CHARLES DARWIN FOUNDATION
ANNUAL REPORT 2015

SPECIAL EDITION

(Summary of 2013 and 2014 included)

fundación Charles Darwin foundation

2016 Teaser

This annual report was produced by the **Charles Darwin Foundation's Communication Coordination** led by Paola Díaz Freire. Elena Casafont Vidal and Dr. Clive Wilkinson **Production.** Liza Díaz Lalova **Photography and Graphic Design.** Elena Casafont Vidal and Dr. Clive Wilkinson **Texts.** Sam Dubois and Catalina Dede **Translations.**

We are grateful to the Charles Darwin Foundation's staff who provided information and suggestions for the annual report, especially to the **Editorial Committee:** Arturo Izurieta Valery, Dr. Clive Wilkinson, Elena Casafont Vidal, Paola Díaz Freire, Patricia Lehar and Edward Williams.

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Index

Acronyms and abbreviations

FCD Fundación Charles Darwin
ECCD Estación Científica Charles Darwin
MoU Memorandos de Entendimiento
PNG Parque Nacional Galápagos
RMG Reserva Marina de Galápagos
UNESCO Organización de las Naciones Unidas para la Educación
UICN Unión Internacional para la Conservación de la Naturaleza
CGREG Consejo de Gobierno del Régimen Especial de Galápagos
ESPOL Escuela Superior Politécnica del Litoral
ESPE Universidad de las Fuerzas Armadas
INAMHI Instituto Nacional de Meteorología e Hidrología
DPNG Dirección del Parque Nacional Galápagos
ABG Agencia de Regulación y Control de la Bioseguridad y Cuarentena para Galápagos
PUCE Pontificia Universidad Católica del Ecuador
QAP Herbario Alfredo Paredes (Universidad Central del Ecuador)
INOCAR Instituto Oceanográfico de la Armada
FEIG Fondo para el Control de Especies Invasoras de Galápagos
USFQ Universidad San Francisco de Quito
INP Instituto Nacional de Pesca
DIRNEA Dirección Nacional de los Espacios Acuáticos
UTPL Universidad Técnica Particular de Loja
CIIFEN Centro Internacional para la Investigación del Fenómeno de El Niño
NAZCA Instituto Nazca
ACAP Agreement on the Conservation of Albatrosses and Petrels
GBIF Global Biodiversity Information Facility
CMAR Corredor Marino del Pacifíco Este Tropical
BRUV Baited remote underwater video
ECOGAL Aeropuerto de Galápagos
SDZG San Diego Zoo Global
DWCT Durrell Wildlife Conservation Trust
RedLAC Red de Fondos Ambientales de Latinoamérica y el Caribe
Setemar Secretaría Técnica del Mar
ESPOCH Escuela Superior Politécnica de Chimborazo
NeoBiota European Group on Biological Invasions
ATBC Association for Tropical Biology and Conservation
APLE Red de palinólogos Europeos y especialistas en Sudamérica
AEB Asociación Ecuatoriana de Biología
SENESCYT Secretaría de Educación Superior, Ciencia, Tecnología e Innovación
MCCTH Ministerio Coordinador de Conocimiento y Talento Humano
COPEG Comisión Panamá Estados Unidos para la Erradicación y Prevención del Gusano Barrenador del Ganado
APHIS Animal and Plant Health Inspection Service (U.S. Department of Agriculture)
UNL Argentina Universidad Nacional del Litoral
UMASS University of Massachusetts Dartmouth
GAIAS Galapagos Academic Institute for the Arts and Sciences
GSC Galapagos Science Center
SUNY-ESF State University of New York College of Environmental Science and Forestry
CSIRO Commonwealth Scientific and Industrial Research Organisation
CABI Centre for Agriculture and Biosciences International
MAGAP Ministerio de Agricultura, Ganadería, Acuacultura y Pesca
IWC International Watch Company
ICF International Community Fund
TICs Tecnologías de la información y la comunicación

Executive summary
2015 Annual Report, Special Report

This report has pulled together information on the work that the Charles Darwin Foundation (CDF) has been doing over the last three years, with special focus on 2015. After a period of economic difficulties, 2013 and 2014 were years of major challenges, in which the CDF had to prioritize some actions over others. Although scientific production continued at the same rate, annual reporting was under-funded. So, while the shortage of funding was curbing CDF action, the Charles Darwin Research Station (CDRS), the institution's operational arm, kept working, the scientists kept working, and kept generating information and knowledge. And there it stayed, waiting to be reported.

In 2015, thanks to a major injection of funds by a group of donors, CDF began regaining financial stability and decided to resume annual reporting, understood as one of the institution's main accountability tools. So, we decided to include the work done from 2013 to 2015 in this report, showcasing the efforts made by the whole CDF team during this intense period.

Therefore, this "special edition" annual report covers the work done in 2015, but also summarizes work from 2013 and 2014. Further, since its publication is planned for November 2016, it contains relevant information about this year, as a preamble for the next Annual Report.

This report is based on collecting and systematically analyzing a large flow of information and knowledge provided mostly by the CDF team, which has openly agreed to record three years' work in a single document. Quite a challenge!

The special edition methodology has been chosen because we didn't want to leave any major issues out. So, we conducted an audience analysis and consulted about these groups' expectations for a special-edition annual report.

Main audience | CDF Staff, CDF General Assembly and Board of Directors, Donors, Scientific Community, NGOs and research institutes, Ecuadorian Government, Local Community, and tourists.

These inputs informed the design of a conceptual framework defining the document's contents.

These were some of the valuable comments:

- The annual report should include information from 2013 and 2014
- Recent financial problems should be explained.
- Financial information must be shown. CDRS work on science should occupy a major place.
- Show how research is essential for managing the Galapagos Islands. Is science by the CDRS solving problems in Galapagos?

We hope this annual report sets the standard for reports from now on. It has two versions, Spanish and English, and includes links to other materials and information sources. Finally, this report will be longer than coming ones, because it covers three years' work, from 2013 to 2015 (and includes a preamble of 2016).

The President of the CDF, Dennis Geist, opens this report, showing his support for this publication and telling us, on behalf of the General Assembly, briefly about the difficult situation the institution has recently come through, and from which it is recovering.

The Executive Director, Arturo Izurieta, then highlights the major challenges that he has addressed personally at the CDF's helm, emphasizing the work done by the institution for

so many years and which it will continue pursuing to conserve Galapagos Islands' world-class uniqueness. Dr. Izurieta also thanks the entire CDF team and collaborators who make our work possible.

Who are we and what do we do? These are among the questions address by the next chapter. What is the institution's mission and how does it work through the CDRS?

And what have we done in this most recent period? A series of illustrated graphic data sheets portray the most recent data from 2013 to 2016 about the CDRS' work. This format makes it easy to compare, at a glance, four years of work. This reflects the changing structure of priority research areas, varying team membership, evolving networking and international involvement in the institution's work.

CDF does research, so Science is the institution's heart, and also the core of this report. What do our scientists do at CDRS, what draws hundreds of people every year to work with us, what inspires hundreds of donors and collaborators to trust the work of this institution: Science. From 2013 until the present. Scientific information, structured by research areas, projects, stories and curiosities. We want to bring our work closer to many people.

Thanks to the valuable collaboration of Dr. Clive Wilkinson (a marine biologist and tropical coastal zone manager, who has published over 20 books and over 100 articles), we have described our work in rigorous language that is accessible to the lay person, so CDF's conservation message can go around the world.

CDF has a funding arrangement with strengths but also weaknesses. The "Financial Report" chapter describes the current status of the CDF. Information on income and expenses, from 2013 up to now, with emphasis on 2015. How much have we done with what we have? All this effort would have been impossible without donors' commitment and trust in us. They are responsible for our successes and are part of the conservation history of the Galapagos Islands. Our very special thanks to you all!

The area of Communication is essential for our audiences to recognize, value and legitimize us. A summary of the work done by this team that is becoming a strong, consistent department, permeating every area of CDF, and highlights the work of everyone working in the institution.

The volume of information generated by CDF is designed to be shared and disseminated. We show what the Datazone is, and how the concept of "citizen science" has rapidly gained importance.

The closing touch is an extensive list of publications made from 2013 to 2016 – a painstaking job!

The last word of appreciation to all our friends, colleagues, scientists, collaborators, and volunteers. Your work is enshrined in the CDF, your work contributing to science, to Galapagos conservation and to the whole world. Special recognition and appreciation for all these people.

Dennis Geist

"First of all, on behalf of Charles Darwin Foundation General Assembly and Board of Directors I thank the STAFF for their hard work during this past year, which has allowed us to reach our goals while maintaining an excellent international reputation."

Dennis Geist is the President of the Charles Darwin Foundation since 2011. He is a professor of Vulcanology at the University of Idaho and has been conducting field research in the Galapagos since 1982. He is the former Chair of his department and serves on the editorial boards of Geology and the Journal of Petrology.

President's letter

Our mission at the Charles Darwin Foundation (CDF) is to provide science that helps in the conservation of the environment and biodiversity of the Archipelago and that allows decision makers to work for the true sustainability of Galapagos.

These we are achieving within a dynamic context taking into account the changes in the commercial, political and social fields in the Galapagos Islands. It is therefore appropriate to state that that in the changing "living laboratory of evolution", the CDF continues to also evolve to adapt to its ever-changing environment.

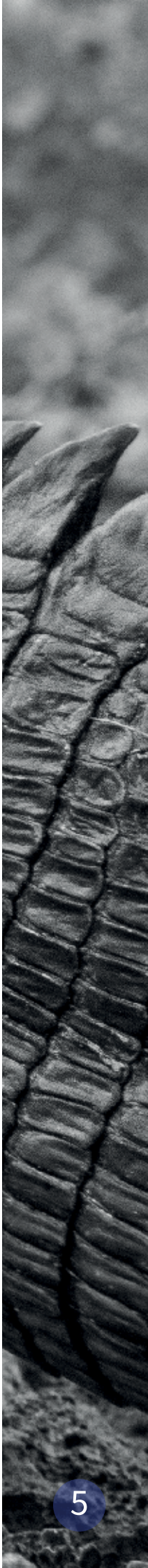
The adaptation to the changes around us has allowed us to move forward in spite of the difficulties faced when we have had to do our work of science facing financial restrictions, in particular something that was really felt in the last few years.
One reflection of facing these difficulties has been the lack of production of our regular annual reports from the years 2013 and 2014, something that we are committed to update with a sense of integrity.

In this 2015 annual report we include summaries of 2013 and 2014 as well as some information about the year 2016 as a "prelude" for the next report.

We are aware of the critical relevance of an annual report. We are showing a sample of our work, achievements of our projects and as part of an exercise on transparency we use this document to inform our partners, staff, researchers and relevant stakeholders of how we do science at the CDF.

We have overcome a critical phase at the CDF. We are through a long difficult period and from the lessons learnt we can look forward and continue to work for scientific research and the conservation of the Galapagos Islands.

Dr. Dennis Geist
President
Charles Darwin Foundation



Arturo Izurieta Valery

Arturo Izurieta Valery has been the Executive Director of the Charles Darwin Foundation since June 2015. Educated in Ecuador, Costa Rica and Australia, he has over 25 years' experience in science and conservation. He is a permanent resident of Galapagos.

"The mission of the Charles Darwin Foundation, through its operational arm, the Charles Darwin Research Station, is to provide the Ecuadorian Government with knowledge and support through scientific research and complementary actions to ensure conservation of the Galapagos Archipelago environment and biodiversity."

Executive Director's Letter

Our ongoing contribution to science in the Islands since 1959 makes us the oldest non-governmental organization in Galapagos. Over these decades, the contributions of our national and international scientific staff have been essential in constructing a scientific and technical network with a global outreach, generating top-level collaborative knowledge. Our commitment to Ecuador and the Galapagos Islands for more than five decades has contributed to the well-deserved international recognition of the Ecuadorian Government's efforts to protect and achieve natural, social and economic sustainability in the Galapagos Islands.

As this report comes out, the Charles Darwin Foundation has been granted the renewed trust of the Ecuadorian Government to continue cooperating for another quarter century. 2015 was a year of profound reflection, with a broad overview of the challenges facing science worldwide, the challenges confronting Galapagos, to adapt to the evolution of an Ecuador that is quite different from back in 1959 or in 1991, when our Agreement with the National Government was last renewed. We are ready to share science with the world's research centers, shoulder-to-shoulder with Ecuadorian academic and research centers, expanding and reinforcing the current scientific network.

Starting now in 2016 and from now on, we must integrate and promote the linkage between natural science and the social and economic sciences. Researching Galapagos as a socio-ecosystem is becoming increasingly necessary and evident. We are sure that these Islands' future lies in the people who live here, and understanding the Nature-Human interconnection is extremely urgent if the Galapagos are to remain sustainable over time.

Our institutional presence, through more than 57 years of existence, has been thanks to the selfless drive of all the Foundation's members, who have – in different ways and from their own different approaches, professions and contacts – kept us on our feet through thick and thin, but with a single purpose: conserving these marvelous, unique islands.

Last but not least, our work has been possible thanks to the economic contributions of individuals, organizations and responsible companies in different parts of this planet who have seen in Galapagos and in our collaborative work a major encouragement, to know that there is hope for the future of Nature and of Humans; to all these supporters, our infinite thanks!

Dr. Arturo Izurieta V.
Executive Director
Charles Darwin Foundation

Charles Darwin Foundation

The Charles Darwin Foundation (CDF) is an international not-for-profit scientific organization entirely based in the Galapagos Islands since its foundation in 1959.

For nearly sixty years, the CDF has had the clear mission to work closely with Government Institutions providing scientific knowledge and assistance to ensure conservation and sustainable development of the Galapagos Archipelago.

Under an agreement with the Ecuadorian Government, which has been renewed recently (see box), CDF operates the Charles Darwin Research Station (CDRS).

CDRS, situated beside Academia Bay in Puerto Ayora, is the place where scientists from Ecuador and other parts of the world work together on research and projects for the protection of the Galapagos Islands and other archipelagos all over the world.

Watch “Charles Darwin Foundation” (Youtube)

To do so, the main goals of the CDRS are:

- To perform and collaborate in scientific research and activities in the archipelago;
- To disseminate the results of this research and relevant investigation results produced by other organizations;
- To provide advice to the Ecuadorian Government on the conservation of the environment and biodiversity of the Galapagos;
- To contribute to the process of policy formation with precise and timely technical information; and
- To develop actions that increase the local and national capacity for conservation of the environment and biodiversity.

Beside its role as the unique scientific adviser to government institutions of Ecuador, and as a key partner within the national and international scientific and conservationist community, the CDRS also provides sound scientific data freely available to any user around the globe raising awareness of both the intrinsic and economic importance of nature conservation, and the vulnerability and resilience of biodiversity.

The CDRS also has its library, with the world's largest volume of technical, scientific and historical information about the Galapagos Islands, and is the custodian for many years of the world's largest Galapagos natural history collections.

These facilities not only keep these materials safe, but also make it possible to share them with the rest of the scientific world, providing a baseline for research and educational activities.

On Thursday, August 11th 20216 the Charles Darwin Foundation (CDF) officially renewed our Cooperation Agreement with the Government of Ecuador for the next 25 years.

The agreement is part of the emphasis that the Ecuadorian Government is placing on academic research, to move forward from a commodities exporting economy to a high-technology, knowledge-based one.

The scientific activities undertaken at the Charles Darwin Research Station (CDRS) will be pursued in collaboration with Ecuador's institutions of higher education and research institutions, and also the Government will continue to have access to all the knowledge and information generated by the research conducted by the CDRS.

News: web and "7 días 7 minutos"

Furthermore, in 2015 and 2016, CDF signed a total of 18 inter-institutional cooperation agreements and memoranda of understanding (MOUs) with different public and private institutions and academic centers, both nationally and internationally (Watch "Other institutions"- website CDF) to conduct joint research projects or activities. These include:

Government Council for the Galapagos Special Regime (CGREG) – Coastal Polytechnic Institute (ESPOL) - University of the Armed Forces (ESPE) – Yachay EP – Yachay Tech – National Fishing Institute – National Meteorology and Hydrology Institute (INAMHI) – University of Málaga – San Francisco de Quito University – Aeolian Sailing Club – Central University of Ecuador – National Renewable Energy Institute – Malpelo Foundation – Charles Darwin University – The Queen's University of Belfast – among others.

Did you know?

The Charles Darwin Foundation (CDF) has been commended on numerous occasions for our great contribution as the Ecuadorian Government's sole scientific advisor for conservation in the Galapagos Islands. With the backing of IUCN and UNESCO, this institution is now one of the country's most prestigious research centers, recognized the world over for its work with endangered and invasive species.

Since its creation in 1959*, the CDF has accumulated scores of success stories. Some of them are summarized below. Did you know?

It all began back in the mid-1950s… Well-known biologist Irenaeus Eibl-Eibesfeldt visited the Galapagos Islands and raised the voice of alarm about the Archipelago's ecological conditions. This began an international movement of scientists and conservationists to establish ways to protect the islands.

1959 Charles Darwin Foundation for the Galapagos Islands (CDF) created and Galapagos National Park (GNP) established.

1964 Charles Darwin Research Station (CDRS) established in Puerto Ayora, Santa Cruz Island, Galapagos.

Internationally-recognized herbarium established, containing the largest Galapagos plant collection in the world.

1965 Giant Tortoise repatriation program established; world-class program continues today.

1966 The first educational program for conservation is initiated on the Galapagos Islands.

1968 The Galapagos National Park Directorate (GNPD) began operating.

1971 Together with the GNPD, CDF discovered the last known surviving Pinta Island giant tortoise, Lonesome George.

1972 CDF scholarship training program founded for Ecuadorian students. The program continues to be a success today.

1976 Land iguana breeding and repatriation program initiated.

1978 The Galapagos Islands are established as a Natural Heritage Site for Humanity by UNESCO.

1984 The GNP is considered a Biosphere Reserve by UNESCO.

1995-1997 Rediscovery of Daisy tree Scalesia atractyloides and Floreana flax Linum cratericola, thought to be extinct.

1998 Special Law for Galapagos creates the Galapagos Marine Reserve (GMR).

CDF and the GNPD launch Project Isabela to restore Santiago, Pinta, & northern Isabela Islands. CDF establishes Environmental Education Centers on Santa Cruz, San Cristobal, and Isabela.

The Local Conservation Action Fund was launched: 95 community conservation programs and sustainable businesses.

1999 Sultan Qaboos Prize for Environmental Preservation awarded to CDF by UNESCO.

2000 Terrestrial Invertebrates Database and Collections established.

Galapagos Inspection and Quarantine Program initiated to prevent introduced species from reaching the islands.

2001 J. Paul Getty Wildlife Conservation Prize awarded to CDF.

IUCN adds the entire endemic flora of Galapagos to the Red List of Endangered and Threatened Species and creates a Galapagos Plant Specialist Group.

Oil tanker Jessica spills oil and CDF responds quickly with staff assistance and ecosystem monitoring.

2002 Society for Conservation Biology Award for Distinguished Achievement awarded to CDF.

CDF receives the Cosmos International award from Japan.

2003 Baseline Study of the Marine Reserve published.
Baseline Study of Plant Research published.

Government of Ecuador enacts the Law for Total Control of Introduced Species in Galapagos.

2004 BBVA Foundation Prize awarded to CDF in Spain.

Commander of the National Order of Honorato Vásquez bestowed on CDF by the Government of Ecuador.

Punto Azul Award from the Colegio Nacional de Galápagos is given to CDF.

2005 The Galapagos Marine Reserve is recognized as a Particularly Sensitive Sea Area by the International Maritime Organization.

2007 CDF releases "Galapagos at Risk" report, effectively analyzing damaging socio-economic trends in the archipelago.

Galapagos declared "at risk" by President Rafael Correa of Ecuador, emphasizing its conservation as a critical priority for the country.

Galapagos Islands added to the list of World Heritage Sites in danger.

2009 CDF celebrates the 50th anniversary of its founding, alongside the 150th anniversary of the publication of Darwin's On the Origin of Species and the bicentenary of Darwin's birth.

International science symposium in Galapagos on CDF's 50th Anniversary, leading to publication of the reference book The *Role of Science for Conservation* (2013).

2012 Datazone launched on CDF website to allow direct access to collections, library catalog, and other information.

Effort to eradicate Philornis downsi spear-headed by CDF scientists following successful international workshop.

2013 The Galapagos Islands are virtually mapped for the first time.

2014 The first Mangrove Finch was born in the CDRS as part of the "Early Raising in Captivity" Program.

The Mangrove Finch is classified as Critically Endangered on IUCN's Red List of Threatened Species, since there are only 60 to 80 birds left in the world.

2015 The first pictures are taken of Mustelus albipinnis, a "rare" shark.

2016 Scientific information to support the declaration of 33% of the Galapagos Marine Reserve as a Marine Sanctuary.

La Fundación Charles Darwin renueva el convenio con el Gobierno del Ecuador para operar la ECCD otros 25 años más en Galápagos.

The Charles Darwin Foundation for the Galapagos Islands (CDF) was created in 1959 under the auspices of the Government of Ecuador, UNESCO and the International Union for Conservation of Nature (IUCN). It is an "Association internationale sans but lucrative" (international non-profit organisation) registered in Belgium under number 371359 and subject to Belgian law. The address in Belgium is Rue Dupré 15, 1090 Brussels.
Watch video "La Fundación Charles Darwin desde 1959" (Youtube)

The "Strategic Plan 2016-2019" arose out of a variety of meetings and workshops held with the CDF Board, CDRS staff and feed-back from the members of the General Assembly and key players and friends of the CDF.

In recent years CDF has evolved to be adaptive to changing circumstances. In 2015, after a challenging financial period, CDF with the support from a group of donors, was committed to develop and implement a three year strategy (2016-2019) that will put the institution in a solid position and meet the research and capacity building demands for the next years.

This Strategy also seeks to recover the trust of our partners, our donors, and the local community, but above all of the 64 persons working at the CDF. To all of them, we convey our special appreciation for their loyalty, commitment and dedication.

Who are these people?

