TDWG
Biodiversity Information Standards
5–9 December 2016
Instituto Tecnológico de Costa Rica (TEC)
Santa Clara de San Carlos, Alajuela, Costa Rica

Twitter: #tdwg16

latest revision 28 November 2016

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WiFi will be available on campus for conference attendees: choose wTEC-CTEC and enter TDWG2016 for the password.

Printed programs will not be available at this meeting. This PDF contains links to abstracts and content online. An online scheduler for mobile devices, Sched, will be available in late November at https://tdwg2016.sched.org/

Welcome to TDWG 2016!

This year's meeting on the campus of Tecnológico de Costa Rica (TEC) in Santa Clara de San Carlos is symbolic of the conference theme: **Standards Supporting Innovation in Biodiversity and Conservation.** About 150 participants from countries across the globe will join together to hear presentations by colleagues, discuss current and future biodiversity-related standards, and create a "biodiversity snapshot of TDWG 2016." iDigBio is sponsoring pre-conference software carpentry workshop and the Organization for Tropical Studies is offering post-conference "BioCursos."

Standards for the description and exchange of biodiversity information help promote research, support decision-making for conservation and planning, and provide a means of communicating observations by both professional and citizen scientists across taxa and political boundaries. TDWG standards are an integral foundation of the largest biodiversity information sources, but given the wealth and diversity of information collected for extant and fossil organisms, the need remains to extend and refine the concepts required to achieve greater integration for the discovery of knowledge and its use in biodiversity conservation.

Getting to and from San Jose - TDWG is organizing bus transportation (for $30 US each way) for the most popular travel days. Sign up in RegOnline.

Accommodations - Participants will be staying in hotels in La Fortuna, a 40-minute bus ride from TEC. Buses will have published times for picking up attendees at the designated conference hotels and will include a pickup from the Central Square (Parque Central) near the Catholic church for those staying elsewhere.

Welcome Reception & Sunday Registration are at Arenal Manoa from 6–9 PM on Sunday. Buses will take participants from their hotels to the reception.

Biodiversity Snapshot of TDWG 2016 with data sent to GBIF - Costa Rica has a wealth of biodiversity to discover, whether finding the crocs on campus, the birds in early morning at your hotel, or frogs at the Soltis Center on Thursday afternoon ($20; sign up in RegOnline by 5 December). Record your observations using iNaturalist (download app) and join the virtual hunt!

Gala Dinner is sponsored by TEC and included in full registration for the conference. It will be held on Thursday evening at EcoTermales. Buses will take participants to and from this resort. Catch the early bus to spend time in the hot springs--bring your bathing suit!

Sponsors

We thank the following sponsors for their generous support of TDWG 2016:

Platinum Sponsor - Hosts of TDWG 2016 & sponsors of the Gala Dinner

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Additional financial and in-kind support provided by:

Software Carpentry pre-conference course
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Hosts of the TDWG2016 mini-bioblitz
soltiscentercostarica.tamu.edu

TDWG 2016 Program Overview

Day	Ses Num	Time	CTEC AUDITORIUM	Computer Science Rm 3	CTEC TecnoAula 2	CTEC TecnoAula 1
Sunday (*all events at* **Arenal Manoa** *in La Fortuna*)		9:00	TDWG Executive (meets throughout the day)			
		10:00	Data Quality IG leadership			
		17:45	Buses Leave area hotels for Arenal Manoa			
		18:00	Registration			
		18:00	Welcome Reception			
		20:00	End Registration & Reception; buses return to area hotels			
Monday	1	9:00	Opening Session (see dignitary list, Chair's welcome & announcements; Dr. Rodrigo Gámez, featured speaker)			
	break	10:30	coffee/tea/set up posters/Registation			
	2	11:00	S00: Roadmap for Standards-based Data Integration in Biodiversity Science			
	lunch	12:30	in Cafeteria & Registration in CTEC Lobby; **Newcomer Chat at 13:00 in CS 1**			
	3	14:00	S01A: Semantics for Biodiversity Science: Challenges & Solutions			
	break	15:30	coffee/tea/poster viewing/Registation			
	4	16:00	S06A: Biodiversity Data Quality – Issues, Methods & Tools			
Tuesday	5	9:00	S01B: Semantics for Biodiversity Science: Text mining and semantic role tagging	S09: Agricultural Biodiversity Standards & Semantics		IG05: Paleobiology
	break	10:30	coffee/tea/poster viewing/Registation			
	6	11:00	S01C: Semantics for Biodiversity Science: Taxon Names & Traits	S03: Establishing Standards and Protocols to Enable Interoperability and Document Data Provenance for Online Biodiversity Specimen Transcription Crowdsourcing		
	lunch	12:30	in Cafeteria & Registration in CTEC Lobby			
	7	14:00	S01D: Semantics for Biodiversity Science: Integration & Ecology	S10 Citizen Science for Biodiversity Research	W05: How to standardize a dataset to Darwin Core with OpenRefine	IG01: Annotations
	break	15:30	coffee/tea/poster viewing/Registation			
	8	16:00	S06B: Biodiversity Data Quality – Issues, Methods & Tools	W04: Defining Infrastructure Needs & Standards to increase Global Monitoring through Citizen Science		
Wednesday Morning	9	9:00	C01: Contributed Oral Presentations & Demos: Past and Future	W01: Towards Best Practices for the Implementation and Documentation of Biodiversity Informatics Services	IG03A: Data Quality	
	break	10:30	coffee/tea/poster viewing/Registation			
	10	11:00	S02: BHL: 10 Years of Innovation & Growth	W06A: Darwin Core: Tutorials, best practices, current issues, future directions	IG03B: Data Quality	
	lunch	12:30	in Cafeteria & Registration in CTEC Lobby			**TDWG Exec 13:00**

Day	Ses Num	Time	CTEC AUDITORIUM	Computer Science Rm 3	CTEC TecnoAula 2	CTEC TecnoAula 1
Wednesday Afternoon	11	14:00	W08: New approaches and tools in Open Data publishing for biodiversity	W06B: Darwin Core: Tutorials, best practices, current issues, future directions	IG06: Joint RDA/TDWG Interest Group on Metadata Standards for Attribution of Physical and Digital Collections	
	break	15:30	coffee/tea/poster viewing/Registation			
	12	16:00	S05: Big Data Analysis Methods and Techniques as Applied to Biocollections		W03A: Darwin Core Invasive Species Extension Hackathon: Six Schemas for GitHub	IG04: Literature (45 min)
Thursday	13	9:00	S12: Globally Unique Identifiers for Names	C02: Contributed Oral Presentations & Demos: Inventories	W03B: Darwin Core Invasive Species Extension Hackathon: Six Schemas for GitHub	IG08: Vocabulary Management Task Group
	break	10:30 AM	coffee/tea/poster viewing/Registation			
	14	11:00	S04: Application of Data Visualisation for Sustainable Biodiversity: Deriving Useful Knowledge and Insights from Heterogeneous Data	IG02: Biodiversity Informatics Curriculum	W03C: Darwin Core Invasive Species Extension Hackathon: Six Schemas for GitHub	
	lunch	12:30	in Cafeteria; pick up bag lunch for those going to Soltis Center			
		12:45	Buses leave for Soltis Center & mini-Bioblitz;			
		13:30	Bus leaves CTEC for La Fortuna hotels			
		16:15	Buses leave Soltis Center for La Fortuna hotels			
		17:15	First bus collects particpants from hotels for EcoThermales, enjoying the hot springs, and Gala Dinner			
		18:00	last bus collects participants from hotels for EcoThermales			
		19:30	Gala Dinner starts			
		21:30	Buses return to area hotels			
Friday	15	9:00	S13: DNA-based species and taxon occurrences	C03: Contributed Oral Presentations & Demos: Plinian Core, Taxon Traits	IG09: Natural Collections Description (NCD)	
	break	10:30 AM	coffee/tea/poster viewing/Registation			
	16	11:00	C05: Contributed Oral Presentations & Demos: Data Gaps, Trust, Knowledge Acquisition	C04: Contributed Oral Presentations & Demos: Catalogs, Checklists, Collections	IG07: Species Information	
	lunch	12:30	remove posters			
	17	14:00	Closing Session (IG/TG reports; lightning talks (30 min); TDWG 2017 presentation, etc.)			
	break	15:30	coffee/tea/remove posters			
		16:00	Buses leave for La Fortuna			

Symposia, Workshops
& Interest Group Meetings & Their Organizers

Symposia

S01 **Semantics for Biodiversity Science - An Interoperability Frontier.**
Sophia Ananiadou, Jose Araya-Monge, Riza Batista-Navarro, Pier Luigi Buttigieg, Nico Cellinese, Hong Cui, John Deck, Hilmar Lapp, William Ulate, and Gaurav Vaidya.

