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Youth Environmental Alliance in Higher
Education

CONFERENCE PROCEEDINGS

The 3rd Global Virtual Conference
Youth Environmental Alliance in
Higher Education

April 21, 2021

#YEAHSDGS
#SDGSfortheSDGs

www.yeah-net.org



YEAH is a 5-year project funded by the National Science
Foundation

DBI 2019049

*Environmental Conservation, Sustainability
and Equity in 2021: A YEAH Youth Conference*

The Youth Environmental Alliance in Higher Education (YEAH) is a transdisciplinary, multi-institutional network that equips students with real-world experience of collaborative, evidence-based approaches to global environmental sustainability. In today's students, we see agents of change for the future. Therefore, the YEAH Network connects institutions of higher education from all over the globe to provide integrated knowledge to students that empowers them to address complex global environmental problems.

The YEAH Network develops virtual classrooms at the undergraduate and graduate levels that provide environmental learning through structured and real-life experiences of international negotiations. Students and seasoned investigators from diverse backgrounds collaborate for a common purpose giving them a sense of belonging, purposefulness, and continued motivation to achieve global goals. Students are introduced into the realms of policy and trained to engage actively in international collaborations that are tackling global environmental issues.

Participating institutions



Colorado State University

Colorado State University
Fort Collins, CO, United States



MORAVIAN
COLLEGE

Moravian College
Bethlehem, PA, United States



Universidad Peruana de
Ciencias Aplicadas
Lima, Peru



University of Derby
England, United Kingdom



University of Connecticut
Storrs, CT, United States



Peking University
Beijing, China



Colorado College
Colorado Springs, CO, United States



Boston University
Boston, MA, United States



University of Florida
Gainesville, FL,
United States



Michigan
Technological
University
Houghton MI, United States



Scripps Institute of
Oceanography
San Diego, CA, United States



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Nashville, TN, United States



Indiana University
Bloomington, IN, United States



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La Molina, Per



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University

Monash University
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Piura, Peru

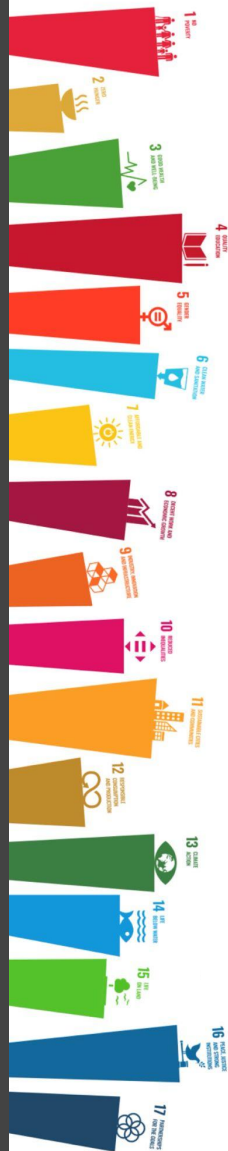
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SUSTAINABLE DEVELOPMENT GOALS!

The 3rd Global Virtual Conference of
the Youth Environmental Alliance in
Higher Education

Conference Proceedings

Compiled by YEAH Fellows
Emma Conrad-Rooney and
Jaden Wrightsman



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Preface

The present compilation contains abstracts of research projects presented at the 3rd Global Virtual Conference of the Youth Environmental Alliance in Higher Education held on Wednesday, April 21, 2021. The themes of the conference were Environmental Conservation, Sustainability and Equity in 2021. The aim of the Conference was to provide a platform to students, researchers, and educators from all across the globe to share their knowledge and practical efforts toward implementation of the 17 Sustainable Development Goals (<https://sdgs.un.org/goals>).

The YEAH Global Virtual Conference proudly hosted 266 registrants, showcased 65 projects spanning five continents, and hosted six distinguished plenary speakers from four countries.

University	Country	# of Presentations
Colorado State University	United States	39
Indiana University	United States	6
Michigan Technological University	United States	2
Monash University	Australia	1
Moravian College	United States	1
Peking University	China	4
Universidad de Piura	Perú	1
Universidad Nacional Agraria La Molina	Perú	5
Universidad Peruana de Ciencias Aplicadas	Perú	2
University of Derby	United Kingdom	2
University of Florida	United States	1
Vanderbilt University	United States	1
TOTAL		65

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Session 1A. Ecosystems, Humans & Equity (SDGs 3, 4 & 11)



Equity in Burundi in Response to SDG 1, 4, and 14

Claire Silvestre¹, Tara Atwood¹, Luke Hirneisen¹, Amara Rose¹

¹Colorado State University

We will be presenting a poster on the theme of Equity as observed in the Republic of Burundi based on the SDG's 1: No Poverty 4: Quality Education and 14: Life Below Water. We will draw connections between all 3 SDG's using the *Lates Angustifrons* species found in Burundi's Tanganyika Lake. The connection is that extinction of the *Lates angustifrons* hurts the local economy because many fishermen rely on the fish for money. When people aren't making money, the economy shuts down, a country goes into poverty, and no one can access education.

SDG Theme: SDG 1- No Poverty, SDG 4 - Quality Education, SDG 14 - Life Below Water

Type: E-poster

Equitable and Sustainable Development in Tajikistan: Poverty, Biodiversity, Economic Growth, and the Markhor Goat

Morgan Hertel¹, Seth Kimball¹, Marisa Granados¹, Emma Von Sprecken¹

¹Colorado State University

Tajikistan focuses their sustainable development efforts on reducing poverty, economic growth, and conservation of biodiversity. The Markhor goat is an indicator species to the country being on the IUCN red list and its high tourist value. SDG 1, 8, and 15 are relevant to Tajikistan's current efforts in conservation of the Markhor goat. While the country prioritizes conserving species like the Markhor, they must also focus on economic growth to reduce poverty through actions like agricultural expansion into natural spaces. Tajikistan aims to integrate ecosystem and biodiversity values into economic growth planning by 2020 which could protect animals at risk, such as the Markhor, while also developing where necessary.

SDG Theme: SDG 1 - No Poverty, SDG 8 - Decent Work & Economic Growth, SDG 15 - Life on Land

Type: E-poster

Community Perceptions of the Rights of Nature: An analysis of the San Juan Island's Salish Sea

Brynn Crosby¹, Hunter Dowdle¹, Cory Manning¹, Helen Yuan¹, Xuan Yang¹, Yuxiang Liu¹

¹Colorado State University

The Salish Sea region is historically known for the richness of culture and lush ecosystems within it. This is paired with a dicey trend of resource extraction and commodification of the ecosystem services it provides. Due to these trends, members of the San Juan community have sought to implement rights of nature within local law to combat ecological harm taking place. Our research delves into community interactions and perceptions of this initiative, and develops themes which will be used to support future implementation of rights of nature. We evaluated threats, perceptions, and roadblocks of this initiative to encourage future actions.

