists

Data about taxa (vs specimens)

Now also supported by

DwC-A, GBIF & IPT

VASCAN

Database of Vascular Plants of Canada

data.canadensys.net/vascan



Institut de recherche
en biologie végétale

Canadensys

Début - Fin: 16 décembre 2011 10:30 - 11:30

Location: Salle de conférence | Centre sur la biodiversité

Unleashing the power of data: all vascular plants of Canada at your fingertips

[Peter Desmet](#), Canadensys

[Luc Brouillet](#), IRBV, Département de sciences biologiques, Université de Montréal

Sean Graham

Début - Fin: 20 janvier 2012 10:30 - 11:30

Location: Salle de conférence | Centre sur la biodiversité

Phylogenetics and evolution of some early, oddball angiosperms and relatives

[Sean Graham](#), Research Director, UBC Botanical Garden & Dept. of Botany, University of British Columbia

Invité de Michel Labrecque

[À venir](#)

[Archive](#)

How can we help?

Data hosting

Only registered IPT in Canada
Full attribution via registration

data.canadensys.net/ipt

Data

Available for use

More datasets coming soon

data.canadensys.net

Search projects

[Project Home](#) [Wiki](#) [Issues](#) **Source** [Administer](#)

[Checkout](#) **Browse** [Changes](#) [Search Trunk](#) [Request code review](#)

Source path: svn/ [r67](#) [r68](#)

Directories	Filename	Size	Rev	Date	Author
▼svn	401.jsp	7 bytes	r46	Oct 13, 2011	christiangendreau
▼vascan-portal	404.ftl	697 bytes	r46	Oct 13, 2011	christiangendreau
branches	404.jsp	176 bytes	r66	Today (93 minutes ago)	christiangendreau
tags	about.ftl	3.3 KB	r66	Today (93 minutes ago)	christiangendreau
▼trunk	about.jsp	3.1 bytes	r66	Today (93 minutes ago)	christiangendreau
doc	checklist.jsp	10.5 KB	r66	Today (93 minutes ago)	christiangendreau
example	checklist.jsp	10.9 KB	r66	Today (93 minutes ago)	christiangendreau
▼src	download.ftl	1.7 KB	r66	Today (93 minutes ago)	christiangendreau
▼net	download.jsp	1.4 KB	r66	Today (93 minutes ago)	christiangendreau
▼canadensys	index.ftl	312 bytes	r63	Nov 4 (2 days ago)	christiangendreau
▼dataportal	index.jsp	283 bytes	r66	Today (93 minutes ago)	christiangendreau
utils	name.ftl	7.3 KB	r66	Today (93 minutes ago)	christiangendreau
▼vascan	name.jsp	1.9 KB	r66	Today (93 minutes ago)	christiangendreau
config	robot.txt	25 bytes	r47	Oct 13, 2011	christiangendreau
downloads	search.ftl	2.8 KB	r66	Today (93 minutes ago)	christiangendreau
predicates	search.jsp	2.7 KB	r66	Today (93 minutes ago)	christiangendreau
servlet	sitemap.jsp	207 bytes	r63	Nov 4 (2 days ago)	christiangendreau
utils					
org					
webapp					
wiki					

Open source

VASCAN portal code

Editor code coming soon

code.google.com/p/canadensys

Your project is using approximately 26.4 MB out of 4096 MB total quota.
You can [reset this repository](#) so that svnsync can be used to upload existing code history.

What we want

More data

They're out there!

Record-level Terms

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

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

Occurrence

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

Event

[eventID](#) | [samplingProtocol](#) | [samplingEffort](#) | [eventDate](#) | [eventTime](#) | [startDayOfYear](#) | [endDayOfYear](#) | [year](#) | [month](#) | [day](#) | [verbatimEventDate](#) | [habitat](#) | [fieldNumber](#) | [fieldNotes](#) | [eventRemarks](#)

dcterms:Location

[locationID](#) | [higherGeographyID](#) | [higherGeography](#) | [continent](#) | [waterBody](#) | [islandGroup](#) | [island](#) | [country](#) | [countryCode](#) | [stateProvince](#) | [county](#) | [municipality](#) | [locality](#) | [verbatimLocality](#) | [verbatimElevation](#) | [minimumElevationInMeters](#) | [maximumElevationInMeters](#) | [verbatimDepth](#) | [minimumDepthInMeters](#) | [maximumDepthInMeters](#) | [minimumDistanceAboveSurfaceInMeters](#) | [maximumDistanceBelowSurfaceInMeters](#) | [locationNameOrID](#) | [locationRemarks](#) | [verbatimCoordinates](#) | [verbatimLatitude](#) | [verbatimLongitude](#) | [verbatimCoordinateSystem](#) | [verbatimRS](#) | [decimalLongitude](#) | [decimalLatitude](#) | [coordinateUncertaintyInMeters](#) | [coordinatePrecision](#) | [pointRadiusSpatialFit](#) | [footprintWKT](#) | [footprintRS](#) | [footprintSpatialFit](#) | [georeferencedBy](#) | [georeferencedDate](#) | [georeferenceProtocol](#) | [georeferenceSources](#) | [georeferenceVerificationStatus](#) | [georeferenceRemarks](#)

GeologicalContext

[geologicalContextID](#) | [earliestEonOrLowestEonEthem](#) | [latestEonOrHighestEonEthem](#) | [earliestEraOrLowestEraEthem](#) | [latestEraOrHighestEraEthem](#) | [earliestPeriodOrLowestSystem](#) | [latestPeriodOrHighestSystem](#) | [earliestEpochOrLowestSeries](#) | [latestEpochOrHighestSeries](#) | [earliestAgeOrLowestStage](#) | [latestAgeOrHighestStage](#) | [lowestBiostratigraphicZone](#) | [highestBiostratigraphicZone](#) | [lithostratigraphicTerms](#) | [group](#) | [formation](#) | [member](#) | [bed](#)

Identification

[identificationID](#) | [identifiedBy](#) | [dateIdentified](#) | [identificationReferences](#) | [identificationVerificationStatus](#) | [identificationRemarks](#) | [identificationQualifier](#) | [typeStatus](#)

Taxon

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Auxiliary Terms

ResourceRelationship

[resourceRelationshipID](#) | [resourceID](#) | [relatedResourceID](#) | [relationshipOfResource](#) | [relationshipAccordingTo](#) | [relationshipEstablishedDate](#) | [relationshipRemarks](#)

MeasurementOrFact

Darwin Core Archives
The format war is over

Collaboration

CBIF, NatureServe Canada, Canadensys
With other organizations
Between data holders and users

Anne Bruneau, Luc Brouillet, Guy Baillargeon,
James Macklin, Doug Hyde & Peter Desmet



National coordination

www.canadensys.net/ottawa-2011

2-way communication

Links back to the data holder

Better citations

Persistent identifiers

Thanks!

www.canadensys.net

@canadensys

@peterdesmet

