25th International Interdisciplinary Conference on the Environment



June 11-14, 2019

Sheraton Old San Juan Hotel, San Juan, Puerto Rico



Thursday June 13

8:00am-9:00am	Conference registration [Hotel Lobby]	
9:00am- 10:45am	[Held in La Puntilla] Roundtable: In Technology We Trust! Moderators: Kevin L. Hickey & Demetri Kantarelis, Assumption College	
10:45am- 11:00 am	[Held in La Puntilla Pre-Function] Break and refreshments	
11:00am- 11:30am	[Held in La Puntilla] Paper presentation: Institutional perspectives on linking Industry Associations to achieving sustainable development goals in the Caribbean Presented by Kalim Shah, University of Delaware	
11:30am- 12:00 noon	[Held in La Puntilla] Paper presentation: Beyond Laudato Se: Pope Francis and further teachings on Water, Ecogees and other Presented by Eric Fitch, Marietta College	
12:00pm- 1:00pm	[Held in Garita] Lunch break	
1:00am- 1:30pm	[Held in La Puntilla] Paper Presentation: Qualitative assessment of sustainable global energy transition models in the context of emerging and developing economies Presented by Mohammed Awojobi, University of Delaware	

1:30 pm – 2:00 pm	[Held in La Puntilla] Paper presentation: Destruction of heritage property in Larteh-Ghana: Moving away from the history Presented by Daniel Adu Atuah, Larteh Presby Primary School	
2:00pm- 2:30pm	[Held in La Puntilla] Paper presentation: Named nonhuman individuals and the purposes and emotions attributed to them Presented by Mai Kuha, Ball State University	
2:30pm- 4:30pm	 [Held in La Puntilla] Session: Decolonization: Healing the Spirit, Mind, and Land Moderator: Greg Cronin, University of Colorado Denver Keynote: The effect of spiritual consciousness on the current Taino resurgence movement Speaker: Miguel Sague (Sobaoko Koromo), Caney Indigenous Spiritual Circle Panel papers: Recent Environmental Activism on the island of Boriken (Puerto Rico), Yari Sierra The Taino Resurgence Movement on the island of Boriken (Puerto Rico), Rafael Torres, Caney Indigenous Spiritual Circle Decolonization: Transdisciplinary Environmental Restoration in Haiti, Alexandra Pierre and Greg Cronin Environmental Racism: Colonization of Water at Standing Rock, Greg Cronin 	
5:00pm- 6:00pm	[Held in] Early dinner at the hotel	
6:00PM - 8:00PM	TAINO FIELD TRIP (Complementary bus service to the site will be provided at the hotel)	

Friday June 14

9:00 AM - 12:00	
Noon	Pre-arranged one-to-one meetings

Sightseeing for interested individuals

Conference End

Keynote Speaker

Cities as Sites of Interdisciplinary Research and Transdisciplinary Progress. Shane Epting, Missouri University of Science and Technology and President, IEA

The effect of spiritual consciousness on the current Taino resurgence movement. Miguel Sague (Sobaoko Koromo), Caney Indigenous Spiritual Circle

Since approximately 1992, when many people of Caribbean ancestry began to identify in large numbers with that element of our mixed ethnic heritage that is derived from our ancient Native island ancestors, the issue of spirituality quickly rose to prominence.

There had always been scattered and, for the most part, not well-organized trends of Indigenous self-identification in Boriken (Puerto Rico), Cuba, Kiskeya (Dominican Republic) and in other islands, as well as in the enormous Caribbean Diaspora of the mainland United States and elsewhere. But it took the emotional trigger of the Quincentenial of Christopher Columbus' arrival in our homeland and the extraordinary multinational efforts to celebrate that historical milestone in the year 1992, to motivate hundreds and then thousands of Caribbean people to react in a fundamentally anti-Columbus attitude by grouping into formal organizations and collaborative associations, both in the islands and abroad.

An important aspect of this admittedly reactive attitude of the new movement was the fact that the fifteenth century colonization process initiated by Columbus' 1492 arrival in the Caribbean was accompanied by a religious proselytizing zeal that can only be described as rabid. The early Spanish conquistadors were almost demonic in the inventive and imaginative methods used to torture and murder Caribbean Indigenous people in their efforts to forcibly stamp out the Native spiritual traditions. This is the reason that spiritual consciousness took such an important place in the restorative process that we now know as the TAINO RESURGENCE MOVEMENT which began in the early 1990's.