(August 2016)

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VERDESOTO HARO GABRIELA DE LOS ANGELES	STAFF
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CASTAÑEDA VIVAR JANNETH JOHANNA	STAFF
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COTIN MARTINEZ JAVIER	STAFF
CUEVA CALVA PABLO OLIVER	STAFF
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LINCANGO CHORLANGO MARIA PIEDAD	STAFF
LORENZ SWEN WALTER	STAFF
MARTINEZ CEVALLOS MARIA TERESA	STAFF
MEJIA MORETA JEAN CARLO	STAFF
MORETA CHILIQUINGA PEDRO DANIEL	STAFF
ORTIZ PACHAR MARIA GABRIELA	STAFF
TOAPANTA GALLEGOS DIANA ELIZABETH	STAFF
VILLAMAR COCHA FREDDY XAVIER	STAFF

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AVALOS LLIGUIN MILTON ROLANDO	STAFF
BALON ESCALANTE LORENA DEL PILAR	STAFF
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VERNAZA VALENCIA WAGNER JEISSER	BECARIO GALAPAGUEÑO
ALFARO OROZCO ALEJANDRO	VOLUNTARIO INTERNACIONAL
ADAMS WILLIAM ROBERTSON GARRETT	VOLUNTARIO INTERNACIONAL
AGA KHAN HUSSAIN	VOLUNTARIO INTERNACIONAL
AYRES KATHRYN ANNE	VOLUNTARIO INTERNACIONAL
BAYLEY DOUGLAS CORA MARGARET	VOLUNTARIO INTERNACIONAL
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BENJAMIN ALFRED STEVEN	VOLUNTARIO INTERNACIONAL
BREUER MAREIKE	VOLUNTARIO INTERNACIONAL
BUCHHOLZ SASCHA	VOLUNTARIO INTERNACIONAL
CLEMENT OLIVIER	VOLUNTARIO INTERNACIONAL
COLLINS SUNNYE MICHELLE	VOLUNTARIO INTERNACIONAL
COOKE SOPHIA CAROLINE	VOLUNTARIO INTERNACIONAL
ESTRADA GAVIRIA LUIS FELIPE	VOLUNTARIO INTERNACIONAL
FISCHER SAMUEL JOHN	VOLUNTARIO INTERNACIONAL
FISCHER TAMARA DANIELA	VOLUNTARIO INTERNACIONAL
FLYNN MACKENZIE JANE	VOLUNTARIO INTERNACIONAL
FREUND ANN DEBORA	VOLUNTARIO INTERNACIONAL
FUERTES BELLOSILLO MARIA	VOLUNTARIO INTERNACIONAL
GEHN VALERIE ANN	VOLUNTARIO INTERNACIONAL
HASKELL LUCY ELIZABETH	VOLUNTARIO INTERNACIONAL
HUGHES HEATHER NICOLE	VOLUNTARIO INTERNACIONAL
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LEHMANN AMALIA	VOLUNTARIO INTERNACIONAL
LEHNEN CHARLES CLEMENT	VOLUNTARIO INTERNACIONAL
LEUBA CELINA	VOLUNTARIO INTERNACIONAL
MAENDLY CHRISTOPHE	VOLUNTARIO INTERNACIONAL
MARES DANIELLE MARIE	VOLUNTARIO INTERNACIONAL
MARIÑO FERNANDEZ BEATRIZ	VOLUNTARIO INTERNACIONAL
MARTINEZ CAVA AGUILAR ALEJANDRO	VOLUNTARIO INTERNACIONAL
MITCHELL CASANDRA EILEEN ANN	VOLUNTARIO INTERNACIONAL
MORA ARCINIEGAS NATHALIA CAROLINA	VOLUNTARIO INTERNACIONAL
MORALES SERRANO NAITI ANDREA	VOLUNTARIO INTERNACIONAL
MOSSBRUCKER MAGDALENA ESMERALDA	VOLUNTARIO INTERNACIONAL
NADIMI JILLA	VOLUNTARIO INTERNACIONAL
NOWAK MADELEINE JANE	VOLUNTARIO INTERNACIONAL
PICORNELL RODRIGUEZ ANTONIO	VOLUNTARIO INTERNACIONAL
PIKE COURTNEY LAUREN	VOLUNTARIO INTERNACIONAL
VANDEBOSCH EVY CARINE	VOLUNTARIO INTERNACIONAL
WALENTOWITZ ANNA JOHANNE	VOLUNTARIO INTERNACIONAL
WHITEHEAD THOMAS OTTO	VOLUNTARIO INTERNACIONAL
WILKINSON CLIVE ROBERT	VOLUNTARIO INTERNACIONAL
WILLIAMS EDWARD CLAUDE	VOLUNTARIO INTERNACIONAL
ZEISLER HALINA IRENE	VOLUNTARIO INTERNACIONAL
SANCHEZ CARPIO PABLO	VOLUNTARIO INTERNACIONAL
SMITH JAMES HART	VOLUNTARIO INTERNACIONAL
SMITH RUTH HELEN	VOLUNTARIO INTERNACIONAL

NAME	GROUP
ALARCON RODRIGUEZ LUISA MARIA	VOLUNTARIO LOCAL
BAILON LOPEZ JEAN CARLOS	VOLUNTARIO LOCAL
BARRERA DIAZ JANETTE SALOME	VOLUNTARIO LOCAL
BARRERA MONCADA JESSICA ANACETH	VOLUNTARIO LOCAL
BUCHELI CRESPO FRANCESCA LUCIA	VOLUNTARIO LOCAL
CAMACHO CADENA YAJAIRA ALEJANDRA	VOLUNTARIO LOCAL
CARRION ESPIN JORGE LUIS	VOLUNTARIO LOCAL
CASTILLO BERMUDEZ JOE ANDRE	VOLUNTARIO LOCAL
CHANGO CHANGO ROSA	VOLUNTARIO LOCAL
CRUZ VALLE LUIS ADRIAN	VOLUNTARIO LOCAL
ECHEVERRIA ZAMBRANO MANUEL FERNANDO	VOLUNTARIO LOCAL
FREIRE CANDO FLAVIO RENATO	VOLUNTARIO LOCAL
GONZALEZ BALON JENNIFER TATIANA	VOLUNTARIO LOCAL
LOOR CEDEÑO LADY VALERY	VOLUNTARIO LOCAL
MASAQUIZA CHILIQUINGA AGUSTINA	VOLUNTARIO LOCAL
MASAQUIZA CHILIQUINGA MARGARITA	VOLUNTARIO LOCAL
MASAQUIZA MASAQUIZA FREDDY ORLANDO	VOLUNTARIO LOCAL
MIELES CATUCUAGO VICKY MARICELA	VOLUNTARIO LOCAL
PANATA PAREDES CINTHYA STEFANIA	VOLUNTARIO LOCAL
PETERS BRETT ARNOLD	VOLUNTARIO LOCAL
PILATAXI REINOSO BYRON XAVIER	VOLUNTARIO LOCAL
TISALEMA QUISINTUÑA OLIVER HUMBERTO	VOLUNTARIO LOCAL
TUTIVEN RAMON BELGICA ALEXANDRA	VOLUNTARIO LOCAL
VASCONEZ PONCE JAKE DYLAN	VOLUNTARIO LOCAL
VENEGAS GUZMAN LORENA VIVIANA	VOLUNTARIO LOCAL
VILLAGOMEZ BASTIDAS PAOLA STEFANIA	VOLUNTARIO LOCAL
WITTMER NARANJO DAVID FELIPE	VOLUNTARIO LOCAL
ZAMBRANO LOOR VANESSA ESPERANZA	VOLUNTARIO LOCAL
ZAVALA ROBALINO JOEL ALEXANDER	VOLUNTARIO LOCAL
ZAVALA ROBALINO JORGE DAVID	VOLUNTARIO LOCAL
ALVARADO ARICHABALA SILVANA PAOLA	VOLUNTARIO NACIONAL
ANDRADE VERA SOLANGE KATHERINE	VOLUNTARIO NACIONAL
ASTUDILLO VALLEJO MARIA DOLORES	VOLUNTARIO NACIONAL
BUSTAMANTE ENRIQUEZ LUCAS MATEO	VOLUNTARIO NACIONAL
CAJAMARCA PEREZ JAVIER AGELARDO	VOLUNTARIO NACIONAL
CALLEJAS LARREA ANDREA	VOLUNTARIO NACIONAL
CEVALLOS CHONILLO LUIS EDUARDO	VOLUNTARIO NACIONAL
ERRAEZ RAMON JAIRO ABELARDO	VOLUNTARIO NACIONAL
FIERRO ARCOS LILIAN DENISSE	VOLUNTARIO NACIONAL
HERRERA VALLEJO PATRICIO ADRIAN	VOLUNTARIO NACIONAL
IÑIGUEZ ORDOÑEZ WILSON ROBERTO	VOLUNTARIO NACIONAL
LEMA CAJAS SAYWA ANDREA	VOLUNTARIO NACIONAL
MACAS POGO GEOVANNY PATRICIO	VOLUNTARIO NACIONAL
MEJIA RESTREPO ALEJANDRA	VOLUNTARIO NACIONAL
MOLINA ROSAS JUAN DAVID	VOLUNTARIO NACIONAL
MORETA URDIALES MARIA DEL MAR	VOLUNTARIO NACIONAL
MOSQUERA MUÑOZ DENIS ALEXANDER	VOLUNTARIO NACIONAL
PEREZ LARA MARIA BEATRIZ	VOLUNTARIO NACIONAL
RAMIREZ POZO KAREM POLLETTE	VOLUNTARIO NACIONAL
ROJAS ALLIERI MARIA LORENA	VOLUNTARIO NACIONAL
RUALES MONCAYO JENNY LEONOR	VOLUNTARIO NACIONAL
TENEMAZA DURAN DESTIN KAYNE	VOLUNTARIO NACIONAL
VACA CRUZ JAIRO FERNANDO	VOLUNTARIO NACIONAL
VILLAROEL CANDO NELSON AUGUSTO	VOLUNTARIO NACIONAL
VILLAVICENCIO PEREZ TERESA ALEJANDRA	VOLUNTARIO NACIONAL
YANEZ SUAREZ ANA BELEN	VOLUNTARIO NACIONAL
TAPIA AGREDA JONNATHAN GUSTAVO	VOLUNTARIO NACIONAL

The **General Assembly** heads the CDF leadership and reflects its international nature. It includes scientists, philanthropists, Ecuadorian Government officials, and other persons and partners contributing to the CDF's mission. This Assembly sets policy, issues regulations, approves the operating plan and budget, and also manages other essential administrative affairs.

Members of the **Board of Directors**

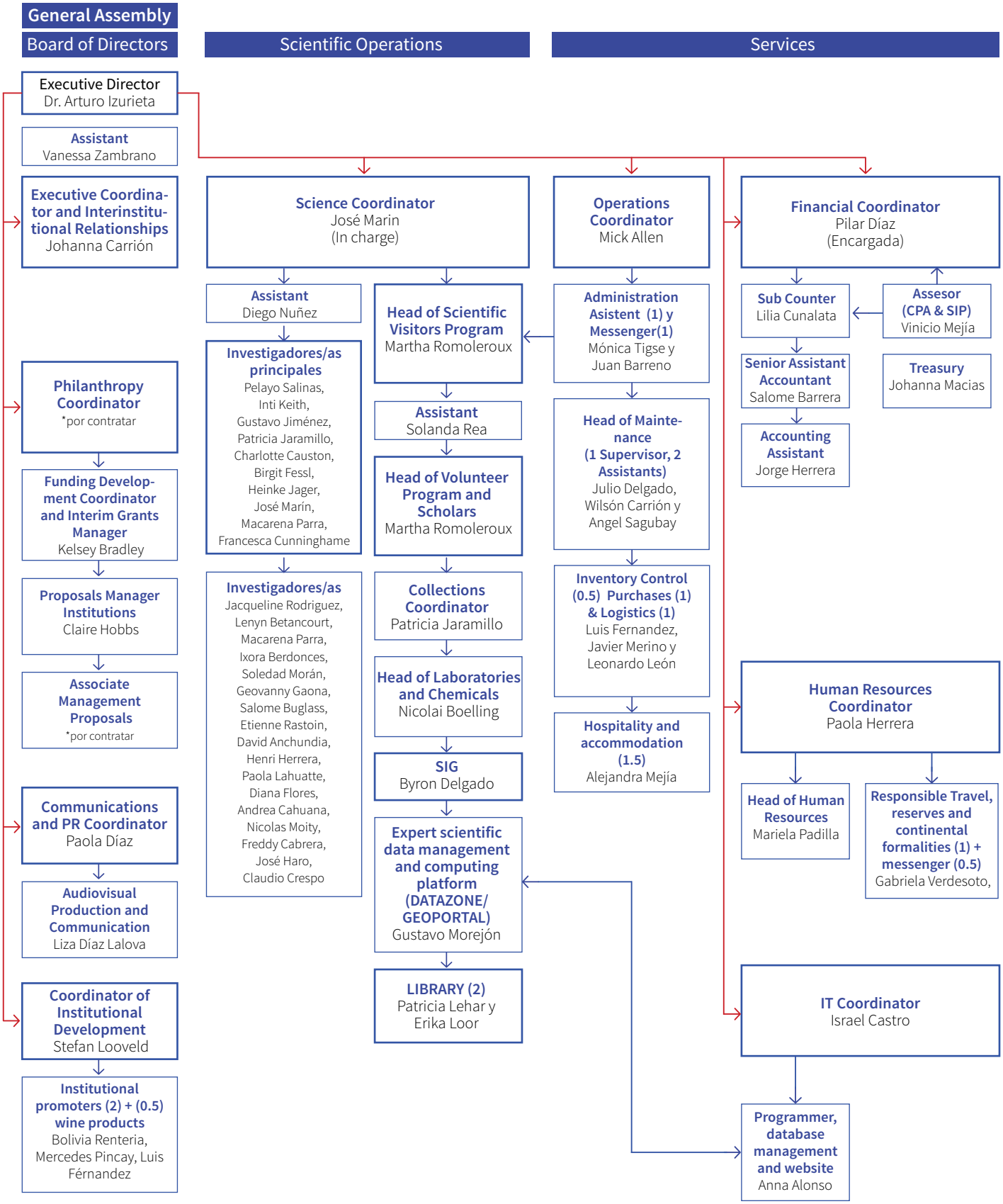
* Up to October 2016

Dennis Geist - **President**
Hans Vanpoelvoorde - **Vice-president**
Paula Brock - **Treasurer**
Judy Diamond - **Member** (2013-2016)
Paul Baker - **Member** (March 2016)
Eliecer Cruz - **Representative of the Ecuadorian Government**
William Sutherland - **Member**

Organization Chart

Charles Darwin Foundation

(May 2016)



2013 What did we do?

In 2013, the Charles Darwin Foundation (CDF) had a budget for science projects of US$1.704.065, which was 33% more than for 2012. This enabled us to work on 39 projects.

Projects covered five areas of research, the most important being "Marine Science", with 43 researchers working directly; and "Restoration" with 36. "Human Systems" had the smallest number of scientists (5)*.

This research area arrangement was established on the basis of local, regional and national planning and public administration documents. As an advisory agency for the Ecuadorian Government, CDF is aware of the importance of combining our lines of work with the development needs of the working territory.

In 2013 the research priorities established by CDF aligned with the different levels of government as follows:

- "Science and Technology Plan" of the National Plan for Good Living (4.1, 4.6, 4.7): natural heritage, terrestrial and marine biodiversity; environmental vulnerability; environmental approach in public governance.
- Galapagos National Park Management Plan "Science for Sustainability": scientific knowledge about Galapagos ecosystems, island and marine biodiversity, biology and ecology of exotic invasive species, socio-ecological dimension of ecosystems; assistance in constructing a physical planning model, developing a Management Plan for Galapagos Protected Areas; and reinforcing the exchange of scientific knowledge.

Collaboration between the CDF and governmental entities is fundamental to keep CDF projects in line with the needs of Galapagos Province, so the Management of the Galapagos National Park (DPNG) participates in 69% of Charles Darwin Research Station (CDRS) projects and the Agency for Regulation and Control of Bio-security and Quarantine for Galapagos (ABG) in 15%.

Further, to encourage sharing of knowledge and generation of scientific information for global conservation, CDRS has a far-reaching network of collaborators worldwide. In 2013, the CDRS hosted 119 international scientists, 43 Ecuadorian scientists, 62 visiting scientists and 96 volunteers.

*The number of researchers refers to the total staffing for each project. More than one researcher may be involved in more than one project.

TOP NEWS

"Presenting the Groasis Technology for Ecological Restoration" *(May 2013)*

At first glance, it looks like a strange flowerpot, with a pleated lid on top and a long hole in the middle for the plant. The Groasis Technology is a water reservoir that makes it possible to plant trees and other plants without conventional irrigation systems or any energy supply.

Three years later (2016) the Green Galapagos by 2050 project has included 200 biodegradable Cocoon technology boxes. These boxes degrade completely, becoming substrate, without impacting Nature, helping restore Galapagos ecological wholeness and biodiversity.

To date, this project has set out a total of 4276 plants with Groasis technology and 233 with Cocoon technology!

"In collaboration with the CDF, Google and the DPNG, Galapagos 360º kicks off" *(May 2013)*

The Galapagos Islands have been virtually mapped for the first time, blazing the way for a new age of research, management and protection for the Archipelago.

Budget implemented

US$1.704.065

39 PROJECTS

RESTORATION 36

HUMAN SYSTEMS 5

BIODIVERSITY 21

MARINE SCIENCES 43

OUTREACH 18

RESEARCHERS

WE DON'T WORK ALONE

- 119 International Scientists
- 43 Ecuadorian Scientists
- 62 Visiting Scientists
- 96 Volunteers
- 9 Scolarhip Grantees

¿ INVOLVEMENT OF EACH INSTITUTION ?

- GNPD 69%
- OTHER 36% → Politécnica del Ecuador, PUCE, QAP, INOCAR, Universidad Azuay, FEIG, USFQ, INP, Junta Parroquial Floreana
- ABG 15%

fundación Charles Darwin foundation

2014

In 2014, the investment in Science increased significantly. A budget of US$2.292.167 was implemented, funding 19 projects.

The lower number of projects than in 2013 (39 versus 19) is because, in 2014, a consensus was reached, condensing CDRS research areas from five to three, to better focus on key issues for Galapagos Islands research. The three areas of research since then have been: "Invasive species", "Sustainability" and "Conservation and Management".

The work area with the most researchers in 2014 was "Invasive Species", with 24 scientists directly involved. "Sustainability", and "Conservation and Management" had 10 and 14, respectively*.

In 2014, the research priorities established by CDF aligned with the different levels of government as follows:

- National Plan for Good Living (Objective 7): Guarantee the rights of Nature and promote local and global environmental sustainability.
- Environmental Policy (2): Use strategic resources efficiently for sustainable development.
- Management Plan for Galapagos Protected Areas (5.1.3, 5.1.4, 5.1.5, 5.1.6, 5.1.10, 5.1.11): scientific knowledge about Galapagos islands and marine ecosystems and biodiversity; biology and ecology of exotic invasive species; socio-ecological dimension of ecosystems; reinforcing the exchange of scientific knowledge; promoting inclusive science; and others.

Collaboration between CDF and governmental organizations remained fundamental in 2014. DPNG was present in nearly 79% of our projects and ABG in over 26%.

In 2014, we continued reinforcing our network of collaborators, encouraging information and knowledge exchange. 90 collaborating scientists**, 83 associate scientists, 64 visiting scientists, 51 volunteers and 2 scholarship grantees devoted time to doing science at CDRS. CDF is also working with five international science and conservation platforms.

*The number of researchers refers to the total staffing for each project. More than one researcher may be involved in more than one project.

**__Collaborating scientists__ direct their own research, contributing their experience and funding to CDRS projects. They fit under one of the three following criteria: (a) doctoral candidates; (b) research directly supporting CDRS lines of research, including natural history collections; and (c) long-term research projects, where the main researchers can be considered as CDRS adjunct researchers.
__Associated scientists__ intervene directly in CDRS research projects as participants, advisors/consultants and by helping with analyzing samples or doing taxonomic identifications.
__Visiting scientists__ pursue complementary independent projects with logistical support from CDRS.
__Volunteers,__ both students and professionals, Ecuadorian and international, benefit from a direct, hands-on experience in conservation with CDF. Their considerable expertise and dedication contribute to building the institution's capacity to respond effectively to the challenges facing Galapagos.
__Scholarship grantees__ are students who have completed their coursework at Ecuador's different universities and work on their graduation thesis in Galapagos

TOP NEWS

"Renovating the FCD Library" *(March 2014)*

In January 2014, Amie Shuttleworth and Jonathan Waite, two volunteer engineers from the United Kingdom, devoted their time and efforts to restoring the CDF library, a genuine treasury of information about the Galapagos Islands, with an extensive collection of books, scientific publications and journals accumulated over the years.

"Mangrove Finch: from captivity to their natural habitat" *(May 2014)*

La FCD, el Ministerio del Ambiente a través de la DPNG y el San Diego Zoo Global (SDZG) celebran la liberación de quince Pinzones de Manglar en su hábitat natural en la isla Isabela.

"The 101 Lichens" *(May 2014)*

It was found that a species of lichen *Dictyonema glabratum* (*Cora glabrata*) actually encompasses a wide diversity of more than 100 distinctly different species. Galapagos for example just described an endemic species in this group, the new species *Cora santacruzensis* Dal-Forno, Bungartz & Lücking.

"Our lists clearly document that even in such a prominent place like Galapagos, between 50-80% of all species remain unknown."

"Health Monitoring of Marine Fauna" *(May 2014)*

CDF, the Ministry of the Environment through the GNP and San Diego Zoo Global (SDZG) celebrated the release of 15 Mangrove Finches in their natural habitat on Isabela Island.

The mangrove finch is one of the 14 species of "Darwin's finches" that live only in Galapagos. Classified as "critically endangered", fewer than 80 mangrove finches remain in the entire Archipelago.

Budget implemented

US$2.292.167

19 PROJECTS

- **INVASIVE SPECIES** — 24 RESEARCHERS — 44%
- **SUSTAINABILITY** — 10 RESEARCHERS — 25%
- **CONSERVATION AND MANAGEMENT** — 14 RESEARCHERS — 31%

23 DONORS

Presence on International Networks → **5** → ACAP, IUCN, Antweb, GBIF, CMAR

WE DON'T WORK ALONE

- 83 Associate Scientists
- 90 Collaborating Scientists
- 64 Visiting Scientists
- 51 Volunteers
- 2 Scholarship Grantees

¿ INVOLVEMENT OF EACH INSTITUTION ?

- GNPD 79%
- OTHER 36% → Island Conservation, INOCAR, DIRNEA, Capitanía de Puerto, Ministerio de Transporte, UTPL, Ministerio del Ambiente, Ministerio de Agricultura, Ganadería, Acuacultura y Pesca, Gobierno Parroquial Floreana, Cooperativa de Pesca, World Wildlife Fund, Ecology Project International, CIIFEN, INAHMI, NAZCA
- ABG 26%

2015 What did we do?

Thanks to the fund-raising efforts made the previous year, in 2015 the investment in science continued increasing, reaching US$2.309.479 for 15 projects.

The research areas of "Conservation and Management" and "Invasive Species" had a similar number of scientists (24 and 22, respectively), whereas "Sustainability" had 9 researchers*.

In 2015 the research priorities established by CDF aligned with the different levels of government as follows:

- National Plan for Good Living (Objective 7): Guarantee the rights of Nature and promote local and global environmental sustainability.
- Environmental Policy (2): Use strategic resources efficiently for sustainable development.
- Management Plan for Galapagos Protected Areas (5.1.3, 5.1.4, 5.1.5, 5.1.7): scientific knowledge about Galapagos Islands and marine ecosystems and biodiversity; biology and ecology of exotic invasive species; socio-ecological dimension of ecosystems; and others.

