TDWG 2017
Biodiversity Information Standards
Ottawa, Canada

1 – 6 October 2017

Delta Hotels Ottawa City Centre by Marriott
101 Lyon Street North

#TDWG17

latest revision: 24 September 2017

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Printed programs will not be available at this meeting. An online scheduler for mobile devices is available at https://tdwg2017.sched.org/. In partnership with iDigBio, your talk may be recorded. Follow Tweets using the #tdwg17 hashtag at https://twitter.com/hashtag/tdwg17.

Welcome to TDWG 2017

This year's meeting at the Delta Hotels by Marriott in downtown Ottawa, Canada has as its theme: *Data Integration in a Big Data Universe: Associating Occurrences with Genes, Phenotypes, and Environments.* In a packed scientific program starting Monday 2 October, about 150 participants, representing countries across the globe, will join together to hear presentations by colleagues, and discuss current and future biodiversity-related standards. iDigBio is sponsoring a pre-conference Data Carpentry Workshop and has partnered with TDWG to record most scientific sessions. Agriculture and Agri-Food Canada and the Canadian Museum of

Nature (CMN) will host this year's meeting in a year celebrating Canada's 150th anniversary since Confederation. Monday evening's Night at the Museum is sponsored by the CMN, with hors d'oeuvres and beer tastings from local brewers.

This meeting marks the inaugural publication of all presentation abstracts *TDWG Proceedings 2017*, each with its own DOI (digital object identifier).

Four keynote speakers will highlight morning plenaries and parallel sessions will feature symposia, workshops, interest group meetings, contributed oral presentations, computer demos, and posters. Participants will have a chance to spend Wednesday afternoon hiking at Pink Lake in the fall color, visiting the CMN collections, or exploring Ottawa on their own. Thursday evening's banquet will take place at the Canadian Museum of History, with opportunities to see some of the collection during the visit.

Photo sources:
Canadian Museum of Nature: KPMB Open Buildings
Canadian Museum of History: Julia Pelish/Vacay.ca

Hosts

We thank our hosts and sponsors of the Night at the Museum Social and the Gala Dinner.

http://www.agr.gc.ca/

http://nature.ca

Sponsors

We thank the following sponsors for their generous support of TDWG 2017.

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Additional financial and in-kind support provided by:

Software Carpentry pre-conference course; recording and archiving TDWG 2017 sessions
https://www.idigbio.org

http://www.canadensys.net

Schedule at a Glance

Day	Time	Misc	Ballroom A	Ballroom B	Capitale	Chaudiere
Saturday, 30 Sep	09:00 AM - 04:30 PM		Data Carpentry Workshop, *Canadian Museum of Nature, 240 McLeod St, Ottawa*			
Sunday, 1 Oct	09:00 AM - 04:30 PM		Data Carpentry Workshop, *Canadian Museum of Nature, 240 McLeod St, Ottawa*			
Sunday, 1 Oct	09:00 AM - 05:00 PM	TDWG Executive, *Bytowne*			IG01: Data Quality (by invitation)	
Sunday, 1 Oct	05:30 PM - 08:00 PM	Registration in the Penthouse, *Panorama*				
Sunday, 1 Oct	06:00 PM - 09:00 PM	Welcome Reception in the Penthouse, *Panorama*				
Monday, 2 Oct	08:00 AM - 09:00 AM	Registration, *Victoria*				
Monday, 2 Oct	08:30 AM - 09:00 AM	Load Talks & Hang Posters				
Monday, 2 Oct	09:00 AM - 09:40 AM		Welcoming remarks and guide to the meeting			
Monday, 2 Oct	09:40 AM - 10:30 AM		Keynote: Roderic D.M. Page - Towards a Biodiversity Knowledge Graph			
Monday, 2 Oct	10:30 AM - 11:00 AM	Break, *Ballroom B*				
Monday, 2 Oct	11:00 AM - 12:30 PM		Contributed: What do People, DiSSCo, Brazil, Symbiota, BISON and Google have in common?		W19: Construction of biodiversity knowledge graphs driven by federated text mining tools	W01: Establishing a global registration system of algal names and types
Monday, 2 Oct	12:30 PM - 02:00 PM	Lunch provided				
Monday, 2 Oct	01:30 PM - 02:00 PM				Newcomers Meet & Greet	
Monday, 2 Oct	02:00 PM - 03:30 PM		S28: Financial Models for Sustaining Biodiversity Informatics Products		W03: Towards robust interoperability in multi-omic approaches to biodiversity monitoring	S04: Advances in data accessibility and data management for marine species occurrence data
Monday, 2 Oct	03:30 PM - 04:00 PM	Break, *Ballroom B*				
Monday, 2 Oct	03:40 PM - 03:55 PM			Computer Demo		
Monday, 2 Oct	04:00 PM - 05:30 PM		Contributed: Topics in Climate Change		W03: Towards robust interoperability in multi-omic approaches to biodiversity monitoring	S04: Advances in data accessibility and data management for marine species occurrence data
Monday, 2 Oct	07:00 PM - 10:00 PM	Night at the Museum, *Canadian Museum of Nature, 240 McLeod St, Ottawa*				

Day	Time	Misc	Ballroom A	Ballroom B	Capitale	Chaudiere
Tuesday, 3 Oct	08:30 AM - 09:00 AM	Load Talks & Hang Posters				
Tuesday, 3 Oct	09:00 AM - 09:40 AM		i. Overview of TDWG and TDWG standards; ii. Announcement of Biodiversity Information Science and Standards (BISS), the new journal of TDWG			
Tuesday, 3 Oct	09:40 AM - 10:30 AM		Keynote: Anne Bowser - Standardizing Citizen Science?			
Tuesday, 3 Oct	10:40 AM - 10:55 AM	Break, *Ballroom B*				
Tuesday, 3 Oct	10:30 AM - 11:00 AM			Posters (Even Numbers); Computer Demo		
Tuesday, 3 Oct	11:00 AM - 12:30 PM		S02: Biodiversity Data Quality – concepts, methods and tools		W09: Implementing Biodiversity Standards for Paleobiology	W07: Reusing an open source platform in order to create a community: example of the Living Atlases community
Tuesday, 3 Oct	12:30 PM - 02:00 PM	Lunch on your own			IG02: Technical Architecture Meeting	
Tuesday, 3 Oct	02:00 PM - 03:30 PM		S02: Biodiversity Data Quality – concepts, methods and tools		S15: Agricultural Informatics Contributions to Biodiversity Science and Biodiversity Assessments	W07: Reusing an open source platform in order to create a community: example of the Living Atlases community
Tuesday, 3 Oct	03:40 PM - 03:55 PM	Break, *Ballroom B*				
Tuesday, 3 Oct	03:30 PM - 04:00 PM			Posters (Odd Numbers); Computer Demo		
Tuesday, 3 Oct	04:00 PM - 05:30 PM		S22: Biological Interaction Data - towards data standardization		S10: 500 Years of Big Data from the Biodiversity Heritage Library	W07: Reusing an open source platform in order to create a community: example of the Living Atlases community
Wednesday, 4 Oct	08:30 AM - 09:00 AM	Load Talks				
Wednesday, 4 Oct	09:00 AM - 09:40 AM		Wild Ideas			
Wednesday, 4 Oct	09:40 AM - 10:30 AM		Keynote: Javier de la Torre - Everything happens somewhere, multiple times			
Wednesday, 4 Oct	10:40 AM - 10:55 AM	Break, *Ballroom B*				
Wednesday, 4 Oct	10:30 AM - 11:00 AM			Computer Demo		
Wednesday, 4 Oct	11:00 AM - 12:30 PM		S16: Using Big Data Techniques to Cross Dataset Boundaries - Integration and Analysis of Multiple Datasets		S12: Citizen Science Contributions to Biodiversity Research and Standards	W07: Reusing an open source platform in order to create a community: example of the Living Atlases community
Wednesday, 4 Oct	01:00 PM - 05:30 PM	Excursion, *Canadian Museum of Nature Collections or Pink Lake Hike*				

Day	Time	Misc	Ballroom A	Ballroom B	Capitale	Chaudiere
Thursday, 5 Oct	08:30 AM - 09:00 AM	Registration, *Victoria*				
Thursday, 5 Oct	09:00 AM - 09:40 AM		Standards in Action: The Darwin Core Hour			
Thursday, 5 Oct	09:40 AM - 10:30 AM		Keynote: Pamela Soltis - Linking Heterogeneous Data in Biodiversity Research			
Thursday, 5 Oct	10:30 AM - 11:00 AM	Break, *Ballroom B*				
Thursday, 5 Oct	10:40 AM - 10:55 AM					
Thursday, 5 Oct	11:00 AM - 12:30 PM		S18: Bridging Gaps between Biodiversity Informaticians and Collections Professionals	Posters (Odd Numbers) Computer Demo	W21: Biological Interaction Data Workgroup	IG03: Species Information
Thursday, 5 Oct	12:30 PM - 02:00 PM	Lunch on your own			IG02: Technical Architecture Meeting	
Thursday, 5 Oct	02:00 PM - 03:30 PM		S18: Bridging Gaps between Biodiversity Informaticians and Collections Professionals		W23: Towards an Online Atlas of Phenology	W06: Data Quality Workshop
Thursday, 5 Oct	03:30 PM - 04:00 PM	Break, *Ballroom B*		Posters (Even Numbers)		
Thursday, 5 Oct	04:00 PM - 05:30 PM		W17: The EDIT Platform for Cybertaxonomy, Current State and Envisaged Integration into the Biodiversity Informatics Infrastructure		W23: Towards an Online Atlas of Phenology	W06: Data Quality Workshop
Thursday, 5 Oct	05:45 PM - 11:00 PM	Banquet, *Canadian Museum of History, 100 Laurier Street, Gatineau (Hull), Quebec*				
Friday, 6 Oct	08:30 AM - 09:00 AM	Load Talks				
Friday, 6 Oct	09:00 AM - 10:30 AM		S20: Traits - Data models, sources, vocabulary, interoperability and their presentation and discoverability via species information pages		W14: Standards for Citizen Science Biodiversity Studies	W08: Biodiversity data annotations – state of the play and perspectives
Friday, 6 Oct	10:30 AM - 11:00 AM	Break, *Ballroom B*				
Friday, 6 Oct	11:00 AM - 12:30 PM		Contributed: Topics in Taxonomy and Ontologies		IG04: Natural Collections Description Meeting	W08: Biodiversity data annotations – state of the play and perspectives
Friday, 6 Oct	12:30 PM - 02:00 PM	Lunch provided	Business Meeting: Reports from Treasurer, Interest and Task Groups; Preview of TDWG2018; Closing Remarks			
Friday, 6 Oct	02:00 PM - 03:30 PM					

Daily Schedule

Saturday, 30 September 2017

09:00 AM - 04:30 PM   Data Carpentry Workshop, *Canadian Museum of Nature, 240 McLeod St, Ottawa*

Sunday, 01 October 2017

09:00 AM - 04:30 PM   Data Carpentry Workshop, *Canadian Museum of Nature, 240 McLeod St, Ottawa*

09:00 AM - 05:00 PM   TDWG Executive, *Bytowne*

09:00 AM - 05:00 PM   Interest Group/Task Group, *Capitale*
IG01: Data Quality (by invitation)
Organizers: *Arthur D. Chapman, Antonio M. Saraiva*

05:30 PM - 08:00 PM   Registration in the Penthouse, *Panorama*

06:00 PM - 09:00 PM   Welcome Reception in the Penthouse, *Panorama*

Monday, 02 October 2017

08:00 AM - 09:00 AM	Registration, *Victoria*
08:30 AM - 09:00 AM	Load Talks & Hang Posters, *see instructions for presenters*
09:00 AM - 09:40 AM	Welcoming remarks and guide to the meeting, *Ballroom A*
09:40 AM - 10:30 AM	Keynote: Roderic D.M. Page - Towards a Biodiversity Knowledge Graph, *Ballroom A*
10:30 AM - 11:00 AM	Break, *Ballroom B*

Contributed: What do People, DiSSCo, Brazil, Symbiota, BISON and Google have in common?