SDG Theme: SDG 3 - Good Health & Wellbeing, SDG 9 - Industry, Innovation, & Infrastructure, SDG 11 - Sustainable Cities & Communities

Type: Short talk (e.g. PowerPoint, Google Slides)

Indigenous Relationships to Colorado Mountains

Peyton Carl¹, Kelsey Austin¹, Zach Schell¹, Emilija Miskinyte¹, Curran Jett-Moore¹

¹Colorado State University

Mountain climates around the globe are intrinsically linked to indigenous peoples whose livelihood strategies, food systems and cultural identities are intimately connected to the mountains in which they live. Indigenous relationships with mountains are currently being degraded by the impacts of climate change. The methodology used consists of literature review, interviews, GIS layers, and a Story Map to address the relationship between indigenous peoples and mountain climate change. This presentation seeks to consider the impact of climate change on mountainous tribal land in Colorado, discuss Indigenous practices for dealing with climate variability, and share resources on mountain focused climate initiatives.

SDG Theme: SDG 11 - Sustainable Cities & Communities, SDG 13 - Climate Action, SDG 16 - Peace, Justice, & Strong Institutions

Type: Storymap

Sustainable Agriculture in a Market-Based System: The Problem with Organic Certification

Anna Chen¹, Lauren Ho¹, Marie Peng¹, Yiran He¹

¹Peking University

The organic agriculture movement began as a way to maintain the divine relationship between the Earth and its processes while preserving the soil's nutrients and combating climate change through agriculture. These spiritual origins are a far-cry from the political and economic behemoth that is now the multi-billion-dollar organic produce and certification industry. This talk will discuss the merits and drawbacks of market-based systems created to promote sustainability under the lens of organic certification.

SDG Theme: SDG 11 - Sustainable Cities & Communities, SDG 12 - Responsible Consumption & Production, SDG 15 - Life on Land

Type: Short talk (e.g. PowerPoint, Google Slides)

Session 1B. Sustainable Solutions in Global Conservation (SDGs 13 & 15)



Sustainability, Bangladesh and their connection to human and environmental well being.

Anna Whelan¹, Desmond Evans¹, Locke Stubblefield¹, Lu Chen¹

¹Colorado State University

In this project, we would like to explore the interlinkages of our three SDGs, our indicator species, and the country of Bangladesh to the topic of sustainability. As climate change and human development have created negative environmental impacts worldwide, we are looking towards creating a sustainable and efficient future that benefits both human populations and the health of worldwide ecosystems.

SDG Theme: SDG 1 - No Poverty, SDG 13 - Climate Action, SDG 14 - Life Below Water

Type: E-poster

The Republic of Tunisia

Mary Williams¹, Naomi Stevens¹, YuanXing Fang¹, Yuxiang Liu¹

¹Colorado State University

Tunisia is an arid country experiencing drought, land degradation, and desertification. These issues affect the country's environment, economy, and culture. Tunisia is focusing on sustainable development goals to address climate change, life on land, and industrialization. A key focus in the Intended Nationally Determined Contribution is to reduce carbon dioxide emissions over multiple sectors. Pressure from climate change impacts a critical piece of Tunisia's culture, the olive tree. The olive tree is an important ecological indicator. The government is responding to these issues by the publication of new environmental laws and policies that focus on the economy, equity, and sustainability.

SDG Theme: SDG 9 - Industry, Innovation, & Infrastructure, SDG 13 - Climate Action, SDG 15 - Life on Land

Type: E-poster

Possible Carbon Offsets for Rural Peru

Natalie McManus¹, Kelsey Austin¹, Carmen Bachofen¹

¹Colorado State University

This presentation seeks to provide information on possible carbon offsets programs for Rural Peru with a focus on Huascarán National Park. This was accomplished through talking to local stakeholders in the area, researching the importance of wetland and forest conservation, as well as performing carbon analysis. Moving forward this project will show the analysis completed as well as make future recommendations on the project.

SDG Theme: SDG 11 - Sustainable Cities & Communities, SDG 13 - Climate Action, SDG 15 - Life on Land

Type: Short talk (e.g. PowerPoint, Google Slides)

Community Observations of Winter Weather and Climate Change

Davis Rice¹, Zach Schell¹, Reagan Harris¹, Amara Rose¹

¹Colorado State University

In the Front Range of Colorado, communities use their own observations to adapt to changes in weather and climate. It turns out, however, that instrumental measurements of weather and climate often differ from human observations of the same phenomena (Milligan 2013). Building on past research, we have looked at differences in human and instrument observations as they vary by demographic characteristics of the human population in Larimer County, Colorado. Temperature and precipitation observations are the focus of this research project.

SDG Theme: SDG 4 - Quality Education, SDG 13 - Climate Action, SDG 15 - Life on Land

Type: Short talk (e.g. PowerPoint, Google Slides)

Mongolia Sandstorm and Surrounding MEDCs Existing Measures

Bruno Leclercq¹, Fusheng Zhou¹, Zichun Xu¹

¹Peking University

This research proposal will primarily focus on the recent destructive sandstorm that killed 6 people in Mongolia, impacting more than millions across Northern China, Mongolia and the Korean peninsula. The research will explore the cause of this ongoing meteorological phenomenon and evaluate the existing measures that governments are implementing based on their sustainability, economic and environmental effects. Ultimately, this research will present feasible and sustainable methods that might contribute to solving the desertification issues in the Gobi desert area and its plausible implications towards other places with similar geological characteristics.

SDG Theme: SDG 13 - Climate Action

Type: Short talk (e.g. PowerPoint, Google Slides)

Session 1C. The Path to a Sustainably Developed Future (SDGs 1, 2, 3, 4 & 5)



Educating Benin: A Path to Sustainable Agriculture

Tess Scarborough¹, Alexis Meyer¹, Sarah Vidars¹, Wyatt Reynolds¹

¹Colorado State University

Benin is dependent on subsistence agriculture and is vulnerable to effects of climate change, including higher temperatures and extreme weather events. Droughts, floods, and changing precipitation patterns alter the way agriculture processes occur. The themes of conservation, sustainability, and equity are important as Benin prepares for these effects. By implementing sustainable practices, Benin may continue to feed their people and retain access to clean drinking water, addressing the UN Sustainable Development Goals of Zero Hunger and Clean Water. Sustainability requires structural changes to the economy, including steps promoting equity and addressing individual and community rights to property, resources, and education.

