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

Morning Bus Schedule (reverse direction in afternoon)

<table>
<thead>
<tr>
<th>Buses</th>
<th>Registered</th>
<th>AM Monday</th>
<th>AM Tu-Fri</th>
</tr>
</thead>
<tbody>
<tr>
<td>1B</td>
<td>Arenal Paraiso Hotel</td>
<td>7:15</td>
<td>7:20</td>
</tr>
<tr>
<td></td>
<td>Arenal Manoa</td>
<td></td>
<td>7:35</td>
</tr>
<tr>
<td></td>
<td>Central Plaza (town square)</td>
<td>7:40</td>
<td>7:50</td>
</tr>
<tr>
<td>2B</td>
<td>Magic Mountain Hotel</td>
<td>7:15</td>
<td>7:30</td>
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<tr>
<td></td>
<td>Central Plaza (town square)</td>
<td>7:30</td>
<td>7:45</td>
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<tr>
<td>3B</td>
<td>La Fortuna Hotel</td>
<td>7:15</td>
<td>7:30</td>
</tr>
<tr>
<td></td>
<td>Central Plaza (town square)</td>
<td>7:30</td>
<td>7:45</td>
</tr>
<tr>
<td>1BTEC</td>
<td>Lomas del Volcan Hotel</td>
<td>7:30</td>
<td>7:45</td>
</tr>
<tr>
<td>2BTEC</td>
<td>Arenal Manoa</td>
<td>7:30</td>
<td></td>
</tr>
</tbody>
</table>

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 early December 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**. Over 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 Plaza (Parque Central) near the Catholic church for those staying elsewhere.

**Welcome Reception & Sunday Registration** are at **Arenal Manoa** from 6–8 PM on Sunday. Buses will take participants from their hotels & the Central Plaza to the reception at 5:30 PM.

**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 or until bus limit is reached). Record your observations using iNaturalist (download app) and join the virtual hunt! See [http://tdwgblitz.biowikifarm.net/](http://tdwgblitz.biowikifarm.net/) for more information

**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

![TEC](image)

Tecnológico de Costa Rica
National Public Autonomous University
Dedicated to Teaching, Research & Extension
In Technology & Related Sciences
To Support the Development of Costa Rica
www.tec.ac.cr

**Gold Sponsor**

![GBIF](image)

Global Biodiversity Information Facility
Sharing biodiversity data for re-use
Providing evidence for research and decisions
Collaborating as a global community
gbif.org
Silver Sponsor

Science Publisher & Technology Provider
Open Access Journals, Books, E-Books
ARPHA Publishing Platform
pensoft.net

Additional financial and in-kind support provided by:

iDigBio
Software Carpentry pre-conference course
Recording and archiving TDWG 2016 sessions
idigbio.org

Missouri Botanical Garden
Use and support for their Open Conference System
missouribotanicalgarden.org

Soltis Center for Research & Education
San Isidro, Costa Rica
Hosts of the TDWG2016 mini-bioblitz
soltiscentercostarica.tamu.edu
# TDWG 2016 Program Overview