Moderator: *Gail Kampmeier*

11:00 AM - 12:30 PM, *Ballroom A*

11:00 AM - 11:15 AM	Associating Occurrences with Genes, Phenotypes, and Environments through the Distributed System of Scientific Collections (DiSSCo) https://doi.org/10.3897/tdwgproceedings.1.17010 Presenter: *Dimitrios Koureas*
11:15 AM - 11:30 AM	Proposed Extension to Darwin Core for People and their Roles in the Curation of Physical and Digital Objects https://doi.org/10.3897/tdwgproceedings.1.19829 Presenter: *David Shorthouse*
11:30 AM - 11:45 AM	SiBBr: Envisioning the spatial distribution of Brazilian biodiversity records https://doi.org/10.3897/tdwgproceedings.1.19966 Presenter: *Nayara Soto*
11:45 AM - 12:00 PM	Symbiota2 https://doi.org/10.3897/tdwgproceedings.1.19933 Presenter: *Mary E. Barkworth*
12:00 PM - 12:15 PM	Taxonomy and Distribution in Big Data Use Cases from BISON and ITIS https://doi.org/10.3897/tdwgproceedings.1.19890 Presenter: *Gerald Guala*
12:15 PM - 12:30 PM	Google Summer of Code: Why TDWG should participate https://doi.org/10.3897/tdwgproceedings.1.19918 Presenter: *Tomer Gueta*

W01: Establishing a global registration system of algal names and types

Organizer: *Andreas Kohlbecker*

11:00 AM - 12:30 PM, *Chaudiere*

11:00 AM - 11:15 AM	Introduction into Phycobank: challenges, concepts and solutions Presenter: *Andreas Kohlbecker*
11:15 AM - 12:30 PM	Workshop Activities

W19: Construction of biodiversity knowledge graphs driven by federated text mining tools

Organizers: *Riza Batista-Navarro, Sophia Ananiadou, Teodor Georgiev, Evangelos Pafilis, Lyubomir Penev, Viktor Senderov, Axel J. Soto, William Ulate*

11:00 AM - 12:30 PM, *Capitale*

11:00 AM - 11:15 AM	EXTRACT 2.0: interactive identification of biological entities mentioned in text to assist database curation and knowledge extraction https://doi.org/10.3897/tdwgproceedings.1.20152 Presenter: *Evangelos Pafilis*
11:15 AM - 11:30 AM	Developing a knowledge base on the habitats and reproductive conditions of Dipterocarps through information extraction https://doi.org/10.3897/tdwgproceedings.1.20066 Presenter: *Roselyn Gabud*
11:30 AM - 11:45 AM	Building Your Own Big Data Analysis Infrastructure for Biodiversity Science https://doi.org/10.3897/tdwgproceedings.1.20161 Presenter: *Matthew Collins*
11:45 AM - 12:00 PM	Argo as a platform for integrating distinct biodiversity analytics tools into workflows for building graph databases https://doi.org/10.3897/tdwgproceedings.1.20067 Presenter: *Riza Batista-Navarro*
12:00 PM - 12:15 PM	OpenBiodiv: an Implementaion of a Semantic System Running on top of the Biodiversity Knowledge Graph https://doi.org/10.3897/tdwgproceedings.1.20084 Presenter: *Viktor Senderov*
12:15 PM - 12:30 PM	Panel Discussion

12:30 PM - 02:00 PM	Lunch provided

01:30 PM - 02:00 PM	Newcomers Meet & Greet, *Capitale*

W03: Towards robust interoperability in multi-omic approaches to biodiversity monitoring

Organizers: *Robert Hanner, Pier Luigi Buttigieg, Luke Thompson*

02:00 PM - 03:30 PM, *Capitale*

02:00 PM - 02:15 PM	Environmental samples, eDNA and HTS libraries – data standard proposals from the Global Genome Biodiversity Network (GGBN) https://doi.org/10.3897/tdwgproceedings.1.20483 Presenter: *Walter G. Berendsohn*
02:15 PM - 02:30 PM	Metadata Standards for Genomic Sequence Data: Past and Future of MIxS Standards Family https://doi.org/10.3897/tdwgproceedings.1.20423 Presenter: *Pelin Yilmaz*
02:30 PM - 02:45 PM	Using MIxS: An Implementation Report from Two Metagenomic Information Systems https://doi.org/10.3897/tdwgproceedings.1.20637 Presenters: *Joel Sachs, Luke Thompson*
02:45 PM - 03:00 PM	SeqDB: Biological Collection Management with Integrated DNA Sequence Tracking https://doi.org/10.3897/tdwgproceedings.1.20608 Presenter: *Satpal Bilkhu*
03:00 PM - 03:15 PM	Semantically Defining Populations for 'Omics Research https://doi.org/10.3897/tdwgproceedings.1.20435 Presenter: *Ramona L. Walls*
03:15 PM - 03:30 PM	Panel Discussion

S04: Advances in data accessibility and data management for marine species occurrence data

Organizers: *Andrew Sherin, Ward Appeltans, Lenore Bajona, Mary Kennedy*
02:00 PM - 03:30 PM, *Chaudiere*

02:00 PM - 02:15 PM	Introduction Presenters: *Lenore Bajona, Andrew Sherin, Mary Kennedy*
02:15 PM - 02:30 PM	Cookbooks and Curriculum https://doi.org/10.3897/tdwgproceedings.1.20405 Presenter: *Mary Kennedy*
02:30 PM - 02:45 PM	Expanding the Ocean Biogeographic Information System (OBIS) beyond species occurrences https://doi.org/10.3897/tdwgproceedings.1.20196 Presenter: *Daphnis De Pooter*
02:45 PM - 03:00 PM	Improving data availability with "OBIS-ENV-DATA": Examples from OBIS-USA https://doi.org/10.3897/tdwgproceedings.1.20207 Presenter: *Abigail Benson*
03:00 PM - 03:30 PM	Talking beyond presence: 04 Symposium: Advances in data accessibility and data management for marine species occurrence data: Discussion Panel 1 https://doi.org/10.3897/tdwgproceedings.1.20407 Presenter: *Mary Kennedy*

S28: Financial Models for Sustaining Biodiversity Informatics Products

Organizer: *James H. Beach*
02:00 PM - 03:30 PM, *Ballroom A*

02:00 PM - 02:15 PM	The Arctos Community Model for Sustaining and Enriching Access to Biodiversity Data https://doi.org/10.3897/tdwgproceedings.1.20466 Presenter: *John Wieczorek*
02:15 PM - 02:30 PM	Interoperability, Attribution, and Value in the Web of Natural History Museum Data https://doi.org/10.3897/tdwgproceedings.1.21095 Presenter: *Andrew Bentley*
02:30 PM - 02:45 PM	Sustainability in Biodiversity Software Development: More financing or better practices? https://doi.org/10.3897/tdwgproceedings.1.20283 Presenter: *Matthew J. Yoder*
02:45 PM - 03:00 PM	Maintenance and development of Symbiota2, a platform for data sharing and visualization https://doi.org/10.3897/tdwgproceedings.1.20220 Presenter: *Mary E. Barkworth*
03:00 PM - 03:15 PM	Sustaining Software for Biological Collections Computing https://doi.org/10.3897/tdwgproceedings.1.20254 Presenter: *James H. Beach*
03:15 PM - 03:30 PM	DINA: Open Source and Open Services - A Modern Approach for Sustainable Natural History Collection Management Systems https://doi.org/10.3897/tdwgproceedings.1.20216 Presenters: *Elspeth Margaret Haston, Falko Glöckler, Jana Hoffmann, Fredrik Ronquist, James A Macklin, Stefan Daume*

03:30 PM - 04:00 PM	Break, *Ballroom B*
03:40 PM - 03:55 PM	Computer Demo, *Ballroom B* OpenBiodiv: an Implementation of a Semantic System Running on top of the Biodiversity Knowledge Graph https://doi.org/10.3897/tdwgproceedings.1.20193 Presenters: *Viktor Senderov, Teodor Asenov Georgiev*

S04: Advances in data accessibility and data management for marine species occurrence data

Organizers: *Andrew Sherin, Ward Appeltans, Lenore Bajona, Mary Kennedy*

04:00 PM - 05:30 PM, *Chaudiere*

04:00 PM - 04:15 PM	Spatial Visualization of Publicly Accessible Species Occurrence Data https://doi.org/10.3897/tdwgproceedings.1.20155 Presenter: *Jeff McKenna*
04:15 PM - 04:30 PM	Exploring the Canadian Federated Research Data Repository Service https://doi.org/10.3897/tdwgproceedings.1.20185 Presenter: *Lee Wilson*
04:30 PM - 04:45 PM	Sydney Harbour Atlas https://doi.org/10.3897/tdwgproceedings.1.20157 Presenter: *Andrew Sherin*
04:45 PM - 05:00 PM	The developing Canadian Integrated Ocean Observing System (CIOOS) https://doi.org/10.3897/tdwgproceedings.1.20432 Presenter: *Lenore Bajona*
05:00 PM - 05:30 PM	Future pathways for sharing and integrating data: 04 Symposium: Advances in data accessibility and data management for marine species occurrence data: Discussion Panel 2 https://doi.org/10.3897/tdwgproceedings.1.20406 Presenter: *Andrew Sherin*

W03: Towards robust interoperability in multi-omic approaches to biodiversity monitoring

Organizers: *Robert Hanner, Pier Luigi Buttigieg, Luke Thompson*

04:00 PM - 05:30 PM, *Capitale*

04:00 PM - 04:15 PM	The Genomic Observatories Metadatabase https://doi.org/10.3897/tdwgproceedings.1.20508 Presenter: *John Deck*
04:15 PM - 04:30 PM	Integrating Marine Omics into the Marine Biodiversity Observation Network (MBON) in Support of the UN Sustainable Development Goals (SDG) and Agenda 2030 https://doi.org/10.3897/tdwgproceedings.1.20521 Presenter: *Kelly Goodwin*
04:30 PM - 04:45 PM	Rewards and Challenges of eDNA Sequencing with Multiple Genetic Markers for Marine Observation Programs https://doi.org/10.3897/tdwgproceedings.1.20548 Presenter: *Kathleen J Pitz*
04:45 PM - 05:00 PM	Linking molecular and morphological biodiversity evidence by building a single name space https://doi.org/10.3897/tdwgproceedings.1.20503 Presenter: *Dmitry Schigel*
05:00 PM - 05:30 PM	Panel Discussion

Contributed: Topics in Climate Change

Moderator: *Robert D. Stevenson*

04:00 PM - 05:30 PM, *Ballroom A*

04:00 PM - 04:15 PM	Use of Online Species Occurrence Databases in Published Research since 2010 https://doi.org/10.3897/tdwgproceedings.1.20518 Presenter: *Joan E Ball-Damerow*
04:15 PM - 04:30 PM	Extending Darwin Core to incorporate data about material condition and absolute deep time https://doi.org/10.3897/tdwgproceedings.1.20126 Presenter: *Laura Brenskelle*
04:30 PM - 04:45 PM	Pipedream or pipeline: delivering regular, reliable, up-to-date information on biodiversity through repeatable workflows https://doi.org/10.3897/tdwgproceedings.1.20749 Presenter: *Peter Desmet*
04:45 PM - 05:00 PM	Development of a National Repository for Aquatic Biodiversity in Bhutan https://doi.org/10.3897/tdwgproceedings.1.20809 Presenter: *Sangay Dema*

07:00 PM - 10:00 PM   Night at the Museum, *Canadian Museum of Nature, 240 McLeod St, Ottawa*
Join us for an evening of light bites and drinks, featuring beer tastings with local brewers. See pages in the program for walking directions or public transportation options and recommended restaurants for supper along the walking route. A beer talk by a Canadian Museum of Nature botanist will be given at 8:00 PM.

Tuesday, 03 October 2017

08:30 AM - 09:00 AM	Load Talks & Hang Posters, *see instructions for presenters*
08:30 AM - 09:00 AM	Registration, *Victoria*
09:00 AM - 09:40 AM	i. Overview of TDWG and TDWG standards; ii. Announcement of Biodiversity Information Science and Standards (BISS), the new journal of TDWG, *Ballroom A*
09:40 AM - 10:30 AM	Keynote: Anne Bowser - Standardizing Citizen Science?, *Ballroom A*
10:30 AM - 11:00 AM	Break, *Ballroom B*
10:30 AM - 11:00 AM	Posters (Even Numbers), *Ballroom B*
10:40 AM - 10:55 AM	Computer Demo, *Ballroom B* TaxonWorks https://doi.org/10.3897/tdwgproceedings.1.20279 Presenter: *Matthew J. Yoder*

W09: Implementing Biodiversity Standards for Paleobiology

Organizers: *Denné Reed, Falko Glöckler, Mareike Petersen, Jana Hoffmann*

11:00 AM - 12:30 PM, *Capitale*

11:00 AM - 11:15 AM	The Data Standard ABCD EFG - Access to Biological Collection Data Extended for Geosciences https://doi.org/10.3897/tdwgproceedings.1.15146 Presenter: *Falko Glöckler*
11:15 AM - 12:30 PM	Workshop Activities

W07: Reusing an open source platform in order to create a community: example of the Living Atlases community

Organizers: *Marie-Elise Lecoq, David Martin, Christian Gendreau, Federico Mendez, Jeremy Goimard, Santiago Martínez de la Riva, Anders Telenius, Manash Shah*

11:00 AM - 12:30 PM, *Chaudiere*

11:00 AM - 11:15 AM	Introduction of the Living Atlases workshop https://doi.org/10.3897/tdwgproceedings.1.20253 Presenter: *Marie-Elise Lecoq*
11:15 AM - 11:30 AM	Living Atlases Architecture https://doi.org/10.3897/tdwgproceedings.1.19826 Presenters: *David Martin, Christian Gendreau, Manash Shah*
11:30 AM - 11:45 AM	Documentation about Atlas of Living Australia tools: how to find information https://doi.org/10.3897/tdwgproceedings.1.19941 Presenter: *Fabien Cavière*
11:45 AM - 12:30 PM	Workshop Activities

S02: Biodiversity Data Quality – concepts, methods and tools

Organizers: *Arthur D. Chapman, Antonio M. Saraiva, Alexander M. Thompson*

11:00 AM - 12:30 PM, *Ballroom A*

11:00 AM - 11:15 AM	Fitness for Use: The BDQIG aims for improved Stability and Consistency https://doi.org/10.3897/tdwgproceedings.1.20240 Presenter: *Arthur D. Chapman*
11:15 AM - 11:30 AM	Toward a Biodiversity Data Fitness for Use Backbone (FFUB): A Node.js module prototype https://doi.org/10.3897/tdwgproceedings.1.20300 Presenter: *Allan Koch Veiga*