SDG Theme: SDG 2 - Zero Hunger, SDG 4 - Quality Education, SDG 6 - Clean Water & Sanitation

Type: E-poster

The Great Hammerhead Shark: The use of ecological indicators to highlight pressures in the Philippines

Emily Jenkins¹, Elizabeth Madura¹, Lindsay Cocotis¹, Helen Yuan¹

¹Colorado State University

The purpose of this presentation will be to focus on the Philippines' ecological indicator species the Great Hammerhead Shark, which is currently at risk of extinction due to pressures faced from anthropogenic activities and climate change. We will be discussing the connections this species has across multiple sustainable development goals (SDGs) that affect the Philippines. These SDGs include life below water, economic growth, and good health and wellbeing. Through this analysis we will identify key factors that play an important role in maintaining the health of this species as well as the sustainable future of the country.

SDG Theme: SDG 3 - Good Health & Wellbeing, SDG 8 - Decent Work & Economic Growth, SDG 14 - Life Below Water

Type: E-poster

Climate Change's Effect on the Bulgarian Emerald

Kristin Steffen¹, Zach Schell¹, Maryam Tidjani¹, Zhongmiao Xue¹

¹Colorado State University

The Republic of Bulgaria is a Southeast European country that was previously a Soviet Union territory until 1990. This meant that they had inherited a largely fossil fuel dependent infrastructure. Bulgaria now faces environmental issues such as water pollution, environmental degradation and pollution related diseases. We explore the case of the Bulgarian Emerald, a vulnerable dragonfly species that is affected by water pollution and habitat loss. Targeted actions recommended by Sustainable development goals (SDGs) 3,6, and 9 will help Bulgaria address these environmental issues.

SDG Theme: SDG 3 - Good Health & Wellbeing, SDG 6 - Clean Water & Sanitation, SDG 9 - Industry, Innovation, & Infrastructure

Type: E-poster

Education for Sustainable Development: International experience

Erik Arutyunyan¹ and Zhang Jingyi¹

¹Peking University

International society is recognizing education for sustainable development as an integral part of quality education and a key factor for sustainable development itself. Sustainable Development cannot be achieved only with the assistance of technologies, political regulations and financial mechanisms. ESD is education that enables the social transformations needed to create more equitable societies and achieve sustainable development. This work is dedicated to the experience of ESD implementation all around the world, including inclusive education based on

gender, region, nationality, religion and age. The newest cases and approaches in ecological, social and economic frameworks will be presented and discussed.

SDG Theme: SDG 4 - Quality Education, SDG 16 - Peace, Justice, & Strong Institutions, SDG 17 - Partnerships for the Goals

Type: Short talk (e.g. PowerPoint, Google Slides)

Session 1D. Intersectionality Within Global Environmental Conservation (SDGs 11, 13 & 15)



Cape Verde and The Swamp Warbler

Cole Carbone¹, Sienna Levine¹, Pierce Graves¹, Reynold Liu¹

¹Colorado State University

Our presentation has a focus on the environment of the island nation Cape Verde and an endangered species that lives there referred to as the Cape Verde Swamp Warbler. We will focus on how SDGs 9, 11, 13, and 15 and their targets can be utilized to create habitat suitable for the swamp warbler and a stable environment. We would also like to focus on portions of Cape Verde's INDC about renewable energy and adaptation contributions, mostly dealing with water security. Lastly, we aim to present drivers, pressures, and impacts on the Cape Verde islands and the Warbler.

SDG Theme: SDG 11 - Sustainable Cities & Communities, SDG 13 - Climate Action, SDG 15 - Life on Land

Type: E-poster

Design and Collaborative Implementation of a Pollinator Habitat on a Colorado Front Range Farm

Kaydee Barker¹, Lauryn Howlett¹, John Jacobs¹, Wyatt Reynolds¹, and Allison Uri¹

¹Colorado State University

Pollinators play a critical ecosystem role, transferring pollen for wildflowers and crops. We investigated methods and benefits of establishing native pollinator corridors through agriculture by conducting a literature review on a partner farm, soil, and native plant and pollinator species in Colorado. Collaborating with stakeholder farmers and a volunteer restoration organization, we designed an agricultural field optimized to support native pollinators and are implementing our design with the help of a volunteer crew. To maximize our impact, we are creating community education resources from our literature review. Incorporating pollination corridors will strengthen the local ecosystem and agriculture economy.

SDG Theme: SDG 2 - Zero Hunger, SDG 11 - Sustainable Cities & Communities, SDG 15 - Life on Land

Type: Short talk (e.g. PowerPoint, Google Slides)

Conservation of the Pygmy sloth, *Bradypus pygmaeus*

Paige Copcutt¹

¹University of Derby

The pygmy sloth, endemic to the island of Escudo de Veraguas is significantly understudied in regard to ecological requirements, life history and reproduction. As a result their conservation efforts are at the bare minimum. They are critically endangered as a result of their restricted range and regular habitat destruction of their mangrove habitats from the local communities who seasonally visit the island. My poster discusses a few strategies which may be potential options for their successful conservation without being detrimental to those whom the island rightfully belongs to.

SDG Theme: SDG 4 - Quality Education, SDG 11 - Sustainable Cities & Communities, SDG 15 - Life on Land

Type: Short talk (e.g. PowerPoint, Google Slides)

Analysis of climate change opinions in and out of mountainous communities of the US

Ann Coughan¹, Blake Buhner¹, Carly Matthews¹, Caitlyn McAllister¹, Emma Von Sprecken¹, Morgan Yokubison¹

¹Colorado State University

Mountainous communities are among the first to face climate change events, and therefore are required to be some of the first to adapt to and address climate change. The Yale Program on Climate Change Communication has been conducting research on opinions towards climate change and climate activism within the United States. Our project will analyze literature including the Yale Climate Opinion data, different GIS layers and demographics to compare public opinions on climate change within these mountainous communities and those living in non-mountainous communities in the U.S and whether climate opinions are associated with certain characteristics (demographics, economics, etc.).

SDG Theme: SDG 10 - Reduced Inequalities, SDG 11 - Sustainable Cities & Communities, SDG 13 - Climate Action

Type: Short talk (e.g. PowerPoint, Google Slides)

Restorative Agriculture: Pollinator Corridor Mapping

Amblynn Hauck¹, Arielle Collier¹, Gloria Cao¹, Jenna Linenberg¹,
Victoria Gurevich¹, Yurun Jiang¹, Lukas Hirneisen¹

¹Colorado State University

Pollinator populations are in decline, which is detrimental to ecosystem functioning and human well-being. Communities in Boulder County, Colorado are at the forefront of civic involvement to help restore pollinator habitat. In collaboration with local farms, the non-profit Wildlands Restoration Volunteers (WRV) is interested in expanding pollinator habitat throughout Boulder County. Our research team is utilizing geospatial technology (Esri ArcGIS) to identify potential areas that can be targeted for habitat creation. Our team will also produce outreach materials to encourage other farms and households in Boulder County to join PPAN and advocate for pollinator health in their communities.