S02 **BHL: 10 Years of Innovation and Growth.**
Constance Rinaldo, Martin Kalfatovic, Grace Costantino, and Carolyn Sheffield.

S03 **Establishing Standards and Protocols to Enable Interoperability and Document Data Provenance for Online Biodiversity Specimen Transcription Crowdsourcing.**
Elizabeth Ellwood, Paul Flemons, Robert Guralnick, Paul Kimberly, Kevin Love, Simon Chagnoux, Edward Gilbert, and Austin Mast.

S04 **Application of Data Visualisation for Sustainable Biodiversity: Deriving Useful Knowledge and Insights from Heterogeneous Data.**
Jitendra Gaikwad, Pawandeep Kaur, and Friederike Klan.

S05 **Big Data Analysis Methods and Techniques as Applied to Biocollections.**
Matthew Collins, Jennifer Hammock, and Alexander Thompson.

S06 **Biodiversity Data Quality – issues, methods and tools.**
Arthur Chapman, Antonio M Saraiva, and Alexander Thompson.

S09 **Agricultural Biodiversity Standards and Semantics.**
Cynthia Parr and Gail Kampmeier.

S10 **Citizen Science for Biodiversity Research.**
Robert D Stevenson, Etienne A Cartolano, and Jacob van Etten.

S12 **Globally Unique Identifiers for Names.**
Chuck Miller and Richard Pyle.

S13 **DNA-based species and taxon occurrences.**
Urmas Kõljalg, Kessy Abarenkov, and Gabriele Dröge.

Workshops

W01 **Towards Best Practices for the Implementation and Documentation of Biodiversity Informatics Services.**
Anton Güntsch, James Macklin, and Paul J. Morris.

W03 **Darwin Core Invasive Species Extension Hackathon: six schemas for GitHub.**
Annie Simpson, Catherine S Jarnevich, and Jim Graham.

W04 **Citizen Science in Biodiversity Research: Defining infrastructure needs and standards to increase global monitoring.**
Robert D Stevenson, and Etienne A Cartolano.

W05 **How to standardize a dataset to Darwin Core with OpenRefine.**
Dimitri Brosens and Peter Desmet.

W06 **Darwin Core: Tutorials, best practices, current issues, future directions.**
Joel Sachs, James Macklin, John Wieczorek, Tim Robertson, and Steve Baskauf.

W08 **New Approaches and Tools in Open Data Publishing.**
Lyubomir Penev, Teodor Georgiev, and Viktor Senderov.

Interest/Task Group Meetings

IG01 **Annotations.**
R.A. Morris.

IG02 **Biodiversity Informatics Curriculum.**
H. Koivula.

IG03 **Data Quality.**
A. Chapman and A. Saraiva.

IG04 **Literature.**
M. Kalfatovic.

IG09 **Natural Collections Descriptions.**
Deb Paul.

IG05 **Paleobiology.**
D. Reed.

IG06 **Joint Research Data Alliance/TDWG Interest Group on Metadata Standards for Attribution of Physical and Digital Collections Stewardship.**
Anne Thiessen.

IG07 **Species Information Interest Group.**
Paco Pando.

IG10 **TDWG Architecture Group (TAG).**
G. Whitbread.

IG08 **Vocabulary Maintenance Specification.**
S. Baskauf.

Sunday 4 December 2016

09:00 AM - 05:00 PM
TDWG Executive Meeting: At Arenal Manoa.

10:00 AM - 04:00 PM
Data Quality IG planning meeting (by invitation only): Arenal Manoa (time to be confirmed). This meeting is by invitation only.

05:45 PM - 05:45 PM
Buses depart from area hotels to take participants to Arenal Manoa

06:00 PM - 08:00 PM
Sunday Registration: Registration will be available on Sunday, December 4th at the Arenal Manoa Hotel in conjunction with the Welcome Reception.

Welcome Reception: The Welcome Reception will be held Sunday evening before the official start of the conference at the Arenal Manoa Hotel, La Fortuna, Costa Rica.

08:00 PM - 08:15 PM
Buses depart from Arenal Manoa for conference hotels

Monday 5 December 2016

08:45 AM - 09:00 AM	**Monday Registration**: Please make every effort to pick up your registration materials on Sunday during the Welcome Reception. Registration will only be available during breaks.
09:00 AM - 09:30 AM	**Opening Session**: Welcome and announcements in Auditorium of CTEC. Featured speakers: *Dr. Cynthia Parr,* Chair TDWG; *Dr. Edgardo Vargas*, Director of TEC; *Dr. Julio Calvo*, President of TEC or *Dr. Paola Vega*, Vice President for Research and Extension; welcome video by naturalist, Alvaro Cuberto.
09:30 AM - 10:30 AM	**Keynote: Dr. Rodrigo Gámez Lobo**: Dr. Rodrigo Gámez Lobo was founder and former Director General and President of the National Biodiversity Institute (INBio). "Our real goal is to make the society come to the understanding that, because of being something that directly affects quality of life, materially, intellectually and spiritually, we must preserve at all costs the rich biodiversity of the country", he says in his book "On Biodiversity, People and Utopias" (1999). Dr. Erick Mata Montero will introduce Dr. Gámez.
10:30 AM - 11:00 AM	**Monday AM Break & Registration**: CTEC Lobby **Poster Setup**: Please set up your poster at this time. Posters should remain available for view throughout the week.

Symposium 00:
A Roadmap for Standards-Based Data Integration in Biodiversity Science
Organizer: Stan Blum
CTEC Auditorium

11:00 AM - 11:15 AM	1122. A Standards Architecture for Integrating Information in Biodiversity Science *Donald Hobern, Andrea Hahn*
11:15 AM - 11:30 AM	1126. Biodiversity Data Integration from an Aggregator's Perspective *Tim Robertson*
11:30 AM - 11:55 AM	1030. A High-altitude View of TDWG Standards: Machine Processing, Graphs, and the Vocabulary Development Process *Steven J Baskauf*
11:55 AM - 12:10 PM	1127. GitHub for TDWG standards and Interest Groups *Peter Desmet*

12:30 PM - 02:00 PM   **Monday Lunch**: For Monday only, please allow those attending the 1PM Newcomer's Chat priority in the lunch line. Lunch is served in the Cafeteria.
Monday Registration: CTEC Lobby

01:00 PM - 01:55 PM   **Newcomer's Chat**: Computer Science 3

Symposium 01A:
Semantics for Biodiversity Science: Challenges & Solutions
Organizers: Sophia Ananiadou, Jose Araya-Monge, Riza Batista-Navarro, Pier Luigi Buttigieg, Nico Cellinese, Hong Cui, John Deck, Hilmar Lapp, William Ulate, Gaurav Vaidya
CTEC Auditorium

02:00 PM - 02:15 PM   972. Real use cases for Semantic Information from the Mining Biodiversity project
William Ulate, Riza Batista-Navarro

02:15 PM - 02:30 PM   982. Towards the next-generation ABCD
Anton Güntsch, David Fichtmüller, Mareike Petersen, Jana Hoffmann, Jörg Holetschek, Gabi Droege

02:30 PM - 02:45 PM   1009. The Open Biodiversity Knowledge Management System: A Semantic Suite Running on top of the Biodiversity Knowledge Graph
Viktor Senderov, Teodor Georgiev, Donat Agosti, Terry Catapano, Guido Sautter, Éamonn Ó Tuama, Nico Franz, Kiril Simov, Lyubomir Penev

02:45 PM - 03:00 PM   1074. Semantic Annotation for Tabular Data
John Deck

03:00 PM - 03:15 PM   1093. Some Challenges in Working with Biodiversity Ontologies
Joel Sachs, James Macklin, Hong Cui

03:15 PM - 03:30 PM   1132. Bottom-up Phenotype Ontology Building from Character Descriptions
Hong Cui, James Macklin, Joel Sachs, Thomas Rodenhausen, Steven Chong, Dongfang Xu