11:30 AM - 11:45 AM	Fitness-for-Use-Framework-aware Data Quality workflows in Kurator https://doi.org/10.3897/tdwgproceedings.1.20379 Presenter: *Paul J. Morris*
11:45 AM - 12:00 PM	Darwin Cloud: Mapping real-world data to Darwin Core https://doi.org/10.3897/tdwgproceedings.1.20486 Presenter: *John Wieczorek*
12:00 PM - 12:15 PM	Integrating data-cleaning with data analysis to enhance usability of biodiversity big-data https://doi.org/10.3897/tdwgproceedings.1.20244 Presenter: *Tomer Gueta*
12:15 PM - 12:30 PM	Using YesWorkflow hybrid queries to reveal data lineage from data curation activities https://doi.org/10.3897/tdwgproceedings.1.20380 Presenter: *Qian Zhang*

| **12:30 PM - 02:00 PM** | Lunch on your own |

| **12:30 PM - 02:00 PM** | Interest Group/Task Group, *Capitale*
IG02: Technical Architecture Meeting
Organizer: *TBA* |

S02: Biodiversity Data Quality – concepts, methods and tools

Organizers: *Arthur D. Chapman, Antonio M. Saraiva, Alexander M. Thompson*
02:00 PM - 03:30 PM, *Ballroom A*

02:00 PM - 02:15 PM	Managing data quality in GBIF: status and plans https://doi.org/10.3897/tdwgproceedings.1.19825 Presenter: *Christian Gendreau*
02:15 PM - 02:30 PM	Towards a comprehensive workflow for biodiversity data in R https://doi.org/10.3897/tdwgproceedings.1.20311 Presenter: *Tomer Gueta*
02:30 PM - 02:45 PM	Angling for data: making biodiversity metadata more FAIR https://doi.org/10.3897/tdwgproceedings.1.20267 Presenter: *Joakim Philipson*
02:45 PM - 03:00 PM	Design and use of NOMEN, an ontology defining the rules of biological nomenclature https://doi.org/10.3897/tdwgproceedings.1.20284 Presenter: *Matthew J. Yoder*
03:00 PM - 03:15 PM	Invasive Organisms Information: A proposed TDWG Task Group https://doi.org/10.3897/tdwgproceedings.1.20266 Presenter: *Quentin Groom*
03:15 PM - 03:30 PM	Panel Discussion

W07: Reusing an open source platform in order to create a community: example of the Living Atlases community

Organizers: *Marie-Elise Lecoq, David Martin, Christian Gendreau, Federico Mendez, Jeremy Goimard, Santiago Martínez de la Riva, Anders Telenius, Manash Shah*
02:00 PM - 03:30 PM, *Chaudiere*

02:00 PM - 02:15 PM	The Registry component of Atlas of Living Australia https://doi.org/10.3897/tdwgproceedings.1.19802 Presenter: *Santiago Martínez de la Riva*
02:15 PM - 02:30 PM	Biocache-store: Command-Line Interface tool for managing occurrence records Presenter: *Manash Shah*
02:30 PM - 02:45 PM	Workshop Activities

S15: Agricultural Informatics Contributions to Biodiversity Science and Biodiversity Assessments

Organizers: *Gail Kampmeier, Cyndy Parr, James Macklin*

02:00 PM - 03:30 PM, *Capitale*

02:00 PM - 02:15 PM	How Agricultural Researchers Share their Data: a Landscape Inventory https://doi.org/10.3897/tdwgproceedings.1.20434 Presenter: *Erin Antognoli*
02:15 PM - 02:30 PM	Databasing Crop Plants from the People's Biodiversity Register of India https://doi.org/10.3897/tdwgproceedings.1.19820 Presenter: *Prabhakar Rajagopal*
02:30 PM - 02:45 PM	The Value of Agricultural Voucher Specimens https://doi.org/10.3897/tdwgproceedings.1.19932 Presenter: *Mary E. Barkworth*
02:45 PM - 03:00 PM	Bringing Bugs into the System https://doi.org/10.3897/tdwgproceedings.1.20050 Presenter: *Gail Kampmeier*
03:00 PM - 03:30 PM	Agricultural Informatics Contributions to Biodiversity Science and Biodiversity Assessments https://doi.org/10.3897/tdwgproceedings.1.20100

03:30 PM - 04:00 PM	Posters (Odd Numbers), *Ballroom B*
03:30 PM - 04:00 PM	Break, *Ballroom B*
03:40 PM - 03:55 PM	Computer Demo, *Ballroom B* Defining a Data Quality (DQ) profile and DQ report using a prototype of Node.js module of the Fitness for Use Backbone (FFUB) https://doi.org/10.3897/tdwgproceedings.1.20275 Presenter: *Allan Koch Veiga*

S22: Biological Interaction Data - towards data standardization

Organizers: *Antonio M. Saraiva, Jennifer Hammock, Quentin Groom*

04:00 PM - 05:30 PM, *Ballroom A*

04:00 PM - 04:15 PM	How species interactions are managed in Plinian Core: Status and questions https://doi.org/10.3897/tdwgproceedings.1.20556 Presenter: *Francisco Pando*
04:15 PM - 04:30 PM	Addressing the proposal for new Darwin Core terms for interaction data https://doi.org/10.3897/tdwgproceedings.1.20350 Presenter: *John Wieczorek*
04:30 PM - 04:45 PM	GoMexSI: Using Open Platforms such as Github, Wordpress, and GloBI to Manage, and Share Species Interaction Data https://doi.org/10.3897/tdwgproceedings.1.20325 Presenter: *James Simons*
04:45 PM - 05:00 PM	Brazilian Plant-Pollinator Interactions Network: definition of a data standard for digitization, sharing, and aggregation of plant-pollinator interaction data https://doi.org/10.3897/tdwgproceedings.1.20298 Presenter: *Antonio M. Saraiva*
05:00 PM - 05:15 PM	Global Biotic Interactions: A Catalyst For Integrating Existing Interaction Datasets, Connecting Data Curators And Developing Data Exchange Methods https://doi.org/10.3897/tdwgproceedings.1.20214 Presenter: *Jorrit H Poelen*
05:15 PM - 05:30 PM	mangal - making sense of biotic interaction data https://doi.org/10.3897/tdwgproceedings.1.19993 Presenter: *Timothée Poisot*

S10: 500 Years of Big Data from the Biodiversity Heritage Library

Organizers: *Martin R. Kalfatovic, Carolyn A. Sheffield*
04:00 PM - 05:30 PM, *Capitale*

04:00 PM - 04:15 PM	How Did BHL Get to Big Data https://doi.org/10.3897/tdwgproceedings.1.20002 Presenter: *Martin R. Kalfatovic*
04:15 PM - 04:30 PM	Expanding Access to Biodiversity Literature https://doi.org/10.3897/tdwgproceedings.1.20146 Presenter: *Mariah Lewis*
04:30 PM - 04:45 PM	Scientific Names: Linking the Past to Provide Context for Knowledge https://doi.org/10.3897/tdwgproceedings.1.19937 Presenter: *Thomas M. Orrell*
04:45 PM - 05:00 PM	A path to continuous reindexing of scientific names appearing in Biodiversity Heritage Library data https://doi.org/10.3897/tdwgproceedings.1.20186 Presenter: *Dmitry Mozzherin*
05:00 PM - 05:15 PM	Crowdsourcing Data Enhancements to Improve Named Entity Recognition in the Biodiversity Heritage Library https://doi.org/10.3897/tdwgproceedings.1.17354 Presenter: *Katie Mika*
05:15 PM - 05:30 PM	BHL's Feedback Tools and User Surveys: Investigating User Needs for Data in Digital Libraries https://doi.org/10.3897/tdwgproceedings.1.20003 Presenter: *Carolyn A. Sheffield*

W07: Reusing an open source platform in order to create a community: example of the Living Atlases community

Organizers: *Marie-Elise Lecoq, David Martin, Christian Gendreau, Federico Mendez, Jeremy Goimard, Santiago Martínez de la Riva, Anders Telenius, Manash Shah*
04:00 PM - 05:30 PM, *Chaudiere*

04:00 PM - 04:15 PM	Biocache-store: Command-Line Interface tool for managing occurrence records Presenter: *Manash Shah*
04:15 PM - 04:30 PM	Occurrences : Data resources and Biocache-hub https://doi.org/10.3897/tdwgproceedings.1.20321 Presenter: *Jeremy Goimard*
04:30 PM - 05:30 PM	Workshop Activities

Wednesday, 04 October 2017

08:30 AM - 09:00 AM	Load Talks, *see instructions for presenters*
08:30 AM - 09:00 AM	Registration, *Victoria*
09:00 AM - 09:40 AM	Wild Ideas, *Ballroom A*
09:40 AM - 10:30 AM	Keynote: Javier de la Torre - Everything happens somewhere, multiple times, *Ballroom A*
10:30 AM - 11:00 AM	Break, *Ballroom B*
10:40 AM - 10:55 AM	Computer Demo, *Ballroom B* Desktop or remote knowledge base management systems for taxonomic data and identification keys: Xper2 and Xper3 https://doi.org/10.3897/tdwgproceedings.1.19911 Presenter: *Régine Vignes-Lebbe*

S12: Citizen Science Contributions to Biodiversity Research and Standards

Organizer: *Robert D. Stevenson*
11:00 AM - 12:30 PM, *Capitale*

11:00 AM - 11:15 AM	The state of the data in citizen science https://doi.org/10.3897/tdwgproceedings.1.20370 Presenter: *Anne Bowser*
11:15 AM - 11:30 AM	Setting Collections Data Free with the Power of the Crowd: challenges, opportunities and a vision for the future https://doi.org/10.3897/tdwgproceedings.1.20422 Presenter: *Margaret J Gold*
11:30 AM - 11:45 AM	Turning Flickr into a useful Citizen Science Resource https://doi.org/10.3897/tdwgproceedings.1.20348 Presenter: *Arthur D. Chapman*
11:45 AM - 12:00 PM	Discovering Nature in the City with a Citizen Science Mobile App https://doi.org/10.3897/tdwgproceedings.1.20206 Presenter: *Jana Hoffmann*
12:00 PM - 12:30 PM	Panel Discussion

W07: Reusing an open source platform in order to create a community: example of the Living Atlases community

Organizers: *Marie-Elise Lecoq, David Martin, Christian Gendreau, Federico Mendez, Jeremy Goimard, Santiago Martínez de la Riva, Anders Telenius, Manash Shah*
11:00 AM - 12:30 PM, *Chaudiere*

11:00 AM - 11:15 AM	Living Atlases : tips and advices https://doi.org/10.3897/tdwgproceedings.1.20252 Presenter: *Marie-Elise Lecoq*
11:15 AM - 12:30 PM	Workshop Activities

S16: Using Big Data Techniques to Cross Dataset Boundaries - Integration and Analysis of Multiple Datasets

Organizers: *Matthew Collins, Robert Guralnick, Martin R. Kalfatovic*

11:00 AM - 12:30 PM, *Ballroom A*

11:00 AM - 11:15 AM	BHL: A Source for Big Data Analysis https://doi.org/10.3897/tdwgproceedings.1.20339 Presenter: *Mike Lichtenberg*
11:15 AM - 11:30 AM	TAXREF-LD: A Reference Thesaurus for Biodiversity on the Web of Linked Data https://doi.org/10.3897/tdwgproceedings.1.20232 Presenter: *Franck Michel*
11:30 AM - 11:45 AM	IndexMEED cases studies using 'Omics' data with graph theory https://doi.org/10.3897/tdwgproceedings.1.20740 Presenter: *Romain David*
11:45 AM - 12:00 PM	A High-throughput Data Ingest Pipeline for Semantic Data-stores https://doi.org/10.3897/tdwgproceedings.1.20208 Presenter: *John Deck*
12:00 PM - 12:15 PM	Using ontologies to explore floral evolution in a non-model plant clade https://doi.org/10.3897/tdwgproceedings.1.20347 Presenter: *Annika L Smith*
12:15 PM - 12:30 PM	Panel Discussion

01:00 PM - 05:30 PM   Excursion: Canadian Museum of Nature Collections or Pink Lake Hike

Pick-up your boxed lunch before catching a school bus; there will not be anywhere to buy food. Dietary restrictions communicated with registration will be accommodated.

There will be one bus for the Canadian Museum of Nature Collections tour and one for the Pink Lake hike. Please be sure to embark on the correct bus.

Canadian Museum of Nature's Research & Collections Facility

Bus departs at **1:00 PM** from the side of the Delta Hotel on Albert Street and later departs the Collections Facility at 4:30 PM to make the 25 minute return trip to the Delta Hotel.

Not typically open to the public, this tour will bring participants behind the doors of the museum's innovative collections facility, which was designed specifically for the management and preservation of natural history specimens. The tour includes the following collections: minerals, fossils, large skeletons (mammals), invertebrates, botany (National Herbarium of Canada), library & archives, conservation lab, and the Molecular Biodiversity Lab (DNA). This tour runs about two hours, with participants divided into smaller groups to promote engaged discussion with the museum's scientific staff.