SDG Theme: SDG 11 - Sustainable Cities & Communities, SDG 13 - Climate Action, SDG 15 - Life on Land

Type: StoryMap

Session 1E. Vulnerability, Resilience & Conservation (SDGs 13, 14 & 15)



Georgia's SDGs in Relation with the Sturgeon

Emily Annis¹, Joel Renfro¹, Noah Larson¹, Davis Rice¹

¹Colorado State University

The sturgeon is Georgia's indicator species because it connects to the three most pressing Sustainable Development Goals, which are SDG 7, 14, and 12. The sturgeon is an endangered species because of its demand on the black market for caviar. Upholding SDG 14, life below water, is important to preserving the species since it lives in water. Since Georgia is shifting towards renewable energy such as hydroelectric, it's important to keep SDG 7 affordable and clean energy in mind. Sturgeon have been impacted by overfishing so it's key to practice SDG 12, responsible production and consumption to sustain the species.

SDG Theme: SDG 7 - Affordable and Clean Energy, SDG 11 - Sustainable Cities & Communities, SDG 14 - Life Below Water

Type: E-poster

The Big Leaf Mahogany Tree In Belize in Connection to Sustainable Development Goals

Kayla Redd¹, Krystal Tran¹, Xuan Yang¹, Alex Kah¹

¹Colorado State University

The Big Leaf Mahogany Tree (*Swietenia macrophylla*) is a prominent ecological indicator in Belize. The species serves as a unit which sequesters carbon, mitigates natural disaster impacts, and reduces deforestation. Because of this, environmental conservation initiatives which align with SDG 13 Climate Action have become a central priority to the country of Belize. The Climate Action SDG is subject to goals such as strengthening resilience and adaptive capacity to climate disasters and integrating climate change messages into policy and planning. Therefore, it is important to explore the role the Big Leaf Mahogany Tree has on both the drivers and interventions of SDG 13 within Belize.

SDG Theme: SDG 13 - Climate Action, SDG 14 - Life Below Water, SDG 15 - Life on Land

Type: E-poster

Surging Glaciers and Climate Change

Chelsea Hill¹

¹Moravian College

Glaciers make up a large fraction of the cryosphere, yet with a warming planet – how exactly will the dynamics of these massive land systems react? The dynamics of surging glaciers might be able to give scientists a better answer to that. Glaciers tend to surge when there is excess meltwater at the base, causing the masses to act in a volatile way. Being able to identify surging glaciers through geomorphological mapping is essential to studying the behavior of these land systems. A geomorphological map of the landscape of the Gandbreen glacier – Svalbard, Norway, provides spatial evidence of previous surging events.

SDG Theme: SDG 13 - Climate Action, SDG 14 - Life Below Water, SDG 17 - Partnerships for the Goals

Type: Short talk (e.g. PowerPoint, Google Slides)

PLASTIC POLLUTION IN THE MARINE COASTAL ZONE OF PERU

Karina Astrid Calizaya Torre¹

¹National University Agraria La Molina

Plastic production has experienced an exponential growth in the last decades, with a current production of more than 350 million tons of plastic worldwide. It is known that around 5 to 10% of this plastic ends up in the marine environment. Plastic marine pollution possesses a threat to marine life, ecosystems, human health, and economy. In Peru, the biggest cities are located by the sea, which means a big risk of plastic waste entering the ocean, enhanced by an inefficient waste management. Therefore, the present research project assesses the presence, sources and impacts of plastic pollution in the Peruvian coast.

SDG Theme: SDG 11 - Sustainable Cities & Communities, SDG 13 - Climate Action, SDG 14 - Life Below Water

Type: Short talk (e.g. PowerPoint, Google Slides)

Oceanic Manta Ray (*Mobula birstrosi*): A Conservation Strategy

Cameron Marshall¹

¹University of Derby

My scientific poster outlines the main conservation issues facing the Planet's largest Ray species, the Oceanic Manta Ray (*Mobula birstrosi*) as an underpinning to the production of a conservation strategy to protect this species. Bycatch and Manta Ray fisheries are the predominant issues and this poster outlines a three faceted approach of research, eco-tourism and fishery regulations as important aspects of the strategy which need to be undertaken through international cooperation.

The poster outlines these major issues and points of action needed to tackle the issues and provides insight into necessary future conservation work that must be done.

SDG Theme: SDG 13 - Climate Action, SDG 14 - Life Below Water, SDG 17 - Partnerships for the Goals

Type: E-poster

Session 1F. Preserving Our Terrestrial & Aquatic Ecosystems (SDGs 6, 13, 15 & 16)



The Republic of Vanuatu

Haiven Furbush¹, Maxx Ives¹, Yurun Jiang¹, Lina Cao¹

¹Colorado State University

Vanuatu is a chain of islands in the South Pacific. The country is highly reliant economically and culturally on the marine and coastal areas, specifically the Vanuatu Snapper (*Paracaesio gonzalesi*). The Vanuatu Snapper as an ecological indicator intersects closely with several Sustainable Development Goals, including SDG 6: Clean Water and Sanitation, SDG 14: Life Below Water, and SDG 12: Responsible Consumption and Production. Ultimately, under the INDC Vanuatu is working towards these SDGs in order to conserve the Vanuatu Snapper, protect the country's economy, and contribute to bettering the issues developing with climate change.

SDG Theme: SDG 6 - Clean Water & Sanitation, SDG 12 - Responsible Consumption & Production, SDG 14 - Life Below Water

Type: E-poster

Applying the DPSIR Model (Drivers, Pressures, State, Impact, and Response) and UN Sustainable Development Goals (6 Clean Water and Sanitation, 13 Climate Action, and 15 Life on Land) to African Wild Dog Conservation in Namibia

Lindsey Sarazen¹, Jorune Klisauskaite¹, Victoria Gurevich¹, and Shannon Kirkland¹

¹Colorado State University

The African wild dog (*Lycaon pictus*) is one of the most endangered mammals in the world. Namibia is predominantly a savanna biome and is one of few places left that support wild dog habitats. Because these mammals depend on extensive areas for survival, increasing land fragmentation and conflicts between humans continue to threaten their populations to near extinction in Namibia. This poster presentation will use the DPSIR model to analyze how Namibia is using the African wild dog as an ecological indicator species in relation to the three UN Sustainable Development Goals of climate action, life on land, and clean water and sanitation. It has been found that Namibian governmental agencies and community organizations have taken specific measures through climate policy, human-wildlife conflict mitigation, land protection, and public awareness programs in order to safeguard wild dog habitat and populations.

SDG Theme: SDG 6 - Clean Water & Sanitation, SDG 13 - Climate Action, SDG 15 - Life on Land

Type: Short talk (PowerPoint)

Abandoned, lost or otherwise discarded fishing gear found in trawling at Tropical Sea of Grau Piura - Peru

Barbara Grados¹

¹Universidad Nacional Agraria la Molina

The impact on the ecosystem generated by marine pollution is currently a major problem that alters the natural state of our seas, largely made up of marine debris from fishing gear.

