

AAPG2020	Creolecologies		ANR JCJC
Coordinated by :	Pabo CORRAL-BROTO	Duration 48 months	431 K €
scientific evaluation committee Domaines transversaux8.1. Interactions Humains-Environnement			

Creole Ecologies: an Environmental History of Biodiversity, Health and Nutrition in Tropical Island Societies (late 19th to late 20th century)

Pre-proposal's context, positioning and objective(s)

Ecological transition is one of the priorities at both the European Commission and National levels for European islands (COP21 2016; EUIslands 2019). Remote islands must deal with a number of handicaps: ultra-peripheral and insular status, small surface area, adverse topography and climate risks. The islands' balance among residual colonial economies (plantation cultures of banana, sugar, coffee, palm oil, mining, whale fishing), tourism development and, food self-sufficiency is difficult to reconcile with biodiversity conservation. Food self-sufficiency development addresses the fact that islands' dependence on a small number of products (often agricultural goods, natural resources or fossil fuels) is also an obstacle to the potential development of these islands (European Consortium for Pacific Studies, European Parliament 2014). These islands have high biodiversity but also high rates of species extinctions – especially in populated and tropical and subtropical islands (Spatz et al. 2017). They also have an ecological and cultural *creolité* or *mestizaje* that may help resolve the tensions between the needs for food production and for biological conservation.

What is their environmental history over the last two centuries? Tropical islands were among the places where environmentalism was born (Grove 1995). Yet colonial impacts on island cultures have had many negative environmental and cultural impacts (Campbell, 2018). What useful syncretic ideas, especially related to environmental stewardship, might be recovered? Can environmental history rescue from oblivion syncretisms between cultures and ecologies?

The **main objective** of 'Creole Ecologies' is to find solutions to the urgency of (1) food production, (2) environmental health and (3) conservation of biocultural diversity in islands that have a strong colonial cultural heritage and are global conservation hotspots. We will do so by (**WorkPackage1**) providing a **comparative historical perspective** to help generate forms of (re)knowledge with which to identify social processes capable of preventing the extinction of the Socio-Ecological System (SSE) by improving living conditions on the islands. The project also intends to (**WP2**) **provide strategies of territorial (re)valuation and collective management of natural resources** that, in the face of global collapse, allow the building futures based on regional socio-ecological sustainability and the islands' own history. The methodological challenge we face is to respond to issues arising from the ecological and social crisis, proposing local solutions to problems of historical management of islands systems in diverse socioeconomic contexts. We will consider **three ensembles**: Indian Ocean (O1), Caribbean Sea (O2) and the Pacific Ocean (O3).

The project's working hypothesis is that the environmental history of these 'Creole Ecologies' can help to find sustainable solutions aimed at increasing island viability and reducing island vulnerability.

WP1 provides a comparative historical perspective:

Existing academic works on Island environmental history are mostly centered on plantation cultures and sugar islands (Crosby 1984; R. Grove 1995; Funes Monzote 2013). The extermination of animal species in the 17th – 18th centuries was followed by profound environmental change through the large-scale acclimatization of new plant species and the development of intensive monocultures from the 18th to the beginning of the 20th century (Cheke et Hume 2008). Studies of natural hazards, such as cyclones, droughts or floods, in tropical islands show that history explains the mitigation systems of colonial and postcolonial island economies (Bankoff and Christensen 2016; Campbell 2018). The *longue durée* of European colonization obliges us to extend our research from the colonial periods covered by an earlier generation of environmental historians to the present.