Tour Notes:

- The Facility is a scent-free workplace, please do not wear perfume or cologne
- No open-toed shoes
- No food or drink (we'll eat before visiting the collections)
- No large bags or backpacks in the collections
- Secure storage will be provided for jackets and bags

Pink Lake Hike in Gatineau Park

Bus departs at **1:15 PM** from the side of the Delta Hotel on Albert Street and later departs Pink Lake at 4:30 PM to make the 35 minute return trip to the Delta Hotel.

Participants may choose to do the ~2.5km easy loop trail or simply enjoy the lake area. The lake has a unique ecosystem; no swimming is allowed. Sturdy footwear is recommended. We also recommend that you bring a daypack to contain camera(s) and rainwear in the event of inclement weather.

Thursday, 05 October 2017

08:30 AM - 09:00 AM	Registration, *Victoria*
08:30 AM - 09:00 AM	Load Talks, *see instructions for presenters*
09:00 AM - 09:40 AM	Standards in Action: The Darwin Core Hour, *Ballroom A* https://doi.org/10.3897/tdwgproceedings.1.20280 Presenters: *Deborah Paul, John Wieczorek, Paula F Zermoglio*
09:40 AM - 10:30 AM	Keynote: Pamela Soltis - Linking Heterogeneous Data in Biodiversity Research, *Ballroom A* https://doi.org/10.3897/tdwgproceedings.1.21113
10:30 AM - 11:00 AM	Break, *Ballroom B*
10:30 AM - 11:00 AM	Posters (Odd Numbers), *Ballroom B*
10:40 AM - 10:55 AM	Computer Demo, *Ballroom B* Developing a Module for Generating Formalized Semantic Morphological Descriptions for Morph·D·Base https://doi.org/10.3897/tdwgproceedings.1.15141 Presenters: *Sandra Meid, Lars Vogt*

S18: Bridging Gaps between Biodiversity Informaticians and Collections Professionals

Organizers: *Holly Little, Deborah Paul, Gail Kampmeier*

11:00 AM - 12:30 PM, *Ballroom A*

11:00 AM - 11:15 AM	Building a community of practice through capacity enhancement mentoring https://doi.org/10.3897/tdwgproceedings.1.20234 Presenter: *Laura Russell*
11:15 AM - 11:30 AM	How Mass Digitization is changing Herbarium Collection Management at the Botanic Garden Meise (BR) – Teaching old dogs new tricks! https://doi.org/10.3897/tdwgproceedings.1.20194 Presenter: *Henry Engledow*
11:30 AM - 11:45 AM	An Example of Synergy in Data Mobilization: the Arctos-VertNet Nexus https://doi.org/10.3897/tdwgproceedings.1.20098 Presenter: *David Bloom*
11:45 AM - 12:00 PM	Towards Insect Digital Collections and Data Publishing: A journey for the GBIF-funded African Insect Atlas Collaborative Project https://doi.org/10.3897/tdwgproceedings.1.20274 Presenter: *Boikhutso Lerato Rapalai*
12:00 PM - 12:15 PM	Setting up an Interdisciplinary Data Infrastructure: Why Cooperation between Domain Experts and Computer Scientists Matters - An Experience Report from the GFBio Project https://doi.org/10.3897/tdwgproceedings.1.20198 Presenters: *Jana Hoffmann, Felicitas Löffler*
12:15 PM - 12:30 PM	Panel Discussion

11:00 AM - 12:30 PM	Interest Group/Task Group, *Chaudiere* IG03: Species Information Organizer: *Francisco Pando*

W21: Biological Interaction Data Workgroup

Organizers: *Antonio M. Saraiva, Jennifer Hammock, Quentin Groom*

11:00 AM - 12:30 PM, *Capitale*

12:30 PM - 02:00 PM	Lunch on your own

12:30 PM - 02:00 PM	Interest Group/Task Group, *Capitale* IG02: Technical Architecture Meeting Organizer: *TBA*

W23: Towards an Online Atlas of Phenology

Organizers: *Zoe Panchen, Joel Sachs, Mélanie Bélisle-Leclerc, Scott Chamberlain, Jonathan Davies, Pamela Soltis, Rob Guralnick*

02:00 PM - 03:30 PM, *Capitale*

02:00 PM - 02:15 PM	Introduction Presenters: *Joel Sachs, Pamela Soltis*
02:15 PM - 02:30 PM	Phenological sensitivity to temperature at broad scales: opportunities and challenges of natural history collections https://doi.org/10.3897/tdwgproceedings.1.20587 Presenter: *Heather Kharouba*
02:30 PM - 02:45 PM	The use of avian museum specimen data in phenology studies: prospects and challenges https://doi.org/10.3897/tdwgproceedings.1.20324 Presenter: *Keith Barker*
02:45 PM - 03:00 PM	Phenology atlas use cases: a new map of plant phenology across North America and beyond https://doi.org/10.3897/tdwgproceedings.1.20582 Presenters: *Zoe Panchen, Jonathan Davies*
03:00 PM - 03:30 PM	Panel Discussion

W06: Data Quality Workshop

Organizers: *Arthur D. Chapman, Antonio M. Saraiva*

02:00 PM - 03:30 PM, *Chaudiere*

S18: Bridging Gaps between Biodiversity Informaticians and Collections Professionals

Organizers: *Holly Little, Deborah Paul, Gail Kampmeier*

02:00 PM - 03:30 PM, *Ballroom A*

02:00 PM - 02:15 PM	A tool for collections-specific searches in genetic databases https://doi.org/10.3897/tdwgproceedings.1.20320 Presenter: *Michael Trizna*
02:15 PM - 02:30 PM	What's Missing From All the Portals? https://doi.org/10.3897/tdwgproceedings.1.20236 Presenter: *Sharon Grant*
02:30 PM - 02:45 PM	Building community-specific standards and vocabularies: prospects and challenges for linking to the broader community - The SINP Case https://doi.org/10.3897/tdwgproceedings.1.20297 Presenters: *Paula F Zermoglio, Remy Jomier*
02:45 PM - 03:00 PM	Managing Ex Situ Collections of Wild Species' Seeds: Use of Biodiversity Informatics in the Millennium Seed Bank to Address Challenges https://doi.org/10.3897/tdwgproceedings.1.20197 Presenter: *Udayangani Liu*
03:00 PM - 03:15 PM	Automated Herbarium Specimen Identification using Deep Learning https://doi.org/10.3897/tdwgproceedings.1.20302 Presenter: *Jose Carranza-Rojas*
03:15 PM - 03:30 PM	SPNHC 2017 Natural History Collections Biodiversity Informatics 101 Short Course Insights https://doi.org/10.3897/tdwgproceedings.1.20263 Presenter: *Holly Little*

03:30 PM - 04:00 PM	Break, *Ballroom B*
03:30 PM - 04:00 PM	Posters (Even Numbers), *Ballroom B*

W17: The EDIT Platform for Cybertaxonomy, Current State and Envisaged Integration into the Biodiversity Informatics Infrastructure

Organizers: *Andreas Müller, Walter Berendsohn, Anton Güntsch*

04:00 PM - 05:30 PM, *Ballroom A*

04:00 PM - 04:15 PM	The EDIT Platform for Cybertaxonomy, a Brief Overview https://doi.org/10.3897/tdwgproceedings.1.20368 Presenter: *Andreas Kohlbecker*
04:15 PM - 04:30 PM	A Comprehensive and Standards-Aware Common Data Model (CDM) for Taxonomic Research https://doi.org/10.3897/tdwgproceedings.1.20367 Presenter: *Andreas Müller*
04:30 PM - 04:45 PM	The CDM Applied: Handling of Names, Taxa and Concepts in a Conservation Context https://doi.org/10.3897/tdwgproceedings.1.20364 Presenter: *Walter G. Berendsohn*
04:45 PM - 05:00 PM	The CDM Applied: Unit-Derivation, from Field Observations to DNA Sequences https://doi.org/10.3897/tdwgproceedings.1.20366 Presenter: *Andreas Müller*
05:00 PM - 05:15 PM	EDIT Platform Web Services in the Biodiversity Infrastructure Landscape https://doi.org/10.3897/tdwgproceedings.1.20363 Presenter: *Andreas Kohlbecker*
05:15 PM - 05:30 PM	EDIT Platform Projects: What's Next https://doi.org/10.3897/tdwgproceedings.1.20365 Presenter: *Walter G. Berendsohn*

W23: Towards an Online Atlas of Phenology

Organizers: *Zoe Panchen, Joel Sachs, Mélanie Bélisle-Leclerc, Scott Chamberlain, Jonathan Davies, Pamela Soltis, Rob Guralnick*

04:00 PM - 05:30 PM, *Capitale*

04:00 PM - 04:15 PM	The USA National Phenology Network: A Framework for Delivery of Phenology Data Products on Multiple Spatiotemporal Scales https://doi.org/10.3897/tdwgproceedings.1.20188 Presenter: *Lee Marsh*
04:15 PM - 04:30 PM	An Update on the Plant Phenology Ontology and Plant Phenology Data Integration https://doi.org/10.3897/tdwgproceedings.1.20487 Presenter: *Brian J. Stucky*
04:30 PM - 04:45 PM	Documenting Reproductive Phenology using Herbarium Specimens: Experiences from the New England Vascular Plants Project https://doi.org/10.3897/tdwgproceedings.1.20430 Presenter: *Patrick W Sweeney*
04:45 PM - 05:30 PM	Panel Discussion

W06: Data Quality Workshop

Organizers: *Arthur D. Chapman, Antonio M. Saraiva*

04:00 PM - 05:30 PM, *Chaudiere*

05:45 PM - 11:00 PM	Banquet, *Canadian Museum of History, 100 Laurier Street, Gatineau (Hull), Quebec* Starting **5:45 PM**, buses depart every 20min until **7:00 PM** beside the Delta Hotel on Albert St. Cocktails are served at 6:30 PM at the Museum, which is open to the public until 8:00 PM. Bring your conference badge. Starting **9:30 PM**, buses depart every 20min until **11:00 PM** for the return to the Delta Hotel via the ByWard Market for an optional hop-off.

Friday, 06 October 2017

08:30 AM - 09:00 AM   Registration, *Victoria*

08:30 AM - 09:00 AM   Load Talks, *see instructions for presenters*

W14: Standards for Citizen Science Biodiversity Studies

Organizers: *Robert D. Stevenson, Libby Ellwood*

09:00 AM - 10:30 AM, *Capitale*

S20: Traits - Data models, sources, vocabulary, interoperability and their presentation and discoverability via species information pages

Organizers: *Jeff Gerbracht, Robert Guralnick, Jennifer Hammock, Deborah Paul, Pamela Soltis*

09:00 AM - 10:30 AM, *Ballroom A*

09:00 AM - 09:15 AM	Species Information pages, how are the data discovered, consolidated and presented. https://doi.org/10.3897/tdwgproceedings.1.20294 Presenter: *Jeff Gerbracht*
09:15 AM - 09:30 AM	Building semantics in the domain of trait data: an OBO Library approach https://doi.org/10.3897/tdwgproceedings.1.20293 Presenter: *Pier Luigi Buttigieg*
09:30 AM - 09:45 AM	Traits in a graph https://doi.org/10.3897/tdwgproceedings.1.20289 Presenter: *Jennifer Hammock*
09:45 AM - 10:00 AM	VicFlora: a dynamic, service-based Flora https://doi.org/10.3897/tdwgproceedings.1.20525 Presenter: *Niels Klazenga*
10:00 AM - 10:15 AM	Documenting Marine Species Traits in the World Register of Marine Species (WoRMS): Current status, Future Plans and Encountered Challenges https://doi.org/10.3897/tdwgproceedings.1.20337 Presenter: *Leen Vandepitte*
10:15 AM - 10:30 AM	Traits as Essential Biodiversity Variables https://doi.org/10.3897/tdwgproceedings.1.20295 Presenter: *Robert Guralnick*

W08: Biodiversity data annotations – state of the play and perspectives

Organizers: *Lutz Suhrbier, Okka Tschöpe, Anton Güntsch, Walter Berendsohn*

09:00 AM - 10:30 AM, *Chaudiere*

09:00 AM - 09:15 AM	AnnoSys – an online tool for sharing annotations to enhance data quality https://doi.org/10.3897/tdwgproceedings.1.20315 Presenters: *Walter G. Berendsohn, Okka Tschöpe*
09:15 AM - 10:00 AM	Annosys – hands on session
10:00 AM - 10:15 AM	Integrating AnnoSys into your specimen data portal https://doi.org/10.3897/tdwgproceedings.1.20313 Presenter: *Lutz Suhrbier*
10:15 AM - 10:30 AM	Panel Discussion

10:30 AM - 11:00 AM   Break, *Ballroom B*

W08: Biodiversity data annotations – state of the play and perspectives

Organizers: *Lutz Suhrbier, Okka Tschöpe, Anton Güntsch, Walter Berendsohn*
11:00 AM - 12:30 PM, *Chaudiere*

11:00 AM - 11:15 AM	Semantic Annotations of Text and Images in Morph·D·Base https://doi.org/10.3897/tdwgproceedings.1.14778 Presenter: *Christian Köhler*
11:15 AM - 11:30 AM	Annotating out the Way to the Linked Biodiversity Data Web https://doi.org/10.3897/tdwgproceedings.1.20270 Presenter: *Burke Chih-Jen Ko*
11:30 AM - 11:45 AM	AnnoSys - future developments https://doi.org/10.3897/tdwgproceedings.1.20317 Presenter: *Lutz Suhrbier*
11:45 AM - 12:30 PM	Panel Discussion