Most studies around the world on marine debris, from the 1960s to the present, report the presence of fishing gear as marine debris (Link et al., 2019). Macfyden (2011) published a report on abandoned, lost or discarded fishing gear (ALDFG), determining that the most polluting gears are gillnets, traps and longlines and that they represent 10% of the world's marine litter. Which coincidentally are the most used in Peru.

SDG Theme: SDG 6 - Clean Water & Sanitation, SDG 11 - Sustainable Cities & Communities, SDG 13 - Climate Action

Type: Short talk (e.g. PowerPoint, Google Slides)Prezi

Wildland Restoration Volunteers - Beaver habitat in the North Fork of the Poudre

Kristina Bartose¹, Cole Carbone¹, Sarah Carter¹, Gabby Hagewiesche¹, Christopher Piccione¹, Locke Stubblefield¹

¹Colorado State University

Our presentation is focused on habitat restoration and public outreach with private landowners living along the North Fork of the Cache La Poudre River. With a lowered population of beavers due to anthropogenic impacts, the land is degraded and needs restoration. One technique used for restoration is implementing beaver dam analogs (BDAs) for potential reintroduction. However, historical beaver-human relations prove to be a complicated issue that hold massive implications

for both sides. We also plan to stress the importance of communication with landowners and how ensuring the cooperation of these landowners can benefit these projects.

SDG Theme: SDG 6 - Clean Water & Sanitation, SDG 11 - Sustainable Cities & Communities, SDG 15 - Life on Land

Type: Short talk (e.g. PowerPoint, Google Slides)

Mollusks as Ecological Indicators: Environmental Sustainable Development in Slovakia

Allison Uri¹, Cory Manning¹, Alex Burks¹

¹Colorado State University

The mollusks in Slovakia can be used as an ecological indicator connecting the UN SDGs of zero hunger, clean water & sanitation, climate action, and life on land. This investigation into Slovakia's sustainability efforts examines the preventions for biodiversity loss, increased extreme weather, change of ecosystems, and expanding equity. Mollusks connect to ecological conservation because human activity is altering the landscape and their historical range has changed. Equity connects to mollusks through generating solutions in restructuring financial systems, empowering impoverished communities, and cleaning up natural environments. Studying the DPSIR of mollusks can be a tool for a more sustainable future.

SDG Theme: SDG 2 - Zero Hunger, SDG 6 - Clean Water & Sanitation, SDG 13 - Climate Action, SDG 14 - Life Below Water, SDG 15 - Life on Land

Type: E-Poster

Session 1G. Expanding the Conversation: Environmental Conservation & Education (SDGs 9, 11, 13 & 15)



New Caledonia: Small Island State Biodiversity and Land Use Change

Gloria Cao¹, Sarah Carter¹, Glenn Stearns¹, Drew Spindler¹

¹Colorado State University

The French territory of New Caledonia is a hub of unique terrestrial and marine biodiversity, and serves as a hub for nickel mining, pearl harvest, and tourism. These industries intersect within the region's personal wellbeing and France's economic interests. In addition, New Caledonia is subject to the vulnerabilities of small developing island states, including the threat of invasive species and inordinate effects of global climate change. Because of this, native endemic species, such as the land-dwelling kagu are at a greater risk of extinction due to deforestation and habitat fragmentation. Terrestrial industrialization also poses a multifaceted threat to marine ecosystems.

SDG Theme: SDG 9 - Industry, Innovation, & Infrastructure, SDG 14 - Life Below Water, SDG 15 - Life on Land

Type: Short talk (e.g. PowerPoint, Google Slides)

Denver Urban Beaver Conservation and Education

Claire Silvestre¹, Cody Stanford¹, Jake Cautilli¹, Noah Larson¹, David Lynch¹,
Mateo Montelongo¹, Freddie Haberecht¹, Maxx Ives¹, Lizzy Fanning¹

¹Colorado State University

Urban Conservation and Education will be a big part in creating more sustainable cities and communities. The story map will present data found in the urban areas around Denver of Beaver activity. Utilizing GIS mapping software and community applications such as iNaturalist will help develop a better understanding of where Beaver's can be found. The story map will then follow into developing educational pieces for students. The aim is to create lesson plans that will teach students how to be involved community members, therefore helping them become change leaders for urban wildlife protection.

SDG Theme: SDG 4 - Quality Education, SDG 9 - Industry, Innovation, & Infrastructure, SDG 11 - Sustainable Cities & Communities, SDG 15 - Life on Land

Type: StoryMap

Identifying Elephants in Maasai Mara using the SEEK Method

Angie Casini Ropa¹, Sam Myer¹, Miranda Rakes¹, Joel Renfro¹, Kristin Steffen¹, Sarah Vidars¹,
Emma Von Sprecken¹

¹Colorado State University

Our team is identifying individual elephants in the Maasai Mara ecosystem in Kenya to support elephant conservation, inform population monitoring, and develop population estimates. We researched the ecological roles, histories and interactions of the African elephant and learned how to apply the SEEK method to identify these animals. We will address how to use the SEEK method, the importance of conservation, and creating a database for these individuals based on the SEEK method using "elephantbook", a platform that allows users to apply SEEK codes to individual elephants.

SDG Theme: SDG 9 - Industry, Innovation, & Infrastructure, SDG 11 - Sustainable Cities & Communities, SDG 15 - Life on Land

Type: Short talk (e.g. PowerPoint, Google Slides)

Online Purchasing Environmental Impacts

Grace Turner¹

¹Indiana University

Online purchasing has negative effects on the environment. Some effects can include ocean pollution with plastic and other wastes and then the additional waste that comes from shipping products. According to a research done in 2013 found that the traditional shopper tends to have a lower CO2 footprint, at least when it's compared to many different types of online shoppers. When it comes to online shopping people who order express delivery should be made aware of the impact they will make. Also, packaging should be made more efficient and include less plastics that would eventually end up in the ocean.

SDG Theme: SDG 6 - Clean Water & Sanitation, SDG 13 - Climate Action, SDG 14 - Life Below Water

Type: E-poster

Session 1H. Climate Action Dialogues: An Open Conversation on Student Action



Session 2A. Sustainable Solutions to Climate Change (SDGs 11, 13 & 15)



SUSTAINABLE URBAN COMMUNITIES: ELECTRICITY GENERATED BY KINETIC ENERGY FROM USERS OF CLEANER MASS TRANSPORT

Karla Elizabeth¹, Minaya Echevarria¹, Jareth Marlise Diaz Cervantes¹, Daniel Francisco Prialé Reátegui¹

¹Universidad Peruana de Ciencias Aplicadas (UPC)

In the Peruvian capital, hydroelectric and thermoelectric plants provide the highest percentage of electricity and fossil fuels are almost the only source of the vehicle fleet, configuring an impure and diversified energy matrix. The viability of electricity generation is analyzed with the installation of piezoelectric tiles to meet its energy demand in a “Metropolitano” station with a large influx. The walk of 20 million people produces approximately 180 kWh / h generating 30% savings in electricity costs, in addition to the environmental benefits related to the reduction of GHG and social benefits of a more efficient and healthy system.