My presentation intends to offer a picture of the important role that is played by Taino spirituality in the way that we perceive humanity's relationship with the environment and how that spiritual perception informed and enlightened the current resurgence movement. Because a harmonious relationship between humanity and the natural world around us is such an important aspect of our spiritual tradition we recognize just how crucial it is for us to reconstruct and re-adopt those ancient ways as our own if we hope to make any progress in fixing the problems that now plague our tropical geographic homeland in particular and the whole Earth in general.

Conference Abstracts

What they leave behind: Frontiers, Colonialism and the Aftermath of Resource Extraction ~ Appalachia and Oceania. Eric Fitch, Marietta College

In North America, the great Appalachian Mountain Range runs from Newfoundland Island in Canada in to north central Alabama in the United States. In the central region, for more than a hundred years industrial extraction of timber, coal, oil and natural gas. These resources flowed out of the region and provided great wealth largely to distant owners. In the central South Pacific, natural forces created three great phosphate mineral islands: Nauru, Banaba (Ocean Island) in Kiribati, and Makatea in French Polynesia. Nauru and Banaba were at one time both part of the British Empire and both islands were heavily mined destroying much of the islands' fertility and productivity. Both have struggled socially, politically and economically in the postcolonial period. Although separated by more than a third of the circumference of the Earth, central Appalachia and these two great phosphate islands have much in common both in their

struggles socially and economically, but the continued extraction and burning of fossil fuels in Appalachia "fueling" devastating impacts from Climate Change in these Oceanic Islands. This synchronicity will be explored in this paper.

Management Plan Revision and Spotted Owls in Sierra Nevada National Forests. Gordon Steinhoff, Utah State University

Land management plans for national forests across the country are currently being revised under the 2012 Planning Rule. For several national forests in the Sierra Nevada Mountains of California, the draft revised management plans call for an aggressive program of selective logging and mechanical thinning within old growth forests, which provide essential nesting and roosting habitat for California spotted owls. The purpose of the proposed treatments is to return these forests to historic conditions and make them less susceptible to high-severity fire. The Forest Service argues that the proposed forest treatments are compatible with effective spotted owl conservation.

Within documents involved in plan revision, however, the agency engages in a selective use of science, which includes relying on studies that support its traditional beliefs concerning historic forest structure and fire severity, and the impacts of high-severity fire on spotted owls, without considering the flaws and limitations of these studies. In addition, the agency dismisses studies that call into question its traditional beliefs without considering published responses to the agency's criticisms. The proposed conservation measures offer minimal protections for the owls, and many lack scientific support. The standard of judicial review applied by the courts when reviewing the agency's use of scientific information requires a highly deferential approach (judges are not scientists), but this standard also limits agency discretion. In accordance with legal precedent, the courts must conduct a "searching and careful" review of the agency's evidence, interpretations, and conclusions in order to establish that relevant factors have not been overlooked in the descriptions and analyses, and that, generally, there have been no clear errors of judgment. In response to the agency's biased use of science, the courts must not be overly deferential, but must achieve a proper balance of deference and a "searching and careful" review.

A Comparative Analysis of Plastic Bag Use in Austin and Surrounding Areas. Olivia Cason, St. Edward's University

The City of Austin, Texas is an enthusiastic advocate for sustainability and green city initiatives compared to other municipalities around the state, but are their efforts working? In March of 2013, The City of Austin Bag Ban Ordinance went into effect and prohibited businesses within the city limits from providing single-use carryout bags to customers, in addition to preventing a person, city facility or any event held on city property from providing single-use bags. The purpose of the bag ban is to decrease plastic pollution from streets and waterways and increase city beautification. Many businesses had to adapt to the new law including HEB grocery stores that, since the bag ban, now provide reusable, thicker, plastic bags to its customers for 0.25 cents. There is little knowledge on the effectiveness of the ban, and the only study produced by the city indicates more possible environmental drawbacks from the HEB reusable plastic bag than the single-use bag. Austin Resource Recovery found that although single use plastic bags have decreased, HEB reusable plastic bags have become the alternative shopping bag for customers rather than reusable canvas bags.