<table>
<thead>
<tr>
<th>Day</th>
<th>Ses Num</th>
<th>Time</th>
<th>CTEC AUDITORIUM</th>
<th>Computer Science Rm 3</th>
<th>CTEC TecnoAula 2</th>
<th>CTEC TecnoAula 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunday (all events at Arenal Manoa in La Fortuna)</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>9:00</td>
<td>TDWG Executive (meets throughout the day)</td>
<td></td>
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<tr>
<td></td>
<td>10:00</td>
<td>Data Quality IG leadership</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>17:30</td>
<td>Buses leave conference hotels &amp; Central Plaza in La Fortuna for Arenal Manoa</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>18:00</td>
<td>Registration</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>19:00</td>
<td>Welcome Reception</td>
<td></td>
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<tr>
<td></td>
<td>20:00</td>
<td>End Registration &amp; Reception; buses return to conference hotels &amp; Central Plaza</td>
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</tr>
<tr>
<td>Monday</td>
<td>1</td>
<td>9:00</td>
<td>Opening Session (see dignitary list, Chair’s welcome &amp; announcements; Dr. Rodrigo Gámez, featured speaker)</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>break 10:30</td>
<td>coffee/tea/set up posters/Registration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>11:00</td>
<td>S00: Roadmap for Standards-based Data Integration in Biodiversity Science</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>lunch 12:30</td>
<td>in Cafeteria &amp; Registration in CTEC Lobby; Newcomer Chat at 13:00 in CS 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>14:00</td>
<td>S01A: Semantics for Biodiversity Science: Challenges &amp; Solutions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>break 15:30</td>
<td>coffee/tea/poster viewing/Registration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>16:00</td>
<td>S06A: Biodiversity Data Quality – Issues, Methods &amp; Tools</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>17:45</td>
<td>Buses depart CTEC for conference hotels &amp; Central Plaza</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuesday</td>
<td>5</td>
<td>9:00</td>
<td>S01B: Semantics for Biodiversity Science: Text mining and semantic role tagging</td>
<td>S09: Agricultural Biodiversity Standards &amp; Semantics</td>
<td>IG05: Paleobiology</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>break 10:30</td>
<td>coffee/tea/poster viewing/Registration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>11:00</td>
<td>S01C: Semantics for Biodiversity Science: Taxon Names &amp; Traits</td>
<td>S10 Citizen Science for Biodiversity Research</td>
<td>W05: How to standardize a dataset to Darwin Core with OpenRefine</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>lunch 12:30</td>
<td>in Cafeteria &amp; Registration in CTEC Lobby</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>14:00</td>
<td>S01D: Semantics for Biodiversity Science: Integration &amp; Ecology</td>
<td>W04: Defining Infrastructure Needs &amp; Standards to increase Global Monitoring through Citizen Science</td>
<td>IG01: Annotations</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>break 15:30</td>
<td>coffee/tea/poster viewing/Registration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>16:00</td>
<td>S06B: Biodiversity Data Quality – Issues, Methods &amp; Tools</td>
<td>W06A: Darwin Core: Tutorials, best practices, current issues, future directions</td>
<td>IG03B: Data Quality</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>17:45</td>
<td>Buses depart CTEC for conference hotels &amp; Central Plaza</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wednesday Morning</td>
<td>9</td>
<td>9:00</td>
<td>C01: Contributed Oral Presentations &amp; Demos: Past and Future</td>
<td>W01: Towards Best Practices for the Implementation and Documentation of Biodiversity Informatics Services</td>
<td>IG03A: Data Quality</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>break 10:30</td>
<td>coffee/tea/poster viewing/Registration</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>10</td>
<td>11:00</td>
<td>S02: BHL: 10 Years of Innovation &amp; Growth</td>
<td>W06A: Darwin Core: Tutorials, best practices, current issues, future directions</td>
<td>IG03B: Data Quality</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>lunch 12:30</td>
<td>in Cafeteria &amp; Registration in CTEC Lobby</td>
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</tbody>
</table>

*TDWG Exec 13:00*

Revised 12/1/16
# TDWG 2016 Program Overview

## Wednesday Afternoon

<table>
<thead>
<tr>
<th>Day</th>
<th>Ses Num</th>
<th>Time</th>
<th>CTEC AUDITORIUM</th>
<th>Computer Science Rm 3</th>
<th>CTEC TecnoAula 2</th>
<th>CTEC TecnoAula 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td></td>
<td>14:00</td>
<td>W08: New approaches and tools in Open Data publishing for biodiversity</td>
<td>W06B: Darwin Core: Tutorials, best practices, current issues, future directions</td>
<td>IG06: Joint RDA/TDWG Interest Group on Metadata Standards for Attribution of Physical and Digital Collections</td>
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<td></td>
<td></td>
<td>break</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
<td>16:00</td>
<td>S05: Big Data Analysis Methods and Techniques as Applied to Biocollections</td>
<td>W03A: Darwin Core Invasive Species Extension Hackathon: Six Schemas for GitHub</td>
<td>IG04: Literature (45 min)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>17:45 Buses depart CTEC for conference hotels &amp; Central Plaza</td>
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</tbody>
</table>