Maintaining close linkages with governmental institutions remains a key criterion for properly pursuing CDRS' projects, so 100% involved DPNG collaboration.

Presence on international networks increased from five in 2014 to six in 2015. This involvement in such networks as Antweb, ACAP and IUCN enhances the impact of achievement by the institution and builds its international reputation. Exchanging information and scientific participation continue attracting a multitude of collaborators to CDRS: in 2015, 137 associated scientists, 71 collaborating scientists, 70 visiting scientists and 45 volunteers.

In addition to scientific collaboration, CDF is partnering with 17 academic institutions from all over the world, mainly universities.

*The number of researchers refers to the total staffing for each project. More than one researcher may be involved in more than one project.

TOP NEWS

"New mangrove finches hatched at the Charles Darwin Research Station!" *(March 2015)*

Thirty mangrove finch eggs were collected and transported to the artificial incubation facilities to be raised in captivity. When these fledglings can feed themselves, they will be returned to their natural habitat on Tortuga Negra Beach.

"First pictures of a 'rare' shark thanks to monitoring with BRUVs" *(May 2015)*

Mustelus albipinnis, a specie only recently described, was recorded by the CDF research team in the Galapagos Islands for the first time two years ago. The pictures of M. albipinnis, a species of school shark, are probably the first taken of this species in the wild. These "rare" sharks seem to be common in the shallow waters of Galapagos, but because they are shy, they are never reported by divers, which highlights the importance of monitoring with baited remote underwater vehicles (BRUV systems).

Budget Implemented

US$2.309.479

16 PROJECTS

- INVASIVE SPECIES — 22 researchers — 39%
- SUSTAINABILITY — 9 researchers — 15%
- CONSERVATION AND MANAGEMENT — 24 researchers — 46%

13 DONORS

Presence on International Networks → 6 → ACAP, IUCN, Antweb, GBIF, CMAR, REDLAC

WE DON'T WORK ALONE

- 137 Associated Scientists
- 71 Collaborating Scientists
- 71 Visiting Scientists
- 45 Volunteers
- 3 Scolarchip Grantees

GNPD 100%

OTHERS 60% → INOCAR, DIRNEA, Capitanía de Puerto, PUCE, UTPL, Ministerio del Ambiente, Gobierno Parroquial Floreana, ECOGAL, SDZG, DWCT, Fundar Galápagos, CIIFEN, INAHMI, NAZCA, Universidad San Francisco de Quito, Universidad de Guayaquil

ABG 20%

¿ INVOLVEMENT OF EACH INSTITUTION ?

What do we do? 2016

In 2016, a total of 20 projects are being implemented, a considerable increase over last year (15). The number of scientists increased in the research areas of "Invasive Species" and "Conservation and Management"; "Sustainability", however, has one researcher less.

In 2016, the research priorities established by CDF aligned with the different levels of government as follows:

- National Plan for Good Living (Objectives 5 & 7): guarantee bio-security by safeguarding the health of humans, other living things, and Nature; guarantee the rights of Nature and promote local and global environmental sustainability.
- Environmental Policy (2): Use strategic resources efficiently for sustainable development.
- Management Plan for Galapagos Protected Areas (5.1, 5.1.3, 5.1.4, 5.5, 5.6, 5.1.7): scientific knowledge about Galapagos island and marine ecosystems and biodiversity; biology and ecology of exotic invasive species; socio-ecological dimension of ecosystems; and others.
- "Science and Technology Plan" of the National Plan for Good Living (4.1, 4.6, 4.7): Natural Heritage, terrestrial and marine biodiversity, environmental vulnerability, environmental approach to public administration.
- Galapagos National Park Management Plan "Science for Sustainability": scientific knowledge about Galapagos ecosystems, island and marine biodiversity, biology and ecology of exotic invasive species, socio-ecological dimension of ecosystems; assistance in constructing a physical planning model, developing a Management Plan for Galapagos Protected Areas; and reinforcing the exchange of scientific knowledge.

Collaboration between the CDF and governmental entities remains fundamental in 2016. Therefore, entities such as DPNG and ABG work closely with CDRS on most projects: DPNG collaborates in 95% of CDF projects, and ABG in 35% of them.

In 2016, CDF's presence on international networks has also consolidated. CDRS is now working in 10 different scientific networks and continues collaborating with 17 academic institutions, including universities y museums.

The number of associated scientists and volunteers is the highest in recent years: 168 and 102, respectively (The number of collaborating and visiting scientists can be totaled at year-end).

*The number of researchers refers to the total staffing for each project. More than one researcher may be involved in more than one project.

TOP NEWS

"Cooperation Agreement between the National Fisheries Institute and the Charles Darwin Foundation"
(January 2016)

This will involve activities of research, technology development, and knowledge transfer, according to each institution's needs and work plans, through projects in collaboration or potentially combined teams.

"The Darwin and Wolf Islands Marine Sanctuary Hosts the World's Largest Biomass of Sharks"*(March 2016)*

A study by CDF scientists reveals that Darwin and Wolf Islands, located in the northwestern Galapagos Archipelago, are home to the planet's largest biomass of sharks, with an average of 17.5 tons per hectare. This scientific information has supported the declaration of 33% of the Galapagos Marine Reserve as a Marine Sanctuary, ensuring the long-term conservation of this unique ecosystem of worldwide importance.

"Pre-opening of the Charles Darwin Exhibition Hall"
April 2016)

A new place to show visitors and the local community about the role that the Charles Darwin Foundation has played for nearly 60 years in the Galapagos Islands.

'Second place classification in Ecuador's institutions with publications in high-impact journals'

We are proud of this recognition of the science we do every day at the Charles Darwin Research Station for Galapagos Islands' conservation.

The Charles Darwin Foundation is positioned in second place in the classification of Ecuador's institutions with publications in high-impact journals according to the Nature Index.

20 PROJECTS

- INVASIVE SPECIES — 31 researchers — 28%
- SUSTAINABILITY — 8 researchers — 14%
- CONSERVATION AND MANAGEMENT — 26 researchers — 58%

14 DONORS

Presence on International Networks → **10** → ACAP, IUCN, Antweb, GBIF, CMAR, REDLAC, NeoBiota, ATBC, APLE, AEB

WE DON'T WORK ALONE

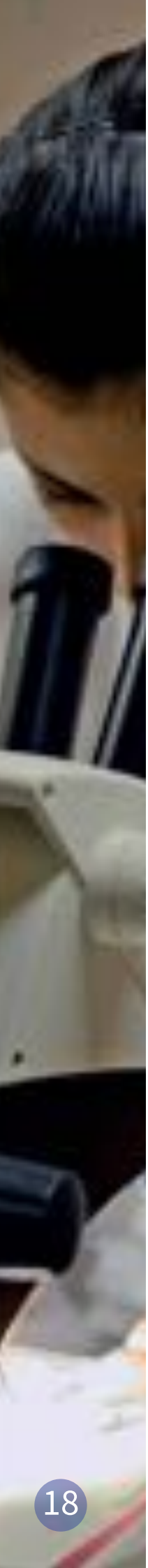
168 Associated Scientists

102 Volunteers

(This number varies within the year)

¿ INVOLVEMENT OF EACH INSTITUTION ?

- GNPD 95%
- OTHERS 60% → INOCAR, DIRNEA, SETEMAR, PUCE, ESPOCH, UTPL, ECOGAL, Ministerio de Agricultura, Ganadería, Acuicultura y Pesca, Fundar Galápagos, Ecology Project International
- ABG 35%



Science at the Charles Darwin Research Station

The Galapagos Islands are one of the world's best-conserved island ecosystems. This makes the Archipelago a living laboratory to study how Nature works. The scientists of the Charles Darwin Research Station (CDRS) works to understand this working and inform international conservation strategies and policies generating local, national and international impact.

Human effects on wildlife focus researchers' attention now, since in recent years the growth in tourism has increased human pressure on the environment and the species of the islands.

At this time, the CDRS focuses on three areas of research jointly with the Galapagos National Park Directorate (DPNG): **"Invasive species"**, **"Sustainability"** and **"Conservation and Management".** Each of these areas attracts scientists and scholars from all over the world.

In 2015, the CDRS hosted a total of 278 scientists, 45 volunteers and 3 scholarship recipients.

This network of persons and institutions connects the CDRS with the planet's largest research platforms, contributing to the global goal of understanding how Nature works and how conservation management can be applied and adapted to other parts of the globe.

On 12-13 November 2015, the workshop on "Defining the top-priority research questions for the Galapagos Islands" was organized by the Government Council of the Galapagos Special Regime, SENESCYT (Education, Science, Technology and Innovation secretary), MCCTH (Ministry of Knowledge and Human Talent) and support by the Charles Darwin Foundation.

The methodology of "Priority-setting exercises" prepared by UK scientist William Sutherland, a professor at the University of Cambridge, was used. This methodology is widely applied in the United Kingdom and the United States, but was a pioneer exercise in Ecuador and Latin America.

This workshop prepared a list of 50 top-priority research questions for the Province and a working group was created to guide research, innovation, development, and technology transfer policies for development in the Galapagos Islands.

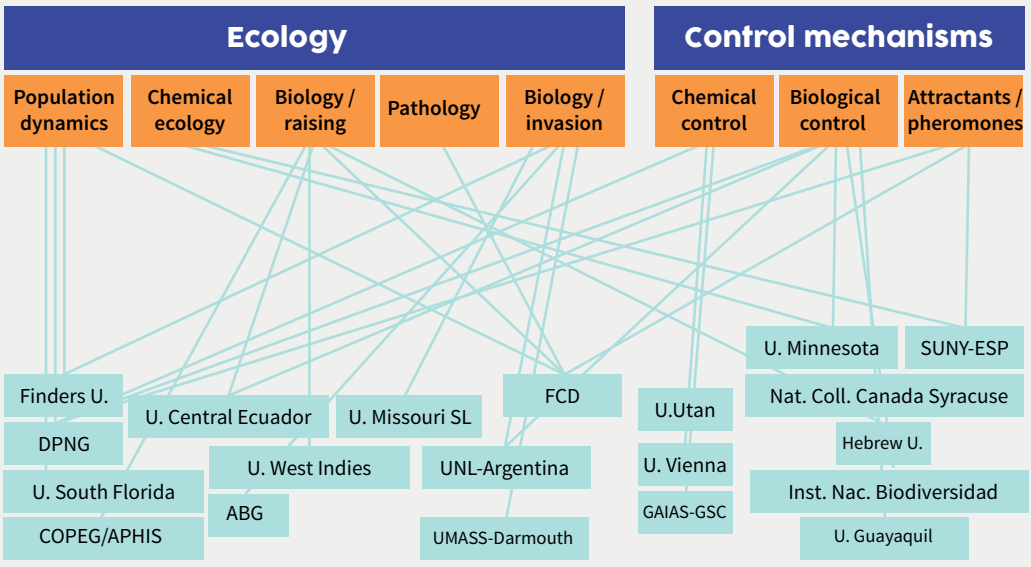
To contact our scientists: cdrs@fcdarwin.org.ec

An example of this huge network of collaborators...

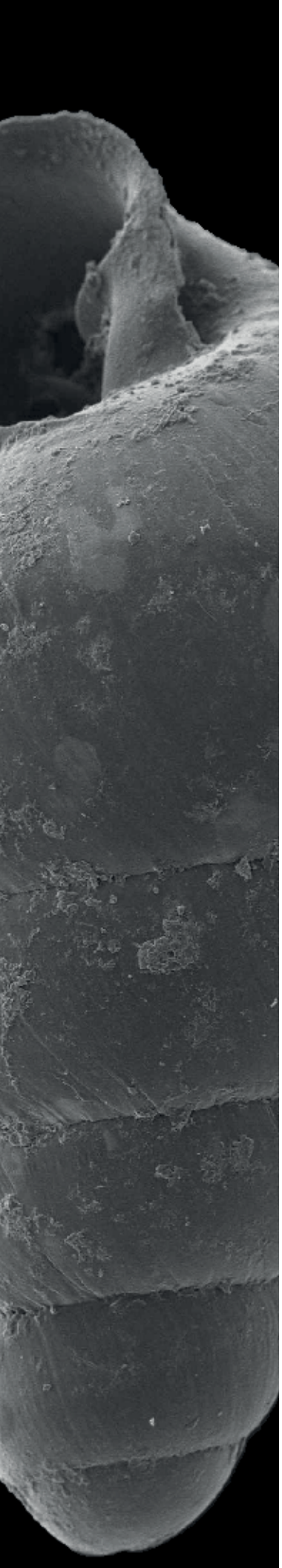
Complexity of Science to deliver results for conservation and sustainable development

Philornis Group Collaborators

Ecuador , USA, Australia, Austria, Trinidad, Canadá, Argentina, Israel, Panamá



[Chart: **Work Interactions Map of CDRS team working with *Philornis downsi***]



Invasive Species

The number one threat to Galapagos ecosystems and biodiversity

Economic growth in the Galapagos results in a constant stream of visitors, goods, boats and planes arriving every day. Each has the potential to bring new invasive species that threaten Galapagos ecosystems and biodiversity.

In addition, inter-island mobility between inhabited and/or uninhabited islands increases the risk of arrival, spread and establishment of exotic and potentially invasive species.

This is **typical of isolated islands** where the arriving species have evolved away from the predators and threats of their original habitat.

Investigation Area

However, there are now many invasive species that have caused, are causing and will cause major problems for Galapagos ecosystems. These species and their effects on the Galapagos flora and fauna are the research focus for many projects at the Charles Darwin Research Station (CDRS). The actual control of invasive plants and animals is predominantly the responsibility of the Galapagos National Park Directorate (GNPD).

- Control of the **introduced fly, *Philornis downsi***, and its impact on biodiversity.
- Effective management of ***invasive ants.***
- **Invasive plants:** Assesing the impacts of Blackberry Control on the Gemelos Ecosystem; Long-term evaluation of long term evaluation of impacts of quinine control.
- Analysis of satellite imagery to **map the expansion of the most invasive plant species.**
- Research on **marine invasive species** for prevention, detection and management in the RMG.

6
CDRS PROJECTS

17
CDRS SCIENTISTS

9
COLLABORATING SCIENTISTS

64
ASSOCIATED SCIENTISTS

CONTROL OF THE INTRODUCED FLY, *Philornis downsi* AND ITS IMPACT ON BIODIVERSITY

The introduced parasitic fly, ***Philornis downsi***, is believed to be the main cause of decline of land bird species on the Galapagos Islands.

***Philornis downsi* lays its eggs in nests with incubating birds and its larvae feed on the blood of the nestlings, sometimes causing up to 100% chick mortality in a nest.**

At least 16 of 20 songbird species only found in Galapagos are now threatened by *Philornis downsi*, including the iconic 'Darwin's Finches'. In the case of the critically endangered Mangrove Finch, only 80 individuals remain in the wild.

A critical component of the *Philornis downsi* project is to understand fly biology to find ways to reduce or stop these invasive flies parasitizing Galapagos landbirds. The fly is known to attack 16 endemic landbirds; but until now a huge obstacle for control is having flies available in large numbers for research. While the adult flies feed on fruit, the fly larvae only develop on fresh bird blood. CDRS researchers are trying to breed these flies on artificial diets to provide sufficient live specimens for research.

These are needed to test: natural enemies from mainland Ecuador as potential biological control agents; whether traps with attractants can be developed to control fly populations; which insecticides are most suitable to control flies while minimizing impact on birds; what are the cues for male/female attraction; and how flies detect and time infestation of nests.

Some of this research is done in other countries by collaborating scientists; therefore the flies can only be transported with a human courier, further increasing the cost of this labour intensive and expensive research. For rearing trials, female flies are collected in hanging traps baited with papaya and are brought into the insect laboratory at CDRS and used as 'layers' to obtain eggs for experiments.

The initial research identified the correct conditions for maintaining larvae that are newly hatched from eggs. Larvae are fed a chicken blood diet which is later supplemented with protein and powdered milk which is used until the larvae complete development and pupate.

Through this laborious process, it has been possible to obtain approximately 50 adults for every 400 fly eggs and is a step in the right direction.

To our knowledge this is the first time that an effective protocol has been developed for rearing a parasitic avian fly from egg to adult in the absence of a living host. The current research focus for Paola Lahuatte and the *Philornis* team is to make this technique more efficient.

Insects on the Galapagos may not stimulate the same emotive interest as the more charismatic mammals, birds, reptiles and fishes; but the study of insects may be more critical for the long-term conservation of these islands. There are many species of native and invasive insects which largely go unnoticed, unless they sting; but there are probably more invasive insects in the Galapagos than any other group. Many of these invasive insects result in minimal impact on the ecosystems; however several have had devastating effects and will continue to do so into the future unless research through the CDRS can effectively control them. Three are particularly important: the cotton scale insect (Icerya purchase); the fly that attacks land bird chicks *(Philornis downsi)*; and the fire ant *(Solenopsis)*.

EFFECTIVE MANAGEMENT OF INVASIVE ANTS

To date, **36 ant species are known to have been introduced** into the Galapagos Islands. Two species of fire ants are impacting biodiversity and the livelihoods of Galapagos residents. At least two other species are showing signs of becoming highly invasive, and there may be more.

The Galapagos National Park is currently running 12 programs to control or eradicate four species of invasive ants: the little fire ant *(Wasmannia auropunctata)*, the tropical fire ant *(Solenopsis geminata)*, the Singapore ant *(Monomorim destructor)*, and the big-headed ant *(Pheidole megacephala)*.

These programs are costly in terms of resources and effort and it is calculated that local organizations, principally GNPS, spend at least $225,000 annually on invasive ant control.

INVASIVE PLANTS

More than 800 plant species have been intentionally introduced into the Galapagos Archipelago since people started colonising these islands in the 1800s. Most have caused no problems; these include many beneficial food crops such as yucca, maize and bananas, and some ornamental plants. However, some have become aggressively invasive, causing damage to the resident plants and animals.

The best known examples are guava *(Psidium guajava)*, Spanish cedar *(Cedrela odorata)*, quinine *(Cinchona pubescens)* and blackberry *(Rubus niveus)*. At the CDRS, Dr. Heinke Jäger leads a team assessing the impacts of these invaders on resident species. In collaboration with the Galapagos National Park Directorate (GPND), they are seeking ways to improve the control of invasive species.

Long-term monitoring will indicate how animal and plant communities respond to blackberry removal. In the meantime, preliminary results demonstrate that methods to control blackberry are effective. For example, regeneration of Scalesia pedunculata was only possible in blackberry-controlled areas and was surprisingly high, suggesting that interventions to control this invasive plant are needed. However, the continuous germination of blackberry seeds in the controlled area requires follow-up removal of blackberry seedlings for several years after intervention.

Research at CDRS, in collaboration with CABI, is looking for possible biological control agents for invasive plants, especially blackberry, because current control methods are temporary, expensive, labour intensive and may have unintended consequences due to disturbance caused by control actions and the use of herbicides. To reduce the use of herbicides, the mínimum concentration to kill blackberry was determined in experimental plots and are being applied in GNP áreas. A parallel study is being carried out in the agricultural zone (in collaboration with the DPG del Ministerio de Agricultura, Ganadería, Acuacultura y Pesca -MAGAP) to assess the problems of invasive plants and ants and evaluate current control methods.

ASSESSING THE IMPACTS OF BLACKBERRY CONTROL ON THE LOS GEMELOS ECOSYSTEM

The Scalesia forest, housing the highest number of plant and animal species in the highlands of Santa Cruz, has been drastically reduced by past agricultural activities and more recently, by invasive plants. On Santa Cruz, the Scalesia forest covers only 100 ha, which is less than 1% of its original distribution.

The largest remaining forest is at Los Gemelos. One of the worst invasive plants at Los Gemelos is blackberry *(Rubus niveus, Rosaceae)*, which grows vigorously and prevents the recruitment of native species, thus changing the surrounding plant community. Over more than 10 years, the Galapagos National Park Directorate has successfully controlled blackberry here by applying herbicides.

However, there is a concern that this intensive management is changing the structure of the forest, and is impacting the invertebrates and birds that live there. Comprehensive studies are being conducted with the University of Vienna to assess the impact of these blackberry control measures on the biota.

These include assessments of vegetation composition, insect abundance, bird populations and the breeding success of two finches, the green warbler-finch *(Certhidea olivacea)* and the small tree-finch *(Camarhynchus parvulus)* in a high density of blackberry area and another where the GNPD is controlling it. In addition, soil and water samples are being analysed to test for residual herbicides. Results obtained will provide evidence-based technical assistance to the GNPD in order to improve the effectiveness of ecological restoration of the Scalesia forest on Santa Cruz Island.

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LONG-TERM EVALUATION OF IMPACTS OF QUININE CONTROL

Quinine (*Cinchona pubescens, Rubiaceae*) was introduced to Santa Cruz Island in the 1940s and now covers a vast area in the humid highlands of the island. It has changed the original character of the areas invaded and therefore is considered an ecosystem engineer.

It has changed the original character of the areas invaded and therefore is considered an ecosystem engineer. Monitoring in permanent plots established in 1998 revealed changes in resident plant species diversity and abundance in the invaded area. Quinine also alters the microclimate and increases phosphorus concentrations in longthe soil, as well as impacts endemic birds, especially the Galapagos petrel *(Pterodroma phaeopygia)*.

What makes quinine such a successful invader is its production of abundant, small windborne seeds and the capacity for vigorous vegetative reproduction. The Galapagos National Park Directorate controls quinine manually and chemically, but these methods require a continuous follow-up control of seedlings germinating from the seed bank. In addition, the species rapidly regenerates from cut stumps and branches, which hampers the success of manual control.

Disturbances caused by these control measures seem to facilitate the establishment of other introduced plant species, especially that of blackberry *(Rubus niveus)*.

Over the last 10 years, quinine trees have shown symptoms of natural debilitation, which causes the tree to lose all but a few leaves and severely compromises their vigor. It is currently unknown what causes this die-off of quinine but it is likely a pathogen.

To shed some light on this enigma, a collaboration with CABI (Centre for Agriculture and Biosciences International) in the UK and the University of Florida was established to analyse quinine bark and root samples.

ANALYSIS OF SATELLITE IMAGERY TO MAP THE EXTENSION OF THE MOST INVASIVE PLANT SPECIES

The identification of the areas affected by **invasive species** is a difficult task due to the large size of the islands and the difficulty of accessing many areas.