Research conducted in 2017 explored the effectiveness of the Austin Plastic Bag Ban at encouraging customers to use reusable canvas bags at HEB grocery stores in Austin, Texas. This study directly observed and surveyed HEB customers to estimate the percentage of customers who left HEB with their own reusable canvas bags to determine if customers in stores within the city limits were more likely to use reusable canvas bags than customers at stores outside the city limits where the ban is not in effect, while understanding if attitudes on plastic influence consumer behavior.

Institutional perspectives on linking Industry Associations to achieving sustainable development goals in the Caribbean. Kalim Shah, University of Delaware

As small island developing states (SIDS) chart development trajectories guided by the UN Sustainable Development goals (SDGs), business and industry associations, coalitions and alliances play a growing role in representing their respective members in national discourse. This role has not been empirically analyzed in Caribbean SIDS yet. This study is one of the first that characterizes the forms and functions of such associations across the Caribbean SIDS and use statistical data analysis to understand the drivers that underlie their roles in SDG goal achievement. Findings indicate that foreign-originated associations appear to show less alignment with local SDG goals but greater power relations with national influencers; while almost the opposite relationship occurs with respect to local-originated associations. Enhanced institutional pressures from respective associations, access and exposure to best practices, networking opportunities and service bundling may explain these differences. These findings are central to private sector engagement for island sustainability.

Beyond Laudato Se: Pope Francis and further teachings on Water, Ecogees and other. Eric Fitch, Marietta College

Pope Francis has set the tone in his first couple of years as Pope of being much more of a pastoral leader with an emphasis on reform of the institutional Church and a reemphasis on the clergy being servant leaders. He has emphasized justice for the poor in current and future generations. He's highlighted the duty of all to protect the natural environment, the great gift from God. In his first "solo" Pastoral Letter Laudato Si, he emphasized the existential threat of Climate Change but also spoke more broadly on the full range of Environmental Issues and Stewardship. He emphasized the linkage between harm to Creation and linked disproportionate negative impacts the poor. Although the Catholic Church in the Americas, in Europe and Oceania have stressed the need for action to Steward the Natural Environment through their national and regional churches, never before has the Vatican put this much emphasis on the Environment. Pope Francis continues to challenge both the faithful of the Church but also the greater global community and leadership on these issues. In the last two years, Pope Francis has placed particular emphasis on Water Resources and the Human right to clean water for itself and for the rest of Creation His second emphasis has been on refugees and the duty of Nation-States to provide refuge and asylum. He has also emphasized the role of Environmental damage on the creation of Ecogees. He has been emphatic in challenging to the developed world and their leadership, much to the chagrin of many of them. This paper will examine the key thoughts and pronouncements of Pope Francis on the natural environment, and how recent teachings have met both embrace and resistance in different parts of the World and the Church.

Indigenous Ecofeminism - Indian Women and the Environment. Bernice deGannes-Scott, Spelman College

Ecofeminism combines the activism of women who are both feminists and environmentalists. Ecofeminists typically fall within four main categories - liberal, cultural, social and socialist. A fifth category, indigenous ecofeminism, describes the activism of women in indigenous communities, throughout the world. The foundation of ecofeminism is the belief that there are disturbing gender differences in economic status and attitude towards the environment - men own and control the bulk of the world's resources, and they dominate and misuse the environment; women have been relegated to low socio-economic status, they are dominated by men, and they are capable of being better stewards of the environment. This paper examines the environmental activism of women in India, from the perspective of indigenous ecofeminism

The Four Diseases of Speech in Today's World and What We Can Do to Combat Them. Robin Aspman-Ocallaghan, City University of Seattle

The social scientist and philosopher Eugen Rosenstock-Hussey (RH) was enamored with how language both helps and hinders the human species in its quest for new ideas. We as members of communities,

often fall into one of what RH has called 'the four diseases of speech' (Rosenstock-Hussey, 1981). These diseases cause misinterpretation, misunderstandings and non-communication between groups. RH describes each disease as follows:

- War the inability to speak to anyone from the other side, intense focus on how each side monitors its
 own communications among its people;
- Revolution the inability to articulate new ideas so they can be understood by others;
- Tyranny the retreat to old ideas, old ways, with a resurgence of paranoia about anything new; and
- Crisis, where we become immune to what others say, even in our own community, no one is listening to anyone else, chaos and anarchy rule.