Our **preliminary results** show that patterns of population and colonization of the islands were severely constrained not only by the slave-based plantation economy and natural hazards, but also by the work of mosquitoes and other insects. It was within 'creole ecologies' that the vector mosquitoes of yellow fever and malaria thrived (McNeill 2012). The working class district of La Rivière in St Denis on Reunion is a clear example of interaction between the environment, the human activities and health. With industrial food activities such as a slaughterhouse, and the river serving as

AAPG2020	Creolecologies		ANR JCJC
Coordinated by :	Pabo CORRAL-BROTO	Duration 48 moths	431 K €
scientific evaluation committee Domaines transversaux8.1. Interactions Humains-Environnement			

a sewer, this district appeared to be the birthplace of most epidemics in late 19th century-Reunion, and triggered the concentration of sharks just off the coast. To this day, tourism and surfing are still troubled by sharks. Urban gardening during the late 20th-century embargo in Cuba enhanced insular viability during time of crisis. The nuclear tests in the last decades altered the socio-ecological balance in French Polynesia and the Pacific Ocean. The loss of endogenous species seems to be related to the inequality among certain island populations in animal protein consumption. Today it still plays a crucial role in nature conservation policies, as also in gastronomic and consumption matters. Insular viability/vulnerability and biological conservation is therefore related to nutrition and human health.

The WP1 methodology consists of interdisciplinary diachronic studies carried out in the O1, O2 and O3 spaces. As a deep historical background approach, WP1 involves archival research and oral history methods. Research will be conducted at various libraries, national archives, universities and institutes in France, England, the USA, Cuba, Ecuador and Spain, and interviews and other research exercises will be carried out in the chosen islands.

WP2 provides strategies of territorial (re)valuation and collective management of natural resources:

Theories of the 'environmentalism of the poor' emphasizes ecological solutions from the bottom up, of the less wealthy people (Martínez-Alier, 2002). These perspectives are distinct from the mainstream current of environmentalism seeking ecological modernisation and eco-efficiency, and also from the older environmentalist current aimed at conserving a pristine nature without human interference. In the Galapagos Islands colonization missions since 19th century have created different approaches to fisheries and agricultural resource management. Intervals of over-exploitation and abandonment alternated. In the 60's the declaration of protected areas and new restrictions on fields and fisheries increased food insecurity. On the other hand, the fields have never been so secure and livestock so healthy (Jackson & Rojas Lizana, 1997). In the decades following World War II, the Pacific Ocean experienced a race for fisheries involving the main industrial nations - USA, Europe and Japan (Finley 2017). In an evolving natural environment, interactions between humans and bulldog and tiger sharks have increased (Dulvy, 2008). A symbol of human-wildlife conflict in France and around the world, this phenomenon is generating scientific, media, political and popular interest. Risk management is not unique to the French territories since Shark-Human Interactions (SHI) are relatively common in the waters of South Africa, Australia, Brazil, Hawaii and Florida (ISAF5, 2018). Since the 1990s, research programmes have generated information on shark behaviour, but the evolution of the marine environment, linked to global changes and its modification by multiple anthropogenic pressures, has led us to adapt research methods and the planning of compensatory measures.

Our preliminary results underline the role played by Polynesia and its maritime surrounding areas in this large-scale historical process: French and US industrial fishing, coastal infrastructure, diplomatic issues and interactions with local artisanal fisheries. The memory of the blockade during the Second World War can be used to build a theatrical performance capable of representing a future eco-dystopia in these islands. Until now, shark risk management has often referred to the confrontation between two stakeholders: "pro-fisheries" (for fishing programmes to prevent large predators such as bulldog and tiger sharks) and "anti-fisheries" (against these fisheries policies). While fishing today seems to be a technically viable risk reduction tool, it would seem appropriate to set up a participatory scientific consultation with the objective of working on other ecologically sustainable risk reduction systems.

The WP2 methodology consists of qualitative studies in a comparative perspective, restoration programs and art performance able to (re)valuate and manage natural resources in the O1, O2 and O3 spaces. Social science methods, from environmental geography, sociology and political ecology, such as participatory learning approach and Cultural Domain Analysis (Newing, 2011), will be deployed with environmental science and art performances.

AAPG2020	Creolecologies		ANR JCJC
Coordinated by :	Pabo CORRAL-BROTO	Duration 48 moths	431 K €
scientific evaluation committee Domaines transversaux 8.1. Interactions Humains-Environnement			

The WP1 and WP2 will be monitored by three research workshops, from bibliographical and field trip first steps to the analyses and presenting results, of three types : (a) a research seminar; (b) online semestrial meetings and (3) international meetings. The monitoring of these meetings will allow us to form specific research, academic and policy consulting tasks in tropical islands and, at least, give advice to the art director (who would have already done residencies in archives).