With thousands of square kilometers of relatively inaccessible areas at stake, CDRS scientists and GNPD rangers seeking to restore balance to these ecosystems must find a way to map the extension of invasion. A donation of high resolution Satellite Images to CDF by the DigitalGlobe Foundation through the Brown University, USA, was a very important step in the process of the investigation and management of these weeds. More recently, drone images of selected invaded areas have helped interpret the satellite images and fill gaps that occur in these images, eg. by clouds. By understanding the extent and densities of these invasive species, the GNPD will be better able to prioritize management actions and impart the most benefit to the ecosystems of Galapagos.

RESEARCH ON MARINE INVASIVE SPECIES FOR PREVENTION, DETECTION AND MANAGEMENT IN THE RMG

Marine invasive species are categorized as being non-native species that threaten native biological diversity, human health and/or economic activity.

Globally, marine biological invasions have increased due to trade, transport and tourism. Invasions occur when species get transported from one region to another and establish themselves in their new surroundings.

Every ship or yacht entering Galapagos waters carries the risk of introducing new marine species to this remote location.

The Galapagos Archipelago is separated from the nearest land mass, Ecuador, by more than 1000 km of very deep water, thus all marine animals and plants (mostly seaweeds) have evolved in isolation. It is not possible to detect an invasive species in the sea, unless there is a good baseline of what species are naturally there.

The researchers were fortunate that baseline data collection started in 2000 and annual ecological monitoring programs have been conducted by the Marine staff to: determine the abundance, distribution and natural variations of communities and coastal marine species in the GMR; distinguish the effects of human activities and natural variability; identify unnatural agents that generate abnormal conditions in coastal communities (e.g. introduced species, pollution); and examine the development of human activities, including both extractive and non-extractive activities. About 380 sites are monitored for the GMR baseline, and these are listed in the CDRS marine database. In 2004, the Galapagos National Park Directorate (GNPD) led a process to examine all coastal areas in the GMR to improve management, and an annual CDRS subtidal monitoring program was finalised. This program repeats monitoring of about 64 sites around the GMR, with three zones in each: tourism; fishing; and protection.

The marine team has specific annual monitoring at 115 sites around the Galapagos Islands with special focus on the 5 ports where cargo and passenger ships, and pleasure yachts arrive: Puerto Ayora; Baltra; Puerto Baquerizo Moreno; Puerto Villamil; and Puerto Velasco Ibarra. The monitoring is done in collaboration with the GNPD, Agencia de Regulation y Control de la Bioseguridad y Cuarentena para Galapagos (ABG), the Ecuadorean Navy and the Instituto Oceanografico de la Armada (INOCAR).

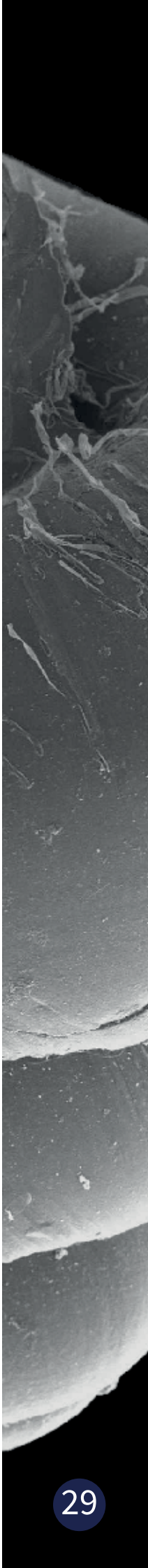
Genetic analyses have been provided by John Deller of the Moss Landing Laboratory in USA to verify the identification of invasive species. Such species are detected along transect lines at fixed sites, via directed searches looking for scattered invasive species, and detection on settlement plates left for 12 months and 3 months at the sites. Such monitoring requires considerable experience and training. Several potentially damaging species have been detected including the “spaghetti” bryozoan (Amathia verticillata) that can clog inlet pipes for cooling systems, a very invasive alga, Caulerpa recemosa that has been found in some protected bays favoured by tourists, and Asparagopsis taxiformis.

The CDRS team provides advice to the Galapagos Biosecurity agency on prevention mechanisms including cleaning of boat hulls outside Galapagos waters; removal of existing invasive species is not regarded as possible or effective. Funding for the monitoring has come from the Darwin Initiative of the UK and Galapagos Conservancy until mid-2017; however there are insufficient funds to analyse the large monitoring data sets from 2000 to detect any trends or signals due to changes in climate. The CDRS team led by Dr Inti Keith is participating in a regional program to establish sites around the region to clean ships before they enter Galapagos waters.

There is strong international support to assist in the continued development of the Marine Invasive Species project. Two international missions have been held in the Galapagos.

In February 2015, the International Workshop on Marine Bioinvasion of Tropical Island Ecosystems, developed a detailed Action Plan to Minimise Arrivals of marine invasive species that may populate Galapagos waters.

In April-May 2016, a team of 11 international scientists from the USA, Netherlands, UK, Portugal, and Italy joined Ecuadorian scientists at the CDRS, led by Dr Inti Keith, to examine potential marine invasive species on docks, pontoons, and buoys, and other shallow water habitats on Santa Cruz and Baltra Islands. This Marine Biofouling Expedition created a baseline of dominant fouling alien species. During this 2 week workshop, they identified more than 10 new invading species of marine invertebrates, with a special focus on ascidians (sea squirts), bryozoans (moss animals), polychaetes (marine worms), and sponges. Many of these were found on 90 day and 14 month old fouling (settlement) panels. The potentially nuisance ‘spaghetti’ bryozoan (Amathia verticillata) is a particular concern, as it is known elsewhere to form massive gelatinous colonies two meters long and a meter wide that can block industrial water intakes. In order to be really effective, new microscopes and large amount of lab equipment and supplies were purchased for the 2016 workshop thanks to generous support from Galapagos Conservancy for the workshop. It is anticipated that this collective research will result in many research papers and reports. The visiting scientists have trained people from the GNPD, the Galapagos Biosecurity Agency (ABG) and the Oceanography Institute of the Ecuadorian Army (INOCAR) to recognise alien invasive species in the Galapagos.



Sustainability

Understanding the impacts of economic growth on Galapagos ecosystems

Economic growth in Galapagos is estimated to be close to 20% per annum. The main sectors of activity are tourism, fishing, agriculture and construction. These activities are being developed under the framework of the new Ecuadorian constitution that includes the concept of the "rights of nature" and a national plan for Good Living.

The Charles Darwin Foundation (CDF) provides scientific advice to the Ecuadorian Government on understanding the impacts of these economic activities on Galapagos ecosystems, with a focus on sustainable fisheries, agriculture and ecological restoration programs.

- **Galapagos Verde 2050:** An opportunity to restore degraded ecosystems and encourage sustainable agriculture in the Archipelago.
- **Ecology, evaluation and management of fisheries:** steps toward sustainability.
- **Sea Mounts in the GMR:** Ecological characterization and ecosystem services they provide.

3
CDRS PROJECTS

8
CDRS SCIENTISTS

5
COLLABORATING SCIENTISTS

26
ASSOCIATED SCIENTISTS

GALAPAGOS VERDE 2050: AN OPPORTUNITY TO RESTORE DEGRADED ECOSYSTEMS AND ENCOURAGE SUSTAINABLE AGRICULTURE IN THE ARCHIPELAGO

The limited rainfall and remote location of many sites pose major constraints. Thus, the GV2050 team is currently testing the 'Cocoon' planting technology; an alternative biodegradable box that may drastically reduce restoration costs. The Cocoon box offers a potential solution as it is made of paper pulp, crop residues and other organic compounds. The box releases the water slowly during the first few months, and then the box decomposes to add organic compounds to the substrate. This technology is still being tested in the CDRS and in Baltra. There are several important steps in the restoration process: the research team collects seeds of the target species in each island either from ripe fruits or animal droppings; seeds are tested for germination in the CDRS; continuous care and a rigorous quarantine are implemented; and seedlings are planted in the target habitat in Groasis waterboxes as protection from predators.

Galapagos Verde 2050 aims to restore large parts of Galapagos arid and highland areas with endemic plants - through the use of the Groasis Technology. The team works with national and international partners, bringing together technical and scientific expertise, applied research, management of protected areas and sustainable agriculture practices to support the welfare of the local population.

It is rare to find a program that has a 40 year vision along with the potential for long-term funding support. 'Galapagos Verde 2050' (GV2050) is a multi-institutional, inter-disciplinary project with two main goals.

The first, is ecological restoration to reverse the damage done to many of the islands by invasive plants and animals. Invasive plants now outnumber native plants by approximately 900 to 600. Patricia Jaramillo and her team are attempting to restore the ecological integrity of the islands in 3 phases.

Phase 1 (2014-2017) focuses on the islands of Santa Cruz, Floreana, South Plaza and Baltra. Prior to the restoration, the team assembled historical records about the original vegetation cover at each island. Then, in 2013, a pilot project was implemented to test the efficiency of the Groasis waterbox for planting endemic and native species in Santa Cruz, Floreana and Baltra. There was rapid growth of seedlings in arid ecosystems and a visible improvement in damaged areas.

The second goal is to introduce a successful model of sustainable agriculture for the archipelago. Several commercially important plants were tested with Groasis in Santa Cruz and Floreana as a pilot project; tomatoes and watermelons grew well.

A major success of GV2050 is that the local communities enthusiastically participate in the project along with staff of the GNPD, CDRS staff and volunteers.

ECOLOGY, EVALUATION AND MANAGEMENT OF FISHERIES: STEPS TOWARD SUSTAINABILITY

Modelling the **trophic network** of the Galapagos marine ecosystem focuses on **documenting which species depend on which particular nutrient resources** and **how Galapagos artisan fishery activities impact these dynamics** by harvesting marine fish resources.

Since 1998, all industrial scale fishing has been banned in the Galapagos Marine Reserve; artisanal fishing is permitted mostly using hook and line methods.

Further restrictions were imposed in early 2016 in the marine sanctuary areas around Darwin and Wolf Islands as well as a re-zoning of the marine reserve.

The Government of Ecuador and the Galapagos National Park Directorate planned and established these sanctuaries with the help of the CDRS, particularly Pelayo Salinas and his team.

The CDRS has been assessing fish populations since 1976. Fishers from the inhabited islands have 3 main targets: lobster (3 species: red, green and slipper); open water fishes such as tuna *(yellow fin and albacore)* and wahoo *(Acanthocybium)*; and bottom fishes such as mottled scorpion fish (*Pontinus clemensi)*, the endemic Galapagos white spotted sand bass *(Paralabrax albomaculatus)* and the regional endemic sailfin grouper *(Mycteroperca olfax).*

Fishing occurs year round but is more intensive during the wet season (December – April) when consumption almost doubles to provide fish for the mainland, particularly to serve in the traditional dish "fanesca" over Lent.

Jose Marin, who joined the CDRS in early 2016, and Pelayo Salinas are establishing a laboratory to assess the age and growth by examining the otolith or ear bones of caught fish. This is essential to ensure that fishing in the Galapagos is sustainable, with no major disruptions to population structures.

This is essential to ensure that fishing in the Galapagos is sustainable, with no major disruptions to population structures. This objective is reinforced by the example of the sea cucumber (bêche de mer) fishery that commenced at a commercial scale in 1994-1995, resumed in 2000-2006, 2007-2009, 2011 and by 2015 populations had been so significantly depleted that the fishery is probably not commercially viable.

The lobster fishery is another that requires scientific input to achieve sustainability, noting that the larvae have a pelagic phase about 300 days which makes recruitment studies particularly difficult.

A similar conservation objective for fin fisheries is more difficult because there is inadequate information on the biology of these target fishes, virtually no information on current patterns around the islands or marine productivity in normal and El Niño years.

Researchers have also been examining grouper spawning aggregations using paired video systems, supported by pattern recognition technology. The data show previously unreported behavioural patterns. The CDRS researchers work in collaboration with Rafael Bermudez of ESPOL (Escuela Superior Politecnica del Litoral) in Guayaquil on water circulation, primary and secondary production in the marine reserve.

SEA MOUNTS IN THE GMR: CHARACTERIZATION AND ECOSYSTEM SERVICES THEY PROVIDE

For the first time, **the depths of the Galapagos Marine Reserve (GMR)** are being explored by CDF marine teams and collaborators.

Until now around 500 specimens have been collected, most of them new to science.

On the land, the Galapagos consists of low biodiversity but high endemism habitats, but that may be very different in the sea. Indeed the biodiversity on seamounts and hydrothermal vents may be amongst the highest in the world.

The Galapagos has many sea mounts, which are volcanic 'islands' that did not rise up to the surface; the tops of these mounts are often below 100 m and many descend to 1000s of metres. Hydrothermal vents occur where the Nazca plate splits and releases superheated water containing many minerals and dissolved hydrogen sulphide gas.

It is this gas that feeds these amazing ecosystems that do not depend on sunlight for energy but on bacteria living off this gas. These bacteria take up the hydrogen sulphide and a whole ecosystem of animals depend on the bacteria either by filtering them directly out of the water or by harbouring large bacterial populations in symbiosis.

These animals include tube worms, clams, shrimps, crabs and some fish that are probably feeding on these vent animals. The sea mounts contain a rich biodiversity of mainly filter feeding animals including corals, sponges, tube worms, crustaceans and often significant populations of fishes.

Because the Galapagos sits at the focal point of three major ocean currents coming from all points of the compass, it is highly likely that the biodiversity on these sea mounts is a mixture of animals from many parts of the Pacific Ocean.

A big problem for scientists from the CDRS and many overseas institutions, is that both these ecosystems are in deep, dark waters, and all they can see is through the 'eyes' of remotely operated submarines.

The analogy is similar to the parable of the blind men and the elephant: they can see snapshots and collect small samples of these vast ecosystems, but cannot see the whole system. Many thousands of samples have been collected; these are being sorted and identified to determine the extent of this biodiversity with many of the animals being only visible on video images.

As a result of this CDRS research, many of these ecosystems are now protected within the Galapagos Marine Reserve; this is important because many sea mounts have been 'destroyed' by heavy dredge trawling for fishes, or by deep sea mining for minerals which precipitate around hydrothermal vents.

Conservation and Management

Supporting the Galapagos National Park to conserve ecosystems and biodiversity

The CDRS provides scientific research and information to support the Galapagos National Park's tasks of conservation management of the National Park (GNP) and the Marine Reserve of Galapagos (GMR).

The main focus areas are: the protection of endangered species with a current focus on **understanding and reducing the threats affecting small land birds in Galapagos the protection of endangered species, especially threatened small land birds; monitoring of emblematic** and **vulnerable species in Galapagos (sharks, marine turtles, manta rays, penguins, flightless cormorants, etc).**

Complementing these are the Innovation tools to develop conservation applications, the "Galapagos 360/Google Imagery project".

- **Protecting and recovering the Mangrove Finch**, an endangered bird.
- Conserving endangered populations of **small land birds.**
- Studying populations of **penguins, cormorants and albatrosses.**
- Evaluating population status and habitat use, connectivity and migratory routes: **Sharks, Mantas and Turtles in the GMR.**
- **Google Street View:** Underwater Geo-referenced Photography in Galapagos as a platform to support research, communication, management, education and citizen science. Watch video "Explore the Galapagos Islands with Google Maps" (Youtube)

7
CDRS
PROJECTS

19
CDRS
SCIENTISTS

12
COLLABORATING SCIENTISTS

63
ASSOCIATED SCIENTISTS

PROTECTING AND RECOVERING THE MANGROVE FINCH, AN ENDANGERED BIRD

Since 2006 our Mangrove Finch Project team has conducted breeding season surveys to determine nesting success, population size and territories. Our researchers carry out introduced predator control and monitoring, in a bi-institutional collaboration with the Galapagos National Park.

A captive breeding program for the **mangrove finch** started in 2014. This was a major initiative in the Galapagos to increase the population size and range of this finch.

In the first season alone, the Mangrove Finch team increased fledging success by rearing and releasing 15 fledglings back in to the wild. The initial captive breeding program has been repeated for the breeding season 2015/2016.

"Mapping of Mangroves"

Mangrove forests grow along 34% of the coastlines of the Galapagos Islands providing valuable coastal protection from erosion, habitats for terrestrial and marine species, nursery grounds for commercial fishes, high productivity forests with some of this production exported into nearby waters, and scenic value as often these are the only green areas in coastal lands during the dry season. However until very recently, there were inadequate data on the area covered and exact location of the forests.

There are four species of mangroves (plants that can grow in salty water) in the Galapagos, growing on most of the islands, with the exception of Darwin, Wolf, Española, Pinta and Marchena. These mangroves often grow directly on solid lava and fragmented rocky shores, helping to stabilise the coast and facilitate colonisation by other plants and many animals. These functions will become more important with pending sea level .

It probably took a few million years for the Mangrove finch *(Camarhynchus heliobates)* to evolve as a separate species; it may take a few decades for the invasive *Philornis downsi* fly to undo that!

The most critically threatened of the Darwin finches is now restricted to fewer than 20 breeding pairs seen during the last 7 breeding seasons and living in two small mangrove stands on the North West corner of Isabela Island.

The Mangrove finch was previously found in other mangrove forests of Isabela and Fernandina islands, however extensive searches in 1997-98 found birds were restricted to the small areas on the NW coast and a remnant population on South East Isabela. Searches since 2009 have found no birds in the SE; they are now considered extinct from these areas. The original populations were devastated by introduced black rats *(Rattus rattus)* and possibly the cuckoo 'anis' *(Crotophaga ani)*, which attacked the nests.

The next, and greater, danger to these birds was a parasite. Intense work started in 1998 when Hernan Vargas of the CDRS found the first parasites, and when Francesca Cunninghame started systematically checking nests in 2006-07, Philornis was regularly found. Land-bird populations plummeted. Since 2009, *Philornis* has been found in all monitored mangrove finch nests with nestlings resulting in high mortality. The threat of extinction appeared imminent and solutions were urgently needed.

The Galapagos National Park Directorate started controlling rats in partnership with CDRS in the mangrove finch habitat, but controlling the flies is more difficult and to date there are no viable methods to protect mangrove finch nestlings within nests 20m up in the canopy.

In 2014 the CDRS formed a collaboration with San Diego Zoo Global to enable captive-rearing of mangrove finch nestlings.

The birds had to be removed from the threats, with the only solution being to collect eggs and raise chicks with no threat of fly attack.

Nests were removed at the beginning of the breeding season in February when the fly attacks are most devastating and eggs taken to the CDRS. The new chicks were hand-fed, and returned to the original habitat on Isabela where they were kept in large aviaries for 3 weeks with near-natural feeding from natural substrates; 3 weeks later, the aviary is opened with supplementary feeding. All birds were fitted with leg bands and most were fitted with tiny transmitters that last up to 3 weeks so that birds can be tracked. These transmitters weigh 0.3 gm and cost US$190 each (Holohil, LB-2X). To date, they have released 35 birds with only 1 confirmed post-release fatality, and in 2016 researchers saw some of the 2014 and 2015 released birds showing breeding behaviour.

Hopefully they will establish territories and breed. The intensive management needed to conserve the Mangrove Finch is labour intensive and expensive; a longer term solution will require more effective control of Philornis and ongoing control of rats and other threats.

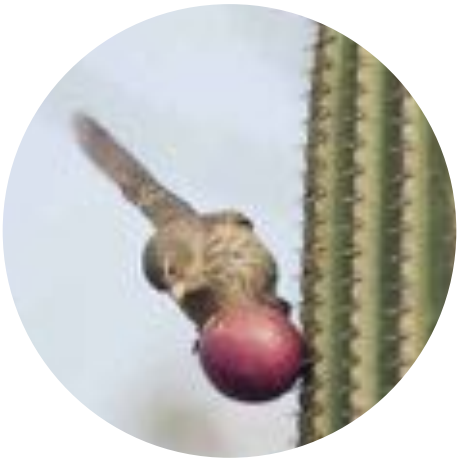
CONSERVING ENDANGERED POPULATIONS OF SMALL LAND BIRDS

Charles Darwin Foundation researchers and collaborators are currently working on strategies to detect species declines in a timely manner and evaluate the status of land birds in the archipelago.

They are also carrying out **studies on the ecology** of little-known species with the aim of developing plans for protecting the most threatened species of birds.

At the same time, CDF scientists, alongside local and international partners, are developing control methods for *Philornis downsi* in Galapagos.

The latest IUCN Red List identifies 8 of the 24 small Galápagos native or endemic landbirds (passerines, cuckoos and doves) as threatened by extinction; this does not include sub-species or island populations with restricted distributions.



The conservation of these land birds is a special priority for the Charles Darwin Research Station, the Galapagos National Park Directorate, and scientists from international research institutions who developed a Landbird Conservation Plan in 2012.

They aim to study these little-known bird species and establish a long-term monitoring program for all islands larger than 5 km2 with special focus on islands with single island endemics or small, distinct populations. With this information and long-term monitoring it will be possible to detect and respond to population declines.

Data about the status of small landbirds has now been collected for San Cristóbal, Floreana, Santa Cruz, the highlands of Santiago, and the Sierra Negra volcano on Isabela. A baseline is needed because there is a serious lack of historical data about the distribution and abundance of most bird species and the threats to these populations (predation by introduced mammals; massive changes to the highland habitat of Tree-finches, Vermilion Flycatcher and other species; emerging diseases; and the invasive parasitic fly Philornis downsi which causes high chick mortality).

The method used is point counts; listening to bird calls during the January to February breeding season and estimating distance of birds using electronic range finders. Researchers provided nest cavities in bamboo poles with hidden cameras for the Galapagos flycatcher that show Philornis downsi flies carefully watching birds depart the nest before quickly entering to lay eggs and infect the nest.

On Isabela, they are learning about the breeding success of the Vermilion Flycatcher, a bird formerly abundant on Santa Cruz, but which has disappeared from Floreana and San Cristóbal. The results of this study should help to protect the last populations on Santa Cruz.

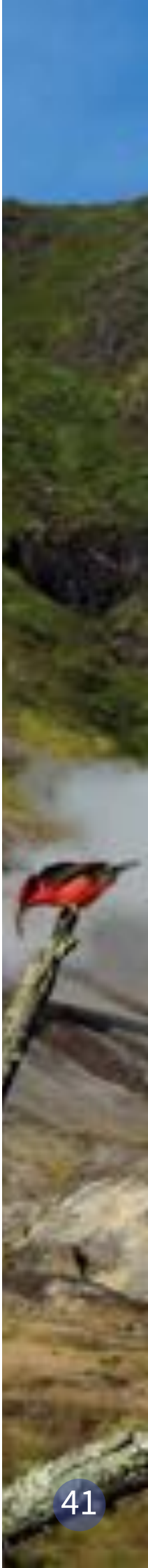
Bird App

Citizen science can help with monitoring easy-to-recognize species and is being promoted for the Vemilion flycatcher and Galapagos Martin.

The recently developed Galapagos Bird 'App' provides pictures and information for bird's identification and encourage residents, tourists, guides, and park wardens to report bird sightings via 'ebird'.

Since it came out, this app has been downloaded 1393 times.

Download for FREE!