Contributed: Topics in Taxonomy and Ontologies

Moderator: *David Shorthouse*
11:00 AM - 12:30 PM, *Ballroom A*

11:00 AM - 11:15 AM	Setup of BIOfid, a new Specialised Information Service for Biodiversity Research https://doi.org/10.3897/tdwgproceedings.1.19803 Presenter: *Markus Koch*
11:15 AM - 11:30 AM	SOCCOMAS: A Self-Describing and Content-Independent Application for Semantic Ontology-Controlled Web-Content-Management-Systems https://doi.org/10.3897/tdwgproceedings.1.20033 Presenters: *Sandra Meid, Lars Vogt*
11:30 AM - 11:45 AM	OntoPilot: New Software to Simplify and Accelerate Ontology Development and Deployment https://doi.org/10.3897/tdwgproceedings.1.20192 Presenter: *Brian J. Stucky*
11:45 AM - 12:00 PM	The Taxonomic and Biodiversity Software Stack in R https://doi.org/10.3897/tdwgproceedings.1.20219 Presenter: *Scott Chamberlain*
12:00 PM - 12:15 PM	Building a Taxonomic Data Editor: ITIS Taxonomic Workbench 6.0 https://doi.org/10.3897/tdwgproceedings.1.19965 Presenter: *David Mitchell*
12:15 PM - 12:30 PM	Catalogue of Life, China and Taxonomic Tree Tool https://doi.org/10.3897/tdwgproceedings.1.20394 Presenter: *Liqiang Ji*

11:00 AM - 12:30 PM	Interest Group/Task Group, *Capitale* IG04: Natural Collections Description Meeting Organizers: *Alexander Thompson, Deborah Paul*
12:30 PM - 02:00 PM	Lunch provided
02:00 PM - 03:30 PM	Business Meeting: Reports from Treasurer, Interest and Task Groups; Preview of TDWG2018; Closing Remarks Presenters: *Dimitrios Koureas, William Ulate*

Keynote Speakers

Dr. Roderic D.M. Page

Rod is perhaps best known as the author of the phylogenetic visualization program "TreeView", and more recently his "iPhylo" blog, He started out as a crustacean taxonomist, before being swept up in the debates on panbiogeography and vicariance biogeography that raged in the 1980's and 90's. After gaining a PhD at Auckland University, New Zealand, he worked as a post doc at the American Museum of Natural History in New York, and The Natural History Museum in London, before taking up a lectureship at the University of Oxford. Since 1995 Rod has been at the University of Glasgow, where he is Professor of Taxonomy. A past editor of *Systematic Biology*, he was until September the Chair of the GBIF Science Committee. His current work focuses on linking together biodiversity data from diverse sources.

Dr. Anne E. Bowser

Anne is an Innovation Analyst with the Science and Technology Innovation Program (STIP) at the Woodrow Wilson International Center for Scholars. She seeks to understand and mobilize public participation in scientific research and policy dialogue through citizen science and other forms of crowdsourcing. From a research perspective, Anne is interested in how technologies can be designed to support participation, whether through technological appropriation, participatory design, or the motivational affordances of games. Anne is also engaged in the more practical work of understanding what constitutes good citizen science data practices, and works with organizations like the Open Geospatial Consortium (OGC), the Committee on Data for Science and Technology (CODATA), and the World Data System (WDS), and the Citizen Science Association (CSA) to promote open and interoperable data. Her dissertation was awarded from the University of Maryland's iSchool and explored how Floracaching, a mobile geocaching game for plant phenology data collection, could be designed to motivate new types of citizen science volunteers.

Javier de la Torre

Javier is CEO at CARTO. One of the pioneers of location intelligence, Javier founded the company in 2012 with a vision to democratize data analysis and visualization. Under his leadership, CartoDB has grown from a groundbreaking idea into one of the fastest growing geospatial companies in the world. Javier started his career as a conservation scientist, applying data sharing technologies to analyze and visualize endangered species. Javier holds a degree in Agriculture Engineering and Environmental Science from the Universidad Politéncia de Madrid and Freie Universität Berlin. He is passionate about all things data and its potential to improve the way we make decisions in our world.

Dr. Pamela S. Soltis

Pam has played a major role in reconstructing the plant branch of the tree of life and relaying this information to the scientific community and the public. Her research interests are in plant biodiversity, emphasizing angiosperm phylogeny, polyploidy, the evolution of the flower, conservation genetics of rare plant species and phylogeography. Pam is a distinguished professor at the University of Florida and curator of the Laboratory of Molecular Systematics and Evolutionary Genetics at the Florida Museum of Natural History. She has served as president of the Society of Systematic Biologists and the Botanical Society of America and as an associate editor for ten journals, including *Evolution* and *Systematic Biology.* She participates in public outreach through the Gainesville public schools and the Florida Museum of Natural History. In 2016, Pam was elected a member of the National Academy of Sciences, and, together with Doug Soltis, was awarded the Darwin-Wallace Medal by the Linnean Society of London.

Posters

Ballroom B

1	A workbench for species identification based on images and deep learning techniques https://doi.org/10.3897/tdwgproceedings.1.20569 Presenter: *Francisco Pando*
2	Quantifying quality: the "Apparent Quality Index", a measure of data quality for occurrence datasets https://doi.org/10.3897/tdwgproceedings.1.20533 Presenter: *Francisco Pando*
3	World Flora Online Project: An online flora of all known plants https://doi.org/10.3897/tdwgproceedings.1.20529 Presenter: *Chuck MIller*
4	Historical flowering phenology across a broad range of Pacific Northwest plants https://doi.org/10.3897/tdwgproceedings.1.20528 Presenter: *Linda Jennings & Barbara Neto-Bradley*
5	Expanding the Ocean Biogeographic Information System (OBIS) beyond species occurrences https://doi.org/10.3897/tdwgproceedings.1.20515 Presenter: *Pieter Provoost*
6	Enhancing Monitoring and Control of the Fall Armyworm (Spodoptera frugiperda) in the Democratic Republic of the Congo (DR Congo) by Citizen Science. https://doi.org/10.3897/tdwgproceedings.1.20499 Presenter: *Papy Nsevolo Miankeba*
7	BioBeacon: an Online Field Guide to Digital Biodiversity Information Resources https://doi.org/10.3897/tdwgproceedings.1.20472 Presenter: *Jarrett Blair*
8	Unifying Biology Through Informatics (UBTI) a new programme of the International Union of Biological Sciences https://doi.org/10.3897/tdwgproceedings.1.20431 Presenter: *David Peter Shorthouse*
9	Data Infrastructure for Scientific and Collections Data in Medium Size Institution https://doi.org/10.3897/tdwgproceedings.1.20429 Presenter: *Jakub Belka*
10	Low Cost Environment Monitoring Server – Wireshield https://doi.org/10.3897/tdwgproceedings.1.20427 Presenter: *Jiri Frank*

11	Using a Deep Convolutional Neural Network for Extracting Morphological Traits from Herbarium Images https://doi.org/10.3897/tdwgproceedings.1.20400 Presenter: *Régine Vignes-Lebbe*
12	Three years of Xper3 assessment: towards sharing semantic taxonomic content of identification keys https://doi.org/10.3897/tdwgproceedings.1.20382 Presenter: *Régine Vignes Lebbe*
13	A Pipeline for Processing Specimen Images in iDigBio - Applying and Generalizing an Examination of Mercury Use in Preparing Herbarium Specimens https://doi.org/10.3897/tdwgproceedings.1.20326 Presenter: *Matthew Collins*
14	DNAqua-Net: Advancing Methods, Connecting Communities and Envisaging Standards https://doi.org/10.3897/tdwgproceedings.1.20310 Presenter: *Alexander M. Weigand*
15	Automated Generation of Lists of Unique Values from iDigBio Data Fields to Facilitate Data Quality Improvements https://doi.org/10.3897/tdwgproceedings.1.20306 Presenter: *Matthew Collins*
16	Biodiversity Information Serving Our Nation (BISON) now with more than 1/3 billion species occurrences https://doi.org/10.3897/tdwgproceedings.1.20285 Presenter: *Annie Simpson*
17	Living Atlases Community https://doi.org/10.3897/tdwgproceedings.1.20290 Presenters: *Marie-Elise Lecoq, David Martin*
18	OpenBiodiv Poster: an Implementation of a Semantic System Running on top of the Biodiversity Knowledge Graph https://doi.org/10.3897/tdwgproceedings.1.20246 Presenter: *Viktor Senderov and Teodor Georgiev*
19	Canadensys and GBIF France : collaboration through the GBIF network to help launch the new Canadensys explorer https://doi.org/10.3897/tdwgproceedings.1.17011 Presenters: *Marie-Élise Lecoq, Jérémy Goimard*

Symposia, Workshops & Interest Group Meetings & Their Organizers

Symposia

S02	Biodiversity Data Quality – concepts, methods and tools *Arthur D. Chapman, Antonio M. Saraiva, Alexander M. Thompson*
S04	Advances in data accessibility and data management for marine species occurrence data *Andrew Sherin, Ward Appeltans, Lenore Bajona, Mary Kennedy*
S10	500 Years of Big Data from the Biodiversity Heritage Library *Martin R. Kalfatovic, Carolyn A. Sheffield*
S12	Citizen Science Contributions to Biodiversity Research and Standards *Robert D. Stevenson*
S15	Agricultural Informatics Contributions to Biodiversity Science and Biodiversity Assessments *Gail Kampmeier, Cyndy Parr, James Macklin*
S16	Using Big Data Techniques to Cross Dataset Boundaries - Integration and Analysis of Multiple Datasets *Matthew Collins, Robert Guralnick, Martin R. Kalfatovic*
S18	Bridging Gaps between Biodiversity Informaticians and Collections Professionals *Holly Little, Deborah Paul, Gail Kampmeier*
S20	Traits - Data models, sources, vocabulary, interoperability and their presentation and discoverability via species information pages *Jeff Gerbracht, Robert Guralnick, Jennifer Hammock, Deborah Paul, Pamela Soltis*
S22	Biological Interaction Data - towards data standardization *Antonio M. Saraiva, Jennifer Hammock, Quentin Groom*
S28	Financial Models for Sustaining Biodiversity Informatics Products *James H. Beach*

Workshops

W01	Establishing a global registration system of algal names and types *Andreas Kohlbecker*
W03	Towards robust interoperability in multi-omic approaches to biodiversity monitoring *Robert Hanner, Pier Luigi Buttigieg, Luke Thompson*

W06	Data Quality Workshop *Arthur D. Chapman, Antonio M. Saraiva*	

W07 Reusing an open source platform in order to create a community: example of the Living Atlases community
Marie-Elise Lecoq, David Martin, Christian Gendreau, Federico Mendez, Jeremy Goimard, Santiago Martínez de la Riva, Anders Telenius, Manash Shah

W08 Biodiversity data annotations – state of the play and perspectives
Lutz Suhrbier, Okka Tschöpe, Anton Güntsch, Walter Berendsohn

W09 Implementing Biodiversity Standards for Paleobiology
Denné Reed, Falko Glöckler, Mareike Petersen, Jana Hoffmann

W14 Standards for Citizen Science Biodiversity Studies
Robert D. Stevenson, Libby Ellwood

W17 The EDIT Platform for Cybertaxonomy, Current State and Envisaged Integration into the Biodiversity Informatics Infrastructure
Andreas Müller, Walter Berendsohn, Anton Güntsch

W19 Construction of biodiversity knowledge graphs driven by federated text mining tools
Riza Batista-Navarro, Sophia Ananiadou, Teodor Georgiev, Evangelos Pafilis, Lyubomir Penev, Viktor Senderov, Axel J. Soto, William Ulate

W21 Biological Interaction Data Workgroup
Antonio M. Saraiva, Jennifer Hammock, Quentin Groom

W23 Towards an Online Atlas of Phenology
Zoe Panchen, Joel Sachs, Mélanie Bélisle-Leclerc, Scott Chamberlain, Jonathan Davies, Pamela Soltis, Rob Guralnick

Interest/Task Group Meetings

IG01 Data Quality (by invitation)
Arthur D. Chapman, Antonio M. Saraiva

IG02 Technical Architecture Meeting
TBA

IG03 Species Information
Francisco Pando

IG04 Collections Description Meeting
Alexander Thompson, Deborah Paul

Symposia Abstracts

S02: Biodiversity Data Quality – concepts, methods and tools

Organizers: *Arthur D. Chapman, Antonio M. Saraiva, Alexander M. Thompson*

The goal of this 4th Symposium is to discuss concepts, problems, policies, metadata, methodologies and mechanisms related to Biodiversity Data Quality, which can be reused by the Biodiversity Informatics community collaboratively and incrementally. Data quality (DQ) is a major concern in Biodiversity Informatics. The distributed nature of data acquisition and digitization, the specific difficulties imposed by some of the data sub-domains, such as taxonomic data and geographic data, among other aspects, make it important to discuss DQ in biodiversity so that data made available in portals and other systems can be used for various purposes such as education, science, and decision-making. Although several initiatives in the Biodiversity Informatics community have been developing tools and best practices about DQ, there is no consensus related to concepts, metadata, policies, methodologies and tools about DQ. The size of DQ check pipelines has also posed challenges for existing methodologies and tools and may need to drive some of the discussion on concepts and policies. Previous symposia on DQ were held at the TDWG meetings in Florence, Italy/2013, Jönköping, Sweden/2014 and Santa Clara de San Carlos, Costa Rica/2016. As a result, a joint TDGW/GBIF Interest Group on DQ was proposed and approved in 2014. Subsequently three task groups were also created: TG1 – BDQ Framework, TG2 – BDQ Tools, services and workflows, and TG3 – BDQ Use cases. They tackle some of the most important issues identified by the attendants to the previous symposia.