03:30 PM - 04:00 PM   **Monday PM Break, Poster Viewing, & Registration**: CTEC Lobby

Symposium 06A:
Biodiversity Data Quality – Issues, Methods and Tools
Organizers: Arthur Chapman, Antonio Saraiva, Alexander Thompson
CTEC Auditorium

04:00 PM - 04:15 PM	**996. TDWG-GBIF Data Quality Interest Group** *Arthur Chapman, Antonio Saraiva, Dmitry Schigel, Lee Belbin*
04:15 PM - 04:30 PM	**1108. Conceptual Framework for Assessment and Management of Fitness for Use - A Contextualization in Biodiversity Informatics Scenario** *Allan Koch Veiga, Antonio Mauro Saraiva*
04:30 PM - 04:45 PM	**986. 'Data Quality' Task Group 2: Tools, Services and Workflows** *Lee Belbin*
04:45 PM - 05:00 PM	**1079. Data Quality Workflows using Akka** *John Richard Wieczorek, James Hanken, David Lowery, Bertram Ludäscher, James Macklin, Timothy McPhillips, Paul J Morris, Robert A Morris, Laura A Russell, Qian Zhang*
05:00 PM - 05:15 PM	**1070. IDQ: Integrating Data Quality into Biodiversity Workflows** *Alexander Thompson, Matthew Collins*
05:15 PM - 05:30 PM	**980. Improving quality while preserving quantity using OBIS automated QA/QC procedures** *Abby Benson, Ward Appeltans, Pieter Provoost, Sky Bristol*

05:30 PM - 06:00 PM   **Buses leave for La Fortuna hotels**

Tuesday 6 December 2016

08:45 AM - 09:00 AM   **Tuesday Registration**: CTEC Lobby

Symposium 01B:
Semantics for Biodiversity Science: Text Mining & Semantic Role Tagging
Organizers: Sophia Ananiadou, Jose Araya-Monge, Riza Batista-Navarro, Pier Luigi Buttigieg,
Nico Cellinese, Hong Cui, John Deck, Hilmar Lapp, William Ulate, Gaurav Vaidya
CTEC Auditorium

09:00 AM - 09:15 AM   1072. Geographic entities extraction from biological textual
sources
Moisés Alberto Acuña-Chaves

09:15 AM - 09:30 AM   1089. Semi-automatical classification and structuring of text
fragments from biological documents
Jose E Araya-Monge

09:30 AM - 09:45 AM   1091. Semi-Automatic Extraction of Plants Morphological
Characters from Taxonomic Descriptions
Maria Mora, José Enrique Araya

09:45 AM - 10:00 AM   1097. Understanding mass flowering of dipterocarps through
semantic occurrence information extraction
*Roselyn Santos Gabud, Riza Theresa Batista-Navarro,
Vladimir Mariano, Eduardo Mendoza, Sandra Yap*

10:00 AM - 10:15 AM   1133. Enhancing semantic search through the automatic
construction of a Biodiversity Terminological Inventory
*Nhung T.H. Nguyen, Georgios Kontonatsios, Axel J. Soto,
Riza Batista-Navarro, Sophia Ananiadou*

Symposium 09:
Agricultural Biodiversity Standards and Semantics
Organizers: Cynthia Parr, Gail Kampmeier
Computer Science 3

09:00 AM - 09:15 AM   1088. Biodiversity informatics and the agricultural data
management landscape
Cyndy Parr

09:15 AM - 09:30 AM   1050. Progress in Standardizing Sampling-Event Data
Kyle Braak

09:30 AM - 09:45 AM	**1150. Recognizing the Data Gap of Arthropods in Agricultural Biodiversity** *Gail Kampmeier*
09:45 AM - 10:00 AM	**1149. LTAR Research: Aspiring to meet production and conservation objectives on the USDA-ARS Central Plains Experimental Range, Nunn, Colorado, USA** *Nicole E. Kaplan, Justin D. Derner, David J. Augustine, Bruce C. Vandenberg*
10:00 AM - 10:05 AM	**1086. Plant Specimen Contextual Data Consensus** *Ramona L. Walls, Petra ten Hoopen, Ethalinda K.S. Cannon*
10:05 AM - 10:30 AM	**1153. S09: Panel Discussion** *Cyndy Parr, Gail E. Kampmeier*

Interest Group 05:
Paleobiology
Organizer: Denne Reed
CTEC TecnoAula 1

09:00 AM - 10:30 AM	**995. Biodiversity Through Deep Time: Data standards and best practices for paleobiology** *Denne Reed*

10:30 AM - 11:00 AM	**Tuesday AM Break, Poster Viewing & Registration**: CTEC Lobby

Symposium 01C:
Semantics for Biodiversity Science: Taxon Names & Traits
Organizers: Sophia Ananiadou, Jose Araya-Monge, Riza Batista-Navarro, Pier Luigi Buttigieg, Nico Cellinese, Hong Cui, John Deck, Hilmar Lapp, William Ulate, Gaurav Vaidya
CTEC Auditorium

11:00 AM - 11:15 AM	**1045. What's in a name? The foundation of telling machines what we mean instead of how someone calls it** *Nico Cellinese, Gaurav Vaidya, Hilmar Lapp*

11:15 AM - 11:30 AM	**1062. What's in a name? Sense and reference in digital biodiversity information** *Joakim Philipson*
11:30 AM - 11:45 AM	**1087. Creating computable definitions for clades using the Web Ontology Language (OWL)** *Gaurav Vaidya, Hilmar Lapp, Nico Cellinese*
11:45 AM - 12:00 PM	**1136. Creature Features: A semantic toolkit for biodiversity trait data** *Rob Penn Guralnick, Ramona Walls, John Wieczorek, John Deck, Paula Zermoglio, David Bloom, Laura Russell, Raphael LaFrance*
12:00 PM - 11:15 PM	**1137. Logic that embraces systematic progress and persistent conflict - an update on taxonomic concept reasoning** *Nico Franz, Bertram Ludäscher*

Symposium 03:
Interoperability and Data Provenance for
Online Crowdsourcing of Biodiversity Specimens
Organizers: Libby Ellwood, Paul Flemons, Rob Guralnick, Paul Kimberly,
Kevin Love, Simon Chagnoux, Edward Gilbert, Austin Mast
Computer Science 3

11:00 AM - 11:15 AM	**1116. Worldwide Engagement for Digitizing Biocollections (WeDigBio)—Our Biocollections Community's Citizen Science Space on the Calendar** *Elizabeth Ellwood, Paul Kimberly, Simon Chagnoux, Paul Flemons, Edward Gilbert, Robert Guralnick, Kevin Love, Austin Mast*
11:15 AM - 11:30 AM	**1118. Biospex—A Basecamp for Launching, Advertising, and Managing Biodiversity Specimen Digitization Expeditions** *Austin R. Mast, Elizabeth R. Ellwood, Robert Bruhn, Greg Riccardi*
11:30 AM - 11:45 AM	**1096. SERNEC collaborative georeferencing; leveraging the interoperability between GEOLocate and Symbiota for a large scale digitization project.** *M W Denslow, H Brown, E Gilbert, N Rios, Z E Murrell*
11:45 AM - 12:00 PM	**1064. Widening a label transcription website community and activity** *Simon Chagnoux*

12:00 PM - 12:15 PM	**1135.** Notes from Nature 2.0: Standardization for citizen science at scale *Rob Penn Guralnick*
12:15 PM - 12:30 PM	**1020.** Enabling interoperability to support targeted transcribing and motivational feedback *Paul Kenneth Flemons*
12:30 PM - 02:00 PM	**Tuesday Lunch**: Lunch is served in the Cafeteria. **Tuesday Registration**: CTEC Lobby

Symposium 01D:
Semantics for Biodiversity Science: Integration & Ecology
Organizers: Sophia Ananiadou, Jose Araya-Monge, Riza Batista-Navarro, Pier Luigi Buttigieg, Nico Cellinese, Hong Cui, John Deck, Hilmar Lapp, William Ulate, Gaurav Vaidya
CTEC Auditorium