## Thursday

<table>
<thead>
<tr>
<th>Day</th>
<th>Ses Num</th>
<th>Time</th>
<th>CTEC AUDITORIUM</th>
<th>Computer Science Rm 3</th>
<th>CTEC TecnoAula 2</th>
<th>CTEC TecnoAula 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td></td>
<td>9:00</td>
<td>S12: Globally Unique Identifiers for Names</td>
<td>C02: Contributed Oral Presentations &amp; Demos: Inventories</td>
<td>W03B: Darwin Core Invasive Species Extension Hackathon: Six Schemas for GitHub</td>
<td>IG08: Vocabulary Management Task Group</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>coffee/tea/poster viewing/Registration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
<td>11:00</td>
<td>S04: Application of Data Visualisation for Sustainable Biodiversity: Deriving Useful Knowledge and Insights from Heterogeneous Data</td>
<td>IG02: Biodiversity Informatics Curriculum</td>
<td>W03C: Darwin Core Invasive Species Extension Hackathon: Six Schemas for GitHub</td>
<td></td>
</tr>
<tr>
<td>lunch</td>
<td>12:30</td>
<td></td>
<td>in Cafeteria; pick up bag lunch for those going to Solís Center</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>12:45</td>
<td></td>
<td>Buses leave for Solís Center &amp; mini-Bioblitz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>13:30</td>
<td></td>
<td>Bus leaves CTEC for conference hotels &amp; Central Plaza</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>16:15</td>
<td></td>
<td>Buses leave Solís Center for conference hotels &amp; Central Plaza</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>17:00</td>
<td></td>
<td>First bus collects participants from hotels for EcoTermales, enjoying the hot springs, and Gala Dinner</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>18:00</td>
<td></td>
<td>last bus collects participants from hotels for EcoTermales</td>
<td></td>
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<tr>
<td></td>
<td>19:30</td>
<td></td>
<td>Gala Dinner starts</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>21:30</td>
<td></td>
<td>Buses return to conference hotels &amp; Central Plaza</td>
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</tbody>
</table>

## Friday

<table>
<thead>
<tr>
<th>Day</th>
<th>Ses Num</th>
<th>Time</th>
<th>CTEC AUDITORIUM</th>
<th>Computer Science Rm 3</th>
<th>CTEC TecnoAula 2</th>
<th>CTEC TecnoAula 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td></td>
<td>9:00</td>
<td>S13: DNA-based species and taxon occurrences</td>
<td>C03: Contributed Oral Presentations &amp; Demos: Plinian Core, Taxon Traits</td>
<td>IG09: Natural Collections Description (NCD)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>coffee/tea/poster viewing/Registration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td></td>
<td>11:00</td>
<td>C05: Contributed Oral Presentations &amp; Demos: Data Gaps, Trust, Knowledge Acquisition</td>
<td>C04: Contributed Oral Presentations &amp; Demos: Catalogs, Checklists, Collections</td>
<td>IG07: Species Information</td>
<td></td>
</tr>
<tr>
<td>lunch</td>
<td>12:30</td>
<td></td>
<td>remove posters</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>14:00</td>
<td></td>
<td>Closing Session (IG/TG reports; lightning talks (30 min); TDWG 2017 presentation, etc.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>break</td>
<td>15:30</td>
<td></td>
<td>coffee/tea/remove posters</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>16:00</td>
<td></td>
<td>Buses return to conference hotels &amp; Central Plaza</td>
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</tbody>
</table>