The group has been able to meet between TDWG meetings to advance on its activities. In March, 2016, in São Paulo, Brazil, the IG and TGs conveners got together with members from two fitness-for-use groups supported by GBIF on species distribution modeling and agrobiodiversity, and have made good progress towards adopting a common conceptual basis and developing profiles for those two use cases. In October, 2016, in Melbourne, Australia, further advance was made focusing on another fitness-for-use group on alien and invasive species. Another meeting is scheduled to take place in Canberra, Australia, in May, 2017.

By the 2017 TDWG Meeting, in Ottawa, significant advances will have been made in all three Task Groups as well as in Vocabularies. In this 4rd Symposium we want to advance further on those discussions and increase participation of other stakeholders, keeping the same principles: discuss and share experiences on the ways we deal with DQ in the Biodiversity Informatics community, avoiding duplication of efforts and sharing knowledge.

S04: Advances in data accessibility and data management for marine species occurrence data

Organizers: *Andrew Sherin, Ward Appeltans, Lenore Bajona, Mary Kennedy*

The symposium will include presentations on the practices of data accessibility and data management for marine biological occurrence data by members of the Canadian Ocean Data Management Community of Practice and others on the following topics:

- Making data accessible for reuse and data rescue initiatives
- Biodiversity plus environmental measurements: OBIS-ENV and beyond
- Encouraging a 'Community of practice' for marine biological occurrence data
- Development of vocabularies and tools for quality control for DwC terms
- Identification of the need for new DwC terms
- Biodiversity use cases demonstrating data integration with habitat (e.g. Coastal Web Atlases)
- Data management training curriculums
- Citizen science and volunteer coordination

The symposium will be structured into several mini-symposia of selected topics based upon the topics of received presentation proposals. Not all of the topics listed above may be addressed within the symposium. Each mini-symposia will conclude with a panel discussion to identify next steps for collaboration and / or recommendations initially to the Canadian Ocean Data Management Community of Practice.

S10: 500 Years of Big Data from the Biodiversity Heritage Library

Organizers: *Martin R. Kalfatovic, Carolyn A. Sheffield*

With 89.9 terabytes of data spanning over 500 years of data collection, the Biodiversity Heritage Library (BHL) is an important galaxy in the universe of biodiversity data. Embedded in those 89.9 terabytes are over 174 million species name occurrences and a currently unknown number of species occurrences, descriptions, identified traits, and related data--all locked in the over 500 years of data captured in the BHL. As a consumer of name occurrence data, BHL works closely with the GNA and data providers such as ITIS. Recent developments and activities of ITIS and how these enhance BHL will be discussed.
A current IMLS funded grant, 'Foundations to Actions,' has funded five post-grad residents to gather data for requirements of BHL Version 2.

An international consortium, the BHL partners work to make biodiversity literature openly available to the world as part of a global biodiversity community. Through its extensive network of Members and Affiliates, over 52 million pages of biodiversity literature are now available through the BHL portal. Providing deeper access to the data contained in this literature is a goal of an ongoing project to provide full-text search capability to BHL. Technical details and use-case examples for this will be discussed.

BHL is not only data, but generates new data via wide-ranging and successful outreach activities. From tagging of images on Flickr, transcription of archival materials, and OCR correction from gaming activities, BHL has been able to leverage crowd-sourced input from users to better understand our collections. Outreach strategies designed to encourage citizen science activities will be discussed, as well as the importance of community engagement to sustain crowd-sourcing initiatives. Next steps and challenges related to incorporating crowd-sourced data into the BHL collection will also be addressed.

The Biodiversity Heritage Library has grown to be an important part of the infrastructure of biodiversity. In an attempt to solve the literature component of the taxonomic impediment, the BHL continues to provide access to legacy print publications and make this data widely available for reuse in collections support systems. This symposium will include a brief update on BHL activities since that 2016 TDWG. The final section of this symposium will be a guided discussion of desideratum and enhancements TDWG participants see as important for BHL.

Symposium participants will include representatives from the BHL Secretariat, BHL-related projects, ITIS, and other BHL partners.

S12: Citizen Science Contributions to Biodiversity Research and Standards

Organizer: *Robert D. Stevenson*

Citizen science encompasses a diverse set of activities that contribute to biodiversity research including decoding and transcribing museum labels, collecting specimens and images, analyzing and classifying digital collections, setting out camera traps and doing field surveys. This symposium offers a venue for citizen science practitioners to describe their biodiversity projects and to learn about the TDWG community. Likewise, informatics specialists and database managers working on biodiversity projects are encouraged to present the issues they face when supporting citizen science programs. Aspects of a citizen science programs from project design, to data collection and data curation are welcome. Projects that address taxonomic or data quality issues are especially encouraged. Participants are invited to join in the work of the Citizen Science Interest Group in developing standards to support biodiversity research.

S15: Agricultural Informatics Contributions to Biodiversity Science and Biodiversity Assessments

Organizers: *Gail Kampmeier, Cyndy Parr, James Macklin*

Agricultural biodiversity has long been ignored by the traditional biodiversity community and the aggregators of their data. The February 2016 GBIF 'Final Report of the Task Group on GBIF Data Fitness for Use in Agrobiodiversity,' provided recommendations primarily regarding crops and their wild relatives, but did not address wider issues of crop pests (plant diseases and their vectors, arthropods) and management systems that affect the greater biodiversity of those crops. The TDWG16 symposium, 'Agricultural Biodiversity Standards & Semantics,' highlighted the current status of agrobiodiversity data management and discussed major challenges in this field. This year's symposium will provide a progress report on addressing challenges such as crop management and experimental protocol standards and infraspecific taxonomic coverage. It will dive deeper into trends in semantics and data mining for agriculture, and in application of standards to biodiversity assessments. We aim to provide specific examples where shared data management standards and practices across both basic and applied biodiversity research communities can lead to improved outcomes for both science and society.

S16: Using Big Data Techniques to Cross Dataset Boundaries - Integration and Analysis of Multiple Datasets

Organizers: *Matthew Collins, Robert Guralnick, Martin R. Kalfatovic*

For many historical reasons, much biodiversity data is cataloged and aggregated by type: occurrence, gene sequence, literature, etc. While this has advantages, interesting and new scientific questions require information from more than one source but the varied structure and axes of existing datasets don't make it easy to simply join them up.

In this symposium we will have presentations from researchers on techniques used to join, extract, and infer information across traditional occurrence, taxonomy, trait, phenology, genetic, environment, literature, image, climate, and other boundaries. We also will have limited presentations from data providers on the work they are doing and challenges they face in building and exposing linkages among their datasets. Our goal is to provide a forum to expose working techniques for addressing the disjoint nature of our current data ecosystem.

S18: Bridging Gaps between Biodiversity Informaticians and Collections Professionals

Organizers: *Holly Little, Deborah Paul, Gail Kampmeier*

The biodiversity informatics standards, tools, and resources developed by TDWG and its members are vital components in the daily work of curators and collections professionals in natural history museum collections. However, opportunities for communication and collaboration between these groups are too often rare and siloed. Therefore, building a mutual understanding of and solid collaboration about how biodiversity informatics concepts are developed and then how they are applied to the mobilization of collections data can be difficult. In 2018, the TDWG meeting will be held in conjunction with the Society for the Preservation of Natural History Collection (SPNHC) meeting, providing an invaluable opportunity to address these issues. In order to enhance the effectiveness of the 2018 meeting it is important for each group to develop a better comprehension of the vernacular of the other. This symposium aims to bridge gaps in understanding between the biodiversity informaticians and the ways collections professionals use their work. It will provide examples of how collections are using TDWG standards, applicability statements, and best practices, as well as exploring where this community, along with discipline specific experts, can work to provide more controlled vocabularies for existing terms, participate in development activities of interest and task groups, and identify and contribute solutions to needs as yet unaddressed by current standards.

S20: Traits - Data models, sources, vocabulary, interoperability and their presentation and discoverability via species information pages

Organizers: *Jeff Gerbracht, Robert Guralnick, Jennifer Hammock, Deborah Paul, Pamela Soltis*

With potentially 3-4 billion specimens globally, the world's natural history collections offer treasure troves of relevant information. This is complemented by a long historic record of citizen science observations, and recently by molecular sampling. New contributions in both these areas are born digital and are accelerating the growth of contemporary biodiversity occurrence data. Meanwhile, efforts such as the NSF's Advancing Digitization of Biodiversity Collections Program are increasing the rate of digitization of specimen records, filling in our historic biodiversity record just as rapidly. Occurrence records typically contain locality information, and these georeferenced occurrences have revolutionized our ability to model species distributions and project future distributions based on models of climate change. These records may also contain information, such as body size, phenology, environment, that is relevant to ecological and evolutionary research. Even literature sources, where traits measured are not associated with deposited specimens, contain detailed metadata describing location, environment, lifestage and concurrently measured traits. Textual descriptions, from regional floras, catalogs, monographs and other literature, also contain extensive ecological information, suitable for extraction using semantic analysis. This deluge of data is not without its challenges. Among these is the need to develop ontologies, which are crucial for big data solutions, so that trait data can be extracted and assembled informatically. This requires the development of ontologies, which are crucial for big data solutions.

There is an array of existing ontologies in the biodiversity space, many maintained by active communities like the OBO Foundry. Gaps remain in even the most mature ontologies, but as term adoption by outside projects increases, and new tools developed for terms nomination and other community curation activity, it becomes more practical to develop robust structured vocabulary coverage for the biodiversity space.

There is increasing convergence around traits of urgent concern for conservation and applied research. The Essential Biodiversity Variables, identified by GEO BON as essential for monitoring biodiversity change, highlight key traits needed for this stewardship.

In this symposium, we will explore the breadth of sources of biodiversity trait data, and techniques and consensus needed to support analysis over these diverse sources. With over 780 million occurrence records now available via iDigBio and GBIF, and many millions more appearing every year, now is the perfect time to consider which traits are most significant for ecological and evolutionary research, the ontologies required for meaningful communication and data assembly, and the tools needed for ensuring interoperability of these data.

S22: Biological Interaction Data - towards data standardization

Organizers: *Antonio M. Saraiva, Jennifer Hammock, Quentin Groom*

Scientists use a variety of methods to collect, record, and store biological interaction data (predator-prey, parasite-host, pollinator-plant, etc.). Uses for these data are equally diverse. For example, they could play an important role in building decision support systems for conservation and sustainable use in agriculture. Numerous efforts are underway to aggregate, organize, and efficiently disseminate these data. However, we lack a formal data standard to support this work. The goal of this symposium is to provide an opportunity, for those involved or interested in the digitization of biological interaction data, to share their experiences and ideas so that we can move forward and propose a biological interaction data standard. During the 2016 TDWG Conference, in Santa Clara de San Carlos, Costa Rica, a group of people gathered to start discussing this issue under the TDWG umbrella. The objective is to propose the creation of an Interest Group on Biological Interactions Data where this topic can be discussed within the biodiversity informatics community. During the symposium, we will provide an update on the group's achievements as well as welcome other interested parties to present their work.

S28: Financial Models for Sustaining Biodiversity Informatics Products

Organizer: *James H. Beach*

This session will focus on the economics of sustaining biodiversity software platforms and tools, with revenue models that are not wholly comprised of grant funding. As cyberinfrastructure matures into widely-used, production data sources, software, and services, business models will be needed that identify and engage stakeholders who benefit from their value--potentially as payers. Innovative value propositions and clever financial models for long-term sustainability will be important for products seeking to support a community of institutions and initiatives that range from the large and well-resourced, to those that are small and sparingly funded.

Workshop Abstracts

W01: Establishing a global registration system of algal names and types

Organizers: *Andreas Kohlbecker*

Establishing an on-line registration system for algal names and their nomenclatural types is one of the main objectives of a DFG (Deutsche Forschungs Gemeinschaft) project, which started in 2016.

This registration system will become part of the international network of biodiversity data and one of the operating global registration systems for names of organisms. Once established, PhycoBank will remove a major obstacle to research in the field of phycology. The envisaged workflows include manual registration of

new algae names, as well as the automatic registration of new algal names published in scientific journals that already have a functioning electronic publishing workflow.

An important component of the registration system will be a comprehensive index of algae names. Its main purposes are to cover all algae names known to sources external to PhycoBank, and to support the registration workflow by providing these names in a harmonized and consistent way. The index could be furthermore a valuable source of names for other data systems. It may contribute to the Global Names Architecture (GNA) in the medium term. In the short term, it aims to provide names to the backbone of biodiversity networks such as GBIF and the Biological Collection Access Service (BioCASe).

