
**GALAPAGOS SCIENCE
SYMPOSIUM
July 20-24, 2009
Puerto Ayora, Santa Cruz,
Galapagos**



**Darwin's 200th birthday and 50 years of
conservation in the Galapagos: the role of
science in developing a sustainable future**

The CDF- Science group

Context

- 2009 marks the 200th anniversary of Darwin's birth, the 150th anniversary of the publication of his seminal work "On the origin of species by means of natural selection, or the preservation of favoured races in the struggle for life" and 50 years since the establishment of the Charles Darwin Foundation (CDF). We will celebrate these three events in a way that will focus international attention on one of the world's most vulnerable and unique ecosystems.



Goal

- The goal of this symposium is to bring together international expertise to discuss the future of conservation and sustainable development of the Galapagos Archipelago. We invoke the inspiration and courage of Charles Darwin to motivate participants in this discussion.



Aims

- To recognize and honor the scientific work of Charles Darwin, particularly in the context of creationism's challenges to the evidence for evolution;
- To review the scientific work from Galapagos and other parts of the world in context of conservation in Galapagos;
- To discuss the present role of science in developing a sustainable future for Galapagos; and
- To foster long term collaborations with international and local experts in conservation and social sciences.



Specific themes

- Charles Darwin and the principles of evolution;
- Monitoring biodiversity and eco-logical change: approaches and challenges;.
- Understanding system resilience: quantification and modeling of system dynamics;
- Reconciling biodiversity conservation with socio-economic development; and
- Restoration of ecosystems: concepts and tools for self-sustaining systems.



Symposium - Programme



Programme of the Galapagos Science Symposium

SUNDAY, JULY 19: Registration and Welcome's Cocktail

Afternoon	16:00 - 18:00	Registration	
	18:00 - 20:00	Welcome's Cocktail	

MONDAY, JULY 20: Evolutionary Biology with a Focus on Small Islands

	TIME	TITLE	AUTHORS*
Chair: Matthias Wolff	09:00 – 10:00	Turning points in evolution.	Irenaeus Eibl-Eibesfeldt
	10:00 – 11:00	Research on evolutionary principles in Galapagos: an overview of the past 50 years.	Carlos Valle
	11:00 – 11:30	Coffee Break	
	Morning 11:30 – 12:30	Collecting evolution: the untold story of the vindication of Charles Darwin by the 1905-06 Galapagos expedition of the California Academy of Sciences.	Matthew James
	12:30 - 14:00	Lunch	
Chair: Sharon Deem	14:00 - 15:00	Evolution of the human society at Galapagos since the first colonizers until today.	Christophe Grenier
	15:00 - 15:15	Coffee Break	
	15:15 - 15:35	Evolution of pathogens of Galapagos birds.	Patricia G. Parker
	15:35 - 15:55	Evolution in 3 dimensions – biodiversity of pelagic midwater and deep-sea communities.	<u>Holger Auel</u> & Silke Laakmann
	15:55 - 16:15	What Darwin found convincing in Galapagos, and why it matters.	William Durham
	Afternoon 16:15 - 16:35	General Discussion	
	16:35 - 17:00	Coffee Break	
	17:00 - 17:20	Popularization of evolution to kids.	Nicolás Cuvi
	17:20 - 17:40	Using molecular markers to define conservation management strategies: the critically endangered <i>Calandrinia galapagosa</i> from San Cristobal island.	<u>Patricia Jaramillo</u> , Rachel Atkinson, Frank Cipriano & Jefreys Málaga
17:40 - 18:00	Distribution and taxonomic composition of zooplankton in the Galapagos Marine Reserve.	<u>Nathalia Tirado-Sánchez</u> , Matthias Wolff & Stuart Banks	

* The name of the author who gives the presentation is underlined

TUESDAY, JULY 21: Biodiversity Monitoring

	TIME	TITLE	AUTHORS*
Chair: Diego Ruiz	09:00 – 10:00	Galapagos biodiversity – what we still do <i>not</i> know about life on the Enchanted Isles.	<u>Frank Bungartz</u> , P. Jaramillo, H. Herrera, G. Jiménez, D. Ruiz, N. Tirado & F. Ziemmeck
	Morning 10:00 – 11:00	Biodiversity of the Galapagos Marine Reserve: status of the present knowledge.	Rodrigo Bustamante
	11:00 – 11:30	Coffee Break	
	11:30 – 12:30	Methodological approaches for biodiversity	James Gibbs