## Daily Morning Bus schedule from conference hotels to CTEC

<table>
<thead>
<tr>
<th>Buses Registered</th>
<th>AM Depart Monday</th>
<th>AM Depart Tu-Fri</th>
</tr>
</thead>
<tbody>
<tr>
<td>1B</td>
<td>7:15</td>
<td>7:20</td>
</tr>
<tr>
<td>Arenal Paraiso Hotel</td>
<td>7:15</td>
<td>7:20</td>
</tr>
<tr>
<td>Arenal Manoa</td>
<td>7:35</td>
<td>7:50</td>
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<tr>
<td>Central Plaza (town square)</td>
<td>7:40</td>
<td>7:50</td>
</tr>
<tr>
<td>2B</td>
<td>7:15</td>
<td>7:30</td>
</tr>
<tr>
<td>Magic Mountain Hotel</td>
<td>7:15</td>
<td>7:30</td>
</tr>
<tr>
<td>Central Plaza (town square)</td>
<td>7:30</td>
<td>7:45</td>
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<tr>
<td>3B</td>
<td>7:15</td>
<td>7:30</td>
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<tr>
<td>La Fortuna Hotel</td>
<td>7:15</td>
<td>7:30</td>
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<tr>
<td>Central Plaza (town square)</td>
<td>7:30</td>
<td>7:45</td>
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<tr>
<td>1BTTEC</td>
<td>7:30</td>
<td>7:45</td>
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<tr>
<td>Lomas del Volcan Hotel</td>
<td>7:30</td>
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<tr>
<td>2BTTEC</td>
<td>7:30</td>
<td>7:45</td>
</tr>
<tr>
<td>Arenal Manoa</td>
<td>7:30</td>
<td>7:45</td>
</tr>
</tbody>
</table>

Buses will pick up participants who are not staying at conference hotels, near the church in Central Plaza (town square).

**Afternoon buses** will reverse this route, with the exception of Thursday. Please board the bus going to your destination.
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.**

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

Joel Sachs, James Macklin, John Wieczorek, Tim Robertson, and Steve Baskauf.

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.

05:30 PM - 05:30 PM
**Buses depart** from conference hotels & Central Plaza to take participants to Arenal Manoa. Each bus will start from a conference hotel, then pick up at the Central Plaza (near church) in La Fortuna before arriving at 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 - 08:00 PM
**Buses depart** from Arenal Manoa for conference hotels & Central Plaza.
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, if you have not done so earlier. 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

Steven J Baskauf

11:55 AM - 12:10 PM  1127. GitHub for TDWG standards and Interest Groups
Peter Desmet
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

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 Droge

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

05:45 PM  Buses leave for conference hotels & Central Plaza
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 - 12:15 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

CANCELLED  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

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Symposium 10:  
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 Randramampianina, Yahaya Ibrahim, Prabakar 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
Interest Group 01: Annotations
Organizer: Paul J. Morris
CTEC TecnoAula 1

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

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

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

05:45 PM Buses leave for conference hotels & Central Plaza
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
Interest Group 03A:
Data Quality
Organizers: Arthur Chapman, Antonio Saraiva

CTEC TecnoAula 2

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

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

CTEC Auditorium

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
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
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

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

CTEC TecnoAula 2
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

Workshop 08:
New Approaches and Tools in Open Data Publishing for Biodiversity
Organizers: Lyubomir Penev, Viktor Senderov, Teodor Georgiev

CTEC Auditorium
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
Interest Group 04: Literature
Organizer: Martin Kalfatovic
CTEC TecnoAula 1

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

05:45 PM Buses leave for conference hotels & Central Plaza
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 cyberinfrastructure
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, Filip Vandelook, Jérôme Degreffe, 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)


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
Interest Group 08:
Vocabulary Management Task Group
Organizer: Steven Baskauf
CTEC TecnoAula 1

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-Monterro

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 Féra, Anne-Sophie Archambeau,
David Auber, Nicolas Bailly, Cyrille Blanpain, Vincent Breton,
Arluck Dias, Anna Cohen-Nabeiro, Aurélie Delavaud, Sophie
Gachet, Robin Goffaux, Karina Gibert, Manuel Herrera, Dino
Ienco, Romain Juliard, Julien Lecubin, Yannick Legre,
Grégoire Lois, 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*

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**Interest Group 02:**

**Biodiversity Informatics Curriculum**

Organizer: Hanna Koivula

*Computer Science 3*

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11:00 AM - 11:15 AM  1082. Building Digitization and Promoting Collaboration in GBIF Dark countries

*Mary E Barkworth, Curtis Dyreson*

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11:15 AM - 12:30 PM  1010. Biodiversity Informatics Curriculum Interest Group – BDI Curriculum IG