The workshop will review and discuss interoperability aspects of the system with the global network of biodiversity information systems, including topics like persistent identifiers for names and typifications, data flows to name catalogs, and other services, as well as the harvesting and indexing of names and taxa for the algae name index. Another major focus of the workshop will be the integration of name registration systems in the workflow of digital publishers.

W03: Towards robust interoperability in multi-omic approaches to biodiversity monitoring

Organizers: *Robert Hanner, Pier Luigi Buttigieg, Luke Thompson*

The routine use of (meta)genomics, (meta)transcriptomics, and the targeted sequencing of taxonomic marker genes is enabling monitoring of both micro and macro-organismal assemblages across a wide range of environments. Such monitoring of phylogenetic and functional diversity offers novel and valuable insight into how the biosphere is responding to environmental change. However, there are considerable obstacles to unifying multi-omic observation and monitoring strategies, which span environments from the deep marine subsurface to the urban atmosphere. Perhaps foremost, rapid development within the field often outpaces attempts to harmonise its techniques, despite progress by initiatives such as the Earth Microbiome Project, TARA Oceans, and Ocean Sampling Day. Overcoming these obstacles will be essential in realising an informatics infrastructure suited to a global, omically-enabled biodiversity monitoring system and incorporating omics-driven insights into the biodiversity metrics which inform the conservation and policy domain.

This workshop will begin with a collection of talks that will outline the scope of the challenge and possible solutions, followed by facilitated discussion towards delivering a draft data standard for reporting species occurrences as detected through varied environmental DNA (eDNA) methods and community meta-omics approaches. This issue is nontrivial and involves the intersection of geospatial, genomic and biodiversity informatics perspectives, among others. We will examine efforts such as long-term, omically enabled observatories as use cases in need of "future proof", flexible standards and propose strategies for existing standards to contend with their demands. We also welcome contributions identifying aspects of omic data which have yet to be acknowledged in the standards landscape. Our activities aim to catalyse the robust interoperability and convergence of community-endorsed/best practices, metadata checklists, standard terminologies, knowledge representations, and persistent identifiers for the environments, samples, processes, information artifacts, equipment, and agents involved in this emerging, multidisciplinary domain.

We welcome submissions on topics directly related to the above, including:

- Community-endorsed, best practices for 'omic observatories and/or observation campaigns, such as:
- Design and/or governance - emphasising interoperability
- Standardised sampling, sample management, and archiving, including the use of persistent sample identifiers and FIMS/LIMS technologies
- Standardised generation, processing, analysis, and archiving of 'omics data
- Acquisition, standardisation/structuring, processing, management, and exchange of metadata (e.g. use of checklists, structured formats, controlled vocabularies, ontologies, and FIMS/LIMS technologies)
- Efforts to translate omics outputs to diverse stakeholders, such as those in the policy, conservation, commercial, and public spheres

W06: Data Quality Workshop

Organizers: *Arthur D. Chapman, Antonio M. Saraiva*

The goal of the workshop is to present the advances and the status of the three Task Groups of this [Interest Group] TG1 – BDQ Framework, TG2 – BDQ Tools, services and workflows, and TG3 – BDQ Use cases. We will also work on specific issues raised during the year, which need to be addressed by the group, and plan next steps, including how to increase participation of other stakeholders and plans toward a TDWG standard on data quality tests and assertions.

The distributed nature of data acquisition and digitization, the specific difficulties imposed by some of the data sub-domains, such as taxonomic data and geographic data, among other aspects, make it important to discuss DQ in biodiversity so that data made available in portals and other systems can be used for various purposes such as education, science, and decision-making. Although several initiatives in the Biodiversity Informatics community have been developing tools and best practices about DQ, there is no consensus related to concepts, metadata, policies, methodologies and tools about DQ. The size of DQ check pipelines has also posed challenges for existing methodologies and tools and may need to drive some of the discussion on concepts and policies.

A joint TDGW/GBIF Interest Group on DQ was proposed and approved in 2014. Subsequently three task groups were also created: TG1 – BDQ Framework, TG2 – BDQ Tools, services and workflows, and TG3 – BDQ Use cases. They tackle some of the most important issues identified by the attendants to the previous symposia, held at the TDWG meetings in Florence, Italy/2013, Jönköping, Sweden/2014 and Santa Clara de San Carlos, Costa Rica/2016.

The group has been able to meet between TDWG meetings to advance on its activities. In March, 2016, in São Paulo, Brazil, the IG and TGs conveners got together with members from two fitness-for-use groups supported by GBIF on species distribution modeling and agrobiodiversity, and have made good progress towards adopting a common conceptual basis and developing profiles for those two use cases. In October, 2016, in Melbourne, Australia, further advance was made focusing on another fitness-for-use group on alien and invasive species. Another meeting is scheduled to take place in Canberra, Australia, in May, 2017.

By the 2017 TDWG Meeting, in Ottawa, significant advances will have been made in all three Task Groups as well as in Vocabularies.

W07: Reusing an open source platform in order to create a community: example of the Living Atlases community

Organizers: *Marie-Elise Lecoq, David Martin, Christian Gendreau, Federico Mendez, Jeremy Goimard, Santiago Martínez de la Riva, Anders Telenius, Manash Shah*

Since 2013, a community has grown around the Atlas of Living Australia (ALA) open source platform, mostly but not exclusively around GBIF nodes. Indeed, since 2014 five international workshops have been organized around the world and eight data portals have been released into production using this tool (ALA, Brazil, GBIF Argentina, GBIF Costa Rica, GBIF France, NBN, GBIF Spain, GBIF Portugal) and several others are currently in development (Canadensys, GBIF Sweden, etc.). Here you can find a map representing all countries with an interest in implementing ALA as their national data portal.

ALA modules work with standards defined by the TDWG community. Data shown on maps are loaded through Darwin Core Archive files previously published from IPT or directly downloaded on the GBIF.org. Users can filter and download occurrences and can also interact with data using API proposed by the platform. We keep the data authority and highlight data publishers, institutions, collections and datasets by showing their metadata. Moreover, using this ALA technology as national data portals is the solution recommended in the GBIF Implementation Plan 2017 - 2021.

One of the main objectives of this workshop will be to present the community of Living Atlases by showing examples already in production (Atlas of Living Australia, GBIF France, GBIF Spain and NBN Atlas Scotland), and past & future projects involving the community. In addition, we expect to train participants in the basic ALA modules (Collectory and Biocache-hub) that focus on occurrence research tools, data visualization and metadata portal. This technical training will also include the installation of an ALA demo version in order to give the possibility to users to make their first configurations and developments of their new tool.

W08: Biodiversity data annotations – state of the play and perspectives

Organizers: *Lutz Suhrbier, Okka Tschöpe, Anton Güntsch, Walter Berendsohn*

With the growing number of digitised specimen metadata and images on the world wide web, on-line annotation systems for correcting or enriching label information become increasingly important. The annotation system AnnoSys is one of the systems that provide functional infrastructure for annotating collection information as well as web service interfaces for searching existing annotations and their integration into research workflows. The recent stable release of AnnoSys has been integrated with the GBIF data portal, the World Flora Online Specimen Explorer, the Global Genome Biodiversity Network (GGBN) and others and stores all annotations conforming with the W3C Open Annotation Data Model in a centralised RDF repository together with the original specimen data.

The workshop focusses on practical demonstration of available annotation systems and their integration into the international biodiversity informatics landscape. We will discuss potential new features

and future developments with a focus on semantic interoperability and synchronisation or aggregation mechanisms for distributed annotation repositories.

W09: Implementing Biodiversity Standards for Paleobiology

Organizers: *Denné Reed, Falko Glöckler, Mareike Petersen, Jana Hoffmann*

The Paleobiology Interest Group (Paleo) was established in 2015 to broaden the application of existing standards such as Darwin Core and the Access to Biodiversity Collections Data Extended for Geosciences (ABCDEFG) to accommodate paleobiological data. This will represent the second meeting of the interest group at a TDWG conference.

The group seeks to extend existing standards to meet the needs of paleobiology and to foster greater integration between neontology and paleontology in the study of biodiversity across space and deep time. Understanding long-term temporal patterns in biodiversity provides the context for interpreting modern changes in biodiversity and understanding the process responsible for these changes.

Employing biodiversity information standards, such as Darwin Core and ABCDEFG to paleobiology data requires addressing a broader range of metadata requirements and adapting best practices. The role of the Paleo group is to provide guidelines for deploying existing biodiversity standards to paleobiology and to propose extensions and modifications to existing standards to make them more amenable (and generalizable) for paleobiology.

The primary goals for the 2017 meeting of the Paleobiology Interest Group are: 1) to update TDWG members on the group's history and progress, 2) to conduct in-depth discussions and debate on common use cases for deploying standards in paleobiology, 3) to discuss and produce examples of Darwin Core and ABCDEFG entries for those use cases.
The annual meetings offer the best opportunity for bringing biodiversity information specialists together with disciplinary specialists in paleobiology to resolve questions and make concrete advances in broadening the application of biodiversity information standards in a new disciplinary domain. The 2017 meeting of the TDWG Paleo Interest Group will include a focus on the relationship between Darwin Core and ABCDEFG and how they can work together.

W14: Standards for Citizen Science Biodiversity Studies

Organizers: *Robert D. Stevenson, Libby Ellwood*

The TDWG Citizen Science Interest Group was chartered at the beginning of 2017. This workshop represents the first time the group can meet together and discuss community development and standards needs. Topics will include policies and standards for common name, symbols for non literate observers and data quality. An important aspect of the meeting will be to establish links to other TDWG working groups and to learn about efforts by groups outside the TDWG organization such as the Citizen Science Association Meta Data working group, the European Citizen Science Association, CoData, RDA Small Unmanned Aircraft Systems, and the Camera Trap Federated Minimum Data Standard about their efforts to draft standards. The PPSR_CORE meta standard has been defined. We will review this standard and its implementation.

W17: The EDIT Platform for Cybertaxonomy, Current State and Envisaged Integration into the Biodiversity Informatics Infrastructure

Organizers: *Andreas Müller, Walter Berendsohn, Anton Güntsch*

The EDIT Platform for Cybertaxonomy has been developed over the past years to support the full taxonomic workflow and to serve as an information broker for all types of biodiversity data. Though a focus has been set on taxon level data it covers all relevant data types from literature to DNA alignment . In the early phase focusing on core functionality it now aims for a deeper integration into existing biodiversity infrastructure landscape by making use of its service oriented architecture.

The workshop will present the current state of the Platform and intends to discuss new features to further integrate the Platform.

W19: Construction of biodiversity knowledge graphs driven by federated text mining tools

Organizers: *Riza Batista-Navarro, Sophia Ananiadou, Teodor Georgiev, Evangelos Pafilis, Lyubomir Penev, Viktor Senderov, Axel J. Soto, William Ulate*

Knowledge graphs - knowledge bases which encode information using graph structures - have recently demonstrated their power in supporting knowledge discovery tasks such as data aggregation and semantic search. Well-known knowledge graphs such as DBpedia and Google's Knowledge Graph have been built to store general-domain facts, and are now widely used in many knowledge discovery applications. We should also be able to construct large-scale graphs capturing biodiversity knowledge, which will enable linking and consolidation of information from multiple complementary sources - databases such as the Encyclopedia of Life (EoL), Global Biodiversity Information Facility (GBIF), Biodiversity Heritage Library (BHL) and Pensoft.

This workshop is focussed on the demonstration and use of technologies that facilitate the construction of biodiversity knowledge graphs based on various data sources. Firstly, we shall showcase tools for automatically analysing secondary data, i.e., biodiversity literature. These range from tools or services that can automatically recognise mentions of pertinent concepts (e.g., taxa, environments) such as EXTRACT, to those that disambiguate and link such mentions with controlled vocabularies and primary (occurrence) data, through to ones which identify semantically related names (e.g., using distributional semantics). Importantly, we will demonstrate how a graph database - a Neo4j instance - can be populated with the automatically extracted information. Emphasis will also be given to the benefits of representing information using a graph database. Furthermore, we shall demonstrate how these diverse tools - as well as those contributed by other members of the community - can be federated, i.e., integrated into unified pipelines, using Argo: a graphical Web-based workbench for user-interactive construction of processing workflows. In this way, the workshop will provide the know-how for building knowledge graphs through bespoke processing workflows that do not require any programming effort.

Applications of the above technologies in the context of use cases will then be presented. A specific example is the graph representation of knowledge stored in World Flora Online (WFO) which would: (1) integrate WFO content with data from other platforms, e.g., GBIF, EoL, and (2) enable searching for more descriptive plant species information, e.g., related common or vernacular names, location, habitat, reproductive state. An open discussion of further use cases that are of interest to the community will be held.

W21: Biological Interaction Data Workgroup

Organizers: *Antonio M. Saraiva, Jennifer Hammock, Quentin Groom*

The objective of this workshop is to present the advances of the workgroup, since its creation at the 2016 TDWG Conference, work on specific issues raised during the year, and plan next steps, which may include the creation of an Interest Group on Biological Interactions Data within TDWG.
Scientists use a variety of methods to collect, record, and store biological interaction data (predator-prey, parasite-host, pollinator-plant, etc.). Uses for these data are equally diverse. For example, they could play an important role in building decision support systems for conservation and sustainable use in agriculture. Numerous efforts are underway to aggregate, organize, and efficiently disseminate these data. However, we lack a formal data standard to support this work. The goal of this workshop is to provide an opportunity, for those involved or interested in the digitization of biological interaction data, to share their experiences and ideas so that we can move forward and propose a biological interaction data standard.