02:00 PM - 02:15 PM	**998.** Semantics to standardise the interpretation of flower-visiting data *Willem Coetzer, Deshendran Moodley, Aurona Gerber*
02:15 PM - 02:30 PM	**999.** Standardising and integrating metadata associated with remote underwater video recordings *Willem Coetzer, Anthony Bernard, Elodie Heyns*
02:30 PM - 02:45 PM	**1016.** BiGEAOn: an ontology for Biogeographic areas *Visotheary Ung, Pier Luigi Buttigieg*
02:45 PM - 03:00 PM	**1053.** A Conceptual Framework Developed to Integrate Scientific Tacit Knowledge into OntoBio *Andréa Corrêa Flôres Albuquerque, José Laurindo Campos dos Santos, Alberto Nogueira de Castro Júnior*
03:00 PM - 03:15 PM	**1098.** An Introduction to the Plant Phenology Ontology *Brian J. Stucky, Ramona L. Walls, Kjell Bolmgren, John Deck, Ellen G. Denny, Robert P. Guralnick*
CANCELLED	**1080.** Connecting disparate biodiversity data into an ecological network database – the Gulf of Mexico Species Interaction database (GoMexSI) *James Simons, Jorritt Poelen, Theresa Mitchell*

Citizen Science for Biodiversity Research
Organizers: Robert Stevenson, Etienne Cartolano, Jacob van Etten
Computer Science 3

02:00 PM - 02:15 PM   990. How do managers and scientists decide if Citizen Science data are trustworthy?: Modeling data quality and trust together.
Etienne Cartolano, Robert D. Stevenson, Antonio M. Saraiva

02:15 PM - 02:30 PM   987. Citizen science and expert community interactions using Wikwio, a weed knowledge portal, focused on southern Africa
Balasubramanian Dhandapani, Thomas le Bourgeois, Pierre Grard, Pascal Marnotte, Azaad Guangoo, Alain Paul Andrianaivo, Jean Augustin Randriamampianina, Yahaya Ibrahim, Prabhakar R, Thomas Vattakkaven, Sathish M, Karthik Yeruva

02:30 PM - 02:45 PM   1007. Potential of mobile search logs in citizen science context for biodiversity monitoring
Pierre Bonnet, Alexis Joly, Hervé Goëau, Samuel Dufour-Kowalski, Jean-Christophe Lombardo, Antoine Affouard, Nozha Boujemaa, Jean-françois Molino, Daniel Barthélémy

02:45 PM - 03:00 PM   1112. Identifying biodiversity using citizen science and computer vision: Introducing Visipedia
Jessie Barry

03:00 PM - 03:15 PM   1084. Flickr biodiversity data quality: Can Citizen Scientist identify Swallowtail butterflies?
Vijay Barve

03:15 PM - 03:30 PM   1027. Bridging discrepancies across North American butterfly naming authorities: supporting citizen science data integration
Dana Campbell, Anne E Thessen, Leslie Ries

Workshop 05:
How to Standardize A Dataset to Darwin Core with OpenRefine
Organizers: Dimitri Brosens, Peter Desmet
CTEC TecnoAula 2

02:00 PM - 03:30 PM   962. How to standardize a dataset to Darwin Core with OpenRefine
Dimitri Brosens, Peter Desmet

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Interest Group 01:
Annotations
Organizer: Paul J. Morris
CTEC TecnoAula 1

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02:00 PM - 03:30 PM   1061. Annotations Interest Group Meeting
Paul J Morris

03:30 PM - 04:00 PM   **Tuesday PM Break, Poster Viewing, & Registration**: CTEC Lobby

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Symposium 06B:
Biodiversity Data Quality – Issues, Methods, and Tools
Organizers: Arthur Chapman, Antonio Saraiva, Alexander Thompson
CTEC Auditorium

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04:00 PM - 04:15 PM   1023. Defining dataset specifications to communicate data quality characteristics
Peter Desmet, Stijn Van Hoey, Dimitri Brosens

04:15 PM - 04:30 PM   1100. AnnoSys – Improving Data Quality by annotating virtual Specimens
Walter Berendsohn, Okka Tschoepe, Lutz Suhrbier, Anton Güntsch

04:30 PM - 04:45 PM   1092. New Scientific names finding, parsing and resolution tools from Global Names.
Dmitry Y Mozzherin, Alexander A Myltsev, David J Patterson

04:45 PM - 05:00 PM   1021. Checking scientific plant names in European germplasm holdings as documented in EURISCO
Stephan Weise, Helmut Knüpffer, Markus Oppermann

05:00 PM - 05:15 PM   1000. Why you must clean your big-data
Tomer Gueta, Yohay Carmel

05:15 PM - 05:30 PM   1047. Quasi-F – An Infrastructure for the Quality Assurance of Citizen Science Data in Germany
Falko Glöckler

Workshop 04:
Defining Infrastructure Needs & Standards to Increase
Global Monitoring Through Citizen Science
Organizers: Robert Stevenson, Etienne Cartolano
Computer Science 3

04:00 PM - 05:30 PM   958. Citizen Science in Biodiversity Research: Defining infrastructure needs and standards to increase global monitoring
Robert D Stevenson, Etienne A Cartolano

05:30 PM - 06:00 PM   **Buses leave for La Fortuna hotels**

Wednesday 7 December 2016

08:45 AM - 09:00 AM   **Wednesday Registration**: CTEC Lobby

Contributed 01:
Past and Future
Moderator: Gail Kampmeier
CTEC Auditorium

09:00 AM - 09:15 AM   1049. TDWG Then and Now
Arturo H. Ariño, Anabel Pérez de Zabalza

09:00 AM - 09:15 AM   1012. Nanopublications for biodiversity: concept, formats and implementation
Lyubomir Penev, Éamonn Ó Tuama, Viktor Senderov, Pavel Stoev, Teodor Georgiev

09:00 AM - 09:15 AM   1077. COPIS: A Computer Operated Photogrammetric Imaging System
Nelson Rios, Henry L Bart

09:00 AM - 09:15 AM   1094. The Digital Object Lifecycle of Paleo Data: Concepts of Digital Curation in a Natural History Context
Holly Little

09:00 AM - 09:15 AM   1155. Building Linked Open Data for Zooarchaeological Specimens and Their Context
Laura Brenskelle, Rob Penn Guralnick, John Wieczorek

09:00 AM - 09:15 AM   1028. Demonstrating the Prototype of the Open Biodiversity Knowledge Management System
Viktor Senderov, Teodor Georgiev, Lyubomir Penev

Workshop 01:
Towards Best Practices for the Implementation and Documentation of Biodiversity Informatics Services
Organizers: Anton Güntsch, James Macklin, Paul J. Morris
Computer Science 3

09:00 AM - 10:30 AM   943. Towards Best Practices for the Implementation and Documentation of Biodiversity Informatics Services
Anton Güntsch, James Macklin, Paul J. Morris

<div align="center">

Interest Group 03A:
Data Quality
Organizers: Arthur Chapman, Antonio Saraiva
CTEC TecnoAula 2

</div>

09:00 AM - 10:30 AM   997. Workshop of TDWG-GBIF Data Quality Interest Group
Arthur Chapman, Antonio Saraiva

10:30 AM - 11:00 AM   **Wednesday AM Break, Poster Viewing & Registration**: CTEC Lobby

<div align="center">

Symposium 02:
BHL: 10 Years of Innovation and Growth
Organizers: Constance Rinaldo, Martin Kalfatovic,
Grace Costantino, Carolyn Sheffield
CTEC Auditorium

</div>

11:00 AM - 11:15 AM   1065. BHL - 10 Years and More!
Martin Kalfatovic

11:15 AM - 11:30 AM   1063. BHL: Grants and Growth
Constance Rinaldo

11:30 AM - 11:45 AM   1128. BHL-SciELO Network
Abel Packer, Henrique Rodrigues, Denise Peres

11:45 AM - 12:00 PM   1105. Towards extracting occurrence data from biodiversity literature
Dmitry Schigel

12:00 PM - 12:15 PM   1101. Biodiversity Heritage Library as official electronic information source for Biodiversity and Taxonomy studies curriculum
Jiri Frank

12:15 PM - 12:30 PM   1066. Questions: BHL - 10 years of innovation & growth
Constance Rinaldo

<div align="center">

Workshop 06A:
Darwin Core: Tutorials, Best Practices, Current Issues, Future Directions
Organizers: Joel Sachs, John Wieczorek, James Macklin, Tim Robertson, Steve Baskauf
Computer Science 3