*Hanna Koivula*

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**Workshop 03C:**

**Darwin Core Invasive Species Extension Hackathon: Six Schemas for GitHub**

Organizers: Annie Simpson, Catherine Jarnevich, Jim Graham

*CTEC TecnoAula 2*

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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](https://www.inaturalist.org), [eBird](https://www.ebird.org) and [Pl@nt.net](http://www.plantnet.org) 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](http://tdwgblitz.biowikifarm.net), nestled in a highly diverse rainforest ecosystem. Please visit [http://tdwgblitz.biowikifarm.net](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**

05:00 PM - 05:00 PM  **First bus leaves hotels for EcoTermales**: Those not attending the bioblitz at the Soltis Center need to take this bus. Chance to soak in the resort's hot springs [http://ecotermalesfortuna.cr/](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/](http://ecotermalesfortuna.cr/)

06:00 PM - 06:00 PM  **Last bus travels from hotels to EcoTermales**: all participants returning from Soltis Center Bioblitz should be on this bus.

07:30 PM - 09:30 PM  **Gala Dinner at EcoTermales**: A special Gala Dinner is at EcoTermales [http://ecotermalesfortuna.cr/](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**
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

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, Gwenaelle Moncoiffé, Leen Vandepitte, Francisco Hernandez

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<thead>
<tr>
<th>Time</th>
<th>Presentation Title</th>
<th>Authors</th>
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</thead>
<tbody>
<tr>
<td>02:40 PM - 02:45PM</td>
<td>1139. Introducing LepNet - the Lepidoptera of North America Network</td>
<td>Nico Franz, Neil Cobb, Benjamin Brandt, Anne Basham</td>
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<tr>
<td>02:45 PM - 02:50PM</td>
<td>1138. New developments for the Libraries of Life project and app</td>
<td>Nico Franz, Anne Basham, Austin Mast</td>
</tr>
<tr>
<td>02:50 PM - 02:55PM</td>
<td>1141. Updates on multiple Neotropical Symbiota portals - STRI, Flora, and Arthropods</td>
<td>Nico Franz, Edward Gilbert, Benjamin Brandt, Rachel Collin</td>
</tr>
<tr>
<td>02:55 PM - 03:00PM</td>
<td>1159. A New Georeferencing Tool</td>
<td>Rukaya Johaadien, Fhatani Ranwashe</td>
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<tr>
<th>Time</th>
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<tr>
<td>03:30 PM - 04:00PM</td>
<td>Friday PM Break: CTEC Lobby</td>
</tr>
<tr>
<td>04:00 PM - 04:00PM</td>
<td>Buses leave CTEC for conference hotels &amp; Central Plaza</td>
</tr>
</tbody>
</table>
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

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)
Michaael 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 Nsevelo 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 elliotti) 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 Wambke, 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

1049. TDWG Then and Now
Arturo H. Ariño, Anabel Pérez de Zabalza
Acknowledgements

**Logo design:** Leila Calderón-Driade

**Photo credit:** Arenal Volcano, Erick Mata

**Special thanks** to the Program and Local Organizing Committees, and for volunteers for the many hours of hard work to bring this meeting into being, as well as the departments and institutions they represent.

To all of the organizers of symposia, workshops, and interest group meetings, this meeting would not exist without your efforts and enthusiasm.

**Thanks too to William Ulate**, for his expertise in all things OCS and for Sched.

**Thanks to Kevin J. Love** of iDigBio for recording the proceedings at this meeting for us to review and share with others, spreading knowledge of TDWG's meetings and mission.

### Program Committee

<table>
<thead>
<tr>
<th>Committee Member</th>
<th>Organization</th>
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<tr>
<td>Erick Mata Montero, Program Co-Chair</td>
<td>Professor, School of Computing, Costa Rica Institute of Technology</td>
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<tr>
<td>Gail Kampmeier, Program Co-Chair</td>
<td>Prairie Research Institute, Illinois Natural History Survey, University of Illinois, USA</td>
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<tr>
<td>Francisco (&quot;Paco&quot;) Pando</td>
<td>Real Jardín Botánico-CSIC, Spain</td>
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<tr>
<td>Maria Mora</td>
<td>Instituto Nacional de Biodiversidad (INBIO), Costa Rica</td>
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<tr>
<td>Joel Sachs</td>
<td>Agriculture and Agri-Food, Canada</td>
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<tr>
<td>Manuel Vargas</td>
<td>Instituto Nacional de Biodiversidad (INBIO), Costa Rica</td>
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<tr>
<td>Stan Blum, ex-officio</td>
<td>TDWG Coordinator</td>
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<tr>
<td>William Ulate, ex-officio</td>
<td>TDWG Treasurer, Missouri Botanical Garden, USA</td>
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<tr>
<td>Denisse Vargas, ex-officio</td>
<td>CTEC Conference Manager</td>
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### Local Organizing Committee (LOC) members