		monitoring: challenges and pitfalls.	
	12:30 - 14:00	Lunch	
Afternoon	14:00 - 14:20	Distribution of avian pox in Galapagos.	<u>Gustavo Jiménez Uzcátegui</u> , David A. Wiedenfeld, Patricia Parker, Nicole Gottdenker & F. Hernán Vargas
	14:20 - 14:40	Distribution and abundance of <i>Cetaceans</i> off the Ecuadorian continental coast and in the Galapagos Marine Reserve.	<u>Judith Denkinge</u> r, Annika Krutwa, Godfrey Merlen & Sandie Salazar
	14:40 - 15:00	Monitoring species to detect and predict impact of global change: case of the birds monitoring program in France.	Celine Teplitsky
	15:00 - 15:15	Coffee Break	
	15:15 - 15:35	Health status of the coral communities of the northern Islands: Darwin, Wolf and Marchena of the Galapagos archipelago.	<u>Mariana Vera</u> & Stuart Banks
	15:35 - 15:55	Satellites, seabirds and seals - a 25 year retrospective.	Gene Carl Feldman
	15:55 - 16:15	Quantifying the freshwater dynamics: a key to hydro-ecology understanding in Galapagos.	<u>Noemi d'Ozouville</u> , M. Trueman, S. Rea, S. Violette, A. Pryet, G. de Marsily & B. Deffontaines
	16:15 - 16:35	Impacts of Urchin diversity on Algal Biomass in the Galapagos Marine Reserve (GMR).	<u>Margarita Brandt</u> , Jon D. Witman & Angel Chiriboga
	16:35 - 17:00	Coffee Break	
	17:00 - 17:20	Monitoring ecological change in the Galapagos ecosystem: benefits and challenges of using seabirds as bio-indicators.	<u>Kyra L. Mills</u> & William J. Sydeman
17:20 - 17:40	Ecological status of a mangrove-fringed lagoon in SE Asia affected by human activities.	<u>Inga Nordhaus</u> , Simon Geist, Saskia Hinrichs, Tim Jennerjahn & Edy Yuwono	
17:40 - 18:00	Distribution of larvae of spiny lobster in the Galapagos Marine Reserve (GMR)	<u>Jerson Moreno</u> & Eduardo Espinoza	

WEDNESDAY, JULY 22: Understanding System Resilience: quantification and modeling of system dynamics			
	TIME	TITLE	AUTHORS*
Morning	09:00 - 12:00	Field trip to El Chato tortoise reserve	
	12:30 - 14:00	Lunch	
Chair: Matthias Wolff	14:00 - 15:00	The role of modeling in conservation science.	Uta Berger
	15:00 - 15:15	Coffee Break	
	15:15 - 16:15	How to measure system resilience – comparing marine and terrestrial systems.	Broder Breckling
	16:15 - 16:35	Connectivity and upwelling dynamics in the Galapagos Marine Reserve (GMR).	<u>John M. Morrison</u> , Stuart Banks, Daniel Kamykowski,

Afternoon	16:35 - 17:00	Coffee Break	Lian Xie & Gene Feldman
	17:00 - 17:20	Testing trophic cascades in the Galapagos Marine Reserve (GMR): an experimental approach.	<u>Jon D. Witman</u> , Margarita Brandt & Laura E. Dee
	17:20 - 17:40	Effects of herbivory intensity and productivity on species richness, diversity and biomass of primary producers on Galapagos rocky shore communities.	<u>Luis R. Vinuesa</u> , Diego J. Ruiz & Bruce A. Menge
	17:40 - 18:00	Shark movements and the design of protected pelagic environments within and beyond the Galapagos Marine Reserve.	<u>James Ketchum</u> , Alex Hearn, George Shillinger, Eduardo Espinoza, César Peñaherrera & Peter Klimley