</div>

11:00 AM - 11:15 AM	**1076. Darwin Core Documentation: More (would be) Better** *Paula F. Zermoglio, David Bloom, John R. Wieczorek, Robert P. Guralnick, Raphael LaFrance, Laura Russell*
11:15 AM - 12:30 PM	**964. Darwin Core: Tutorials; best practices; current issues; future directions** *Joel Sachs, John Wieczorek, James Macklin, Tim Robertson, Steve Baskauf*

<div align="center">

Interest Group 03B:
Data Quality & Affiliated Interest/Task Groups
Organizers: Arthur Chapman, Antonio Saraiva
CTEC TecnoAula 2

</div>

11:00 AM - 12:30 PM	**1158. Workshop of TDWG-GBIF Data Quality Interest Group** *Arthur Chapman, Antonio Saraiva*

12:30 PM - 02:00 PM	**Wednesday Lunch**: Lunch is served in the Cafeteria. Please allow TDWG Exec members priority in the serving line today so that they can attend an Exec meeting at 1 PM.
12:30 PM - 01:00 PM	**Wednesday Registration**: CTEC Lobby
01:00 PM - 01:55 PM	**TDWG Exec Meeting in CTEC TecnoAula 1**

<div align="center">

Workshop 08:
New Approaches And Tools In Open Data Publishing For Biodiversity
Organizers: Lyubomir Penev, Viktor Senderov, Teodor Georgiev
CTEC Auditorium

</div>

02:00 PM - 02:15 PM	**1117. Next Generation Publishing for Biodiversity using Pensoft's Arpha Writing Tool and Publishing System** *Lyubomir Penev, Viktor Senderov, Teodor Georgiev*

02:15 PM - 02:30 PM	**1013. Novel article formats in the ARPHA* Writing Tool and Biodiversity Data Journal**
	Teodor Georgiev, Viktor Senderov, Lyubomir Penev
02:30 PM - 02:45 PM	**1015. Online Import of Occurrence Records into Manuscripts from Taxonomic Databases using Pensoft's ARPHA* Writing Tool**
	Viktor Senderov, Teodor Georgiev, Lyubomir Penev
02:45 PM - 03:00 PM	**1014. Creation of Data Paper Manuscripts from Ecological Metadata Language (EML)**
	Viktor Senderov, Teodor Georgiev, Lyubomir Penev

Workshop 06B:
Darwin Core: Tutorials, Best Practices, Current Issues, Future Directions
Organizers: Joel Sachs, John Wieczorek, James Macklin, Tim Robertson, Steve Baskauf
Computer Science 3

02:00 PM - 03:30 PM	**971. Proposed changes to Darwin Core to improve the flow of alien species data**
	Quentin John Groom, Peter Desmet

Interest Group 06:
Joint RDA/TDWG IG on Metadata Standards
for Attribution of Physical and Digital Collections
Organizer: Anne Thessen
CTEC TecnoAula 2

02:00 PM - 03:30 PM	**1130. Meeting of the Joint RDA/TDWG Interest Group on Metadata Standards for attribution of physical and digital collections stewardship**
	Anne E Thessen

03:30 PM - 04:00 PM	**Wednesday PM Break, Poster Viewing, & Registration**: CTEC Lobby

Symposium 05:
Big Data Analysis Methods and Techniques as Applied to Biocollections
Organizers: Matthew Collins, Jennifer Hammock, Alexander Thompson
CTEC Auditorium

04:00 PM - 04:15 PM   1051. Clustering botanical collections data with a minimised set of features drawn from aggregated specimen data
Nicky Nicolson, Allan Tucker

04:15 PM - 04:30 PM   1042. Taking a Big Data Approach to Estimating Species Abundance
Steven Kelling

04:30 PM - 04:45 PM   1083. Large-scale Evaluation of Multimedia Analysis Techniques for the Monitoring of Biodiversity
Alexis Joly, Hervé Goeau

04:45 PM - 05:00 PM   1143. GUODA: A Unified Platform for Large-Scale Computational Research on Open-Access Biodiversity Data
Matthew Collins, Alexander Thompson, Jorrit Poelen, Jennifer Hammock

05:00 PM - 05:15 PM   1078. Data Quality at Scale: Bridging the Gap between Datum and Data
Alexander Thompson, Matthew Collins

05:15 PM - 05:30 PM   1104. Fresh Data: what's new and what's interesting?
Jennifer Hammock, Jorrit Poelen

Workshop 03A:
Darwin Core Invasive Species Extension Hackathon: Six Schemas for Github
Organizers: Annie Simpson, Catherine Jarnevich, Jim Graham
CTEC TecnoAula 2

04:00 PM - 05:30 PM   952. W03A: Darwin Core Invasive Species Extension Hackathon: Six schemas for GitHub
Annie Simpson, Catherine S Jarnevich, Jim Graham

Organizer: Martin Kalfatovic
CTEC TecnoAula 1

04:00 PM - 05:00 PM　　　1004. Literature Interest Group
Martin Kalfatovic

05:30 PM - 06:00 PM　　Buses leave for La Fortuna hotels

Thursday 8 December 2016

08:45 AM - 09:00 AM   **Thursday Registration**: CTEC Lobby

Symposium 12:
Globally Unique Identifiers for Names
Organizers: Chuck Miller, Richard Pyle
CTEC Auditorium

09:00 AM - 09:15 AM   1129. Reviewing data integration and mobilisation using name reconciliation and identifier services
Nicky Nicolson, Robert Turner, Abigail Barker

09:15 AM - 09:30 AM   1115. Implementing Name Identifiers for the World Flora Online
Chuck Miller

09:30 AM - 09:45 AM   1148. Identifiers for Biodiversity Informatics: The Global Names Approach
Dmitry Y Mozzherin, Richard Pyle

09:45 AM - 10:00 AM   1147. The Catalogue of Life Editor's View on Globally Unique Identifiers for Names
Yuri Roskov

10:00 AM - 10:15 AM   1144. Names and identifiers in the CyVerse cyberinfrastucture
Ramona L. Walls

10:15 AM - 10:30 AM   1044. Utilizing Unique Identifiers for Taxonomic Concepts
Jeff Gerbracht

Contributed 02:
Inventories
Moderator: Patricia Mergen
Computer Science 3

09:00 AM - 09:15 AM	**1120. Applying TDWG Standards to assess the Ecosystem Value of UNESCO Man and Biosphere Reserves in Africa.** *Patricia Mergen, Hans Beeckman, Claire Delvaux, Doriane Desclee, Baudouin Michel, Quentin Groom, Steven Janssens, Henry Engledow, Piet Stoffelen, Filp Vandelook, Jérôme Degreef, André De Kesel, Hidvég Franck, Christine Cocquyt, Steven Dessein, Trefon Théodore, Smirnova Larissa, Cédric Vermeulen, Pascal Boeckx, Hans Verbeeck, Noéline Raondry Rakotoarisoa*
09:15 AM - 09:30 AM	**1110. A participatory module to curate species lists for generating a dynamically updating taxonomic backbone for the India Biodiversity Portal** *Thomas Vattakaven, Sandeep Tandekar, Rahul Kumar Sinha, Sathish M, Prabhakar Rajagopal (presenter)*
09:30 AM - 09:45 AM	**993. www.gbif.fr : French National Portal of GBIF** *Marie-Elise Lecoq, Fabien Cavière, Sophie Pamerlon, Eric Chenin, Anne-Sophie Archambeau, Régine Vignes-Lebbe*
10:00 AM - 10:15 AM	**973. Biodiversity Information Systems in Geospatial Applications for Protected Areas in Bangladesh** *Md Rahimullah Miah, Alexander K. Sayok, Ahi Sarok, Mohammad Belal Uddin*
cancelled	**975. Completeness of Digital Accessible Knowledge of the plants of Benin and priorities for future inventory and data discovery** *Jean Cossi GANGLO*

Workshop 03B:
Darwin Core Invasive Species Extension Hackathon: Six Schemas for GitHub
Organizers: Annie Simpson, Catherine Jarnevich, Jim Graham
CTEC TecnoAula 2

09:00 AM - 10:30 AM	**1151. W03B: Darwin Core Invasive Species Extension Hackathon: Six schemas for GitHub** *Annie Simpson, Catherine S Jarnevich, Jim Graham*

09:00 AM - 10:30 AM   1034. Vocabulary Maintenance Task Group
Steven J Baskauf

10:30 AM - 11:00 AM   Thursday AM Break, Poster Viewing & Registration: CTEC
Lobby