W23: Towards an Online Atlas of Phenology

Organizers: *Zoe Panchen, Joel Sachs, Mélanie Bélisle-Leclerc, Scott Chamberlain, Jonathan Davies, Pamela Soltis, Rob Guralnick*

An on-line phenology atlas would be a platform for integrating phenology data from the many individual researchers, institutions, and citizen science programs that are willing to make their phenology records available. It would provide capabilities for analyzing and visualizing the data with a species-based, location-based, or phenophase-based focus. This workshop will explore possible visions for such an atlas, and possible steps for making it a reality. Goals of the workshop include:

- A survey of existing initiatives aimed at standardizing and integrating phenology data.
- Identifying barriers to standardization and integration.
- Generating use cases.
- Generating competency questions - i.e. What queries would we want an on-line atlas of phenology to support?
- Identifying possibilities for future development.

Submissions are invited relating to any of the above. As well, the organizers plan a number of small experiments in phenological data integration prior to the workshop, so that discussion is informed by what's currently easy, and what's currently hard. If you would like to participate in these experiments (by contributing data, use cases, or technical capacity), please contact the organizers.

Instructions for Speakers

- For best results, prepare your slides using Microsoft PowerPoint, using widely available Windows-compatible fonts and minimizing fancy transitions.
- Please format all slides for 16:9 in Microsoft PowerPoint. This is the industry standard and is (usually) the default for PowerPoint 2010+
- Please title the file to your talk using the following filename convention: **Room_Day_Time_Surname.pptx** (e.g. **Chaudiere_Monday_1415_Smith.pptx**)
- **Visit your presentation room the morning of your talk between 8:30AM and 9:00AM with your talk on a USB key and load it onto the laptop**
- If you are doing a computer demo that requires the internet, please have a backup plan in case of network issues.
- This year nearly all talks are **15 minutes in length** (including questions and speaker changes), to make it easier for attendees to move from one session to another if they wish. Please be respectful of other speakers and help moderators keep your session on time.
- There will be a Windows PC (not Mac) presenting your slides. The hotel is supplying someone to help with A/V technologies during sessions and breaks.
- Because we are partnering with iDigBio to record sessions, you may be asked to wear a clip-on microphone, and you will need to use the trackpad on the computer as your pointer. A mobile microphone should be available for audience members to ask questions.
- Remember this is a diverse international audience who may not be familiar with customs, acronyms, and jargon used in your specialty. Help everyone appreciate your work by speaking clearly and explaining potentially unfamiliar terms.

Instructions for Poster Presenters

Your poster should be approximately A0-sized (33" x 47" or 84 cm x 119 cm) or no more than 48" on the widest side. The boards are Velcro and Velcro sticky dots and numbers will be provided. See the program schedule to learn when to hang your poster and when to stand near your poster.

Instructions for Moderators

- Moderator responsibilities (non-workshop)
  - Bring a working stopwatch to time presentations
  - Make sure you know how to switch between talks on the presentation computer
  - Arrive at session at least 10 minutes before the start of the session
  - Confirm that all presentations are loaded on the computer
  - Start the session on time and remind speakers of their time limits and that they be courteous to speakers who must follow them by not exceeding their time limit.
  - Keep session on time. Announce how you will let authors know when their time is running out (e.g., raise three fingers within sight of the speaker to indicate 3 minutes remaining; stand at one minute; do what you can to keep speakers within their time limit)
  - Questions may be asked within the allotted time, but if time does not allow, ask questioners to seek out speakers after the session

Breakfast and Lunch Recommendations Near the Delta

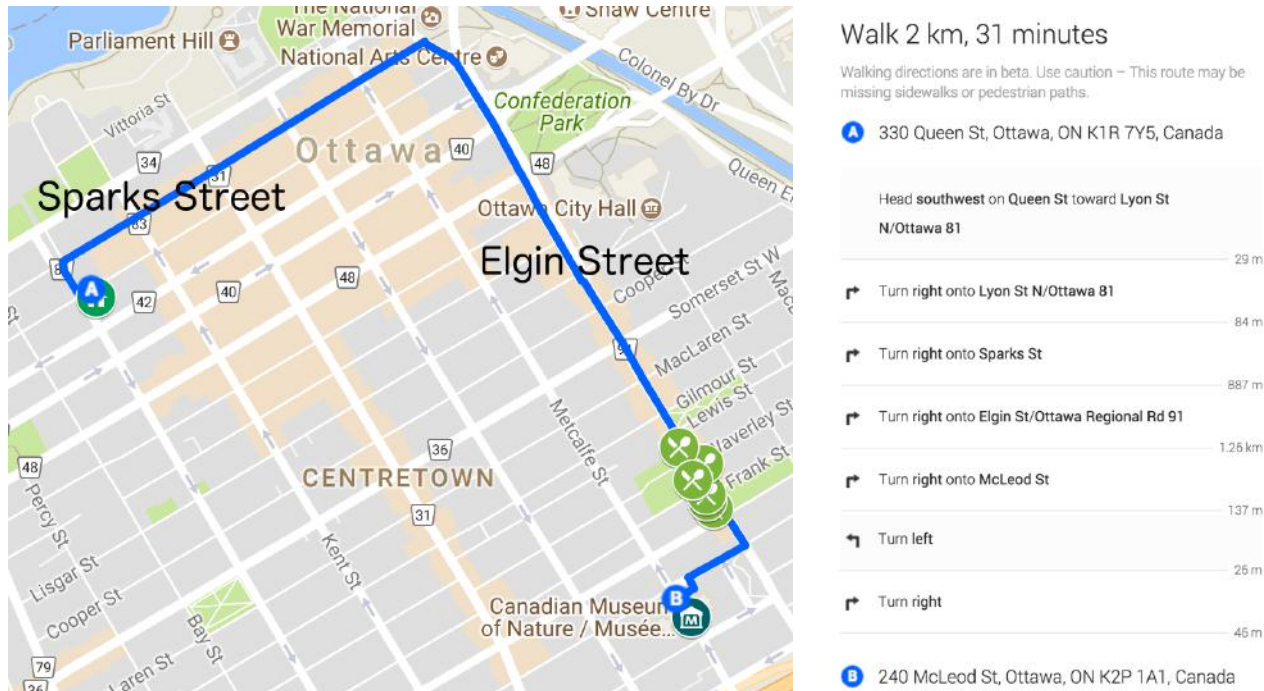| BREAKFAST	LUNCH
Bridgehead - Local coffee roastery serving light breakfast fare, including croissants, granola parfaits, oatmeal, and muffins. Breakfast service begins at 6:30 a.m. 344 Slater Street. 250 m from the Delta Hotel. https://www.bridgehead.ca/	**Aroma** - Greek meze (small plates) restaurant offering a variety of options, including many vegetarian dishes. Online reservations available. 239 Nepean Street. 650 m from the Delta Hotel. http://www.aromameze.com/
Good Eats - Ever-changing breakfast menu with ample vegan and gluten-free options, and coffee from local roastery **Equator**. Breakfast service begins at 7:30 a.m. 388 Albert Street. 350 m from the Delta Hotel. http://good-eats.ca/, https://www.equator.ca/	**Burgers 'n' Fries Forever** - Certified halal burger joint offering an inventive menu featuring gourmet fries. Vegan and vegetarian options available. 329 Bank Street. 1.2 km from the Delta Hotel. https://burgersnfriesforever.com/
LIFT Resto Lounge - Hotel restaurant offering buffet, continental, and full American breakfasts. Breakfast service begins at 6:30 a.m. Located inside the Delta Hotel on the mezzanine level. http://liftrestolounge.ca/	**C'est Japon à Suisha** - Sushi restaurant renowned for freshness and expert preparation. Closed Mondays. 208 Slater Street. 550 m from the Delta Hotel. http://www.japaninottawa.com/
Tim Horton's - Canadian coffee chain serving breakfast sandwiches, muffins, and bagels. Open 24 hours. Located inside the Delta Hotel behind hotel reception. http://www.timhortons.com/	**Clover** - Popular downtown lunch spot featuring locally-sourced ingredients. Online reservations available. 155 Bank Street. 600 m from the Delta Hotel. http://www.cloverottawa.ca/
	Green Rebel - Casual lunch spot with a focus on environmental sustainability featuring salads, sandwiches, wraps, and smoothies. 340 Albert Street, Suite 140. 220 m from the Delta Hotel. http://www.greenrebel.ca/
	Jasmine Garden - Mediterranean restaurant featuring several affordable lunch specials. 340 Laurier Avenue West, Suite 102. 550 m from the Delta Hotel. http://www.jasminegarden.ca/
	Rawlicious - Vegan restaurant serving globally-inspired salads, mains, smoothies, and desserts. 381 Cooper Street. 1.0 km from the Delta Hotel http://www.rawliciousottawa.ca/
	Sansotei - Popular ramen spot featuring handmade noodles. Lines can form at lunch, but service is quick once seated. 153 Bank Street, 600 m from the Delta Hotel. http://www.sansotei.com/

Night at the Museum Social

Monday, 2 October 7:00PM – 10:00PM
Canadian Museum of Nature, 240 McLeod Street
Directions: http://bit.ly/walk2museum

A beer talk by a Canadian Museum of Nature botanist will be given at 8:00 PM

In the event of inclement weather, we recommend using Ottawa's public transportation system, OCTranspo, http://www.octranspo.com/. Adult fares are $3.40CA one-way (cash coins or 2 tickets $1.70 each). Tickets may be purchased at The Cove Tuck Shop, 350 Albert Street (SE corner, back of hotel) or Rexall Pharma Plus, 240 Sparks Street (corner or Sparks Street and Kent Street).

Bus to the Museum from the Hotel
Walk 5 minutes East from the Hotel to Bank Street. The #6 bus (direction Greenboro) or the #7 bus (direction Carlton) can be caught every 10 minutes on Bank Street South. Disembark at Gladstone Avenue and walk 8 minutes East to the Museum. Proof of payment/transfer slip remains valid for 90 minutes after initial boarding.

Bus to the Hotel from the Museum
Reverse instructions from above. Walk 8 minutes West to Bank Street. Catch the #6 bus (direction Rockcliffe) or #7 bus (direction St-Laurent) and disembark at Sparks Street. Cross Bank Street and walk 5 minutes West to the Hotel.

Local Attractions

Your TDWG registration badge makes you eligible for Ottawa Tourism's "Flash Your Badge" Program. This entitles you and a guest to a discounted visit to the attractions, tours, restaurants and hospitality listed at http://ottawatourism2.ca/fyb/. There is no need to print this passport, all you have to do is present your delegate badge.

Recommended Restaurants en route to the Night at the Museum Social

Datsun
Asian-inspired small plates featuring local ingredients and an impressive cocktail menu. The take-out window offers a quick way to grab a delicious bite. Kitchen open until midnight.
380 Elgin Street (300 m from the Canadian Museum of Nature)
http://eatdatsun.com

Elgin Street Diner
An Ottawa institution. The Elgin Street Diner serves classic diner fare, including all-day breakfast and poutine. Open 24 hours.
374 Elgin Street (350 m from the Canadian Museum of Nature)
http://www.elginstreetdiner.com/

Lieutenant's Pump
Expansive British-style bar featuring a rotating selection of beers on tap and standard pub favourites. Kitchen open until midnight.
361 Elgin Street (400 m from the Canadian Museum of Nature)
http://www.lieutenantspump.ca/

The Manx
Cozy subterranean watering hole featuring a diverse selection of beers on tap, globally-inspired pub fare, and the works of local artists. Kitchen open until 10:30 PM.
370 Elgin Street (350 m from the Canadian Museum of Nature)
http://manxpub.com/

Pure Kitchen
Scratch vegetarian/vegan kitchen and juice bar, with a focus on local produce. Kitchen open until 10:00 PM.
340 Elgin Street (450 m from the Canadian Museum of Nature)
http://www.purekitchenottawa.com/

The Standard
A popular late-night hangout offering a diverse menu of appetizers, salads, burgers, and pizzas. Monday night features $6 mojitos, house wine, and appetizers. Kitchen open until midnight.
360 Elgin Street (400 m from the Canadian Museum of Nature)
http://www.thestandardtavern.com/

Committees

Program Committee

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Logo Artwork: **Dan Asencio**

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Thanks to **Paul Sokoloff**, Canadian Museum of Nature botanist who gave an engaging talk about beer during the Night at the Museum social.

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Thanks to **Kevin J. Love** of iDigBio for recording our meeting's sessions.

Delta Floor Plan

CONVENTION LEVEL

CHAUDIERE · SEIGNIORY · YORK · LAURENTIAN · JOLIET · GRAND SALON · FRONTENAC · RICHELIEU · CONFEDERATION · FOYER · W · M · INDOOR SWIMMING POOL · FITNESS CENTRE · TERRACE · CARTIER · BYTOWNE · CAPITALE

LOWER LOBBY LEVEL

ENTRANCE · COAT CHECK · WC · VICTORIA · LOADING DOCK ACCESS · INTERNATIONAL BALLROOM · A · B · C · FOYER