THURSDAY, JULY 23: The Need to Reconcile Biodiversity Conservation with Socio-economic Development			
	TIME	TITLE	AUTHORS*
Chair: Mark Gardener	09:00 – 10:00	The needs and limits for economic valuation of biodiversity conservation.	R.Costanza & Marjan van den Belt
	10:00 – 11:00	Tapping the potential of coastal communities for improving livelihoods and conservation in Pacific.	H. Govan
Morning	11:00 – 11:30	Coffee Break	
	11:30 – 12:30	The role of education programs to foster Nature conservation - what has been learned?	Christian Nielsen
	12:30 - 14:00	Lunch	
Chair: Carlos F. Mena		CONCURRENT SESSION 1: Population-Environment Interactions in the Galapagos Islands	
	14:00 - 14:20	Why Galapagos is not a social-ecological system.	Christophe Grenier
	14:20 - 14:40	Visitor Management in the Galapagos National Park: a tool to improve biodiversity conservation?	Gunther Reck
	14:40 - 15:00	Vulnerability and resilience of the Galapagos society: implications of social, economic, and cultural capital to exogenous shocks	<u>Diego Quiroga</u> , Carlos F. Mena, Haruna Suzuki & Alexander Guevara
	15:00 - 15:15	Coffee Break	
	15:15 - 15:35	Invasive species in the Galapagos Islands: thinking beyond biophysical explanations.	Laura Brewington & Amy L. McCleary
	15:35 - 15:55	Demographic and social data needs for the Galapagos Archipelago.	Ronald R. Rindfuss
	15:55 - 16:15	Urban change in the Galapagos Islands: assessment and implications to the human-environmental system.	Carlos F. Mena
	16:15 - 16:35	Complexity theory and spatial simulation models to assess population-environment interactions in the Galapagos Islands.	Stephen J. Walsh
16:35 - 17:00	Coffee Break		
17:00 - 18:00	Both concurrent sessions in plenary discussion		
Chair: Felipe Cruz	14:00 - 14:20	CONCURRENT SESSION 2: Interdisciplinary research upon an exploited mangrove crab and first steps towards successful	Karen Diele

Afternoon	14:20 - 14:40	co-management in North Brazil. Sense of place and environmentally responsible behavior at an ecoregional scale.	Nicole M. Ardoin
	14:40 - 15:00		
	15:00 - 15:15	Coffee Break	
	15:15 - 15:35	Environmental education in the Galapagos: Where do we go from here?	Carl M. Stepath
	15:35 - 15:55	Socio-ecological systems and biochemical fluxes in the Galapagos Islands.	<u>Mercy J. Borbor-Cordova</u> , Alisha Fernandez & Elizabeth Holland
	15:55 - 16:15	Increasing the capacity of local actors to manage complex social-ecological systems: application of scoping models in the Galapagos Islands.	Neil Collier, Marieke Sandker, Stephen T. Garnett, <u>Arturo Izurieta</u> , Jeff Sayer & Bruce M. Campbell
	16:15 - 16:35	Flood control: how tourism brought globalization to Galapagos and must now Help control it.	William Durham
	16:35 - 17:00	Coffee Break	
	17:00 - 18:00	Both concurrent sessions in plenary discussion	

FRIDAY, JULY 24: Restoration of Ecosystems: concepts and tools for self-sustaining systems			
	TIME	TITLE	AUTHORS*
Chair: Grant Harper Morning	09:00 – 10:00	Restoration of degraded systems: possibilities and limits.	Richard Hobbs
	10:00 – 11:00	An ecosystem approach to marine restoration.	Mike Elliott
	11:00 – 11:30	Coffee Break	
	11:30 – 12:30	Eradication programs worldwide and their success: an overview.	Felipe Cruz
	12:30 - 14:00	Lunch	
Chair: Rachel Atkinson Afternoon	14:00 - 14:20	Anthropogenic effects on the ecosystem of the Bonin Islands and its restoration.	<u>Kazuto Kawakami</u> , Hajime Suzuki & Isamo Ohkochi
	14:20 - 14:40	Towards optimal management of the invasive <i>Rubus niveus</i> for habitat restoration in the Galapagos.	Jorge Luis Renteria
	14:40 - 15:00	Finding a sustainable approach for managing an invasive 'Protean' species in the Galapagos archipelago: A study of <i>Rubus niveus</i> .	<u>Jacqueline St.Quinton</u> , M. Ingrouille, M. Fay and J. Nicklin
	15:00 - 15:15	Coffee Break	
	15:15 - 15:35	The alien flora of the inhabited areas of Galapagos: practical solutions to reduce the risk of invasion into the National Park.	<u>Anne Guézou</u> & Mandy Trueman
	15:35 - 15:55	A trophic model of the Bolivar Channel for conservation strategies.	<u>Diego Ruiz</u> & Matthias Wolff
	15:55 - 16:15	Invasion and control of the introduced quinine tree in Galapagos: long-term impacts on the native vegetation of Santa Cruz Island.	<u>Heinke Jäger</u> , Ingo Kowarik & Alan Tye
	16:15 - 16:35	Successful eradication of feral cats from sub-	<u>Marthán Bester</u> , J.P.