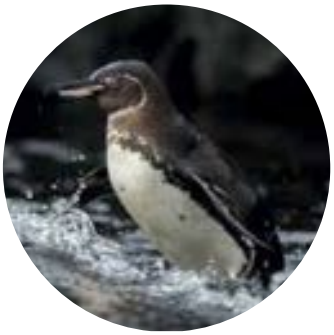
"Marine Research"

Marine research at the CDRS was given greater emphasis through the declaration of the Galapagos Marine Reserve, which includes all ocean waters out to 40 nautical miles (74 km) from any land of the Galapagos, and the special Galapagos Marine Sanctuary declared in early 2016 with the largest component being the Darwin and Wolf Marine Sanctuary. Regulations for the Sanctuary include a ban on all mineral extraction including oil and gas, deep sea minerals, and a ban on overtly commercial fishing other than undertaken through artisanal fishing. All turtles, sharks, manta rays and whales and dolphins are protected. In the special marine reserves, all fishing is banned and access to the adjacent land is severely restricted. These declarations indicate that increased research is needed to provide advice for effective and adaptive management; however the capacity in the marine area is limited. The CDRS and collaborators have the task of providing sound scientific advice for the management of these enormous areas. The Marine Program consists of 3 main themes: Marine Invasive Species; Green Turtle Conservation; and the largest component Marine Biodiversity and Fisheries. Pelayo Salinas and Jose Marin lead the largest component of the Marine Program.

STUDYING POPULATIONS OF PENGUINS, CORMORANTS AND ALBATROSSES

The Galapagos Penguin (Spheniscus mendiculus) and the Flightless Cormorant (Phalacrocorax harrisi) are two focal species that are endemic for the archipelago and Ecuador and both are listed as threatened in the IUCN network list. The CDRS monitoring activities focus on documenting population dynamics throughout the archipelago.

This bi-institutional project is carried out in close collaboration with the Galapagos National Park Directorate.



These **three emblematic species** have been the focus of ongoing research by Gustavo Jimenez from the CDRS.

He has been conducting research in collaboration with the Galapagos National Park Directorate for more than 15 years. Unlike the charismatic land animals, the threats for these birds come mainly from major fluctuations in food availability linked to variations in climate. For example: during major El Niño years populations of penguins can drop by 70% or more; similarly populations of the flightless cormorant can fall by 50% or more during such years; while albatross are more likely to be caught accidentally during long-line fishing operations along the coast of Ecuador, Perú and Chile, well outside the Galapagos Marine Reserve. Other threats come from introduced cats and rats attacking nesting sites, especially on Isabela Island.

These three birds forage for food in very different ways; waved albatrosses (Phoebastria irrorata) range far over oceanic waters targeting squid, particularly at night; penguins are able to dive to more than 50 m to catch bottom and open water fish; whereas cormorants also dive deep (to 70 m) catching fish and crustaceans in nearshore areas. Populations show steady increases during most 'normal' years, with no significant effects

However, disease remains a potential threat because it could affect entire populations. Evidence is clear that major climate shifts are the greatest threat to these populations. In the big El Niño years of 1982, 1997/8 plankton productivity dropped when cold currents failed and fish numbers dropped alarmingly. Many of the penguins and cormorants died of starvation. In the 2015/16 El Niño year, penguin and cormorant populations remained within the normal range, possibly because of the work CDRS and GNPD have been doing since 2009 to remove cats and rats from breeding areas .

However, it did affect Galapagos albatrosses. Monitoring in May 2016 found fewer adult albatrosses than usual and fewer breeding pairs in the study areas. Ongoing monitoring of penguin and cormorant numbers will be undertaken by the researchers and rangers in July 2016.

EVALUATING POPULATION STATUS AND HABITAT USE, CONNECTIVITY AND MIGRATORY ROUTES

Sharks in the GMR



Research on the ecology of sharks in the Galapagos is a high priority both to better understand the biology of these marine predators as well as to document their socioeconomic impact on the Galapagos economy.

Combining ultrasound and satellite telemetry with classical visual surveys help us to **document migration patterns of shark species and other large predatory fish** and contributes to modelling the trophic impact on the Galapagos ecosystem.

Principal monitoring sites are located in North of the archipelago, near the islands Darwin and Wolf.

The largest concentration of sharks in the world occurs around the northern islands of the Galapagos; Darwin and Wolf. Here thousands of sharks, including scalloped hammerhead, black tip, white tip, silky, whale, tiger and Galapagos sharks are major tourism drawcards for Galapagos and Ecuador. CDF scientists and collaborators have calculated that the fish biomass, mostly of sharks, is on average 17.5 tons per hectare. However, shark numbers around the world are collapsing especially to harvest their fins (and discard 99% of the shark body) to dry and form the basis of shark fin soup; a notorious Chinese delicacy.

The research by Dr. Pelayo Salinas and his team, in collaboration with the National Geographic Pristine Seas initiative, was a major factor for the Government of Ecuador to declare 40000 km2 of waters around Darwin and Wolf islands as a Marine Sanctuary in May 2016 to protect these sharks, as well as coral reefs, seamounts, reef fish spawning aggregations and other charismatic fauna.

The waters around Darwin and Wolf are a magnet for live-aboard dive boat operations, making this particularly sustainable tourism. It has been estimated that a shark in the Galapagos throughout its life is valued at US$5 million for the dive industry against US$200 dead.

Several species of sharks such as hammerhead and tiger shark are also tagged by CDF scientist and several international partners with satellite and acoustic transmitting tags which are carefully attached to the animal. With this tools, CDF scientists can follow their movement and understand their migratory cycles and habitat preference.

Over the past 8 years multiple shark migrations have been tracked, some of these as far as mainland Ecuador or Colombia, located over 2000km away from the archipelago. This information is key to inform regional conservation plans that ensure sharks long-term conservation.

Shark fin soup is an expensive Chinese delicacy

But what is shark fin soup and why is it expensive? Anything that relies on harvesting 1% of a large animal and throwing away 99% of the body has to be expensive, especially for biodiversity, as sharks are at the top of the food chain. Moreover, this practice is often very cruel as sharks are finned alive and the fin-less bodies thrown back into the sea ensuring a slow painful death and a waste of potential food. Do the shark fins provide the flavour? Well not really.

The main components of shark fins are strands of spaghetti-like cartilage or collagen, which provide little taste but are considered by many Chinese to have aphrodisiac or other magical properties. The real flavour of the soup comes from a broth made from chicken carcases, vegetables, herbs and spices. The shark fins are first dried, then pass through a number of merchants before being sold in Hong Kong and mainland China for US$200 a kilogram; the original fisher often is paid only a small proportion of the final price. The fins are rehydrated by soaking and the strands of cartilage teased out, added to the broth, and served at the beginning of a banquet, especially weddings. Recently Chinese megastars, such as the famous basketball player Yao Ming and Jackie Chan who are Ambassadors for WildAid, have been lobbying against the shark fin trade to conserve world shark populations. Sharks cannot be caught in the Galapagos for the shark fin trade; but sharks outside the Galapagos Marine Reserve do not have that protection.

Mantas in the Galapagos Marine Reserve

Manta rays use the waters of the Marine Reserve and are part of the underwater wildlife show of the islands.

However, how do they use the GMR? Which places do they prefer? Are they migratory or not? These are some of the many questions about manta rays in Galapagos, and answering these is the principal goal of the project.

Oceanic manta rays are one of the largest fishes in the ocean, but we still have very poor understanding of their ecology. Mantas have very conservative life history traits and are one of the slowest breeding elasmobranchs (sharks and rays). They have small litters and probably only produce young every 2–3 years. Sadly, these peaceful plankton feeders are threatened due to demand for their gill rakers in Asian markets because of some hypothetical medicinal properties. Isla de Plata off mainland Ecuador has the largest known concentration of oceanic manta rays recorded anywhere; however little is known about these animals in the Galapagos Marine Reserve.

The Manta Project started in 2015 as a collaboration between CDRS and the Manta Trust, an international NGO with the mission of conserving the rays and their habitat worldwide using science and research, while at the same time raising awareness and providing education to the public and stakeholders.

The objectives of the CDRS collaboration are to: characterize the structure and seasonality of manta ray populations in the GMR; determine their critical habitats, and connectivity between populations; and show migratory patterns in the Tropical Eastern Pacific. Through a citizen science initiative with more than 10 collaborating dive centers, we have collected many photographs, videos and information on sightings of Mantas in the GMR in less than one year. We have compiled these into a photo-ID catalogue of more than 130 individuals; individual manta rays can be identified from pigment patterns. Interviews with fishers and dive guides provide knowledge of the spatial and temporal distribution of mantas. The results show large seasonal variability; they are more frequent between August and November and more frequent on the eastern and southeastern coast of Isabela than at other sites in the Archipelago. Two individuals of Manta birostris have been tagged with satellite transmitters, with 4 more transmitters ready to be attached. The data obtained will be provided to the GNPD to improve management of the manta populations in the GMR.

Marine Turtles in Galapagos

La tortuga verde del pacifico *(Chelonia mydas)* es una especie con distribución mundial. En las islas Galápagos, es la especie de tortuga marina más común y abundante. La única que registra anidación en el archipiélago.

The East Pacific Green Turtle *(Chelonia mydas)* is a widely distributed species that migrates through the Pacific. It is still the most common and abundant turtle species in Galapagos. It is also the only species that nests in the archipelago.

Female green turtles *(Chelonia midas)* nest on most islands of the Galapagos, except Fernandina, Genovesa and Pinzon. The largest breeding populations are on the south coasts of Isabela and north coast of Santa Cruz. These islands are where CDRS researchers led by Patricia Zárate (from 2000-2008) and Macarena Parra (from 2009-2015) along with Galapagos National Park Directorate rangers have been assessing the number of turtle nests and the rate of successful hatching of eggs on the main nesting beaches of the archipelago. The nesting period is between December and May, and data show that most nestings are in February and March; the peak baby turtle hatching time is between April and June. Surveys conducted from 2009 to 2013 have shown the numbers of turtles breeding to be relatively stable.

Researchers are now comparing these data with patchy information from earlier periods to determine whether the major El Niño years of 1997/8 and 2002 have affected turtle breeding. The main native land predators on new hatchings are birds like frigates, herons and even the Galapagos hawk; however introduced cats and pigs can have devastating effects and these are the target for Galapagos National Parks control.

The monitoring of green turtle nesting was successfully transferred from the Charles Darwin Research Station to the Galapagos National Park prior to the 2016 breeding season.

Natural History Collections

In the Galapagos, the natural history collections are of great importance as faithful witnesses to this place's unique biodiversity. The CDRS has had the mandate for years from the Ecuadorian Government to preserve this material and share it with the rest of the world.

The team in charge of the collections, scientists Dr. Patricia Jaramillo, Dr. Henri Herrera and Dr. Gustavo Jiménez, is responsible for identifying and doing the taxonomic research on specimens coming into the CDRS. The purpose is to generate a baseline to conduct scientific studies and educational activities.

At this time, this authentic 'library' of Galapagos biodiversity is being improved by including descriptive and ecological information; as well as photographs, geographical and monitoring components, to increase its educational value.

However, upkeep required by these collections calls on the CDRS to invest heavily in care and dedication. The humidity and temperature in each collection is monitored on a daily basis. Excessive heat would evaporate the alcohol in which many specimens are preserved. Further, air conditioning and moisture controllers are used that also require maintenance.

Due to the special conditions of care and conservation, the collections are not open to the public. *In situ* visits are organized only in very specific cases, such as for government leaders or partners of the institution. Tours are also organized when student groups visit. These educational activities contribute to meeting one of the Charles Darwin Foundation's main purposes, to promote environmental education for conservation.

Nevertheless, thanks to a new technology used by Google, virtual visits are now possible, using the images and videos of Google maps.

The complete collection contains over 100,000 specimens in four collections.
(Numbers at August 2016)

Google - Collections Virtual Tour

In collaboration with Google, the CDF has developed a tool that permits you to go on a virtual tour of our collections and see how our specimens are stored. By following these links, you can virtually visit through Google Maps the Herbarium Building (CDS), the building where the Terrestrial Invertebrate Collection (ICCDRS) is stored and the building that hosts both our collections of Vertebrates (VCCDRS) and Marine Invertebrates (MCCDRS).

43.750 HERBARIUM

The Herbarium was established in 1994 and contains 43,750 specimens: vascular plants, bryophytes, algae, fungi and lichens, in addition to an auxiliary collection with seeds, pollen, woods and fruits.

46.000 LAND INVERTEBRATES COLLECTION

The **Land Invertebrates Collection** has 46,000 specimens. Since 2002, over 1500 persons have visited the collection for educational purposes or on tours for our partners – in 2015 over 300.

2.750 VERTEBRATES COLLECTION

The **Vertebrates Collection** has 2750 specimens. The largest of all, a full skeleton of a Bryde's whale *(Balaenoptera edeni)*, is on display in the new Exhibition Hall, with the permission of Ecuador's Government, for all visitors to the CDRS to enjoy.

7.635 MARINE ORGANISMS

The most recent of all the collections is the **Marine Organisms,** with 7635 specimens recorded, including mollusks, annelids, cnidarians, echinoderms and sponges, among others.

These collections are the foundation for studies conducted both inside the CDRS and elsewhere. The easiest way to access this information is on-line through the Datazone. This platform web is the most complete data base on Galapagos flora and fauna, accessible from the CDF Website, for the scientific community, partner institutions, colleagues and decision-makers. Welcome!

Financial Report

What has happened over the last few years (2011-2015)?

After a difficult financial period over the past four years, the CDF is now over the bad patch and moving forward.

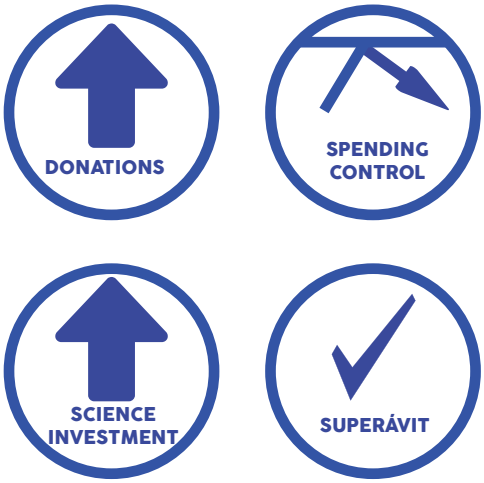
With costs and expenditure exceeding revenues CDF has been loss-making for the past 4 years. As a consequence of generous capital injections during 2014 and 2015, the Foundation's negative equity has been repaired.

Donations from The Helmsley Charitable Trust, IWC, the COmON Foundation, the LEX-NG Fund, and from Mr. Eugene Chuang and Ms Karen Lo have been crucial to turn around the situation.

"The CDF is now over the bad patch and moving forward"

In 2015, the income recorded is the highest since 2011 (US$3.79 million).

This availability of higher income, plus spending control, which has enabled CDF to increase levels of investment in science and, for the first time since 2011, have a positive balance at year-end (5% surplus).



In the 2011-2014 period, the CDF had a negative financial balance, with deficits reaching almost 10%. In 2014, a powerful injection of funds by several donors– a 'Stabilization Package' – made it possible to cope with the accrued deficit.

While external resources in 2013 totaled US$2,640,609, in 2014 and 2015 totals reached $3,722,615 and $3,790,406, respectively. The increase in CDF's total income over the last two years, thanks to the 'Stabilization Package', has yielded positive results by year-end 2015, showing a 5% surplus.

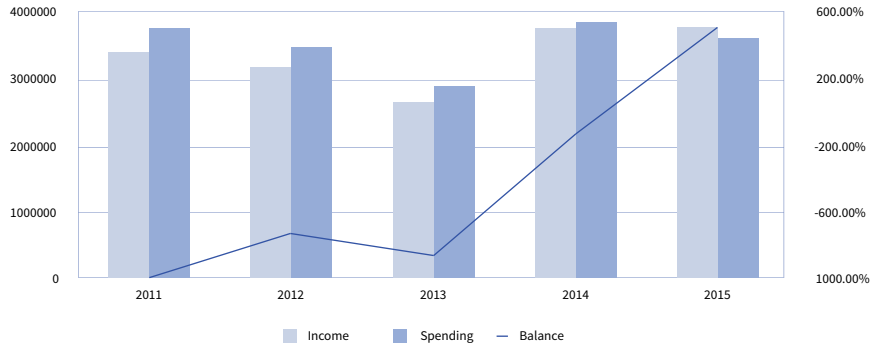
Furthermore, years ago, while research project funding increased year by year (restricted funds), operational funds (un-restricted money) decreased gradually, leaving the CDF in a delicate situation. However, thanks to donors' confidence in CDF research, the "Stabilization Package" has provided the institution with unrestricted funds, which made it possible to cover operating costs (salaries, electricity, Internet fees, etc.) which were fundamental elements of previous years' deficit.

The 'Stabilization Package' in 2015 consisted in US$1.08 million.

CDF would like to again take advantage of this opportunity, in the annual report special edition, to express our deepest thanks to our donors.

Keep an eye out!

In 2017 we will be doing something special for Charles Darwin's Birthday!



		OWN RESOURCES %	EXTERNAL RESOURCES %	INVESTMENT IN SCIENCE	BALANCE (%)
2013	I: US$ 2.64M G: US$ 2.89M	21	79	US$1.7M	-8.79
2014	I: US$ 3.77M G: US$ 3.82M	10	90	US$2.29M	-1.27
2015	I: US$ 3.79M G: US$ 3.60M	6,5	93,5	US$2.31M	5

With the accounts in order and confidence recovered, in 2015 the CDF proposed to strengthen its funding model; a study of the existing system's viability revealed a number of major flaws. The study, conducted by Campbell & Company, highlighted the most outstanding challenges that the institution must address, and makes a series of recommendations, such as diversifying funding sources and devoting greater efforts to fund-raising. These recommendations inform the '2016-2019 Strategic Plan' that CDF will begin implementing this year.

What is the situation in 2015?

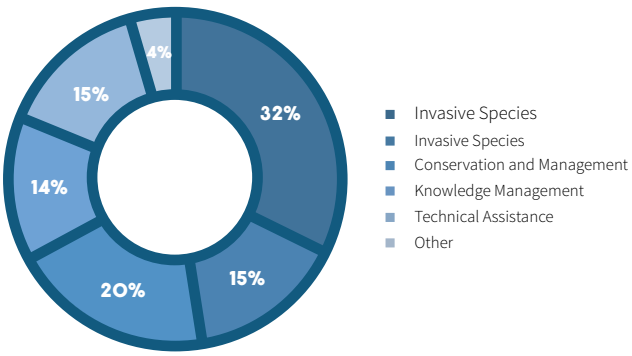
In 2015, CDF had income of US$3.79 million US dollars and expenses of US$3.60 million, leaving a positive balance of $180,000, i.e., a 5% surplus. External income is the highest since 2011 and, although our own income has decreased, the "Stability Package" (unrestricted funding) covered CDF's operating expenses, stabilizing the entity's finances.

CDF now shoulders the challenge of striving for a more sustainable funding model. The study by Campbell & Company about "How to improve CDF funding" made a number of recommendations that are integrated into the strategic planning document for the 2016-2019 period. This year, therefore, the new funding model will begin, to reduce the risks of shortfalls and lay a solid foundation to cope with unforeseen variations in income.

In 2015, out of the total budget, US$2.3 million (approx. 64%) was invested in science: Three areas of research, a total of 15 projects and 34 staff members (scientists).

32% 'Invasive Species' Area – 20% 'Conservation and Management' Area – 15% 'Sustainability' Area and 'technical assistance' projects – 14% 'knowledge management' activities – 4% Others.

Around 44% of the total budget for science in 2015 (US$1.450.344) is left for next year.



Who is funding, the amount of funding, and what projects are we investing in?

Would you like to know what conservation costs in Galapagos?

See "Galapagos Conservation Costs" (CDF website)

Traditionally, CDF depends on external resources to fund our activities.

95% external income (60,92% grants and 32,55% donations) vs. 6,52% own income.

Funds from foundations and trusts (grants) are the main funding source for CDF, followed by donations, and by own income (rent rooms, equipment rental, etc.), which is usually low because the institution is not-for-profit.
The first category of funds are restricted for science projects, the second and third cover CDF's operating and/or administrative expenses (IT, Communication, HR, Maintenance, etc.).

In 2015, CDF had serious difficulties covering operating expenses, so finally the 'Stabilization Package' provided CDF with unrestricted funds, covering the cumulative deficit for operating expenses.

So, most of CDF's total income in 2015 was from external resources ($3.543.351), and only $194,713 were own resources.

This means that our donors' support is fundamental to guarantee the CDRS' operations. Our success depends on our donors' generosity, and it is their trust and constant commitment that enable us to do our work.

The following individuals and organizations made our work possible during 2015. We thank them all for their continuous support.

Legacy

$50,000 - $249,999 D. William Bennett Trust

Corporations

$250,000 - $500,000 International Watch Co. Schaffhausen (IWC)

$10,000 - $49,999 Bess Forest Club

$1,000 - $9,999 Tropical Aquaculture Products, Inc

< $1,000 SA Interval

Keidanren Fondo de Conservación de la Naturaleza

Foundations/No Guvernamental Organisations

Above $1,000,000 The Leona M. and Harry B. Helmsley Charitable Trust

Above $500,000 COmON Foundation

$250,000 - $500,000 Galapagos Conservancy

$50,000 - $249,999 Galapagos Conservation Trust

$10,000 - $49,999 Sociedad del Zoologico de Frankfurt – Ayuda a Fauna en Peligro
Jeannie Tseng and Colin Rust Charitable Fund

Sociedad De National Geographic Amigos de Galápagos Suiza

$1,000 - $9,999 Cameron Foundation

The Russell Family Foundation

< $1,000 Audubon Society
Fundación Familiar Harold y Joan Feinbloom

Fondo para Pingüinos de Japón

Government, Bilateral and Multilateral Agencies

$10,000 - $49,999 Darwin Initiative

Servicio de Pesca y Fauna Silvestre de los Estados Unidos

Tourism Partners

Above $500,000 Lindblad Expeditions/Fondo National Geographic

$50,000 - $249,999 International Galapagos Tour Operators' Association

< $1,000 The Intrepid Foundation
Trendsetters Travel

Wilderness Travel

Individuals

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$1,000 - $9,999
Donald Clark Jr.
Richard Coulter
Tui De Roy
Dennis Geist
Minard L. (Pete) Hall
Jeanne and Dov Haselkorn
Karen Heine
Nancy Kraemer
Mary Lamy
Godfrey Merlen & Noemi D'Ozouville
Christopher Popp
Catherine Putonti
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Guenther Richter
Andrew Thomas
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Richard Whipkey

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Astrid Adrian
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Judy Dunscomb
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Warren Wolfswinkel
Melanie Wong
Amy Wood

According to the “2016-2019 Strategic Planning”, existing donors and new partners are anticipated to maintain their support in the long term. We are sure that collaborations on the basis of long-term strategies maximize conservation impacts.