SDG Theme: SDG 7 - Affordable and Clean Energy, SDG 11 - Sustainable Cities & Communities, SDG 12 - Responsible Consumption & Production

Type: Short talk (e.g. PowerPoint, Google Slides)

Conservation and Preservation of the African Wild Donkey in Eritrea

Natalie McManus¹, Carmen Bachofen¹, Nick Godsey¹, Miranda Rakes¹

¹Colorado State University

Eritrea is dedicated to fighting the climate crisis and protecting their country. One way to monitor its progress is by looking at the ecological indicator of the African Wild Donkey. As Eritrea implements regulation, policy, and actions, the population of the African Wild Ass will reflect their success. Many of these actions will impact the land use and land cover change of Eritrea, as well as their journey to achieve the sustainable development goals. In the connections between the sustainable development goals and the African Wild Donkey, the ideas of conservation, sustainability, and equity are essential and need necessary consideration.

SDG Theme: SDG 11 - Sustainable Cities & Communities, SDG 13 - Climate Action, SDG 15 - Life on Land

Type: E-poster

A Walk Through the Shared Socioeconomic Pathways

Julia Perbohner¹

¹Colorado State University

Science communication stands increasingly important in a world that feels the growing effects of climate change. The Shared Socioeconomic Pathways are five different human behavior predictions to climate change that have only been communicated through scientific papers. This comic aims to communicate these scenarios without the barriers that scientific papers often hold. The scenarios range from Fossil Fuel Development, to Inequality, to Sustainability. Drawn with inspiration from artist Roy Lichtenstein, they illustrate these scenarios in simplified yet graphic depictions. The 5 scenarios are important to understand in order to navigate these next couple of pivotal years with social, economic, and environmental sound.

SDG Theme: SDG 11 - Sustainable Cities & Communities, SDG 13 - Climate Action, SDG 15 - Life on Land

Type: E-poster

Biodegradable Plastics

Chloe Strach, George Rushlau, Maureen Hennenfent, Theresa Passe

¹Michigan Technological University

The problem we are facing is the waste produced by the modern lifestyle. Plastics, specifically single-use plastics are prolific in our day to day lives. Taking thousands of years to decompose, filling up space in landfills, and producing methane gas, plastic waste is an obstruction to sustainability economically, socially, and environmentally. This presentation will focus on the sustainability of biodegradable plastics, such as water bottles, plastic cutlery, etc. We will also discuss how the triple bottom line pertains to biodegradable plastics.

SDG Theme: SDG 11 - Sustainable Cities & Communities, SDG 12 - Responsible Consumption & Production, SDG 15 - Life on Land

Type: Short talk (e.g. PowerPoint, Google Slides)

Impact Investing in China: Making sustainable money

Maximilian Kamp¹, Eric Rinke¹, Elias Poggemann¹, Nina Baal¹

¹Peking University Guanghua School of Management

Over the past decade, investing in sustainability has become more established all over the world, even on Wall Street where the only concern seemed to be a high ROI. Recently, this trend also has gained a foothold in China which has traditionally preferred economic growth over environmental and social impact. However, there are still misconceptions existing about sustainable funds. We discuss the requirements needed to set up an environmental, social and governance fund (ESG) in China. Based on real life examples we show that financial return and making the world a better place aren't necessarily mutually exclusive.

SDG Theme: SDG 8 - Decent Work & Economic Growth, SDG 13 - Climate Action, SDG 17 - Partnerships for the Goals

Type: Short talk (e.g. PowerPoint, Google Slides)

Session 2B. Sustainable Agriculture & Consumption (SDGs 7 & 12)



"BIOASSAYS IN NATIVE SALINE SOILS AND THEIR EFFECT ON THE GROWTH AND DEVELOPMENT OF *Hordeum vulgare* (BARLEY)" - BIOENSAYOS EN SUELOS SALINOS NATIVOS Y SU EFECTO EN EL CRECIMIENTO Y DESARROLLO DE *Hordeum vulgare* (CEBADA)

Jareth Marlise Díaz Cervantes¹, Karla Elizabeth Minaya Echevarría¹, Silvia Aguero- Aguilar¹

¹Universidad Peruana de Ciencias Aplicadas (UPC)

The salinization of soils as a result of inadequate management is a negative effect on the availability of nutrients for plants. A complete randomized design of four treatments and seven replications was developed from Pantanos de Villa Wetland's soils: control, mycorrhiza, EM *Saccharomyces* and *Bradyrhizobium* sp. The inoculants were incorporated into the soil, being 10 and 30 days after sowing. At 45 days, parameters like plant height, foliar, root and total dry weight were evaluated. Greater benefit in growth was recorded by autochthonous microbial activity. Biotechnologies developed from native microbiota can contribute to food security, for adaptability to climate change.

SDG Theme: SDG 2 - Zero Hunger, SDG 12 - Responsible Consumption & Production, SDG 15 - Life on Land

Type: Short talk (e.g. PowerPoint, Google Slides)

Modern Slavery in the textile circular economy ...fashioning a way forward

Paula Rogers¹

¹Monash University

This research analyses the expert opinion of fashion and textile industry stakeholders internationally, to understand what drives or hinders the purposeful re-engineering of India's textile recycling industry to remediate its human and environmental impacts.

The findings detail how stakeholder engagement has significantly decreased, as industry value chains have become more globalised in recent decades. By applying linear rather than circular principles when mapping value chain impacts, has ignored their responsibility to manage upstream and downstream textile waste.

Ultimately, the recommendations of this research provide pragmatic and scalable recommendations for collaborative remedial action for effective industry change on a global scale.

SDG Theme: SDG 8 - Decent Work & Economic Growth, SDG 12 - Responsible Consumption & Production, SDG 17 - Partnerships for the Goals

Type: Short talk (e.g. PowerPoint, Google Slides)

The Colorado Natural Heritage Carbon Challenge

David McCormick¹, Maryam Tidjani¹, Pierce Graves¹, Faith Kelly¹, Alex Kah¹, Lindsay Cocotis¹

¹Colorado State University

This project focuses on the home and office carbon footprint of Colorado Natural Heritage Program (CNHP) staff. This project will use data gathered from surveys, and online carbon tracking tools provided by the City of Fort Collins to calculate the carbon footprint of CNHP staff. Participants will then employ behavior change strategies, which have an associated carbon footprint reduction, to lower their footprint. Our project aims to track the best strategies for reducing carbon footprints and create a framework that could be re-applied. We will also investigate the effects of Covid-19 on carbon trends in related sectors to our framework.