Innovative nature, ambitiousness and originality of the objectives and the methodology

Our results and outcomes will have three orientations: (1) academic research & educational production; (2) a solutions platform to advise public policies and local communities (EcoCultural restoration) and (3) a theatrical play for the public in general. Our innovation resides in the conciliation of two instruments: history and island ecologies as laboratory. The impact scope target to address the 'pluriversal' keys able to manage society and environmental sustainability in a pluralistic view. These keys can help to imagine a peaceful and sustainable conciliation between cultures and their ecologies. Elucidating the syncretism of Creole Ecologies will help to understand and prevent future conflicts. As social and environmental scientists, as artists or political scientists we can harness the power of syncretism and new and inspiring cultural and biological diversities to build new systems that recognize the historical context and the endogenous solutions that can help build positive futures.

The assembling and dissemination of the results of such analyses will be completed by attendance at national seminars and international conferences, publication of at least 4 impact articles. Two ongoing PhD dissertations will be completed and two HDR will be supported in France. Creoles Ecologies will prepare one edited book, prefaced or introduced by John McNeill. Another book about Eden islands in a global context from the 18th century to the Anthropocene will be supported. Online educational and scientific tools will be considered along the monitoring of the project. We will support and encourage international and scientific exchanges (by using Cooperation Agreements ECOS or others funding with Latin America or regional funds). Developing a solutions platform to tackle social and environmental problems can be a future tool of legal information and advice on how to deal with new environmental conflicts regarding biocultural diversity, affected communities can contact the network and get advice. The project will benefit the existing services of our institutions, regional services and networks to diffuse and spread the results we expect: Charles Darwin Foundation, Ruche (French Network for Environmental History), Ruedha (Spanish Network for Environmental History), Sab-Ins (Saber-Insituyentes Network in Latin America and Europe), EcoHealth Alliance. We are all leading members of these international scientific teams.

Ability of the project to address the research issues covered by the chosen research theme

The expertise of the members of the project cover all the keywords of the transverse research axis 8.1. We are experts in environmental and social sciences, through history in European and Oceanic Worlds; in political and ecological transitions; and in nature conservation and restoration methods. We are competent to address the history of environmental standards, justice and rights, especially the global commons (common land and forests, water, oceans, air, health, etc.). The team has worked on the history of technological risks and climate change before this project. We are interested in bringing to the present the past socio-ecological behaviors in a multi-actor analysis. We are able also to deliver and reevaluate vernacular and scientific knowledge, and to reassess environmental policies and management that enhanced adaptation, that mediated and resolved environmental crises regarding the complex balances between human and biological reproduction over a century or more. These are our domain fields. And we are going to put them to the test in the study of human health and the feeding of island societies that were and still are biodiversity hotspots.

Partnership

Pablo Corral-Broto is the scientific coordinator, assistant professor at Reunion Island University (UR, DIRE laboratory, qualification at CNU 22th and 14th sections). He has coordinated projects before

AAPG2020	Creolecologies		ANR JCJC
Coordinated by :	Pabo CORRAL-BROTO	Duration 48 moths	431 K €
scientific evaluation committee Domaines transversaux8.1. Interactions Humains-Environnement			

with Spanish and French scholars at the EHESS (France), Granada and Santiago de Compostela (Spain).

Team 1 Indian Ocean O1

Pablo Corral Broto, (UR, DIRE, Reunion, France) scientific coordinator. **WP1** and **WP2**

Jehanne Emmanuelle Monnier, (UR, CRESOI, Reunion, France) postdoc to be recruited, doctor in modern history, expert in scientific explorers in the nineteenth-century Indian Ocean, migrations and public health history. **WP1** and **WP2**

Johan Jonzo (art director, EMMA, Reunion, France), expert in testimony and heritage memories performance. **WP2**

Grégory Quenet, Professor (USQV University, France), expert in environmental history of islands and archipelago of the Indian Ocean World, Pacific World and Southern Asia. **WP1**

Romain Pinel, PhD student in sociology (UR, Reunion, France). Expert in shark human interactions. **WP2**

Team 2 Caribbean Sea O2

Pablo Corral Broto, (UR, DIRE, Reunion, France) expert in decolonial and environmental history. **WP1**

Antonio Ortega Santos, Professor (Granada University, Spain), expert in Latin American environmental history, global commons and integral restoration approaches. **WP1**

Armando Fernandez, scientific researcher of the Fundación Nuñez Jimenez (La Havana, Cuba) **WP2**

John McNeill, Professor (Georgetown University), leader in global environmental history and Greater Caribbean environmental history. **WP1**

Kevin C. Grady, Research Professor (Northern Arizona University, School of Forestry, USA), expert in biodiversity restoration and community approaches in Caribbean Sea (Porto Rico, US and UK Virgin Islands, Bahamas, French and Dutch Antilles) and in South Asian islands. **WP2**

Malcom Ferdinand, Researcher (CNRS, Paris Dauphine, France), expert in Political Ecology of the Caribbean Sea ('Une écologie décoloniale' theory for Porto Rico and French Antilles) and Civil and Environmental Engineering. **WP2**

Team 3 Pacific Ocean O3

Gabriela Rodriguez, PhD student in geography (Barcelona Autonomous University) / Researcher with the Ecuador Government's funded Charles Darwin Foundation. Expert in cultural and biological diversity restoration and island metabolism (Galapagos). **WP1** and **WP2**

Alexis Vrignon, postdoctoral researcher (MSH du Pacifique, France), historian of French environmentalism and the public history of nuclear testing in French Polynesia. **WP1**

Fabien Locher, Researcher (CNRS, EHESS), environmental historian, preparing the HDR in France about fisheries in Cold War times (Pacific Ocean). **WP1**

Romain Pinel, PhD student in sociology (UR, Tahiti, France). Expert in Human Wildlife Conflict. **WP2**

Kevin C. Grady, Research Professor (NAU, USA), expert in mangrove restoration (Galapagos). **WP2**

References related to the project

- Bankoff G. et J. Christensen (dir.), *Natural Hazards and Peoples in the Indian Ocean World*, Palgrave, 2016.
- Campbell G. (dir.), *Bondage and the environment in the Indian Ocean world*, Palgrave, 2018.
- Cheke A. et J. Hume, *Lost Land of the Dodo. An Ecological History of Mauritius, Réunion & Rodrigues*, T&A D Poyser, 2008.
- Crosby A.W., *Ecological Imperialism*, Cambridge UP, 1986.
- Dulvy N.K. et al, « You can swim but you can't hide: the global status and conservation of oceanic pelagic sharks and rays », *Aquatic Conservation: Marine and Freshwater Ecosystems*, juillet 2008, vol. 18, n° 5, p. 459-482.
- Finley C., *All the Boats on the Ocean*, Chicago UP, 2017.
- Funes Monzote R., « The Greater Caribbean: From Plantations to Tourism », *New Environmental Histories of Latin America and the Caribbean*, RCC Perspectives n° 7, 2013, p. 17-23.
- Grove R.H., *Green Imperialism: Colonial Expansion, Tropical Island Edens and the Origins of Environmentalism, 1600-1860*, Cambridge University Press, 1995.
- Jackson M.H. et I. Rojas Lizana, *Galápagos. una historia natural*, University of Calgary Press, 1997.
- McNeill J.R., *Mosquito Empires. Ecology and War in the Greater Caribbean, 1620-1914*, Cambridge UP, 2010.
- Newing H., C.M. Eagle, R.K. Puri, et C.W. Watson, *Conducting research in conservation: social science methods and practice*, London; New York, Routledge, 2011.
- Spatz D.R. et al, « Globally threatened vertebrates on islands with invasive species », *Science Advances*, 1 octobre 2017, vol. 3, n° 10, p. e1603080.