We thank our international network of friends and followers, who have made our work possible all this time, from the bottom of our hearts.

Beginning in 2016, and based on the recommendations made by the Campbell & Company study, CDF also proposed to **diversify its funding sources, placing special emphasis on on-site donations, and putting more effort, in staff and budget terms, into raising both external and own funds.** This will ensure the entity’s medium- and long-term financial sustainability.

Do you want to make a donation to the CDF? Please note!

Online donations

www.darwinfoundation.org

All donations are processed on-line by our partner in the United States, International Com munity Fund (ICF).
As a "U.S based 501(c)(3)" they can also give US donors tax deductions for their donations.

For specific questions, please contact: **cdrs@fcdarwin.org.ec**

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*If you visit the Amazon page from one of the links in our website, the CDF will receive a commission of 4% of the value of your purchase at no extra cost to you.

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Account No. 1038862581
Type of account: Ahorros
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Una vez efectuado el deposito o trans¯ferencia, por favor, enviar su confir¯mación a: **cdrs@fcdarwin.org.ec**

Donations Point at the Charles Darwin Exhibition Hall

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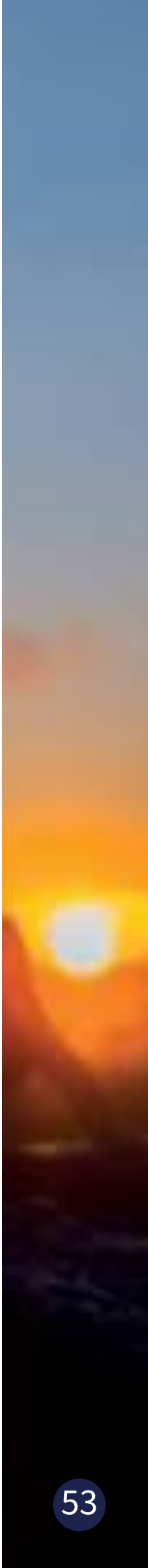

Comunicación for Science

In its nearly 60 years of existence, the Charles Darwin Foundation has consolidated as one of the mo emblematic entities in Galapagos.

In 2015, after a period of economic difficulties (2013 - 2014) in which the image of Charles Darwin Foundation (CDF) unfortunately lost some of its impact, the new Executive Director, Dr. Arturo Izurieta-Valery, decided to revitalize our working strategy. Part of this was to reinforce the Communication area, to showcase CDF's successes, recovering the confidence of our main audiences (governmental authorities, work partners, donors, scientists, academia and the local and international community).

The 16 November 2015 Resolution by the CDF General Assembly created a team: Dr. Arturo Izurieta, Paola Díaz-Freire (Communication Area Coordinator), Luis Maldonado (CDF General Assembly Member) and John Loudon (CDF General Assembly Member), to lead the design of the **2015-2018 Communication Strategy**[1], as a framework for actions geared to highlight and share CDF's work with Galapagos, Ecuador and the world. This team has worked intensely, especially during the first three months of 2016, polishing and perfecting a working document that, with the approval of the relevant Leadership, will be the CDF Communication Strategy for the coming five years.

The Communication Strategy includes specific objectives, target groups, concrete actions and deadlines, with the **Fundamental Goal** to:

Strengthen, expand, increase and improve information and communication flows and channels with target groups and the general public, to keep them duly informed about our science work in Galapagos.

Here is an example of recent actions to achieve both purposes…

'Protect the Fins, and the Ocean Wins' (communication and education project, 2016)

This is a theme of the CDRS project on educating the youth of the Islands on the importance of science and conservation for the future sustainability of the Galapagos Archipelago. Daniela Vilema runs a shark environmental communication and education project for school children between 9 and 12 years (involving approximately 1500 kids on the 4 inhabited islands), and the whole community. The principal aim is to promote the coexistence of humans and sharks, using the Galapagos as a sustainable model.

The messages are that sharks are truly fascinating animals that play a key role in maintaining healthy oceans and are not the dangerous creatures depicted in movies or social media.

1 **Note:** The Communication Strategy was finished in May 2016 and will be presented at the General Assembly´s meeting in November 2016.

"Communication must not be viewed as an isolated institutional effort. On the contrary, it must become the driver of the institution's planning processes, setting short-, medium and long-term objectives." (Paola Díaz-Freire, CDF Communication Coordinator since mid-2015).

To properly implement this strategy, the internal communication team (Paola Díaz Freire and Liza Díaz-Lalova, an audiovisual producer) have a budget of US$48,000. Further, Daniela Vilema of the Marine Science team is implementing specific communication campaigns for the Marine Area.

In these years, the Communication team will focus its work on strengthening CDF's traditional communication and dissemination tools, and will explore creation of new forms and settings for communication to attain its aims.

We are connected!

If you want to keep informed about what is happening at the CDF, you can follow us through our social networks or on the Web.

www.darwinfoundation.org

facebook/darwinfoundation

instagram/darwinfound

twitter.com/darwinfound

cdfdarwinfoundation

Our social networking presence has improved!

125.731 followers on **Facebook**
2.020 followers on **Twitter**
251 subscribers and
23.924 visits to **Youtube**
661 followers on **Instagram**

And we also have
1´285.720 visits to **our Website**

Additionally, CDF publishes a monthly news e-bulletin ('Science for conservation' newsletter), which has generated 148 informative campaigns; constantly feed and update the CDF's website (news, new environmental education publications, etc.); has produced and disseminated 80 videos on the Social Networks (14 on Facebook and 66 on YouTube); has published in the **Washington Post, El Comercio, El Universo, El Telegrafo, NY Times, National Geographic and other media and online platforms** (national and international); and participates and organizes events with the local community.

‘Charles Darwin Exhibition Hall’

In June 2016, the CDF officially opened the doors of its “Charles Darwin Exhibition Hall”.

This center is open to visitors and the local community to offer an unforgettable experience, touring through almost 60 years of the Charles Darwin Research Station’s history, a story of Galapagos Islands conservation science. General information on projects, photographs and audiovisual presentations, and several permanent displays – a sampling of the Collections that the Research Station maintains for the Ecuadorian Government, and temporary displays in collaboration with scientists, local, national and international artists.

Open for visitors: Monday through Sunday, 8:00 to 12:30 and 2:30 to 5:30.

Knowledge Management

For years, the information and knowledge generated by the Charles Darwin Research Station (CDRS) has been recorded, stored, made available, disseminated and shared, consolidating a culture of exchange within the organization and outwardly, with the ultimate purpose of continually improving CDRS' contribution to scientific research, consolidating networks of learning and exchange, assisting decision-makers, and informing the general public about work at the Charles Darwin Foundation (CDF).

The Knowledge Management team ensures ongoing operation of the Datazone, Library, Geographical Information Systems and information and communication technologies (ICTs) such as programming the platform for the CDF Website and digitizing documents; the four fundamental channels for knowledge management at CDF.

The Datazone is a free, readily accessible platform on the Internet with information and data on line. It is integrated into the CDF Website and, in it there are data on species, maps, scientific articles, among other elements.

As of October 2016, the collections that the CDF manages for the Ecuadorian Government have on-line information on **over 97,000 specimens** belonging to the Galapagos natural history collection.

Galapagos Research: this repository of the Galapagos Research journal enables study and downloads from nearly 60 volumes with over 600 articles.

Geoportal: a platform to search, display and download geographical information on Galapagos. Explore the biodiversity of the Galapagos Islands within their geographic context! (Under construction…)

"Citizen Science"

Do you want to get involved in the research conducted at CDRS from the comfort of your couch or your mobile device?

Visit the Website: Darwin for a Day…

You can explore the Galapagos Islands using Google Street View and document their extraordinary plants and animals.

All of your observations will be shared with the iNaturalist community and the Charles Darwin Foundation, and will contribute to research of the Galapagos Islands.

So far…

1076
Observations

154
Species

List of species: a total of 10,045 specimens have already been classified taxonomically and made available on this platform.

Meteorological data base: display or download meteorological data on the Galapagos, updated daily.

Darwin for a day: an application to explore the Galapagos Islands using Google Street View and document their extraordinary species. 1076 observations have been made to date, and 154 species identified.

All this information and much more at the DATAZONE Welcome!

*See Datazone (CDF Website)

In 2008, CDF launched its knowledge management program, of which the library is a crucial component. Libraries are the main historical record of an institutions' knowledge. Increasingly, libraries provide an assortment of knowledge and information management services for their institutions, including long-term care for intellectual assets and access to them. Conserving, managing and keeping accessible the CDF's unique collection – the knowledge, information and data produced and kept here – is an important component of conservation efforts in Galapagos.

These collections are not only a point of distinction, but also serve as CDF's institutional record and memory during times of change. This valuable history of research in Galapagos and the role of science, enshrined in our library and archives, is visited by CDF and Galapagos National Park staff, naturalist guides, local teachers and students, as well as visiting scientists and other international visitors.

In the future, a critical component will be to assure that all data follow national and international standards, such as those recommended by the Global Biodiversity Information Facility.

In 2016, CDF signed a cooperation agreement with the Yachay University (Ecuador) to improve information management and ensure compatibility with Ecuador's national framework.

Another even more recent challenge for knowledge management has been to consolidate geographical information (GI) management. For a conservation biologist, it is fundamental to visualize where the element being studied is located, i.e., its spatial setting (see "Mapping Galapagos Protected Areas"). The spatial data infrastructure at CDRS has been created in the last few years, and now these data are even accessible from the Geoportal on the Web.

Mapping Galapagos Protected Areas

The CDRS has recently helped the GNPD with spatial planning of the Galapagos Protected Areas.

This project started in mid-2015, with the specific target of determining the distribution of iconic species such as the Galapagos penguin, flightless cormorant, flamingo and the Floreana mockingbird and mapping their distribution onto 5 km grid GIS (Geographical Information Systems) digital maps. To do this, Nicolas Moity, Byron Delgado and Gonzalo Banda undertook a large 'data-mining' exercise digging out the information from large and varied datasets from local and international experts, including from the CDRS Datazone biodiversity database.

For example, they 'mined' 17 000 entries of data from 100 000 total entries. Products such as Species Distribution Models are used to define the distribution of cryptic or under-sampled bird species like the vermilion flycatcher, Galapagos martin, woodpecker finch, small tree finch, warbler finch, and the extremely endangered mangrove finch. A critical component of this information process was including the IUCN endangered species classification.

The same project methods were applied to the Galapagos Marine Reserve, by using Movebank telemetry data obtained by attaching satellite tagging transmitters to tiger, hammerhead and whale sharks, marine turtles, waved albatross and the Galapagos petrel. They have used these data to define the most important conservation sites for these species. This process can develop Spatial Conservation Prioritization models that identify the most important conservation sites or areas for future re-zoning of the Reserve.

These terrestrial and marine maps constitute the most comprehensive information on Threatened and Protected Species Richness for Galapagos.

All these information and knowledge management efforts would not be possible without computing support (ICTs) making them manageable and accessible both inside CDF and for the rest of the world.

What are our medium- and long-term challenges regarding knowledge management?

So far, we have mapped knowledge management at CDF (2015-16), its structure, tools and procedures. On the basis of this analysis, the CDF Executive Director is proposing a planning exercise to ensure maximum utilization of knowledge management tools. Accordingly, the 2016-2019 Strategic Plan proposes to "generate information management policies and tools for those procedures; starting with production and storage, all the way through dissemination and exchange". This will consolidate the information management system, which is an integral part of the work-flow within the institution but must be planned to reinforce existing tools and formulate new ones to modernize and update our information and knowledge management system.

Publications (2013-2016)

Classification	Year	Citation
Peer reviewed	2013	**Acuña-Marrero D, J Zimmerhackel, J Mayorga & A Hearn.** 2013. First record of three shark species, Odontaspis ferox, Mustelus albipinnis and *Centrophorus squamosus*, from the Galápagos Islands. Marine Biodiversity Records 6. 6 pp.
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		Jäger H, A Carrión & C Sevilla. 2014. Blackberry invasion threatening unique Scalesia forest on Santa Cruz Island, Galapagos. 8th International Conference on Biological Invasions: from understanding to action. Antalya, Turkey.
		Jaramillo P, W Tapia, **P Cueva & G Gentile.** 2014. Preliminary data on the diet of *Conolophus marthae* (Pink Iguana). Can feces contribute to plant dispersal? In: IUCN SSC Iguana Specialist Group Meeting 2014: Galápagos Land and Marine Iguanas Workshop. Galapagos National Park, Puerto Ayora, Galápagos, Ecuador.
		Jiménez–Uzcátegui G. 2014. Aves marinas amenazadas. En: IV Reunión Ecuatoriana de Ornitología. Maldonado, Carchi, Ecuador.
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Lahuatte P, M Lincango & CE Causton. 2014. Método de Crianza para la mosca parásita *Philornis downsi* (Diptera: Muscidae) en laboratorio, Santa Cruz- Galápagos". XXXVIII Jornadas Nacionales De Biologia, 20-22 de Noviembre, 2014. Manta, Ecuador.

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Fessl B, J Carrion, **F Cunninghame, P Lincango,** D Rueda, C Sevilla & C Causton. 2015. Landbird conservation in Galápagos. Galapagos Symposium, June. AAAS San Francisco, CA, USA.

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Year	Citation
2015	**Jäger H.** 2015. Ecological Restoration in Galapagos. Invited talk at the University of Rhode Island, USA.
	Jäger H. 2015. Ecological Restoration in Galapagos. Invited talk at the Universidad San Francisco de Quito, Ecuador.
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	Lincango MP & G Heimpel. 2015. Biología reproductiva de Philornis downsi. Searching for Solutions for the Control of the avian parasite, *Philornis downsi.* Second workshop. 9-10 February. Puerto Ayora, Galápagos, Equador.
	Mieles A. 2015. Ecología química de *Philornis downsi.* Searching for Solutions for the Control of the avian parasite, *Philornis downsi*. Second workshop. 9-10 February. Puerto Ayora, Galapagos, Ecuador.

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Thesis	2013	**Anchundia D.** 2013. Population size of blue-footed boobies in Galápagos: evaluation of indecations of population decline. M.Sc. Thesis, Department of Biology, Wake Forest University, Winston-Salem, North Carolina, USA. 73 pp.
		Carrión-López J. 2013. Monitoreo del comportamiento espacial de turistas en sitios cercanos a zonas pobladas de las islas Santa Curz e Isabela usando SIG. Disertación para Ingeniera en Ecoturismo y Guía de Turismo Nacional, Pontificia Universidad Católica del Ecuador, Quito, Ecuador. 100 pp.
		Duchicela-Escobar J. 2013. Soil symbionts as filters and their environmental consequences. Ph.D. Dissertation, Department of Biology, Indiana University, Bloomington, Indiana, USA. 145 pp.
		Street P. 2013. Abundance , survival, and breeding probabilities of the critically endangered waved albatross. M.Sc. Thesis, Department of Fish, Wildlife and Conservation Biology, Colorado State University, Fort Collins, Colorado, USA. 101 pp.
		Zimmerhackel J. 2013. Assessment of bycatch and discards of the Galapagos handline fishery. M.Sc. Thesis, University of Hamburg, Institute of Hydrobiology and Fisheries Science, Hamburg, Germany. 84 pp.
	2014	**Chong C.** 2014. Estudio del ciclo gonadal del camotillo (*Paralabrax albomaculatus*) en la provincia insular de Galápagos. Tesis de Licenciatura en Biología, Escuela Superior Politécnica del Litoral, Guayaquil, Ecuador. 100 pp.
		Ellis D. 2014. The significance of seed dispersal by Galapagos tortoises to alien plants under anthropogenic climate change. B.Sc. Thesis, Fach: Biogeographie, Universität Trier, Trier, Deutschland. 28 pp.
		Grace J. 2014. Endocrine-mediated organizational effects on personality and stress in Nazca boobies. Ph.D. Dissertation, Biology, Wake Forest University, Winston-Salem, North Carolina, USA. 216 pp.
		Lahuatte P. 2014. Método de crianza de *Philornis downsi* (Diptera: Muscidae) "mosca parásita" en condiciones de laboratorio, para facilitar estudios tendientes a su control en las Islas Galápagos-Ecuador. Tesis de Licenciatura en Ciencias Bilológicas y Amibientales, Universidad Central del Ecuador. 80 pp.
		Meise K. 2014. Intra-sexual competition and the development of social relationships among male Galapagos sea lions (*Zalophus wollebaeki*): an irreconcilable contradiction? Thesis for Doctor of Natural Sciences, University of Bielefeld, Faculty of Biology, Bielefeld, Germany. 194pp.
		Redin-Puebla G. 2014. Formas religiosas de representar la naturaleza: el campo católico y la consagración del Galápagos conservado. Disertación para Sociólogo con mención en Desarrollo, Pontificia Universidad Católica del Ecuador, Quito, Ecuador. 150 pp.
		Trueman A. 2014. Towards effective management of modified ecosystems in Galapagos. Ph.D. Thesis, The University of Western Australia, Schools of Plant Biology and Earth & Environment, Crawley, WA, Australia. 224 pp.
	2015	**Pilataxi-Reinoso B.** 2015. Distribucióny preferencia de hábitat de moluscos terrestres (Mollusca: Gastropoda) en la provincia de Galápagos - Ecuador. Tesis de Licenciatura en Ciencias Biológicas y Ambientales, Universidad Central del Ecuador. 93 pp.
		Ruiz-Jarrin D. 2015. Energy flow and tropic structure of Galápagos shallow rocky reef systems along a gradient of productivity and artisanal fisheries. Thesis for Doctor of Natural Sciences, University of Bremen, Faculty of Biology and Chemistry, Bremen, Germany. 144 pp.
		Vilema D. 2015. Diseño de una campaña de comunicación y educación ambiental sobre la conservación de las agregaciones de desove del Bacalao de Galápagos (*Mycteroperca olfax)* y del Tiburón Ballena (*Rhincodon typus*) en las Islas Galápagos. Tesis para Licenciada en Comunicación Ambiental, Universidad San Francisco de Quito, Ecuador. 108pp.

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*July 2016 Lists

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Associated scientists

X : indicates Yes
O: indicates yes with other organisations
PsD: To be determined
Name in bold - participates in more than one project