SDG Theme: SDG 7 - Affordable and Clean Energy, SDG 9 - Industry, Innovation, & Infrastructure, SDG 12 - Responsible Consumption & Production

Type: Short talk (e.g. PowerPoint, Google Slides)

Characterizing fungal inhibitors from drought-stressed switchgrass

Sarvada Chipkar¹

¹Michigan Technological University

Development of economically viable and greener pathways to synthesize renewable energy has been an important research theme in recent years. Previously it was reported that drought experienced during the growth of switchgrass led to complete inhibition of yeast growth during fermentation. In this project, we characterized specific compounds that led to this inhibition by extracting the samples using solvents (i.e., water, ethanol, and ethyl acetate) to selectively remove potential inhibitory compounds and determining whether pretreatment affects the inhibition. A key goal of the project was to determine whether the microbial-inhibitors are plant-generated compounds, by-products of the pretreatment process, or a combination of both.

SDG Theme: SDG 7 - Affordable and Clean Energy

Type: E-poster

Session 2C. Countering Global Environmental Strain with Sustainable Initiatives (SDGs 6, 9 & 11)



Carbon Offset Initiatives in Huaraz, Peru

Meghan Montagne¹, Kayla Redd¹, Anna Whelan¹

¹Colorado State University

The city of Huaraz, Peru has a per capita emissions rate of about 5.57 tonnes of CO₂ equivalent, of that about 13% is from transportation and 6.5% is from waste (Ritchie and Roser, 2020). The objective of this study is to develop a possible plan for lowering emissions in the city through transportation and waste management. Analysis of current transport and waste infrastructure will be done and a proposal will be created to raise awareness for how and why lowering emissions in these areas will be beneficial to the people of Huaraz.

SDG Theme: SDG 6 - Clean Water & Sanitation, SDG 9 - Industry, Innovation, & Infrastructure, SDG 11 - Sustainable Cities & Communities

Type: Short talk (e.g. PowerPoint, Google Slides)

Environmental Assessment and Recommendations for Mines in Peru

Yuanxing Fang¹, Zhongmiao Xue¹, Zhicheng Sun¹

¹Colorado State University

The Antamina mine is one of the largest copper/zinc mines in the world. Due to Peru's special geographical location, close to the Amazon forest and a large number of snow-capped mountains, the carbon emissions and climate change effects generated by the mining industry will be more serious. Our group will give environmental assessments and recommendations through learning and studying the carbon emissions and carbon offsetting measures of Peru, China and other large special mines in the world. The paper summarizes suggestions on energy conservation and emission reduction to promote the sustainable construction of mining areas.

SDG Theme: SDG 9 - Industry, Innovation, & Infrastructure, SDG 11 - Sustainable Cities & Communities, SDG 13 - Climate Action

Type: Short talk (e.g. PowerPoint, Google Slides)

Increased Sanitation Due to COVID-19 Poses a Dilemma for Waste Management

Sydney Castellanos¹

¹Indiana University

Among the many changes that have come with COVID-19 has been the shockingly increased production of personal protective equipment. The increased disposal of such products calls for the development of novel management plans to prevent public health from being to the detriment of environmental health. Medical waste was found to have a 350% increase during the pandemic (Sarkodie & Owusu, 2020). Management of this issue will need to consider the sustainable alternatives to some of the readily available products currently in production and novel ways of recycling or repurposing these waste materials.

SDG Theme: SDG 3 - Good Health & Wellbeing, SDG 6 - Clean Water & Sanitation, SDG 12 - Responsible Consumption & Production

Type: E-poster

Renewable Human Energy

Michael Prier¹, Chad Williams¹

¹Indiana University

As we all know, fossil fuels are harmful and finite. What if there was a way to have virtually infinite renewable energy? What if there was a way to harness some of the energy we, as humans, exert in our daily life? My idea is, in a way, similar to the crank flashlights. With my idea, we could convert gyms across the nation and globe into ones that store the energy used to move and power them. This form of energy would not only be renewable, but significantly less harmful to the environment than that of fossil fuels. “In general renewable forms of energy are considered 'green' because they cause little depletion of the Earth’s resources, have beneficial environmental impacts, and cause negligible emissions during power generation” (Herzog, Lipman, & Kammen, p.21). If we are able to harness some of the energy we exert each day, we could have a reliable, renewable, green source of energy.

SDG Theme: SDG 7 - Affordable and Clean Energy, SDG 11 - Sustainable Cities & Communities, SDG 13 - Climate Action

Type: E-poster

Session 2D. Combating Biodiversity Loss Around the World (SDGs 13, 15 & 17)



Republic of Guatemala

Aaron Hargis¹, Angie Casini-Ropa¹, Arielle Collier¹, Gabby Hagewiesche¹

¹Colorado State University

Due to Guatemala's natural susceptibility to extreme weather events and land use change, the people and ecosystems of this country are especially vulnerable to the effects of climate change. This poster will examine Sustainable Development Goals related to land use changes, industry, innovation, infrastructure, consumption and production, and climate action through the lens of our ecological indicator, the endangered Yucatán black howler monkey. We aim to shed light on the drivers and impacts of black howler monkeys as they relate to Guatemala's Nationally Determined Contributions.

SDG Theme: SDG 12 - Responsible Consumption & Production, SDG 13 - Climate Action, SDG 15 - Life on Land

Type: E-poster

Post-Fire Trail Assessment of Cameron Peak and East Troublesome Fires

Elizabeth Madura¹, Julia Ledford¹, Laura Macklin¹, Alexander Burks¹, Xi Zeng¹,
Mary Williams¹, and Mengfei Zhang¹

¹Colorado State University

The Cameron Peak Fire which occurred from August to December 2020 in Colorado, U.S affected many of Northern Colorado's trails systems. Through GIS analysis we are able to determine trails most affected by the fire and at need for restoration. These results will be given to Wildlands Restoration Volunteers in order to complete future restoration. Additional analysis occurred with the East Troublesome Fire to provide additional resources to determine restoration for Wildlands Restoration Volunteer.

SDG Theme: SDG 15 - Life on Land, SDG 17 - Partnerships for the Goals

Type: Other presentation (e.g. Prezi, StoryMap, etc.)