The diseases of War, Revolution, Tyranny, and Crisis are, in RH's opinion, the key reasons behind our inability to move forward as individuals, as communities, as society. Our inability to listen to different ideas has us fighting each other, when there are major world problems we ALL need to understand so that we can attempt solutions.

We have become too engaged in our diseases to apply potential remedies. But there are remedies, which mirror recent work by Brown (2015) and the team of Patterson, Grenny, McMilan and Switzler (2012). If we can see how we fall into the trap of the four diseases and use the remedies given to escape the trap, we may be able to finally communicate with each other and get to work on the problems of our world that exists now.

Named nonhuman individuals and the purposes and emotions attributed to them. Mai Kuha, Ball State University

Human perceptions of other species can have considerable repercussions on our relationship with our environment. Bradshaw (2010) recommends that we "embrace new modes of communication and models of knowledge that bring other species into dialogue and authority as equal partners". One important aspect of entering into a less anthropocentric relationship with other species is our capacity to consider other living beings as individuals: "an individual can be seen, heard, and empathized with, but a 'species' cannot" (Stibbe 2012:73). If we are to see nonhumans as individuals, naming practices are an interesting area of exploration. In the early days of her research, Jane Goodall held her ground in the face of criticism when she identified individual chimpanzees by name, rather than number; on both sides of that controversy, the act of naming was clearly considered important. Not surprisingly, nonhuman individuals are more likely to receive names if they have frequent contact with humans (Nübling 2015), reside in a human's house (Abel 2007), or if their death would be problematic for a human (Aerts 2015). From the standpoint of promoting a biocentric perspective, naming nonhumans may be beneficial in helping us relate to nonhuman animals as individuals, but it may also be problematic in anthropomorphizing nonhuman animals.

To shed light on the connections between individuals' names and our relationships with other species, this paper presents a detailed analysis of news discourse and other texts to show to what extent human writers attribute purposes, intentions, and emotional states to individuals of other species. The analysis contrasts the treatment of anonymous individuals and named individuals. We will see that writers can foreground nonhuman individuals' agency even in the absence of a name, as in the case of the macaque who sparked a copyright law controversy by taking a beautiful self-portrait with an unattended camera. Conversely, named nonhuman individuals are sometimes represented as little more than an object, as in the case of the late Koko's bereaved companion Ndume, or Chester Willard, the cat cited as a coauthor of a physics paper (Hetherington & Willard 1975).

Destruction of heritage property in Larteh-Ghana: Moving away from the history. Daniel Adu Atuah, Larteh Presby Primary School

Ancient cities continue to offer heritage properties to tourists and residents at local and global levels, deepening their historical and pristine natural significance. However, the culture of maintenance towards these heritage properties has not kept pace with their growing importance, resulting in large-scale destruction. Based on this

premise, this paper intends to assay the conditions of these properties, formulate health and environmental checklists to monitor these properties and highlight their relevance as public goods and services.

Literature supplemented the data derived from the field observation, questionnaires, interviews and global positioning system devices. Mixed sampling approaches were used to collect data from tourists, residents, community-based groups and other stakeholders.

Systems theory remains holistic in understanding the complexity of a community, and it is explored to explicate the continuous destruction resulting from the cultural and natural heritage properties and provide sustainable property management.

Findings indicated that the cultural and natural heritage properties have not properly maintained, leading to lost cultural values, revenues and tangible environmental assets at Larteh in Ghana. This paper demonstrates that the cultural heritage properties are not protected and left to the vagaries of the weather, disconnecting the past from the present.

Qualitative assessment of sustainable global energy transition models in the context of emerging and developing economies. Mohammed Awojobi, University of Delaware

The differentiation between emerging and developing economies has become more mainstream over the years due to among other factors, a divergence of the energy dilemma of countries in these categories. However, the energy demands in emerging and developing economies are projected to increase rapidly over the next two decades. With these increased energy demands come a concurrent increase in environmental impacts especially if the demands are met from conventional energy sources. Sustainable energy systems in emerging and developing economies are not just imperative from an environmental stewardship perspective but also in meeting developmental goals of these economies. This study provides a qualitative assessment of two representative sustainable energy transition models, one that proposes meeting energy demand solely from wind, water, and solar sources (WWS model) and the other that proposes meeting energy demand from wind, water, solar, bioenergy, and fossil sources (WWSBF model), fit for emerging and developing economies.