Name	Institute	Project	Own Project	Travels to Galapagos	+ Group	Sample Reception for Analysis	Main Activity
Ken Collins	Southampton U., UK	Invasoras marinas		X		PsD	Asesoría
Terry Dawson	U. Dundee, UK	Invasoras marinas		X		PsD	Asesoría
Jim Carlton	Williams College, USA	Invasoras marinas		X		X	Asesoría
Greg Ruiz	STRI, USA	Invasoras marinas		X		X	Asesoría
Luis Vinueza	USFQ, Ecuador	Invasoras marinas		X			Investigación
Patricia Parker	U. St. Louis, USA	*Philornis downsi*				X	Analizar Philornis para determinar si es un vector de enfermedades
Martin Quiroga	LECEN-FCV-UNL	*Philornis downsi*	O	X		X	Determinar origen de Philornis a través de estudios genéticos
Roger Moon	U. Minnesota, USA	*Philornis downsi*		PsD		X	Desarrollar sistema para determinar edad de moscas. Asesoría crianza moscas
Bradley Sinclair	NCNI, Canada	*Philornis downsi*				X	Identificación Philornis y otras moscas de Galápagos
Alvaro Barragán	PUCE, Ecuador	*Philornis downsi*		PsD			Presencia y biología Philornis en Ecuador continental
Sabine Tebbich	U. Viena, Austria	*Philornis downsi*	X	X	X	X	Evaluar impacto Philornis y químicos repelentes
Arno Cimadom	U. Viena, Austria	*Philornis downsi*		X		X	Evaluar impacto Philornis y químicos repelentes
Stephen Teale	SUNY-ESF, USA	*Philornis downsi*		X	X	X	Identificar químicos atrayentes de Philornis
Alejandro Mieles	SUNY-ESF, USA	*Philornis downsi*		X		X	Identificar químicos atrayentes de Philorni
Kristin Doherty	SUNY-ESF, USA	*Philornis downsi*		PsD			Identificar químicos atrayentes de Philorni
Lindi Quackenbush	SUNY-ESF, USA	*Philornis downsi*		X			Identificar atrayentes de Philornis
George Heimpel	U. Minnesota, USA	*Philornis downsi*		X	X	X	Análisis factibilidad control biológico de Philornis
Mariana Bulgarella	U. Minnesota, USA	*Philornis downsi*		X		X	Análisis factibilidad control biológico de Philornis
Paola Lauhautte	U. Minnesota, USA	*Philornis downsi*		Psd			Análisis factibilidad control biológico de Philornis
Gabriel Brito	U. Minnesota, USA	*Philornis downsi*		Psd			Análisis factibilidad control biológico de Philornis
Dave Chaddee	U. West Indies, Trinidad	*Philornis downsi*		Psd			Taller de Philornis
Raymond Martinez	U. West Indies, Trinidad	*Philornis downsi*		Psd			Taller de Philornis
Boaz Yuval	U. Hebrea, Israel	*Philornis downsi*		X		X	Análisis endosimbiontes asociados a Philornis
Edouard Jurkevitch	U.Hebrea, Israel	*Philornis downsi*		X		X	Análisis endosimbiontes asociados a Philornis
Deborah Freund	U. Wisonsin, USA	*Philornis downsi*		X	PsD		Participación voluntarios extranjeros
Dale Clayton	U. Wisonsin, USA	*Philornis downsi*	X	X	X	X	Evaluacion metodo de control de Philornis
Oscar Molla	U. Valencia, España	*Philornis downsi*		X			Evaluacion metodo de control de Philornis
Sanford Porter	USDA-ARS, USA	*Hormigas invasoras*		PsD		X	Control biológico de Solenopsis geminata
Ben Hoffman	CSIRO Australia	Hormigas invasoras		PsD		X	Asesoria
Frederik Hendrickx	U. Ghent, Belgium	Hormigas invasoras		PsD		X	Asesoria
Wouter Dekoninck	U. Ghent, Belgium	Hormigas invasoras		PsD		X	Asesoria y identificación de especies
Jhon Lattke	U. Simon Bolivar, Venezuela	Hormigas invasoras				X	Asesoria y identificación de especies
William P. Mackay	U. Texas, USA	Hormigas invasoras				X	Asesoria y identificación de especies
Fernando Fernández	U. Nacional de Colombia, Colombia	Hormigas invasoras		PsD		X	Asesoria y identificación de especies
Jhon T. Longino	U. Utah, USA	Hormigas invasoras				X	Asesoria y identificación de especies
Brian Fisher	CAS, USA	Hormigas invasoras				X	Asesoria y identificación de especies
Thibaut Delsine	Royal Belgian Inst. Nat. Sci.	Hormigas invasoras				X	Asesoria y identificación de especies
Alex Wild	U. Texas, USA	Hormigas invasoras				X	Asesoria y identificación de especies
John Heraty	U. California, USA	Polistes y hormigas invasoras				X	Asesoria y identificación de especies
Alexander Mikeyev	Okinawa Institute of Science & Technology	Hormigas invasoras		PsD		X	Asesoria
Wacho Tapia	Galapagos Conservancy	Hormigas invasoras					Asesoria
Stephen Blake	Max Plank Insitute, USA	Hormigas invasoras	X	X			Asesoria
Bart Drees	Texas A & M, USA	Hormigas invasoras		X		PsD	Asesoria
Sergio Sanchez	Universidad de Mexico	Hormigas invasoras		X		PsD	Asesoria
Alejandro Calixto	Dow Agrochemicals, USA	Hormigas invasoras		Psd			Asesoria
Fernando Romero	Esc. Sup. Pol. del Chimborazo	Hormigas invasoras		Psd		PsD	Asesoria
Armando Espinoza	Esc. Sup. Pol. del Chimborazo	Hormigas invasoras		PsD		PsD	Asesoria
Carl Vangestel	Royal Belgian Inst. Nat. Sci.	Hormigas invasoras		PsD		X	Asesoria y identificación de especies
Phil Ward	U. California, USA	Hormigas invasoras		x		X	Asesoria y identificación de especies
Andy Suarez	U. Illinois, USA	Hormigas invasoras				x	Asesoria y identificación de especies
E.O Wilson	U. Harvard, USA	Hormigas invasoras				X	Asesoria y identificación de especies
Brian Heterik	Curtin U., Australia	Hormigas invasoras				X	Asesoria y identificación de especies
Barry Bolton	Natural History Museum, USA	Hormigas invasoras				x	Asesoria y identificación de especies
Rachel Atkinson	UK	Los Gemelos		X			Control biologico de la mora
Harold Evans	CABI, UK	Control biológico mora y cascarilla				X	Evaluacion control biologico cascarilla y mora
Carol Ellison	CABI, UK	Control biológico mora		X		X	Control biologico de la mora
Hugo Valdebenito	USFQ, Ecuador	Control de la mora					Colaboración para realizar monitoreo en San Cristóbal
Chris Buddenhagen	U. Florida, USA	Control conventional Cascarilla					Evaluacion control cascarilla
Ingeborg Haug	U. Tuebingen, Alemania	Analisis genetico Cascarilla				X	Analisis genético cascarilla
Juan Pablo Suarez	UTPL, Ecuador	Analisis genetico Cascarilla				X	Analisis genético cascarilla
Paulo Herrera	UTPL, Ecuador	Analisis genetico Cascarilla				X	Analisis genético cascarilla
Lynn Carlson	Brown U., USA	Impacto expansión invasoras		PsD			Expansión plantas invasoras
Kealohanuiopuna Kinney	Brown U., USA	Impacto expansión invasoras		PsD			Expansión plantas invasoras
Mandy Trueman	U. W. Australia	Impacto expansión invasoras					Evaluación plantas invasoras
James Gibbs	SUNY-ESF, USA	GV2050	O	X			Asesoria
Wacho Tapia	Galapagos Conservancy	GV2050	O	X			Asesoria
Frank Sulloway	Berkley U., USA	GV2050	X	X			Asesoria
Marco Alberto Alvarez	ESPOL, Ecuador	Pesquerías		X			Asesoria
Jorge Sonnenholzner	ESPOL, Ecuador	Pesquerías		X			Asesoria, analisis
Paolo Usseglio	U. Hawaii, USA	Pesquerías				X	Asesoria, analisis
Alan Friedlander	U. Hawaii, USA	Pesquerías					Asesoria
Richard Preziosi	Manchester U., UK	Pesquerías		X		X	Asesoria, analisis
Alicia Bertolotti	Manchester U., UK	Pesquerías		X		X	Asesoria, analisis
Boris Worm	Dalhousie U., Canada	Pesquerías		X			Asesoria, analisis
Tyler Eddy	Dalhousie U., Canada	Pesquerías		X			Asesoria, analisis
Isabel Haro	U. Queensland, Australia	Pesquerías		X		X	Asesoria, analisis
Ian Tibbetts	U. Queensland, Australia	Pesquerías				X	Asesoria, analisis
Paul Barber	UCLA, USA	Pesquerías				X	
Octavio Aburto	SCRIPPS, USA	Pesquerías		X		X	
Beate Hillmann	Swedish U. Agricultural Science	Pesquerías		X		X	asesoría
David Acuña	Massey U., Nueva Zelanda	Montes submarinos		X			Investigación
Serge Planes	Perpignan U., Francia	Montes submarinos					Supervisión y asesoría
Nicolas Pascal	Perpignan U., Francia	Montes submarinos					Supervisión y asesoría
Jon Witman	Brown U., USA	Montes submarinos		X			Investigación

Observations
Vienen Feb 2015
Vienen Feb 2015
Vienen Feb 2015
Vienen Feb 2015
Dr Parker tiene otros proyectos en Glps no relacionados a esto
Solo viaja a Galapagos para el taller -no para realizar investigaciones. Nuestro rol es enviar muestras para estudios geneticos
Determinar rango de especies que pudieron ser afectados por el control biológico de Philornis y apoyo en identificación de Diptera en la colección.
Tendrá un estudiante de tesis trabajando con el y posiblemente vendrá a Galápagos
Stephen Teale y su grupo forma parte del equipo del proyecto liderado por Charlotte Causton y Piedad Lincango
PhD de Stephen Teale. Forma parte del equipo del proyecto liderado por Charlotte Causton y Piedad Lincango
Masters de Stephen Teale. Forma parte del equipo del proyecto liderado por Charlotte Causton y Piedad Lincango
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Determinar rango de especies que pudieron ser afectados por el control biológico de Philornis y entender biología Philornis. Forma parte del equipo del proyecto liderado por Charlotte Causton y Piedad Lincango
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Forma parte del equipo del proyecto liderado por Charlotte Causton y Piedad Lincango
Dale y su grupo (incluyendo a Sarah Knutie) son científico visitantes
Prometeo PNG
Apoyo en la evaluación del impacto del control de hormigas sobre tortugas
Apoyo en la evaluación del impacto del control de hormigas sobre tortugas
Invitado por CI Manejo hormigas zonas agrícolas
Invitado por CI Manejo hormigas zonas agrícolas
Hormigas encontradas en Ecuador continental
Hormigas encontradas en Ecuador continental
Asesoría
Investigación
Investigación
Asesoría
Investigación
Asesoría
Asesoría
Colaboración
Colaboración
Asesoría
Estudiantes visitando
Estudiantes visitando
Estudiantes visitando
Estudiante visitando
Estudiantes visitando
Estudiantes visitando

X : indicates Yes
O: indicates yes with other organisations
PsD: To be determined
Name in bold - participates in more than one project

Name	Institute	Project	Own Project	Travels to Galapagos	+ Group	Sample Reception for Analysis	Main Activity
Euan Harvey	Curtin U., USA	Montes submarinos		X			Asesoría
James Bell	Victoria U. of Wellington, NZ	Montes submarinos		X			Asesoría
James Leichter	SCRIPPS, USA	Montes submarinos		X			Investigación oceanográfica
James Reimer	U. Ryukyus, Japón	Montes submarinos					Asesoría
Adam Soule	Woods Hole OI, USA	Montes submarinos		X			Análisis batimetrico geológico
Marti Anderson	Massey U., Nueva Zelanda	Montes submarinos					Supervisión y asesoría analisis de datos y diseño experimental
Glyn Young	Durrell Wildlife Conservation Trust, UK	Pinzón Manglar		X			Experto conservación pinzón de manglar
Catherine Francescon	Durrell Wildlife Conservation Trust, UK	Pinzón Manglar		X			Experto conservación pinzón de manglar
Rich Switzer	-	Pinzón Manglar		X			Experto crianza en cautiverio
Nicole LaGreco	San Diego Zoo, USA	Pinzón Manglar		X		X	Experto crianza en cautiverio
Beau Parkes	San Diego Zoo, USA	Pinzón Manglar		X			Experto crianza en cautiverio
Ann Knutson	San Diego Zoo, USA	Pinzón Manglar		X			Experto crianza en cautiverio
Erwin Nemeth	BirdLife Austria	Pinzón Manglar		X		X	Determinación genética
Sabine Tebbich	U. Viena, Austria	Aves paserinas	X	X	X	X	Determinar estatus aves paserinas
Arno Cimadom	U. Viena, Austria	Aves paserinas		X			Determinar estatus aves paserinas
Nikolaus Filek	U. Viena, Austria	Aves paserinas		X			Determinar estatus aves paserinas
Nina Gallmetzer	U. Viena, Austria	Aves paserinas		X			Determinar estatus aves paserinas
Erwin Nemeth	BirdLife Austria	Aves paserinas		X			Determinar estatus aves paserinas
Michael Dvorak	BirdLife Austria	Aves paserinas		X			Determinar estatus aves paserinas
Beate Wendelin	BirdLife Austria	Aves paserinas		X			Determinar estatus aves paserinas
Sonia Kleindorfer	Flinders U., Australia	Aves paserinas	O	X	X	X	Determinar estatus aves paserinas
Katharina Peters	Flinders U., Australia	Aves paserinas		X			Determinar estatus aves paserinas
James Gibbs	SUNY-ESF, USA	Aves paserinas		X			Apoyar al desarrollo de metodologías de monitoreo de aves
Patricia Parker	U. St. Louis, USA	Aves paserinas	X			X	Analizar genetica de pájaro brujo y enfermedades de aves
Ken Petren	U. Cincinnati, USA	Aves paserinas				X	analisis geneticos
Jakob Müller	Max Planck, Alemania	Aves paserinas				X	analisis geneticos
George Heimpel	U. Minnesota, USA	Aves paserinas		X			impacto de Philornis en el papamosca de Galapagos
Diego Cisneros	Univ. San Francisco de Quito	Aves paserinas		X			determinar estatus cucuve de San Cristobal
Kate Huyvaert	Colorado State U., USA	Pingüinos y cormoranes / albatros	X	X	X	X	colaboración-análisis
Paul Doherty	Colorado State U., USA	Pingüinos y cormoranes / albatros					colaboración-análisis
Patty Parker	U. Missouri, USA	Pingüinos y cormoranes / albatros	X		X	X	colaboración-enfermedades
Antje Steinfurth	U. Cape Town, USA	Pingüinos y cormoranes / albatros					asesoría
Edison Encalada	FMVZ-UCE, Ecuador	Pingüinos y cormoranes / albatros					colaboración con tesistas
Richard Rodriguez	FMVZ-UCE, Ecuador	Pingüinos y cormoranes / albatros					colaboración con tesistas
Hernan Vargas	Fondo Peregrino, Ecuador	Pingüinos y cormoranes / albatros					asesoría
Carlos Valle	USFQ, Ecuador	Pingüinos y cormoranes / albatros					asesoría
Diego Paez	USFQ, Ecuador	Pingüinos y cormoranes / albatros				X	Colaboración-laboratorio
Paola Calle	ESPOL, Ecuador	Pingüinos y cormoranes / albatros		X	X	X	Colaboración-laboratorio
Gabriele Gentile	U. Tor Devergata, Italia	Pingüinos y cormoranes / albatros	X	X			asesoría
Marti Anderson	Massey U., Nueva Zelanda	Tiburones					Supervisión y asesoría analisis de datos y diseño experimental
Mathew Pwley	Massey U., Nueva Zelanda	Tiburones		X			Investigación
Adam Smith	Massey U., Nueva Zelanda	Tiburones		X			Investigación
David Acuña	Massey U., Nueva Zelanda	Tiburones		X			Investigación
Euan Harvey	Curtin U., USA	Tiburones		X			Asesoría
Neil Hammerschlag	Miami U., USA	Tiburones				X	Análisis de muestras
Al Dove	Georgia Aquarium, USA	Tiburones		X		X	Análisis de muestras
Alex Hearn	Turtle Island Res. Network, USA	Tiburones		X			Investigación
Jonathan Green	Galapagos Whale Shark Project	Tiburones		X			Investigación
Heather Marshall	U. Sarasota, USA	Tiburones		X			Investigación
Stuart Banks	-	Monitoreo ecológico		X			Investigación
John Morrison	NCSU/UNCW, USA	Monitoreo ecológico					Asesoria
Matthias Wolff	ZMT, Alemania	Monitoreo ecológico	X	PsD		X	
Marc Hockings	U. Queensland, Australia	Monitoreo ecológico					Asesoria
Jon Witman	Brown U., USA	Monitoreo ecológico	X	X		X	Tratamientos experimentales interacciones troficas marinas + monitoreo largo plazo sitios central SE de la RMG.
Soledad Luna	Dresden U., Alemania	Monitoreo ecológico	X			PsD	Dinamica pesquero de langostas entre Continente y Galapagos
Steve Gaines	UC-Davis, USA	Monitoreo ecológico	O	X			Proyecto proprio con CI-DPNG
Gustav Paulay	U. Florida, USA	Monitoreo ecológico profundo		X		X	Colaboración, identificacion especies
Bernardette Holthuis	U. Florida, USA	Monitoreo ecológico profundo					Colaboración, electronic database
Bernhard Riegl	NSU, USA	Monitoreo ecológico					Colaboración, evaluacion de corales impactos naturales
Peter Glynn	U. Miami, USA	Monitoreo ecológico					Colaboración, evaluacion de corales impactos naturales
Luis Vinueza	USFQ, Ecuador	Monitoreo ecológico	O	X			zona inter-mareal
Margarita Brandt	USFQ, Ecuador	Monitoreo ecológico		X			especialista en erizos de mar
Daniel Orellana	U. Cuenca, Ecuador	Galapagos 360		X			Investigación y análisis
Raleigh Seamster	Google Earth Outreach, USA	Galapagos 360		PsD			Participante y colaboración Google
John Bailey	Google Earth Outreach, USA	Galapagos 360		PsD			Participante y colaboración Educación
Richard Vevers	Catlin Seaview Survey, Australia	Galapagos 360		PsD			Particanpte y especialista técnica submarina
Jennifer Austin	Google Oceans, USA	Galapagos 360		PsD			Participante y colaboración Google
James Gibbs	SUNY-ESF, USA	Galapagos 360		X			Asesoría
Dan Sherman	USA	Galapagos 360		X			Experto y asesoría

Observations
También en proyecto philornis y aves paserinas
Apoyo al plan de conservación aves terrestres abajo proyecto Sabine Tebbich abajo proyecto Sabine Tebbich abajo proyecto Sabine Tebbich abajo proyecto Sabine Tebbich abajo proyecto Sabine Tebbich abajo proyecto Sabine Tebbich Sonia es científico visitante y trabaja directamente con DPNG abajo proyecto Sonia Kleindorfer Dr Parker tiene otros proyectos en GIps relacionado y no relacionado a esto Colaborator del proyecto Philornis liderado por Causton y Lincango colaboracion a determinar
Posiblemente, si se gana la propuesta del SENACYT
Supervisora de PhD de David Acuña Candidato de PhD Componente tiburón ballena Componente tiburón ballena Experta en toma de sangre y análisis
Red: Modelaje oceanografica/ Cambio climatico Red: MPA/ Evaluacion Red: MPA/ Evaluacion auspiciado por CI directamente con el DPNG