Symposium 04:
Using Data Visualisation for Sustainable Biodiversity:
Knowledge and Insights from Heterogeneous Data
Organizers: Jitendra Gaikwad, Pawandeep Kaur, Friederike Klan
CTEC Auditorium

11:00 AM - 11:15 AM   1036. The Significance of Data Visualizations for Dynamically
Occurring Species
Steven Kelling, Daniel Fink, Frank La Sorte

11:15 AM - 11:30 AM   1071. Visual Comparison of Biological Taxonomies
Lilliana Sancho-Chavarria, Erick Mata-Montero

11:30 AM - 11:45 AM   946. Participatory Three-Dimensional Modeling (P3DM) as a
tool for biodiversity mapping: Application of Indigenous
Knowledge and GIS Technology
Silas Mulehi Osinde

11:45 AM - 12:00 PM   1048. Results of IndexMed GRAIL Days 2016: How to use
standards to build GRAphs and mIne data for environmentaL
research
*Romain David, Jean-Pierre Féral, Anne-Sophie Archambeau,
David Auber, Nicolas Bailly, Cyrille Blanpain, Vincent Breton,
Alrick Dias, Anna Cohen-Nabeiro, Aurélie Delavaud, Sophie
Gachet, Robin Goffaux, Karina Gibert, Manuel Herrera, Dino
Ienco, Romain Julliard, Julien Lecubin, Yannick Legre,
Grégoire Loïs, Victor Méndez Muñoz, Jean-Charles Meunier,
Isabelle Mougenot, Sophie Pamerlon, Geneviève Romier,
Alison Specht, Christian Surace, Thierry Tatoni*

12:00 PM - 12:15 PM   1005. Towards Recommending Visualization for Biodiversity
Data
Pawandeep Kaur

12:15 PM - 12:30 PM	**947. Discussion: Application of Data Visualisation for Sustainable Biodiversity: Deriving Useful Knowledge and Insights from Heterogeneous Data** *Jitendra Gaikwad, Pawandeep Kaur, Friederike Klan*

Interest Group 02:
Biodiversity Informatics Curriculum
Organizer: Hanna Koivula
Computer Science 3

11:00 AM - 11:15 AM	**1082. Building Digitization and Promoting Collaboration in GBIF Dark countries** *Mary E Barkworth, Curtis Dyreson*
11:15 AM - 12:30 PM	**1010. Biodiversity Informatics Curriculum Interest Group – BDI Curriculum IG** *Hanna Koivula*

Workshop 03C:
Darwin Core Invasive Species Extension Hackathon: Six Schemas for GitHub
Organizers: Annie Simpson, Catherine Jarnevich, Jim Graham
CTEC TecnoAula 2

11:00 AM - 12:30 PM	**1152. W03C: Darwin Core Invasive Species Extension Hackathon: Six schemas for GitHub** *Annie Simpson, Catherine S. Jarnevich, Jim Graham*

12:30 PM - 01:30 PM	**Thursday Lunch**: Lunch is served in Soda. Those leaving for the Soltis Center should pick up a bag lunch to carry on bus.
12:45 PM - 12:45 PM	**Buses leave for Soltis Center & Mini-Bioblitz** - Sign up for this event ($20) by Monday 5 December in RegOneline so that we may estimate the number of buses and bagged lunches needed.

To create a biodiversity snapshot of TDWG 2016, we encourage everyone to take opportunities to observe, to post their pictures of local biodiversity, and to assist in identifying un (or mis-) identified images. Please download apps, establish accounts and practice with iNaturalist, eBird and Pl@nt.net before arriving in Costa Rica. We welcome hearing about other apps you think are helpful for documenting biodiversity. Opportunities for observing will present themselves throughout the week, and, Thursday afternoon, we will visit the Texas A&M Soltis Center, nestled in a highly diverse rainforest ecosystem. Please visit http://tdwgblitz.biowikifarm.net for further information, and to: indicate the taxa you are interested in; offer to lead an observing session; sign-up for an observing session; view instructions on using iNaturalist and other apps. Note: it may rain Thursday afternoon - best to pack a poncho, as well as insect repellant, sunscreen, water, snacks, and protective shoes.

01:30 PM - 01:30 PM	**Buses leave CTEC for La Fortuna hotels**: Those not attending the mini-bioblitz return to hotels for the afternoon.
04:15 PM - 04:15 PM	**Buses leave Soltis Center for La Fortuna hotels**
05:15 PM - 05:15 PM	**First bus leaves hotels for EcoTermales**: Chance to soak in the resort's hot springs http://ecotermalesfortuna.cr/ before attending the Gala Dinner.
05:30 PM - 07:30 PM	**Enjoy Hot Springs at EcoTermales before the Gala Dinner**: Change, enjoy the hot springs, then change back and enjoy the surroundings, have something at the bar, until dinner http://ecotermalesfortuna.cr/
06:00 PM - 06:00 PM	**Last bus travels from hotels to EcoTermales**
07:30 PM - 09:30 PM	**Gala Dinner at EcoTermales**: A special Gala Dinner is at EcoTermales http://ecotermalesfortuna.cr/ is included as part of your registration.
09:30 PM - 09:30 PM	**Buses return to hotels from Gala Dinner at EcoTermales**

Friday 9 December 2016

08:45 AM - 09:00 AM   **Friday Registration**: CTEC Lobby

Symposium 13:
DNA-Based Species and Taxon Occurrences
Organizers: Urmas Kõljalg, Kessy Abarenkov, Gabriele Dröge
CTEC Auditorium

09:00 AM - 09:15 AM   1011. Streamlining the Flow of Taxon Occurrence Data Between a Manuscript and Biological Databases
Viktor Senderov, Teodor Georgiev, Lyubomir Penev

09:15 AM - 09:30 AM   1106. Molecular and morphological biodiversity: survey of data access, use and publishing
Dmitry Schigel

09:30 AM - 09:45 AM   1123. DNA and DOI-based identification of fungi in built environment
Henrik R. Nilsson

09:45 AM - 10:00 AM   1124. Use of molecular data for aquatic biomonitoring – future potential and challenges from a European perspective
Alexander M. Weigand, Florian Leese

10:00 AM - 10:15 AM   1125. High-Throughput Sequencing and Taxon Occurrence Databases
Urmas Kõljalg

Contributed 03:
Plinean Core, Taxon Traits
Moderator: Francisco Pando
Computer Science 3

09:00 AM - 09:15 AM   1111. An open participatory species traits infrastructure to organize and discover species information.
Prabhakar Rajagopal, Thomas Vattakaven, Pierre Grad, Thomas Le Bourgeois, Balasubramanian D, Sathish M, Maheswaran T, Sandeep Tandekar, Sravanthi M

09:15 AM - 09:30 AM	**1059. Plinian Core profiles: Facilitating the documentation and access to biological information of exotic and invasive species** *Leonardo Buitrago, Nestor Beltran, Marcela Delgado, Valerie Dean, Dairo Escobar*
09:30 AM - 09:45 AM	**1054. Mamut: An online web editor to manage biological information of taxa based on the Plinian Core** *Maria Fernanda Cubillos, Leonardo Buitrago, Oscar Duque, Nestor Beltran, Camila Plata, Marcela Delgado, Valerie Dean, Valentina Grajales, Daniel Amariles, Dairo Escobar*
09:45 AM - 10:00 AM	**1069. TraitMan - an Online Management System for Biological Traits.** *Kristjan Adojaan, Kessy Abarenkov, Urmas Kõljalg*
10:00 AM - 10:15 AM	**1103. Xper3: a Collaborative Descriptive Data System with Web Services** *Regine Vignes-Lebbe, Sylvain Bouquin*

Interest Group 09:
Natural Collections Description (NCD)
Organizer: Deborah Paul
CTEC TecnoAula 2

09:00 AM - 10:30 AM	**1154. IG09: Natural Collections Descriptions (NCD)** *Deborah Paul*

10:30 AM - 11:00 AM	**Friday AM Break, Poster Viewing & Registration**: CTEC Lobby

Contributed 05:
Data Gaps, Trust, Knowledge Acquisition
Moderator: Dmitry Schigel
CTEC Auditorium