Recent Environmental Activism on the island of Boriken (Puerto Rico). Yari Sierra.

Boriken (Puerto Rico) has a powerful history of environmental activism that includes the successful efforts to recover the sister island of Biekes from years of destructive military activity at the hands of the US Army to the current struggle to free the region of Penuelas from the grip of the sustained storage of toxic ash in that area. I myself have my own personal history of environmental activism in my homeland. I am a Taino Native woman of Boriken and my presentation will describe the relationship that my identity as a Taina and my participation in the Taino Resurgence Movement has to my work in behalf of Mother Earth. It will cover aspects of my work including my participation in a local struggle to stop the building of environmentally destructive Walgreen building, and my participation in the environmentally conscious multinational Indigenous effort known as the Peace And Dignity Journeys.

The Taino Resurgence Movement on the island of Boriken (Puerto Rico). Rafael Torres Caney Indigenous Spiritual Circle.

Since the year 1969 the town of Jayuya in the central mountains of Boriken (Puerto Rico) has celebrated a large highly commercialized festival called FESTIVAL NACIONAL INDIGENA DE JAYUYA around the November anniversary date of Columbus' arrival in that island. This festival is an effort to recognize the historical Native origins of the town. Although the staged programming, which includes a somewhat garish beauty pageant and lots of electrically amplified Latin pop music, leaves something to be desired if one is looking to connect with authentic Indigenous culture, the fact remains that this annual event does make an effort to recognize Boriken's Taino ancestry in an island that for centuries had written off the Taino race as extinct.

Since the 1960's this preoccupation with Taino identity grew painfully slowly in Boriken until 1992 when the 500 th anniversary of Columbus' journey was celebrated around the world. At that point there began a prodigious

acceleration of the resurgence movement on the island that saw the growth and intensification of the work of existing Taino cultural organizations and the birth of many new ones.

My presentation will offer an overview of the process via which these organizations evolved and developed on the island and the impact that they have had on our national consciousness.

Decolonization: Transdisciplinary Environmental Restoration in Haiti. Alexandra Pierre, Yon Sel Lanmou and Greg Cronin, Yon Sel Lanmou and University of Colorado Denver

Columbus built his first settlement in modern-day Haiti in 1492, called La Navidad. Centuries of colonizing genocide and slavery resulted in the current condition in Haiti characterized by degraded economical and ecological systems. Yon Sel Lanmou (YSL; means "One Love" in Haitian Kreyol) was founded by Greg Cronin in 2012, with a mission to "use love to create the sustainable, thriving society that Haitians want". Alexandra Pierre became YSL's Director of Environmental Programs after receiving the YSL Jean Wiener Environmental Scholarship and finishing her MS in Marine Conservation. The current presentation will share some of the transdisciplinary efforts of Yon Sel Lanmou that contribute to environmental restoration, always striving towards our mission, and carried out according to our values. YSL strives to create win-win situations that result in benefitting people's short-term needs while simultaneously improving ecosystem services for the long-term benefit of Haiti and her people.

During his first trip to Haiti in 2010, Dr. Cronin established a program to revegetate an IDP camp with vetiver grass. Today, that vetiver grass is providing ecosystem services, and is sustainably harvested to build roofs. YSL partnered with Jean Wiener of FoProBiM to conduct the ecological assessment that informed the creation of Three Bays Marine Park, Haiti's second marine protected area. This partnership led to the establishment of a scholarship that encourages Haitian students to pursue training in environmental sciences. YSL is establishing an edible forest at Vilaj Mozayik, where we have a tree nursery and offer workshops in propagating trees. YSL also built a school/recording studio/community center at Vilaj Mozayik, which is a strong structure that can serve as a storm shelter if so needed. YSL is excited about the current effort in partnership with the Caney Indigenous Spiritual Circle to purposefully build relationships among the Taino and

Indigenous Caribbeans in Haiti. We feel that focusing on decolonization will benefit the people and ecosystems of Haiti far into the future, and demonstrate to the world that decolonization can occur where Columbian colonization began.