		antarctic Marion Island, southern Indian Ocean.	Bloomer, R.J. van Aarde, B.H. Erasmus, P.J.J. van Rensburg, J.D. Skinner, P.G. Howell & T.W. Naude
	16:35 - 17:00	Coffee Break	
	17:00 - 17:20	Marine protected areas in Latin America: is the Galapagos Marine Reserve leading marine conservation initiatives in the region?	<u>Paulina Guardas</u> , Sally D. Hacker & J. Lubchenco
	17:20 - 17:40	Palaeoecology of the Galapagos Islands: applications to modern conservation management.	<u>Cynthia A. Froyd</u> , Katherine J. Willis, Emily E. Coffey, Alistair Seddon, Jacqueline F.N. van Leeuwen, W.O. van der Knaap, & Alan Tye
	17:40 - 18:00		
	19:00 - 22:00	Closing ceremony (dinner)	

POSTER PAPERS

	TITLE	AUTHORS*
1	Preparing for climate change impacts on the Galapagos: from scientific knowledge to adaptation strategies.	<u>Noemi dÓzouville</u> , F. Ortiz, G. Di Carlo & E. Pidgeon
2	A novel multi-proxy approach for determining baseline ecological conditions: a case study of the Galapagos Islands	<u>Emily E. Coffey</u> , Katharine J. Willis & Cynthia A. Froyd
3	How to harvest the Galapagos sea cucumber stock? - Lessons learnt from a decade of unsustainable fishing.	Matthias Wolff, Mauricio Castrejon & <u>Anna Schuhbauer</u>
4	Habitat preferences of the juvenile sea cucumber <i>Isostichopus fuscus</i> in Fernandina Island, Galapagos.	Priscilla C. Martinez
5	The first marine reserve in mainland Ecuador: Galera-San Francisco, Esmeraldas Province. What can we learn from Galapagos?	<u>Soledad Luna</u> , Pippa Heylings & Maria Cristina Puente
6	Preliminary data from the first GPS tracking study of giant Galapagos tortoises.	<u>Stephen Blake</u> & Martin Wikelski
7	A realistic restoration endpoint for degraded highlands of Galapagos.	<u>Mark Gardener</u> & Rachel Atkinson
8	Successful experience of involving childhood, science and ecosystem complexity at the Galapagos Islands.	<u>Nathalia Tirado</u> , Reyna Oleas, Karla Markley & Karina Bautista
9	Economic value of biodiversity through traceability.	Elias Mulugeta
10	Mapping terrestrial anthropogenic degradation on the inhabited islands of the Galapagos archipelago.	<u>Mandy Trueman</u> , James Watson, Marta Tufet, Scott Henderson & Rachel atkinson
11	Feeding ecology of the green sea turtle, <i>Chelonia mydas</i> , in the Galapagos Islands.	<u>Javier A. Carrión</u> , P. Zárata & J.A. Seminoff
12	Enhancing student learning and awareness of ecological and environmental issues.	Kevin Kinney
13	Investigating temporal changes in Galapagos	John Paul Tiernan

	intertidal ecosystems.	
14	Mollusk diversity in Galapagos and in continental Ecuador.	Kathleen E. Clark
15	Subtidal benthic community structure and benthic succession in Floreana, Galapagos Marine Reserve.	Annika Krutwa, Stuart Banks, Diego Ruiz & Matthias Wolff
16	Red Quinine invasion of the Galapagos Islands: a historical review and one potential mechanism of invasion.	Jessica Duchicela, J. Bever & P. Schultz
17	Marine protected areas: How to bridge the gap between conservation and livelihood needs.	Martina Keller & Matthias Wolff
18	The Lava Gull as political conflict.	Jacintha van Beveren
19	The genetic mating system of the Española Mockingbird.	Ilonka von Lippke
20	Hotspots within hotspots? Aggregations of pelagic fishes at southeastern corner of Wolf Island, Galapagos.	Alex R. Hearn, James T. Ketchum, A. P. Klimley, E. Espinoza & C. Peñaherrera
21	Does by catch mortality from artisanal gill-net fisheries present a major threat to endangered sea turtles? A case study from Northwest Mexico.	Volker Koch, Agnese Mancini

General information

Symposium Attendance fee: 200 US \$

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