11:00 AM - 11:15 AM   1145. Exploring Data Gaps at the Species Level: Starting with demographic knowledge
Dalia A. Conde, Johanna Stärk, Fernando Colchero, Rita Silva, Jonas Schöley, Hassan Syed, Eelke Jongejans, Lionel Jouvet, Maria Baden, Shai Meiri, Jean-Michel Gaillard, Scott Chamberlain, Ulrich Steiner, Owen R. Jones, Johan Dahlgren, John E. Fa, Zjef Pereboom, Ivan Gomez-Mestre, Jean-Dominique Lebreton, Jaime Gonzalez Vargas, Kristen Luis, Lucie Bland, Alexander Scheuerlein, Vladimir Canudas-Romo, Jonathan Wilcken, Roberto Salguero-Gomez, Sebastien Devillard, Dmitry Schigel, Hugh Possingham, Annette Baudisch

11:15 AM - 11:30 AM   989. Trust Management Approaches Applied to Biodiversity Data
Etienne Cartolano, Robert D. Stevenson, Antonio M. Saraiva

11:30 AM - 11:45 AM   1134. A new power balance is needed for trustworthy biodiversity data
Nico Franz, Beckett Sterner

11:45 AM - 12:00 PM   1058. Elicitation Techniques for Acquiring Biodiversity Knowledge
Andréa Côrrea Flôres Albuquerque, José Laurindo Campos dos Santos, Alberto Nogueira de Castro Júnior

Contributed 04:
Catalogs, Checklists, & Collections
Moderator: Wouter Addink
Computer Science 3

11:00 AM - 11:15 AM   981. DiSSCo: Building the future of Europe's Natural History Collections
Vincent S Smith, Dimitrios Koureas

11:15 AM - 11:30 AM   1131. Concept relations in practical use: Taxonomic checklists in the context of Red Lists of endangered species
Patrick Plitzner, Andreas Müller, Anton Güntsch, Walter Berendsohn

| 11:30 AM - 11:45 AM | 1109. Online Pollen Catalogue Network (RCPol) |
| | *Bruno de Carvalho Albertini* |

| 11:45 AM - 12:00 PM | 1039. French national standards for biodiversity: interoperability on an international level |
| | *Remy Jomier, Sophie Pamerlon* |

| 12:00 PM - 12:15 PM | 1001. Catalogue of Life, China and Taxonomic Tree Tool |
| | *Liqiang Ji* |

| 12:15 PM - 12:30 PM | 1052. The BioCASe Monitor Service 2 – New Features for Monitoring Progress and Quality of Data Provision through Distributed Data Networks |
| | *Thomas Pfuhl, Falko Glöckler, Jana Hoffmann* |

Interest Group 07:
TDWG Species Information
Organizer: Francisco Pando
CTEC TecnoAula 2

| 11:00 AM - 12:30 PM | 1033. TDWG Species Information Interest Group |
| | *Francisco Pando* |

| **12:30 PM - 02:00 PM** | **Friday Lunch**: Lunch is served in the Cafeteria. |
| **12:30 PM - 02:00 PM** | **Remove Posters**: CTEC Lobby |

| **02:00 PM - 03:30 PM** | **Closing Session:** CTEC Auditorium |

Lightning Talks
Moderator: Cynthia Parr
CTEC Auditorium

| 02:30 PM - 02:35 PM | 1090. Examining citizen scientist engagement and transcription rates through site content and social media activity on the Notes from Nature platform |
| | *Michael W. Denslow, Julie Allen, Rob P Guralnick* |

| 02:35 PM - 02:40 PM | 1068. Toward a new data standard for combined marine biological and environmental datasets - expanding OBIS |

beyond species occurrences.
Pieter Provoost, Daphnis De Pooter, Ward Appeltans, Sky Bristol, Philip Goldstein, Gwenaëlle Moncoiffé, Leen Vandepitte, Francisco Hernandez

02:40 PM - 02:45PM	**1139. Introducing LepNet - the Lepidoptera of North America Network** *Nico Franz, Neil Cobb, Benjamin Brandt, Anne Basham*
02:45 PM - 02:50 PM	**1138. New developments for the Libraries of Life project and app** *Nico Franz, Anne Basham, Austin Mast*
02:50 PM - 02:55 PM	**1141. Updates on multiple Neotropical Symbiota portals - STRI, Flora, and Arthropods** *Nico Franz, Edward Gilbert, Benjamin Brandt, Rachel Collin*
02:55 PM - 03:00 PM	**1159. A New Georeferencing Tool** *Rukaya Johaadien, Fhatani Ranwashe*

03:30 PM - 04:00 PM	**Friday PM Break**: CTEC Lobby
04:00 PM - 04:30 PM	**Buses leave CTEC for La Fortuna hotels**

Posters
CTEC Auditorium

977. Participatory Plant Breeding: Challenges for the Democratic Republic of Congo
Aimé KAZIKA KAMOSI

936. Using Camera Traps and Citizen Science to Raise Awareness About Critical Biodiversity in the Ituri Province, D.R. Congo
Jargy Kambale Soheranda, Patricia Mergen

991. The Atlas of Living Costa Rica (CRBio)
Manuel Vargas, María Mora

994. formation.gbif.fr : From workshops to online courses
Fabien Caviere, Marie-Elise Lecoq, Sophie Pamerlon, Eric Chenin, Anne-Sophie Archambeau, Régine Vignes-Lebbe

1018. Experiences and Lessons in Open Access of the scientific journal, e-Ciencias de la Información
Daniela Muñoz Alvarado

1022. Management and publication of an integrative and comprehensive scheme for meta-omics data of collection objects (MOD-CO)
Pelin Yilmaz, Anton Link, Tanja Weibulat, Frank Oliver Glöckner, Dagmar Triebel, Gerhard Rambold

1024. German Federation for Biological Data (GFBio)
Michaeal Diepenbroek, Katrin Böhning-Gaese, Frank Oliver Glöckner, Anton Güntsch, Robert Huber, Birgitta König-Ries, Jens Nieschulze, Bernhard Seeger, Dagmar Triebel, Christian Wirth

1157. Sustainable development and Biodiversity in access to information and knowledge: challenges faced
Graciela Quesada Fernández

1026. Annotating Scientific Collection data using AnnoSys – A Generic Online Annotation System and Repository
Okka Tschöpe, Lutz Suhrbier, Anton Güntsch, Walter G. Berendsohn

1038. Browsing natural history collections
Wouter Addink

1008. Citizen science, a tool for enhancing knowledge and management of edible insect biodiversity in the Democratic Republic of the Congo (DR Congo)
Papy Nsevolo Miankeba

1019. Species pages in Mexico: using PlinianCore to standardize information
Esther Quintero, Patricia Koleff, José Mendoza

1102. Knowledge Base with XPER3 in Palaeontology: Calculated descriptors offer new functionalities
Adeline KERNER, Regine Vignes-Lebbe

992. The community around Atlas of Living Australia's Platform
Marie-Elise Lecoq, Fabien Cavière

1060. Tacit Knowledge to Enrich Formal Ontologies
Andréa Côrrea Flôres Albuquerque, José Laurindo Campos dos Santos, Alberto Nogueira de Castro Júnior

932. Why and how to use drones for collecting data on agricultural biodiversity?
Aimé KAZIKA KAMOSI

938. The influence of forest savanna ecotone on chimpanzee (Pan troglodytes ellioti) socioecology in Mbam and Djerem National Park in Cameroon
Kamgang Serge Alexis

1121. Large-scale digitization of herbarium specimens: development and usage of an automated, high-throughput conveyor system
Patrick Sweeney, Charles Davis, Paul Morris, Binil Starley

1099. Global Biotic Interactions: a case study in ecological data aggregation
Jorrit Poelen, Katja Sabine Schulz, Jennifer Hammock

1095. A reference taxonomy for phylogenetic data aggregation
Jonathan A Rees

1081. Investigating simple database size limits for useably fast ID key apps
Andrew Bewsey, Alastair Culham

1073. Ontology-driven taxonomic workflows for Afrotropical Bees
Aurona Gerber

1043. AMAZONFISH: collating, curating and publishing fish occurrence data for the Amazon river basin
Aaike De Wever, Céline Jézéquel, Koen Martens, Thierry Oberdorff

1017. Linking external SQL databases and the Semantic Web: A Pipeline for dynamic web publication with stable URI identifiers for database structural information and content schemes
Dagmar Triebel, Anton Link, Gregor Hagedorn, Andreas Plank, Markus Weiss, David Fichtmueller, Tanja Weibulat, Gerhard Rambold