Visiting Scientists and Collaborators

LEADING SCIENTIST	SCIENTIST	MEMBERS	NATIONALITY	DATES OF ENTRY AND EXIT OF GALAPAGOS		PROJECT	GROUP-INSTITUTION	LICENSED SITE VISIT	E-MAIL
				ARRIVAL	DEPARTURE				
WITMAN JONATHAN	Colaborador	Principal	Estado Unidense	1/1/15	1/20/15	Effects of outcropping	Brown University	Sitios de Buceo	<Jon_Witman@brown.edu>
Witman Jonathan	Colaborador	Robert Lamb	Estado Unidense	1/4/15	1/25/15	and productivity	Brown University	Sitios de Buceo	NA
Witman Jonathan	Colaborador	Alejandro Pérez	Chilena	1/4/15	1/13/15	in subtidal rock	Brown University	Sitios de Buceo	NA
Witman Jonathan	Colaborador	Franz Smith	Neozelandesa	03/01/201	2/28/15	wall communities	Brown University	Sitios de Buceo	NA
STEINFARTZ SEBASTIAN	Colaborador	Principal	Alemana	NA	NA	Evaluaciòn del estado taxonòmico	University of Bielefeld	San Cristobal	<sebastian.steinfartz@uni-bielefeld.de>
Steinfartz Sebastian	Colaborador	Maria Dolores Astudillo	Ecuatoriana	1/1/15	1/13/15	y conservaciòn de las iguanas	University of Bielefeld	San Cristobal	NA
Steinfartz Sebastian	Colaborador	Alejandro Ibáñez	Española	1/1/15	1/23/15	marinas en la isla de San Cristòbal	University of Bielefeld	San Cristobal	NA
TEBBICH SABINE	Colaborador	Principal	Austriaca	1/24/15	2/26/15	The influence	University of Viena	Santa Cruz	<sabine.tebbich@univi.ac.at>
Tebbich Sabine	Colaborador	Christian Schulze	Alemana	1/24/15	2/13/15	of parasitism	University of Viena	Santa Cruz	NA
Tebbich Sabine	Colaborador	Nikolaus Filek	Austriaca	1/24/15	4/28/15	and	University of Viena	Santa Cruz	NA
Tebbich Sabine	Colaborador	Michael Dvorak	Austriaca	1/8/15	16/03/02015	environmental	University of Viena	Santa Cruz	NA
Tebbich Sabine	Colaborador	Erwin Nemeth	Austriaca	1/1/15	2/28/15	factors	University of Viena	Santa Cruz	NA
Tebbich Sabine	Colaborador	Beate Wendelin	Austriaca	1/8/15	3/9/15	on breeding	University of Viena	Santa Cruz	NA
Tebbich Sabine	Colaborador	Paul Schmidt	Alemana	1/24/15	5/20/15	success	University of Viena	Santa Cruz	NA
Tebbich Sabine	Colaborador	Nina Gallmetzer	Austriaca	1/24/15	4/18/15	and population	University of Viena	Santa Cruz	NA
Tebbich Sabine	Colaborador	Denis mosquera	Ecuatoriana	Residente T	NA	develpment	University of Viena	Santa Cruz, Cristóbal e Isabela	NA
Tebbich Sabine	Colaborador	Patricio Herrera	Ecuatoriana	1/26/15	5/31/15	of Darwin`s finches	University of Viena	Santa Cruz, Cristóbal e Isabela	NA
CLAYTON DALE	Visitante	Principal	Estado Unidense	3/16/15	4/13/15	Impact	University of Utah	Santa Cruz	clayton@biology.utah.edu
Clayton Dale	Visitante	Sabrina McNew	Estado Unidense	1/18/15	4/21/15	of	University of Utah	Santa Cruz	NA
Clayton Dale	Visitante	Graham Godman	Estado Unidense	1/18/15	4/21/15	introduced	University of Utah	Santa Cruz	NA
Clayton Dale	Visitante	Sarah Knutie	Estado Unidense	1/25/15	2/14/15	and	University of Utah	Santa Cruz	NA
Clayton Dale	Visitante	Miriam Clayton	Estado Unidense	3/16/15	4/13/15	native	University of Utah	Santa Cruz	NA
Clayton Dale	Visitante	Sarah Bush	Estado Unidense	3/16/15	4/13/15	ectoparasites	University of Utah	Santa Cruz	NA
Clayton Dale	Visitante	Mike Skinner	Estado Unidense	3/16/15	3/21/15	on	University of Utah	Santa Cruz	NA
Clayton Dale	Visitante	Janaí Yepez	Ecuatoriana	Local	NA	Darwin's		Santa Cruz	NA
CONROY JESSICA	Visitante	Principal	Estado Unidense	07/012015	1/21/15	finches	University of Utah	Santa Cruz y Baltra	jconro@illinois.edu
Conroy Jessica	Visitante	Bronwen Konecky	Estado Unidense	07/012015	1/21/15	and	University of Utah	Santa Cruz y Baltra	NA
Conroy Jessica	Visitante	Nicholas James	Estado Unidense	07/012015	1/21/15	Galapagos	University of Utah	Santa Cruz y Baltra	NA
Conroy Jessica	Visitante	Jean Bailon	Ecuatoriano	local	local	Mockingbirds	University of Utah	Santa Cruz y Baltra	NA
Conroy Jessica	Visitante	David Noone	Australiano	07/012015	1/21/15		University of Utah	Santa Cruz y Baltra	NA
PODOS JEFFREY	Visitante	Principal	Estado Unidense	1/25/15	2/7/15	Morphology	University	Santa Cruz	<jpodos@bio.umass.edu>
Podos Jeffrey	Visitante	Luis F.de Leon Reyna	Panameña	1/1/15	2/2/15	and	of	Santa Cruz	NA
Podos Jeffrey	Visitante	Andrew Hendry	Canadiense	01/18/2015	1/25/15	Vocal	Massachusetts	Santa Cruz	NA
Podos Jeffrey	Visitante	Marc Johnson	Canadiense	2/12/15	2/22/15	Evolution	Amherst	Santa Cruz	NA
Podos Jeffrey	Visitante	Nancy Emery	Estado Unidense	2/16/15	2/22/15	of		Santa Cruz	NA
Podos Jeffrey	Visitante	Sofia Carvajal	Ecuatoriana	2/12/15	3/12/15	Darwin`s		Santa Cruz	NA
Podos Jeffrey	Visitante	Gotanda Kiyoko	Canadiense	1/1/15	2/2/15	Finches		Santa Cruz	NA
Podos Jeffrey	Visitante	Diana Sharpe	Canadiense	1/1/15	2/2/15			Santa Cruz	NA
ABZHANOV ARKHAT	Visitante	Principal	Kazakhstan	NA	NA	Development	Harvard University	Santa Cruz y Pinta	<abzhanov@fas.harvard.edu>
Abzhanov Arkhat	Visitante	Coyle Beaty Herrera	Ecuatoriana	1/1/15	3/14/15	and evolution	Harvard University	Santa Cruz y Pinta	NA
Abzhanov Arkhat	Visitante	Juàn Merino	Ecuatoriana	1/1/15	3/14/15	of vegetarian finch	Harvard University	Santa Cruz y Pinta	NA
Abzhanov Arkhat	Visitante	Masayoshi Tokita	Japonesa	1/1/15	3/14/15	beak morphology	Harvard University	Santa Cruz y Pinta	NA
VIOLETTE SOPHIE	Colaborador	Principal	Francesa	NA	NA	Islas Galapagos	Université Pierre	Santa Cruz y Cristobal	<sophie.violette@upmc.fr>
Violette Sophie	Colaborador	Christian Dominguez	Ecuatoriana	1/18/15	Residencia	Estudios Integrados del Agua	el Marie CURIE	Santa Cruz y Cristobal	NA
SAFI KAMRAN	Colaborador	NA	Irani	1/18/15	Residencia T	Econologia del movimiento de las tortugas de Galapagos	Swiss Friends of Galapagos	CDF/PNG/Stephen Blake	NA
COLE JULIA	Visitante	Principal	Estado Unidense	1/11/15	1/27/15	Cambio climático en Galápagos:	Arizona University	Floreana,Sfe,Española,	Jecole@email.arizona.edu
Cole Julia	Visitante	Diane Thompson	Estado Unidense	1/11/15	1/31/15	variabilidad y cambios en los registros	Arizona University	Cristobal,Isabela,	NA
Cole Julia	Visitante	Gloria Jiménez	Estado Unidense	1/11/15	1/27/15	de El Niño de esqueletos de corales	Arizona University	Fernandina,Genovesa,	NA
Cole Julia	Visitante	Stephan Hiohowskyj	Estado Unidense	1/11/15	1/31/15	con bandas de crecimiento anual	Arizona University	Santiago,Marchena,	NA
KRUEGER OLIVER	Colaborador	Principal	alemana	NA	NA	Populational biology	University of Bielefeld	Pinta,Wolf,	ftrillmich@uni-bielefeld.de
Krueger Oliver	Colaborador	Paolo Piedrahita	Alemana	2/26/15	3/24/15	and health	University of Bielefeld	Darwin,Seymour,	NA
Krueger Oliver	Colaborador	Roger Hill	Britanica	2/26/15	3/24/15	of the Galapagos sea lion	University of Bielefeld	Rabida y	NA
Krueger Oliver	Colaborador	Nayden Chakarov	Bulgarian	2/26/15	3/24/15	(*Zalophus wollebaeki*)	University of Bielefeld	Santa Cruz	NA
VARGAS PABLO	Visitante	Principal	Española	2/24/15	3/9/15	The colonization history	Real	Islote Caamaño	<vargas@rjb.csic.es>
Vargas Pablo	Visitante	Beatriz Guzmàn	Española	2/24/15	3/9/15	of oceanic islands by plants:	Jardin	Islote Caamaño	NA
Vargas Pablo	Visitante	Yurena Arjona	Española	2/24/15	3/9/15	floristic, diaspore and dispersal	Botànico	Islote Caamaño	NA
Vargas Pablo	Visitante	Beatriz Rumeu	Española	2/24/15	3/9/15	analyses of the Galapagos flora	(CSIC),	Islote Caamaño	
TRAVESET ANNA	Visitante	Principal	Española	2/24/15	3/9/15	Importancia de los mutualismos simples	Universidad	Sta.Cruz,Fernandina,	atraveset@imedea.uib-csic.es
Traveset Anna	Visitante	Manuel Nogales	Española	2/24/15	3/9/15	y dobles, plantas v-vertebrados en	de	Isabela,Pinta,	NA
Traveset Anna	Visitante	Ruben Heleno	Portuguesa	2/24/15	3/9/15	islas: beneficios dobles, riestos dobles?	Malaga	Marchena y Santiago	NA
ANDERSON DAVID	Visitante	Principal	Estado Unidense	3/21/15	4/4/15	Galapagos Seabird	Wake	Española	<da@wfu.edu>
Anderson David	Visitante	jennifer Howard	Estado Unidense	3/21/15	5/16/15	Monitoring	Forest	Española	NA
Anderson David	Visitante	Enzo Reyes	Ecuatoriana	3/21/15	5/16/15	Program	University	Española	NA
PARKER PATRICIA	Colaborador	Principal	Estado Unidense	8/9/15	8/1/15	1.) Bird Deseases 2.) Galapagos Hawk Project	University	Isabela,	<jparker@umd.edu>, parker@stlzoo.org>
Patricia Parker	Colaborador	Maricruz Jaramillo	Ecuatoriana	3/17/15	8/13/15	1.) Bird Deseases 2.) Galapagos Hawk Project	of	Sta.Cruz,	NA
Patricia Parker	Colaborador	Samoa Asigau	Papua New Guinea	3/17/15	8/13/15	1.) Bird Deseases 2.) Galapagos Hawk Project	Missouri-St.Louis	Isabela,	NA
Patricia Parker	Colaborador	Jeisson Zamudio	Colombiana	3/17/15	8/13/15	1.) Bird Deseases 2.) Galapagos Hawk Project	Zoo	Sta.Cruz,	NA
Patricia Parker	Colaborador	Sage Rohrer	Estado Unidense	6/10/15	7/29/15	1.) Bird Deseases 2.) Galapagos Hawk Project		Santiago	NA
Patricia Parker	Colaborador	Lilian Silva	Brasilera	6/29/15	8/1/15	1.) Bird Deseases 2.) Galapagos Hawk Project			NA
Patricia Parker	Colaborador	Ana Morales	Ecuatoriana	6/25/15	8/1/15	1.) Bird Deseases 2.) Galapagos Hawk Project			NA
ACKERMANN ELKE	Visitante	Principal	Alemana	4/13/15	5/30/15	Historia de las Islas Galapgos como Patrimonio Natural	Leibniz-Institut für Europäische Geschichte (IEG)	Santa Cruz	Ackermann@ieg-mainz.de
CAMPEIRO GIORGIA	Colaborador	Principal	Italiana	4/16/15	6/16/15	Interacciones socio-ecológicas entre los granjeros y las tortugas gigantes en la parte rural de la isla de Sta Cruz,Galápagos	Université Libre de Buxelles	Santa Cruz	giorgia.camperio@gmail.com
FONG PEGGY	Visitante	Principal	Estado Unidense	4/29/14	5/16/15	Son los arrecifes	Universidad	Froreana, Darwin	pfong@biology.ucla.edu
Fong Peggy	Visitante	Ana Palacio	Colombiana	4/29/14	5/16/15	del Pacifico tropical	de	Froreana, Darwin	NA
Fong Peggy	Visitante	Tyler Smith	Estado Unidense	4/29/14	5/16/15	oriental cada vez	California	Froreana, Darwin	NA
Fong Peggy	Visitante	Wade McGillis	Estado Unidense	4/29/14	5/16/15	más resistententes a ENSO?		Froreana, Darwin	NA
KATHRYN HUYVAERT	Colaborador	Principal	Estado Unidense	5/11/15	5/28/15	Biología de la conservación y monitoreo poblacional del albatros de Galápagos (*Phoebastria irrorata*)	Colorado State University	Española	Kate.Huyvaert@colostate.edu
WITMAN JONATHAN	Colaborador	Principal	Estado Unidense	6/18/15	8/20/15	Effects of outcropping	Brown University	Sitios de Buceo	<Jon_Witman@brown.edu>
Witman Jonathan	Colaborador	Robert Lamb	Estado Unidense	6/18/15	27/08/205	and productivity	Brown University	Sitios de Buceo	NA
Witman Jonathan	Colaborador	Anaide Wrublevski	Brasilera	6/18/15	8/16/15	in subtidal	Brown University	Sitios de Buceo	NA
Witman Jonathan	Colaborador	Franz Smith	Neozelandesa	6/30/15	8/27/15	rock wall communities	Brown University	Sitios de Buceo	NA
GEIST DENNIS	Visitante	Principal	Estado Unidense	6/21/15	7/11/15	Continuing Studies:	University	Fernandina y Española	dgeist@uidaho.edu
Geist Dennis	Visitante	Karen Harpp	Estado Unidense	7/3/15	7/18/15	Volcanic Evolution	of	Fernandina y Española	NA
Geist Dennis	Visitante	Kevin Varga	Estado Unidense	6/21/15	7/18/15	in	Idaho	Fernandina y Española	NA
Geist Dennis	Visitante	Maggie McGuire	Estado Unidense	7/3/15	7/18/15	the	and	Fernandina y Española	NA
Geist Dennis		Daniel Sierra	Ecuatoriana	6/21/15	7/18/15	Galápagos	Colgate University	Fernandina y Española	NA

LEADING SCIENTIST	SCIENTIST	MEMBERS	NATIONALITY	DATES OF ENTRY AND EXIT OF GALAPAGOS		PROJECT	GROUP-INSTITUTION	LICENSED SITE VISIT	E-MAIL
				ARRIVAL	DEPARTURE				
FONG PEGGY	Visitante	Principal	Estado Unidense	NA	NA	Son los arrecifes	Universidad de California	Floreana, Darwin	pfong@biology.ucla.edu
Fong Peggy	Visitante	Wade McGillis	Estado Unidense	7/19/15	7/30/15	del Pacífico	Universidad de California	Floreana, Darwin	NA
Fong Peggy	Visitante	Vicktor Brandtneris	Estado Unidense	7/19/15	7/30/15	tropical oriental	Universidad de California	Floreana, Darwin	NA
Fong Peggy	Visitante	Phil Kushlan	Estado Unidense	7/19/15	7/30/15	cada vez más	Universidad de California	Floreana, Darwin	NA
Fong Peggy	Visitante	Caitlin Fong	Estado Unidense	7/19/15	7/30/15	resistententes a ENSO?	Universidad de California	Floreana, Darwin	NA
DE VRIES TJITTE	Colaborador	Principal	Holandesa	NA	NA	Estudio del Gavilán en Santa FE	Universidad	Santa Fe	
De Vries Tjitte	Colaborador	Gabriela Toscano	Ecuatoriana	8/1/15	8/16/15	Estudio del Gavilán en Santa FE	Católica	Santa Fe	NA
De Vries Tjitte	Colaborador	Sebastián Tobar	Ecuatoriana	8/1/15	8/16/15	Estudio del Gavilán en Santa FE	del	Santa Fe	NA
De Vries Tjitte	Colaborador	Cristian Poveda	Ecuatoriana	8/1/15	8/16/15	Estudio del Gavilán en Santa FE	Ecuador	Santa Fe	NA
De Vries Tjitte	Colaborador	Josué Arteaga	Ecuatoriana	8/1/15	8/16/15	Estudio del Gavilán en Santa FE		Santa Fe	NA
SOULE ADAM	Colaborador	Principal	Estado Unidense	8/6/15	8/30/15	Exploration	Woods	Santiago,	ssoule@whoi.edu
Soule Adam	Colaborador	Meghan Jones	Estado Unidense	6/5/15	7/26/15	of	Hole	Sta.Cruz,	
Soule Adam	Colaborador	Dara Tebo	Estado Unidense	8/6/15	8/30/15	the	Oceanographic	Fernandina,	NA
Soule Adam	Colaborador	Mark Dennet	Estado Unidense	8/7/15	8/30/15	Submarine	Institution	Floreana	NA
Soule Adam	Colaborador	Dorsey Wanless	Estado Unidense	8/6/15	8/30/18	Volcanic			NA
Soule Adam	Colaborador	Mark Richards	Estado Unidense	8/6/15	8/30/15	Platform			NA
Soule Adam	Colaborador	Michael Schwartz	Estado Unidense	8/6/15	8/30/15	of			NA
Soule Adam	Colaborador	Daniel Fornari	Estado Unidense	8/6/15	8/30/15	the			NA
Soule Adam	Colaborador	Michael Purcell	Estado Unidense	8/6/15	8/30/15	Galápagos Islands			NA
CAREY STEVEN	Colaborador	Principal	Estado Unidense	8/6/15	8/30/15	Exploraciòn de los fondos	Pennsylvania State	Santiago,Sta.Cruz,	NA
Carey Steven	Colaborador	Charles Fisher	Estado Unidense	6/16/15	7/8/15	submarinos profundos	University, Standfor	Fernandina,Isabela,	NA
Carey Steven	Colaborador	Anthony Rathburn	Estado Unidense	8/6/15	8/30/15	y la dorsal oceánica	Standfor University,	Darwin,	NA
Carey Steven	Colaborador	Bruce Corliss	Estado Unidense	8/6/15	8/30/15	de Galápagos	Colagate University	Wolf	NA
ZAP ADRIEN	Visitante	Principal	Estado Unidense	7/27/15	8/23/15	Evaluating thyroid	Eastern	Isabel y San Cristóbal	<azap@sgu.edu>
Zap Adrien	Visitante	Isabelle Lan	Francesa	7/27/15	8/23/15	function and establishing	Texas	Isabel y San Cristóbal	NA
Zap Adrien	Visitante	Elizabeth Rush	Estado Unidense	7/27/15	8/23/15	reference range values in the Galápagos	Herpetological	Isabel y San Cristóbal	NA
Zap Adrien	Visitante	Francisco Bravo Rada	Ecuatoriana	7/27/15	8/23/15	giant tortoise, *Chelonoidis nigra*.	Society	Isabel y San Cristóbal	NA
KRUGER OLIVER	Colaborador	Principal	alemana	NA	NA	Populational biology	University of Bielefeld	Islote Caamaño	ftrillmich@uni-bielefeld.de
Krüger Oliver	Colaborador	Tomas Kavanagh	Irlandesa	9/24/15	11/14/15	and health of	University of Bielefeld	Islote Caamaño	NA
Krüger Oliver	Colaborador	Stephanie Kalberer	Suiza	9/24/15	12/28/15	the Galapagos	University of Bielefeld	Islote Caamaño	NA
Krüger Oliver	Colaborador	Antoine Thiboult	Francesa	11/2/15	12/28/15	sea lion	University of Bielefeld	Islote Caamaño	NA
Krüger Oliver	Colaborador	Cian Luck	Irlandesa	9/23/15	12/22/15	(*Zalophus*	University of Bielefeld	Islote Caamaño	NA
Krüger Oliver	Colaborador	Carla Vivanco	Ecuatoriana	9/24/15	08/102015	*wollebaeki*)	University of Bielefeld	Islote Caamaño	NA
PARKER PATRICIA	Colaborador	NOAH PERLUT	Estado Unidense	10/9/15	10/30/15	Bird Deseases-	Unersity of New England	Cristóbal	<nperlut@une.edu>
Parker Patricia	Colaborador	Stacey Neuman	Estado Unidense	10/9/15	10/30/15	Catch them at the scene:	Unersity of New England	Cristóbal	NA
Parker Patricia	Colaborador	Rosalin Renfrew	Estado Unidense	10/10/15	24/010/2105	Identifying if Bobolinks bring novel	Unersity of New England	Cristóbal	NA
Parker Patricia	Colaborador	Jannifer Megyesi	Estado Unidense	10/10/15	24/010/2105	parasites to the Galapagos	Unersity of New England	Cristóbal	NA
BENITEZ FRANCISCO	Colaborador	Principal	Ecuatoriana	10/16/15	12/15/15	Interacciones socio-ecológicas entre los granjeros y las tortugas gigantes en la parte rural de la isla de Sta.Cruz,Galápagos	Université Libre	Santa Cruz	<benitez
Benitez Francisco	Colaborador	Giorgia Campeiro	Italiana	4/16/15	6/16/15		de Buxelles	Santa Cruz	giorgia.camperio@gmail.com
ANDERSON DAVID	Visitante	Principal	Estado Unidense	11/1/15	11/26/15	Galapagos Seabird Monitoring Program	Wake Forest University	Española	<da@wfu.edu>
Anderson David	Visitante	jennifer Howard	Estado Unidense	11/20/15	1/27/16	Galapagos Seabird Monitoring Program	Wake Forest University	Española	NA
Anderson David	Visitante	Enzo Reyes	Ecuatoriana	9/28/15	11/26/15	Galapagos Seabird Monitoring Program	Wake Forest University	Española	NA
Anderson David	Visitante	Luis Beltrán	Colombiana	11/1/15	1/27/15	Galapagos Seabird Monitoring Program	Wake Forest University	Española	NA
Anderson David	Visitante	Sydney Sheedy	Estado Unidense	11/1/15	1/27/16	Galapagos Seabird Monitoring Program	Wake Forest University	Española	NA
Anderson David	Visitante	Kristin Brunk	Estado Unidense	11/10/15	1/27/15	Galapagos Seabird Monitoring Program	Wake Forest University	Española	NA
Anderson David	Visitante	Tatiana Torres	Ecuatoriana	9/28/15	11/5/15	Galapagos Seabird Monitoring Program	Wake Forest University	Española	NA
COLE JULIA	Visitante	Principal	Estado Unidense	NA	NA	Cambio climático en Galápagos:	Arizona University	Floreana,Sfe,Española	Jecole@email.arizona.edu
Cole Julia	Visitante	Diane Thompson	Estado Unidense	11/20/15	12/3/15	variabilidad y cambios en los registros	Arizona University	Cristobal,Isabela,Fernandina,	NA
Cole Julia	Visitante	Stephan Hlowhowskyj	Estado Unidense	11/20/15	12/3/15	de El Niño de esqueletos de corales	Arizona University	Genovesa,Santiago,Marchena,z	NA
Cole Julia	Visitante	Frazer Matthews-Bird	Británica	11/20/15	12/3/15	con bandas de	Arizona University	Pinta,Wolf,Darwin,Seymour,	NA
Cole Julia	Visitante	María José Cango	Ecuatoriana	Local	Local	crecimiento anual	Arizona University	Rabida y Scruz	
STEINFARTZ SEBASTIAN	Colaborador	Principal	Alemana	11/27/15	12/21/15	Evaluaciòn del estado	University of Bielefeld	Cristobal,	<sebastian.steinfartz@uni-bielefeld.de>
Steinfartz Sebastian	Colaborador	Alejandro Ibánez	Española	11/27/15	1/31/16	taxonòmico y conservaciòn	University of Bielefeld	Genovesa,	NA
Steinfartz Sebastian	Colaborador	Dolores Astudillo	Escuatorian	11/29/15	1/24/16	de las iguanas marinas	University of Bielefeld	Marchena,	NA
Steinfartz Sebastian	Colaborador	Marcus Krüger	Alemana	11/27/15	12/10/15	en la isla de San Cristòbal	University of Bielefeld	Pinta	NA

71
Colaboradores

TOTAL 2015

70
Visitantes

Volunteers and Scholarship Grantees

LAST NAME 1	LAST NAME 2	LAST NAME 1	LAST NAME 2	NATIONALITY	POSITION	ADMISSION DATE
Chico	Hidalgo	Hemerson	Rodrigo	Ecuador	Voluntario Nacional FAE	01-Feb-15
Jansen		Jacob		Holanda	Voluntario Internacional	06-Feb-15
Villacres	Aviles	Nestor	Olmedo	Ecuador	Voluntario Nacional FAE	17-Feb-15
Álava	Castillo	Joel	Fernando	Ecuador	Voluntario Nacional	27-Feb-15
Carlosama	Ortega	Luis	Carlos	Ecuador	Voluntario Nacional FAE	27-Feb-15
Walentowitz		Anna	Johanne	Alemania	Voluntario Internacional	27-Feb-15
Tutivén	Ramón	Belgica	Alexandra	Ecuador	Voluntario Local	01-Mar-15
Sharaf	Osman	Nematullah		USA	Voluntario Internacional	10-Mar-15
Bolling		Nicolai		Noruega	Voluntario Internacional	18-Mar-15
Reyes	Ojedis	Cesar	Xavier	Ecuador	Becario de Tesis	30-Mar-15
Callejas	Larrea	Andrea		Ecuatoriana	Voluntario Nacional	25-May-15
Aumann		Casey	Lynn	USA	Voluntario Internacional	28-May-15
Colwitz		Alyssa	Jean	USA	Voluntario Internacional	28-May-15
Freeburg		Morgan	Ann	USA	Voluntario Internacional	28-May-15
Freund		Deborah	Ann	USA	Voluntario Internacional	28-May-15
Hagen		Jesse	Colton	USA	Voluntario Internacional	28-May-15
Phillips		Lachlan	Robert	Australia	Voluntario Internacional	14-Ene-15
Morales	Bucheli	Ana	Cristina	Ecuador/Canadá	Voluntario Nacional	15-Ene-15
Ramirez	Moreno	Ismael	Esai	México	Voluntario Internacional	15-Ene-15
Moya	Serrano	Ana	Victoria	Ecuatoriana	Becario de Tesis	20-Abr-15
Quiroga	Samaniego	Maria del mar		Ecuador	Becario de Tesis	20-Abr-15
Cooke		Sophia	Caroline	Britanica	Voluntario Internacional	23-Abr-15
Maturin		Susan	Elizabeth	New Zelanda	Voluntario Internacional	27-Ene-15
Wills			Dean	Gran Bretaña `	Voluntario Internacional	28-Ene-15
Moity	Martin	Pedro	Nicolas	Española	Voluntario Internacional	08-Jun-15
Miranda	Benites	Cindy	Maribel	Ecuador	Voluntario Local	09-Jul-15
Mora	Arciniegas	Nathalia	Carolina	Colombiana	Voluntario Internacional	29-Jul-15
Aguaiza	Guerrero	Valeria	Cristina	Ecuador	Voluntario Nacional	20-Jul-15
Tellwright		Natalie	Violette	Reino Unido	Voluntario Internacional	06-Ago-15
Villarroel	Cando	Nelson	Augusto	Ecuatoriana	Voluntario Nacional	03-Ago-15
Molina	Rosas	Juan	David	Ecuatoriana	Voluntario Nacional	03-Ago-15
Vaca	Cruz	Jairo	Fernando	Ecuatoriana	Voluntario Nacional	03-Ago-15
Nauwelaers		Tobias		BELGIAN	Voluntario Internacional	17-Aug-15
Rosenow		William	Todd	USA	Voluntario Internacional	21-Aug-15
Criollo	Yauli	Erika	Natalia	Ecuatoriana	Voluntario Local	27-Ago-15
Schreyer	Gorlitz	Stefanie	Tania	Ecuatoriana	Voluntario Local	01-Sep-15
Medranda	Rodriguez	Paul		Ecuatoriana	Voluntario Nacional	08-Sep-15
Coloma	Villacrés	Andrea	Daniela	Ecuatoriana	Voluntario Local	14-Sep-15
Panata	Paredes	Cinthya	Stefanía	Ecuatoriana	Voluntario Local	21-Sep-15
Mieles	Catucuago	Vicky	Maricela	Ecuatoriana	Voluntario Local	22-Sep-15
Van	Niekerk	Alma		New Zelanda	Voluntario Internacional	01-Oct_15
Pilataxi	Reinoso	Byron	Xavier	Ecuatoriana	Voluntario Local	04-Nov-15
Pike		Courtney	Lauren	Estadounidense	Voluntario Internacional	05-Nov-15
Mosquera	Muñoz	Denis	Alexander	Ecuatoriana	Voluntario Nacional	20-Nov-15
Rojas	Allieri	Maria	Lorena	Ecuatoriana	Voluntario Nacional	20-Nov-15
Alfaro	Orozco	Alejandro		Costarricense	Voluntario Nacional	10-Dic-15
Hansaki		Akiko		Japones	Voluntario Internacional	22-Dic-15
Camacho	Cadena	Yajaira	Alejandra	Ecuatoriana	Voluntario Local	04-Ene-16

fundación Charles Darwin foundation

45
Volunteers

2015 TOTAL

3
Scholarship Grantees

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