Environmental Racism: Colonization of Water at Standing Rock. Greg Cronin, Yon Sel Lanmou and University of Colorado Denver

Environmental racism is race-based inequity in access to a protected, safe, clean, and resilient environment. The current paper reports on the environmental racism experienced by the Standing Rock Sioux Tribe. The Dakota Access Pipeline (NAPL) was built by the Energy Transfer Partners, with the help of their supporters, across unceded territory of the Sioux Nation. The pipeline currently jeopardizes the water supply of the Standing Rock Sioux Tribe. This presentation is based upon published reports, weekly meetings at the Four Winds American Indian Council in Denver, participation in efforts to support "Water Protectors" at Standing Rock, and personal experiences while spending "Thankstaking" fall break 2016 in Standing Rock, ND. DAPL was originally routed to cross the Missouri River just upstream of Bismarck, North Dakota. Objections to this location arose because DAPL would cross the Missouri River just upstream from predominantly-white Bismarck, potentially jeopardizing their water supply. DAPL was rerouted to cross the Missouri River downstream of Bismarck, and just upstream of the Standing Rock Sioux Reservation. The Standing Rock Sioux objected to the new location of DAPL because it exposed their water supply to contamination, and because it crossed buried grounds and other land located in unceded Sioux Territory according to the Laramie Treaty of 1851. Considerations for water safety of predominantly-white Bismarck were given greater weight that water safety of predominantly Native American Standing Rock, a definition-based example of environmental racism. Environmental risks, oils spills, endangered species, personal experiences, and Indigenous values and spirituality around water will be shared.

CONFERENCE WORKSHOP

Interdisciplinary environmental applications of GIS: Demonstration of various case studies Presented by Barnali Dixon, University of South Florida – St. Petersburg

This GIS demonstration will include power point presentation of interdisciplinary applications of GIS. Case studies will include applications to i) Application of Crowd-Sourced Data and Integrated GIS analysis for Coastal resilience and adaptation , ii) Population Density, Septic Systems, Well Contamination and Sea Level Rise: Rethinking Climate Resilience and Water Security: An Integrated GIS-based Approach.

ROUNDTABLE SESSION

In Technology We Trust!

Kevin L. Hickey & Demetri Kantarelis, Assumption College, USA

In today's climate-changing world, does technology bring hope or it is a double-edged sword? Environmental consequences are frequently affected by the rate and direction of technological change.

The use of technology can ease our lives, but it can also damage the environment. The most obvious example of technology usage producing harmful by-products is the greenhouse gases and other toxic emissions from transportation technology. Some categories of technology, such as electronics, require resources that are difficult to acquire without harming the environment. Advances in farming technology have led to cheaper and more diverse food options, but technological advances that improve production, such as pesticides, herbicides and chemical fertilizers, can also harm the environment.

But:

- Renewable sources of energy like solar, wind and hydroelectric power have become much more widespread, as well as cheaper;
- Businesses and individuals are using way less paper than in years past, thanks to computers, smartphones and cloud storage;
- Geo-Spatial Measurement of Air Pollution systems draw in air around gas and oil facilities to test the amount of pollutants present;
- Environmental Simulation Testing helps ensure new products and technologies are up to standards before they hit the market and start to affect our planet;
- Sharing economy?
- Electric cars?

- Smarter homes?
- Precision agriculture?
- Vertical farms?
- Robotic farming? ... and so on!

So, today, would you vote for or against technology regarding its impact on the natural environment? When you look in the mirror do you see an optimist or a pessimist? If pessimist, how should we proceed? If optimist, how would we pay the high prices / costs associated with current green technology?

This roundtable aims at being a brainstorming session on the impacts of past and credible future technologies.

~

The Interdisciplinary Environmental Association (IEA), founded in 1994, is an organization of academics and practitioners from a wide range of disciplines and perspectives who believe that environmental problems require an interdisciplinary approach that needs to be clearly reflected in an organization dedicated to enhancing the discussion of these issues across disciplinary and political boundaries. The mission of the IEA is thus to bring together all disciplines so that environmental knowledge is enhanced though interdisciplinary communications. The goals of the organization are to enhance understanding of environmental issues by educating each other in an interdisciplinary format, and to present disciplinary perspectives of environmental problems to people outside those disciplines, as well as to those outside academia, in a clear, understandable fashion.