1035. The Plinian Core standard and its implementation in Spain's Official Repository of Biodiversity Information
Francisco Pando, Blanca Ruiz, Juan Villares

1025. Species level information handling in GBIF's Integrated Publishing Toolkit (IPT) using Plinian Core extensions
Santiago Martínez de la Riva, Cristina Villaverde, Katia Cezón, María del Carmen Lujano, Ana Cruz, Felipe Castilla, Francisco Pando

979. A collaborative online biological sample database that serves as a high quality data provider for global information systems.
Marika Ichiyanagi, Tohru Iseto, Takako Sato, Nobuyuki Saito, Masatomo Hisazumi, Takashi Hosono, Tomoki Sasaki, Hideaki Saito, Yasunori Hanafusa

1142. Mind the Gap: Filling Demographic Knowledge Gaps using Zoo Data
Ana Rita Silva, Johanna Staerk, Dalia Conde

1146. DOE! Mass digitisation of the BR Herbarium at Botanic Garden Meise
Sofie De Smedt, Ann Bogaerts, Piet Stoffelen, Quentin Groom, Henry Riley Engledow, Marc Sosef, Paul Van Wambeke, Steven Dessein

1156. Sampling Event Data – where do they fit in? (or "Everything you always wanted to know about sampling event data, but were afraid to ask")
Kyle Braak, Andrea Hahn

1160. The Millennium Seedbank Data Warehouse
Naomi Carvey

Acknowledgements

Program Committee

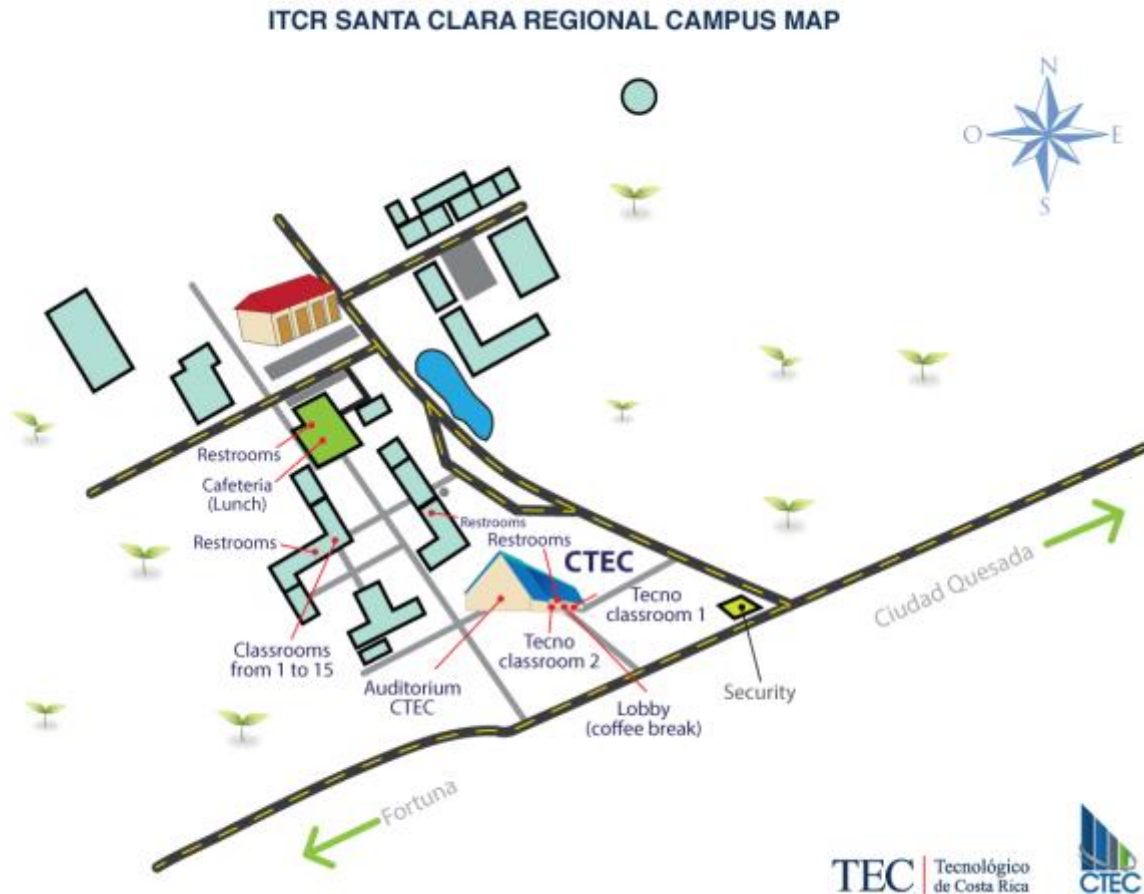| Committee Member	Organization
Erick Mata Montero, Program Co-Chair	Professor, School of Computing, Costa Rica Institute of Technology
Gail Kampmeier, Program Co-Chair	Prairie Research Institute, Illinois Natural History Survey, University of Illinois, USA
Francisco ("Paco") Pando	Real Jardín Botánico-CSIC, Spain
Maria Mora	Instituto Nacional de Biodiversidad (INBIO), Costa Rica
Joel Sachs	Agriculture and Agri-Food, Canada
Manuel Vargas	Instituto Nacional de Biodiversidad (INBIO), Costa Rica
Stan Blum, ex-officio	TDWG Coordinator
William Ulate, ex-officio	TDWG Treasurer. Missouri Botanical Garden, USA

Local Organizing Committee (LOC) members

Committee Member	Organization
Rogelio Gonzalez, LOC Chair	Professor, School of Computing, Costa Rica Institute of Technology
Erick Mata Montero	Professor, School of Computing, Costa Rica Institute of Technology
Vera Gamboa	Professor, School of Computing, Costa Rica Institute of Technology
Oscar López	Professor, School of Computing, Costa Rica Institute of Technology

Know your TDWG Executive

Chair	**Cynthia Parr**, National Agricultural Library, USDA, Beltsville, MD USA
Treasurer	**William Ulate**, Missouri Botanical Garden, St Louis, MO USA
Secretary	**Dimitris Koureas**, Natural History Museum, London, UNITED KINGDOM
Africa - 1	**Gordon Ojwang**, Directorate of Resource Surveys & Remote Sensing, Nairobi, KENYA
Africa - 2	**Samuel Tsakem**, Ecole de Faune de Garoua, Garoua, CAMEROON
Asia - 1	**Ji Liquiang**, Institute of Zoology, Chinese Academy of Sciences, CHINA
Asia - 2	**Prabhakar Rajagopal**, Strand Life Sciences and Ashoka Trust for Research in Ecology & the Environment (ATREE), Bangalore, INDIA
Europe - 1	**Peter Desmet**, Research Institute for Nature & Forest (INBO), Brussels, BELGIUM
Europe - 2	**Patricia Mergen**, Royal Museum for Central Africa and Botanic Garden Meise, BELGIUM
Latin America - 1	**Eduardo Dalcin**, Instituto de Pesquisas Jardim Botânico do Rio de Janeiro, BRAZIL
Latin America - 2	**Danny Velez**, Brazilian National Biodiversity Information System, Brazília, BRAZIL
North America - 1	**James Macklin**, Agriculture and Agri-Food Canada, Ottawa, Ontario, CANADA
North America - 2	**Chuck Miller**, Missouri Botanical Garden, St. Louis, MO USA
Oceania - 1	**Greg Whitbread**, Taxamatics, Canberra, ACT AUSTRALIA
Oceania - 2	**Aaron Wilton**, Landcare Research, NEW ZEALAND
Co-opted Member	**Tim Robertson**, Global Biodiversity Information Facility, Copenhagen, DENMARK
Co-opted Member	**Gail Kampmeier**, Champaign, IL USA
Co-opted Member	**Stan Blum**, San Francisco, USA

Campus Map

ITCR SANTA CLARA REGIONAL CAMPUS MAP

Legend

CTEC - main venue, contains Auditorium, Lobby (for registration, posters, breaks), Tecno-Aula classrooms 1 and 2 as well as restrooms (Baños). Daily buses arrive and depart from here.

C.S. - Z-shaped building that houses Computer Science 3

Cafeteria - also known as "Soda," where lunch will be served

Printed programs will not be available at this meeting. This PDF contains links to abstracts and content online. An online scheduler for mobile devices, Sched, *will be available by mid-November at* **https://tdwg2016.sched.org/**