Floristic composition and diversity of the arboreal vegetation of a post-burn subxerophyllous formation in the Chanchamayo valley

Leonardo Collazos Huamán¹, Renzo Elejalde Romero¹, Norah Vega De La Cruz¹, Sonia Palacios Ramos¹

¹Universidad Nacional Agraria La Molina

During the last years, fires in the tropical forests in central Peru have been increasing, causing effects on the vegetation. Over time, these fire-affected areas have been regenerating. However, at present, information on the floristic composition and biodiversity is still scarce. In the present study, the floristic composition and diversity of the arboreal vegetation of a subxerophilous forest in the Chanchamayo valley were evaluated, 20 months after having been disturbed by burns of anthropogenic origin.

SDG Theme: SDG 12 - Responsible Consumption & Production, SDG 13 - Climate Action, SDG 15 - Life on Land

Type: Short talk (e.g. PowerPoint, Google Slides)E-poster

CODEX: A Spatial Data Reference Program for Conservation Planning

Tara Atwood¹, Desmond Evans¹, Clarissa Koch¹, Reynold Liu,¹ Tess Scarborough¹

¹Colorado State University

Colorado Natural Heritage Program (CNHP) is launching Colorado Conservation Data Explorer (CODEX), an interactive web-mapping service that aims to summarize sensitive species data, aid in conservation and recreational planning, and allow users to submit their own project areas for review. CODEX has compiled spatial natural resource data from a variety of trusted sources in an easily accessible format. Our StoryMap seeks to emphasize the potential applications of CODEX to a broad audience, including nonprofit organizations, consultants, governmental agencies, and citizen scientists. This StoryMap will act as a valuable marketing and outreach tool for communicating the numerous mapping features of CODEX.

SDG Theme: SDG 13 - Climate Action, SDG 15 - Life on Land, SDG 17 - Partnerships for the Goals

Type: StoryMap

Climate Change: Importance of the study of the seawater temperature of Paita and its impacts in the northern coast of Peru in 2017

Jefferson Stefan Llacsahuanga Puma¹

¹UDEP

The presentation shows the importance of study seawater for can determine a possible phenomenon of climate change how was "The child coast" in 2017 Piura Peru. Also, the impact that it had in different sectors. It has a relation with climate action because the research allows knows what impacts will be, based on previous figures.

SDG Theme: SDG 13 - Climate Action

Type: E-poster

Session 2E. Conservation Efforts & Adaptation to Climate Change (SDGs 11, 13, 15 & 16)



Rights of Nature and Indigenous Engagement

Drew Spindler¹, Naomi Stevens¹, Joe Pitti¹

¹Colorado State University

The Rights of Nature (RoN) movement became official with the New Orleans Statement in 2017, giving ecosystems the right to be an entity with legal protection to flourish and regenerate. To prepare for engagement with individuals in the Salish Sea region and then pass a RoN ballot initiative, we researched Indigenous Tribes in Canada and the USA with closely aligned values to the initiative. Tribes most willing to engage with the initiative are large in size, close in proximity to the Salish Sea region, have collaborated with governments in the past, and have values parallel to the RoN movement.

SDG Theme: SDG 10 - Reduced Inequalities, SDG 16 - Peace, Justice, & Strong Institutions, SDG 17 - Partnerships for the Goals

Type: Short talk (e.g. PowerPoint, Google Slides)

Global Rights of Nature Initiatives

Emily Anis¹, Lina Cao¹, Lu Chen¹, Emily Jenkins¹, Julia Perbohner¹, Lindsey Sarazen¹, Mackenzie Warden¹

¹Colorado State University

The Global Rights of Nature Initiative Project summarizes aspects of Rights of Nature initiatives around the world. The research team compiled 35 Rights of Nature initiatives and examined various aspects of the initiatives like the language of the initiatives, the motivations for the initiatives, and the lasting impacts of the initiatives. The team then performed frequency analyses on the data obtained. The deliverables of the analyses included bar graphs, pie charts, and word clouds. The data was also summarized through a story map, timeline, and report. This work was performed for the Community Rights of San Juan Islands.

SDG Theme: SDG 11 - Sustainable Cities & Communities, SDG 13 - Climate Action, SDG 16 - Peace, Justice, & Strong Institutions

Type: Short talk (e.g. PowerPoint)

Climate Change Opinions Across the Mountainous Counties in the U.S.

Elizabeth Madura¹, Jack Tilis¹, Spencer Varga¹, Kendall Murphy¹, Samuel Britton¹, Amy Gill¹,
and Chris McCormick¹

¹Colorado State University

With the use of Yale climate data we are determining if there are differences in climate opinions between mountainous regions in the US. We are determining whether or not there are differences that correlate with economic, climatic, or other demographic data. Our methods will include the use of a literature review and GIS analysis to visualize our findings.

SDG Theme: SDG 13 - Climate Action, SDG 15 - Life on Land, SDG 16 - Peace, Justice, & Strong Institutions

Type: StoryMap

Analysis of Elephant Injuries and Veterinary Treatment across the Maasai Mara

Ann Coughlan¹, Krystal Tran¹, Nick Godsey¹, Seth Kimball¹,
Morgan-Rae Hertel¹, Jorune Klisauskaite¹

¹Colorado State University

The Maasai Mara in southwestern Kenya is a species-rich ecosystem. Rapid agricultural expansion and additional pressures of climate variability are threatening social-ecological dynamics in the region. The Sheldrick Wildlife Trust mobile veterinary units, in collaboration with the Mara Elephant Project, have collected injury and treatment data for African Elephants in the Maasai Mara. This presentation showcases our analysis of spatiotemporal patterns of where injuries are most treated within the ecosystem and if injuries have increased over time. Additionally, our project assesses how many of these injuries were caused by human-elephant conflict and if injuries vary with age or gender.

SDG Theme: SDG 9 - Industry, Innovation, & Infrastructure, SDG 15 - Life on Land, SDG 16 - Peace, Justice, & Strong Institutions

Type: StoryMap

Forest Change Analysis of the Loita and Mau Forests, Kenya

Ilana Vargas¹, Sienna Levine¹, Glenn Stearns¹, Mason McKinzie¹, Aaron Hargis¹, Ryan Bridges¹,
and Sarah Carroll¹

¹Colorado State University

The Mara Elephant Project is a collaborative organization tracking elephant populations in the Mau and Loita Forests in Kenya. Using Hansen Global Forest Change data, we assessed the forest cover and forest health in these two regions by monitoring forest loss and gain over the last 20 years. Story Maps and geospatial analyses show the overlap of elephant activity, logging, charcoal industries, and forest cover changes. We summarize changes in forest cover from 2000 to 2019 and explore differences in health and deforestation trends between the Loita and Mau forests.

SDG Theme: SDG 11 - Sustainable Cities & Communities, SDG 15 - Life on Land, SDG 16 - Peace, Justice, & Strong Institutions

Type: StoryMap

Session 2F. Monitoring Climate Change: Equity & Conservation (SDGs 3, 4 & 11)



Developing a Guide to Breathe Safely in Our Homes

Andrei Olaru¹

¹Vanderbilt University

Mothers & