



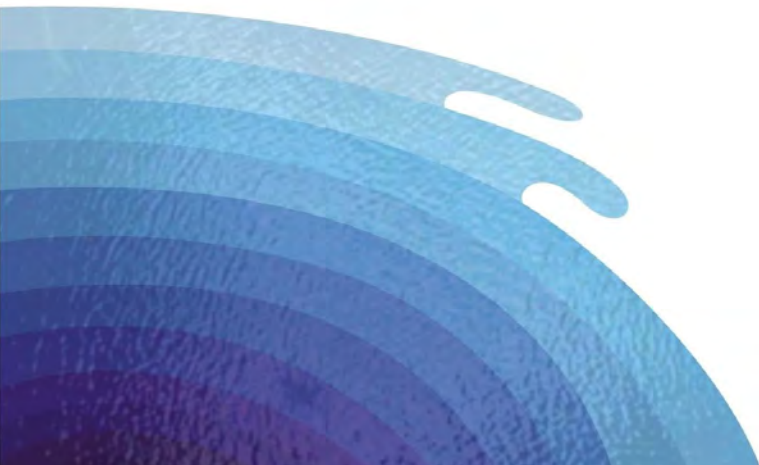
3RD INTERNATIONAL SYMPOSIUM ON ANCHIALINE ECOSYSTEMS



**Fundación
UADY**

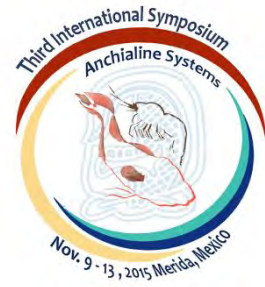
PROGRAMME

MÉRIDA, YUCATÁN, MÉXICO
8-13 NOVEMBER 2015



About the logo design

The design contains, as constant typological elements, a blue font encircling four crescent moons: the terracotta and beige crescent moons located in the upper and lower parts of the logo represent caverns or caves, in contrast to the blue crescent moons, representing the saline and fresh water present in a system where they coexist but do not mix. In the center are two of the coexisting species in Yucatan caves (*Typhliasina pearsei* and *Creaseria morleyi*), both species subject to constant movement. It is also possible to perceive a Mayan glyph in CH'EN-na transcription, whose translation in English can be interpreted as "cave", "pit" or "pond".



Designed by: *Luis Llovera Ramírez, María José López Gómez and Guadalupe Mezquita Brito.*



Foreword

It is our great pleasure to welcome you to the Third International Symposium on Anchialine Ecosystems at the Universidad Autónoma de Yucatán in November, 2015.

The local organizing committee, consisting of Jorge A. Navarro Alberto, Roger Medina González and Fernando Álvarez Noguera, with support from Fundación UADY, put timeless hours into the preparation of the meeting in order to grant you an unforgettable and enjoyable time at the Symposium in a beautiful venue, the city of Mérida and the State of Yucatán, México.

On behalf of the local organizing committee,

Thomas Iliffe

Symposium Director



Conference Organization

Program Committee

Fernando Álvarez Noguera (Universidad Nacional Autónoma de México)

David Brankovitz (Texas A&M University at Galveston)

Brett C. Gonzalez (University of Copenhagen)

Thomas Iliffe (Texas A&M University at Galveston)

Roger Medina-González (Universidad Autónoma de Yucatán)

Jorge Navarro-Alberto (Universidad Autónoma de Yucatán)

Local Organizing Committee

- **Academic**

Roberto Barrientos Medina

María José Campos

Lizbeth Chumba Segura

Víctor Cobos Gasca

Eréndira Estrella

Laura Meneses Calvillo

- **Administration and Logistics**

Fundación UADY:

Soemmy Reyes Nah

Miguel Castro Gutiérrez

Wilberth Herrera

Dulce Burgos

Carlos Castillo Sosa

- **Webmaster**

Carlos Canul

Booklet produced by Jorge Navarro
using a MS-Word template.

- **Staff**

Cindy Yam Palomo

Andrea Vargas Dominguez

Martha Chan Noh

Graciela Medina Madariaga

Diego Garza González

Roberto Perera Maldonado

Sharix Rubio Bueno

Ana Nidia Ek Canul

Manuel Pineda Olán

Tifany Andrade Torres

Enrique Sulub

Gerardo Peña Mis

Alexia Falcón Collí

Pamela Franco Zubieta

María del Socorro Venegas López

Hernán Novelo Pech

Jorge Cárdenas Nicoli

Geiser Gabriel Tun Pool

Julián Alberto Escalante Chan

Stephany Burgos Vela

Guadalupe de la Luz Romero Chi

Arnulfo González Dzib



Conference Program

Overview of the Academic Program

There are 24 oral presentations, 11 posters, 4 Special Talks by Keynote Speakers and 1 Workshop.

Keynote Speakers

Gonzalo Merediz Alonso (Amigos de Sian Ka'an, México)

Fernando Alvarez Noguera (Instituto de Biología, UNAM, México)

Guillermo de Anda (National Geographic – Aspen Institute Mexico – UTRM)

Julia Pacheco Avila (Universidad Autónoma de Yucatán, México)

Topics

Biotic Community Assemblages Ecosystem.

Protection and Education.

Physiology.

Morphology and Development.

Phylogenetics and Historical Biogeography.

Trophic Dynamics and Ecosystem Functioning.

Geology, Paleontology and Speleology.

Hydrogeochemistry.

Archaeology.



Keynote Talks

Mon 9 November 2015 – “Manuel Cepeda Peraza” Auditorium

9:30 – 10:30 Gonzalo Merediz Alonso, Amigos de Sian Ka’an.
The Yucatan Aquifer: conservation or development

Wed 11 November 2015 – “Manuel Cepeda Peraza” Auditorium

11:00 – 12:00 Fernando Alvarez, Instituto de Biología, UNAM
Anchialine fauna of the Yucatan Peninsula

Fri 13 November 2015 – “Manuel Cepeda Peraza” Auditorium

11:00 – 12:00 Guillermo de Anda, National Geographic – Aspen Institute Mexico – UTRM
Underwater archeology in the cenotes of the Yucatan

Fri 13 November 2015 – “Manuel Cepeda Peraza” Auditorium

14:30 – 15:30 Julia Pacheco Avila, UADY-Facultad de Ingeniería Civil
Environmental Issues of Yucatán



Contributed Talks

Mon 9 November 2015 - "Manuel Cepeda Peraza" Auditorium

Morning/Afternoon session (Session 1)

Topic: Ecosystem Protection and Education

- 11:00 – 11:25 Yañez-Mendoza, Germán
The Speleological Circle from Mayab: Their contribution to knowledge from Yucatan Anchialine Systems
- 11:25 – 11:50 Navarro-Alberto, Jorge
*Temporal variation of the biomarker acetylcholinesterase in *Gambusia yucatanana* (Regan 1914) in three cenotes of the Yucatan Peninsula, Mexico*
- 11:50 – 12:15 Simoes, Nuno
Sinkholes visitor carrying capacity: preliminary data on how many people visit the Yucatan "cenotes" and the need of baseline information to implement a management plan
- 12:15 – 12:40 Curtis-Quick, Jocelyn
Baseline assessment and conservation priorities of anchialine ponds in Eleuthera, The Bahamas
- 12:40 – 13:05 Lamson, Megan R.
Anchialine pool restoration work in Wai'ōhinu, Hawai'i Island

Afternoon session (Session 2)

Topic: Ecosystem Protection and Education

- 14:30 – 14:55 Iliffe, Thomas; Glasspool, Annie
Recovery plan for Bermuda's Critically Endangered cave fauna
- 14:55 – 15:20 Gerovasileiou, Vasilis
World Register of Marine Cave Species (WoRCS): establishing a new thematic species database for marine cave biodiversity

Topic: Trophic Dynamics and Ecosystem Functioning

- 15:20 – 15:45 Chávez-Solís, Efraín
*Spatial and temporal distribution of stygobitic shrimps: *Creaseria morleyi*, *Typhlatya mitchelli* and *T. pearsei* in Yucatan cenotes*

Topic: Physiology, Morphology and Development

- 15:45 – 16:20 Bishop, Renée E.
Assessment and Impact of Mercury on Anchialine Ecosystems

Morning session (Session 3)

Topic: Hydrogeochemistry

- 9:00 – 9:35 Garey, James
Biological changes of an anchialine influenced karst estuary are driven by aquifer discharge rates
- 9:35 – 10:00 Brankovits, David
Linking water chemistry records to ecosystem function in an anchialine cave of the Yucatan Peninsula, Mexico

Topic: Biotic Community Assemblages

- 10:00 – 10:25 Benitez, Sergio
Distribution and composition of the anchialine fauna in the Ox Bel Ha anchialine system, Yucatan Peninsula

Afternoon session (Session 4)

Topic: Phylogenetics and Historical Biogeography

- 12:00 – 12:25 Luis M. Mejía-Ortíz
New records of anchialine crustaceans from Cozumel Island

Topic: Biotic Community Assemblages

- 12:25 – 12:50 Calderón-Gutiérrez, Fernando
Which is the macrofauna population size in the anchialine caves of Cozumel Island?


Afternoon session (Session 5)

Topic: Biotic Community Assemblages

- 14:30 – 14:05 Worsaae, Katrine
Tracing the cave history of Nerillidae (Annelida) – the meiofaunal conquistadores of anchialine caves
- 14:05 – 15:30 Martínez, Alejandro
Comparative methods shed light on the origin of anchialine fauna: Do any anchialine species have a deep sea origin?

Topic: Phylogenetics and Historical Biogeography

- 15:30 – 15:55 Gonzalez, Brett
*Subterranean connectivity and distribution in the anchialine scale worm *Pelagomacellicephala iliffei* from the Bahamas Archipelago*



15:55 – 16:20 Humphreys, William F.
*Phylogenetic and biogeographic relationships of the genus Halosbaena
(Thermosbaenacea)*

Afternoon session (Session 6)

Topic: Biotic Community Assemblages

17:00 – 17:25 Jalžić, Branko
The anchialine caves in the Kornati National Park

17:25 – 17:50 Wicksten, Mary K.
The Barbouridae: color and classification

Morning session (Session 7)

Topic: Trophic Dynamics and Ecosystem Functioning

9:30 – 9:55 Aguilar-Sánchez, Juan Alberto
Modelling the trophic web of the Ox Bel Ha anchialine system, Yucatan Peninsula

Topic: Geology, Paleontology and Speleology

9:55 – 10:30 Cresswell, Jacque
The recovery of benthic foraminifera in a submarine cave following an anthropogenic disturbance in 1941 CE

Afternoon session (Session 8)

Topic: Archaeology

12:00 – 12:35 Radic, Irena
Anchialine caves as a fresh water resource on the Eastern Adriatic seafaring route



Poster session

Mon 9 November 2015 – Corridors of the University Cultural Center

17:00 – 18:30

Topic: Geology, Paleontology and Speleology

Poster
number

- 01** Buzjak, Nenad; Kovač-Konrad, Petra
Submarine springs (vrulja) Modrič and Zečica - geomorphological and hydrological phenomena of submerged karst in Adriatic Sea (Croatia)
- 02** Dumitru, Oana-Alexandra; Fornós, Joan J.; Onac, Bogdan P.
Sea-level changes recorded in littoral caves from Mallorca, Spain

Topic: Biotic Community Assemblages

Poster
number

- 03** Ojeda, Margarita; Cortés, Olinka; Alvarez, Fernando
Water mites from cenotes of the Ox Bel Ha anchialine system, Quintana Roo, Mexico
- 04** Cortés, Olinka
Adrift in the Xibalba: zooplankton of the Ox Bel Xa anchialine system, Quintana Roo, Mexico
- 05** Martínez-Lozano, Christian O.; Mejía-Ortíz, Luis M.; López-Mejía, Marilú; Pakes-Nelson, Joey; Santander-Botello, Luis C.
Distribution of stygobitic decapods from Cenotes in Riviera Maya (Yucatan Peninsula)
- 06** Magaña, Viridiana; García, Leonardo; Durán, Brenda; Rodríguez, Sharif; Villalobos, José Luis
*Distribution and population structure of the isopod *Creaseriella anops* (Creaser, 1936), in the Yucatan Peninsula*
- 07** Calderón-Gutiérrez, Fernando; Gómez, Patricia
Sponges community of the anchialine caves of Cozumel Island: The forgotten fauna
- 08** Solís-Weiss, Vivianne; Hermoso-Salazar, Margarita
Biodiversity and distribution of the macro- and meiobenthic fauna in two anchialine systems in Quintana Roo, Mexico
- 09** Suárez-Morales, Eduardo; Iliffe, Thomas M. and Mercado-Salas, Nancy
Diversity and conservation of hypogean/anchialine copepods from the Yucatan Peninsula, Mexico



Topic: Ecosystem Protection and Education

*Poster
number*

- 10** Gerovasileiou, Vasilis; Bailly, Nicolas; Boxshall, Geoff; Iliffe, Thomas M.; Martínez, Alejandro; Álvarez, Fernando; Humphreys, William F.; Jaume, Damià
World Register of Marine Cave Species (WoRCS): establishing a new thematic species database for marine cave biodiversity
- 11** Ucan-Maas, Ylce; Chumba-Segura, Lizbeth; Medina-González, Roger; Herrera-Meza, Wilberth
Stygobionts in UADY's zoological collections



Symposium Timetable Summary

	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY		
09:00 - 09:30		Opening ceremony					Post conference tours		
09:30 - 10:00		Invited speaker: <i>G. Merediz</i>		Session 3 Oral presentations		Session 7 Oral presentations			
10:00 - 10:30		Coffee break	7:30 AM Conference tour Chichen Itzá	Coffee break	7:30 AM Conference tour Uxmal	COFFEE BREAK			
11:00 - 11:30		Session 1 Oral presentations		Invited speaker: <i>F. Alvarez</i>		Invited speaker: <i>G. de Anda</i>			
11:30 - 12:00				Session 4 Oral presentations		Session 8 Oral presentations			
12:00 - 12:30									
12:30 - 13:00									
13:00 - 13:30		Lunch		Lunch	Lunch Santa Elena	Lunch			
13:30 - 14:00									
14:00 - 14:30				Lunch / Free time at the Yokdzonot Cenote	Session 5 Oral presentations	Visit to the Mayan House		Invited speaker: <i>Julia Pacheco Ávila</i>	
14:30 - 15:00									
15:00 - 15:30		Session 2 Oral presentations							
15:30 - 16:00				Session 6 Oral presentations					
16:00 - 16:30	Registration	Coffee break		Coffee break					
16:30 - 17:00									
17:00 - 17:30			Poster session						
17:30 - 18:00								Closing session	
18:00 - 18:30			Light & Sound Show in Chichen Itza		Light & Sound Show in Uxmal				
18:30 --- -----	Welcome social					Conference dinner			



Sunday 8 November 2015

- **Registration – Corridors of the University Cultural Center** 16:30 – 18:30
- **Welcome Social – Central Patio** 18:30 – 20:00

Monday 9 November 2015

Manuel Cepeda Peraza Auditorium

- 9:00 – 9:30 ○ **Opening ceremony**
- 9:30 – 10:30 ○ **Invited Speaker – Gonzalo Merediz (Amigos de Sian Ka'an, México)**
The Yucatan Aquifer: conservation or development
 - **Coffee break** 10:30 – 11:00

Manuel Cepeda Peraza Auditorium. Presentation of oral contributions (Session 1)

Topic: Ecosystem Protection and Education

- 11:00 – 11:25 Yañez-Mendoza, Germán
The Speleological Circle from Mayab: Their contribution to knowledge from Yucatan Anchialine Systems
- 11:25 – 11:50 Navarro-Alberto, Jorge
*Temporal variation of the biomarker Acetylcholinesterase in *Gambusia yucatan* (Regan 1914) in three cenotes of the Yucatan Peninsula, Mexico*
- 11:50 – 12:15 Simoes, Nuno
Sinkholes visitor carrying capacity: preliminary data on how many people visit the Yucatan “cenotes” and the need of baseline information to implement a management plan
- 12:15 – 12:40 Curtis-Quick, Jocelyn
Baseline assessment and conservation priorities of anchialine ponds in Eleuthera, The Bahamas
- 12:40 – 13:05 Lamson, Megan R.
Anchialine pool restoration work in Wai'ōhinu, Hawai'i Island
- **Lunch** 13:05 – 14:30



Manuel Cepeda Peraza Auditorium. Presentation of oral contributions (Session 2)

Topic: Ecosystem Protection and Education

14:30 – 14:55 Iliffe, Thomas; Glasspool, Annie
Recovery plan for Bermuda's Critically Endangered cave fauna

14:55 – 15:20 Gerovasileiou, Vasilis
World Register of Marine Cave Species (WoRCS): establishing a new thematic species database for marine cave biodiversity

Topic: Trophic Dynamics and Ecosystem Functioning

15:20 – 15:45 Chávez-Solís, Efraín
*Spatial and temporal distribution of stygobitic shrimps: *Creaseria morleyi*, *Typhlatya mitchelli* and *T. pearsei* in Yucatan cenotes*

Topic: Physiology, Morphology and Development

15:45 – 16:20 Bishop, Renée E.
Assessment and impact of mercury on anchialine ecosystems

- **Coffee break** 16:20 – 17:00

Corridors of the University Cultural Center

17:00 – 18:30 **Poster session**

Topic: Geology, Paleontology and Speleology

*Board
number*

01 Buzjak, Nenad; Kovač-Konrad, Petra
Submarine springs (vrulja) Modrič and Zečica - geomorphological and hydrological phenomena of submerged karst in Adriatic Sea (Croatia)

02 Dumitru, Oana-Alexandra; Fornós, Joan J.; Onac, Bogdan P.
Sea-level changes recorded in littoral caves from Mallorca, Spain

Topic: Biotic Community Assemblages

03 Ojeda, Margarita; Cortés, Olinka; Alvarez, Fernando
Water mites from cenotes of the Ox Bel Ha anchialine system, Quintana Roo, Mexico



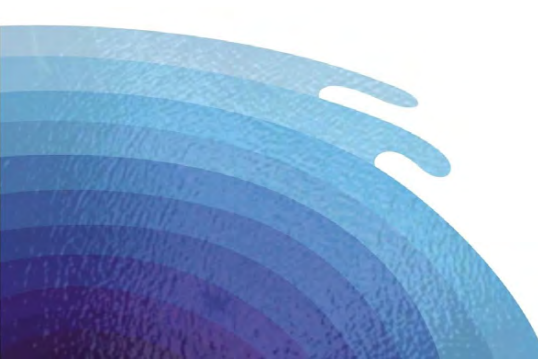
- 04** Cortés, Olinka
Adrift in the Xibalba: zooplankton of the Ox Bel Xa anchialine system, Quintana Roo, Mexico
- 05** Martínez-Lozano, Christian O.; Mejía-Ortíz, Luis M.; López-Mejía, Marilú; Pakes-Nelson, Joey; Santander-Botello, Luis C.
Distribution of stygobitic decapods from Cenotes in Riviera Maya (Yucatan Peninsula)
- 06** Magaña, Viridiana; García, Leonardo; Durán, Brenda; Rodríguez, Sharif; Villalobos, José Luis
Distribution and population structure of the isopod Creaseriella anops (Creaser, 1936), in the Yucatan Peninsula
- 07** Calderón-Gutiérrez, Fernando; Gómez, Patricia
Sponges community of the anchialine caves of Cozumel Island: The forgotten fauna
- 08** Solís-Weiss, Vivianne; Hermoso-Salazar, Margarita
Biodiversity and distribution of the macro- and meiobenthic fauna in two anchialine systems in Quintana Roo, Mexico
- 09** Suárez-Morales, Eduardo; Iliffe, Thomas M.; Mercado-Salas, Nancy
Diversity and conservation of hypogean/anchialine copepods from the Yucatan Peninsula, Mexico

Topic: Ecosystem Protection and Education

- 10** Gerovasileiou, Vasilis; Bailly, Nicolas; Boxshall, Geoff; Iliffe, Thomas M.; Martínez, Alejandro; Álvarez, Fernando; Humphreys, William F.; Jaume, Damià
World Register of Marine Cave Species (WoRCS): establishing a new thematic species database for marine cave biodiversity
- 11** Ucan-Maas, Ylce; Chumba-Segura, Lizbeth; Medina-González, Roger; Herrera-Meza, Wilberth
Stygobionts in UADY's zoological collections

Tuesday 10 November 2015

7:30 – 22:00 Conference tour to Chichen Itza (Mayan ruins / Sound and Light Show) and to Yokdzonot Cenote





Wednesday 11 November 2015

Manuel Cepeda Peraza Auditorium. Presentation of oral contributions (Session 3)

Topic: Hydrogeochemistry

- 9:00 – 9:35 Garey, James
Biological changes of an anchialine influenced karst estuary are driven by aquifer discharge rates
- 9:35 – 10:00 Brankovits, David
Linking water chemistry records to ecosystem function in an anchialine cave of the Yucatan Peninsula, Mexico

Topic: Biotic Community Assemblages

- 10:00 – 10:25 Benitez, Sergio
Distribution and composition of the anchialine fauna in the Ox Bel Ha anchialine system, Yucatan Peninsula

- **Coffee break** 10:25 – 11:00

Manuel Cepeda Peraza Auditorium.

- 11:00 – 12:00 ◦ **Invited Speaker – Fernando Alvarez, Instituto de Biología, UNAM**
Anchialine fauna of the Yucatan Peninsula

Manuel Cepeda Peraza Auditorium. Presentation of oral contributions (Session 4)

Topic: Phylogenetics and Historical Biogeography

- 12:00 – 12:25 Luis M. Mejía-Ortíz
New Records of Anchialine Crustaceans from Cozumel Island

Topic: Biotic Community Assemblages

- 12:25 – 12:50 Calderón-Gutiérrez, Fernando
Which is the macrofauna population size in the anchialine caves of Cozumel Island?

- **Lunch** 12:50 – 14:30



Manuel Cepeda Peraza Auditorium. Presentation of oral contributions (Session 5)

Topic: Biotic Community Assemblages

- 14:30 – 14:05 Worsaae, Katrine
Tracing the cave history of Nerillidae (Annelida) – the meiofaunal conquistadores of anchialine caves
- 14:05 – 15:30 Martínez, Alejandro
Comparative methods shed light on the origin of anchialine fauna: Do any anchialine species have a deep sea origin?

Topic: Phylogenetics and Historical Biogeography

- 15:30 – 15:55 Gonzalez, Brett
*Subterranean connectivity and distribution in the anchialine scale worm *Pelagomacellicephala iliffei* from the Bahamas Archipelago*
- 15:55 – 16:20 Humphreys, William F.
*Phylogenetic and biogeographic relationships of the genus *Halosbaena* (Thermosbaenacea)*

- **Coffee break** 16:20 – 17:00

Manuel Cepeda Peraza Auditorium. Presentation of oral contributions (Session 6)

Topic: Biotic Community Assemblages

- 17:00 – 17:25 Jalžić, Branko
The anchialine caves in the Kornati National Park
- 17:25 – 17:50 Wicksten, Mary K.
The Barbouridae: color and classification

Thursday 12 November 2015

- 7:30 – 22:00 Conference tour to Uxmal (Mayan ruins / Sound and Light Show) and to Santa Elena Village.



Friday 13 November 2015

Manuel Cepeda Peraza Auditorium. Presentation of oral contributions (Session 7)

Topic: Trophic Dynamics and Ecosystem Functioning

9:30 – 9:55 Aguilar-Sánchez, Juan Alberto
Modelling the trophic web of the Ox Bel Ha anchialine system, Yucatan Peninsula

Topic: Geology, Paleontology and Speleology

9:55 – 10:30 Cresswell, Jacque
The recovery of benthic foraminifera in a submarine cave following an anthropogenic disturbance in 1941 CE

▪ **Coffee break** 10:30 – 11:00

11:00 – 12:00 ○ **Invited Speaker – Guillermo de Anda. National Geographic – Aspen Institute Mexico – UTRM**
Underwater archeology in the cenotes of the Yucatan

Manuel Cepeda Peraza Auditorium. Presentation of oral contributions (Session 8)

Topic: Archaeology

12:00 – 12:35 Radic, Irena
Anchialine caves as a fresh water resource on the Eastern Adriatic seafaring route

▪ **Lunch** 12:35 – 14:30

Manuel Cepeda Peraza Auditorium

14:30 – 15:30 ○ **Invited Speaker – Julia Pacheco Avila, UADY-Facultad de Ingeniería Civil.**
Environmental Issues of Yucatán

Manuel Cepeda Peraza Auditorium

15:30 – 17:30 **Workshop: “Initiatives to preserve anchialine ecosystems, an international perspective”.**

Manuel Cepeda Peraza Auditorium

17:30 – 18:00 **Closing session**

Patio Central. University Cultural Center

18:30 – 22:00 **Conference dinner**

Conference Sponsors



Fundación UADY



Consultoría Bioclimática
Restauración - Conservación