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<tr>
<th>Committee Member</th>
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<tbody>
<tr>
<td>Rogelio Gonzalez, LOC Chair</td>
<td>Professor, School of Computing, Costa Rica Institute of Technology</td>
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<tr>
<td>Erick Mata Montero</td>
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<td>Vera Gamboa</td>
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<td>Oscar López</td>
<td>Professor, School of Computing, Costa Rica Institute of Technology</td>
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Know your TDWG Executive

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<tr>
<th>Role</th>
<th>Name</th>
<th>Organization and Location</th>
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<tbody>
<tr>
<td>Chair</td>
<td>Cynthia Parr</td>
<td>National Agricultural Library, USDA, Beltsville, MD USA</td>
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<tr>
<td>Treasurer</td>
<td>William Ulate</td>
<td>Missouri Botanical Garden, St Louis, MO USA</td>
</tr>
<tr>
<td>Secretary</td>
<td>Dimitris Koureas</td>
<td>Natural History Museum, London, UNITED KINGDOM</td>
</tr>
<tr>
<td>Africa - 1</td>
<td>Gordon Ojwang</td>
<td>Directorate of Resource Surveys &amp; Remote Sensing, Nairobi, KENYA</td>
</tr>
<tr>
<td>Africa - 2</td>
<td>Samuel Tsakem</td>
<td>Ecole de Faune de Garoua, Garoua, CAMEROON</td>
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<tr>
<td>Asia - 1</td>
<td>Ji Liquiang</td>
<td>Institute of Zoology, Chinese Academy of Sciences, CHINA</td>
</tr>
<tr>
<td>Asia - 2</td>
<td>Prabhakar Rajagopal</td>
<td>Strand Life Sciences and Ashoka Trust for Research in Ecology &amp; the Environment (ATREE), Bangalore, INDIA</td>
</tr>
<tr>
<td>Europe - 1</td>
<td>Peter Desmet</td>
<td>Research Institute for Nature &amp; Forest (INBO), Brussels, BELGIUM</td>
</tr>
<tr>
<td>Europe - 2</td>
<td>Patricia Mergen</td>
<td>Royal Museum for Central Africa and Botanic Garden Meise, BELGIUM</td>
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<tr>
<td>Latin America - 1</td>
<td>Eduardo Dalcin</td>
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<tr>
<td>Latin America - 2</td>
<td>Danny Velez</td>
<td>Brazilian National Biodiversity Information System, Brazil, BRAZIL</td>
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<tr>
<td>North America - 1</td>
<td>James Macklin</td>
<td>Agriculture and Agri-Food Canada, Ottawa, Ontario, CANADA</td>
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<tr>
<td>North America - 2</td>
<td>Chuck Miller</td>
<td>Missouri Botanical Garden, St. Louis, MO USA</td>
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<td>Oceania - 1</td>
<td>Greg Whitbread</td>
<td>Taxamatics, Canberra, ACT AUSTRALIA</td>
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<tr>
<td>Oceania - 2</td>
<td>Aaron Wilton</td>
<td>Landcare Research, NEW ZEALAND</td>
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<tr>
<td>Co-opted Member</td>
<td>Tim Robertson</td>
<td>Global Biodiversity Information Facility, Copenhagen, DENMARK</td>
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<tr>
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<td>Gail Kampmeier</td>
<td>Champaign, IL USA</td>
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<tr>
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<td>Stan Blum</td>
<td>San Francisco, USA</td>
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Finally, a special thanks to Helenia Salazar, Jefe Programa de BioCursos y Voluntariado Corporativo with the Organization for Tropical Studies, for coordinating the post-conference opportunities to visit and learn about some of Costa Rica’s rich biodiversity.
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/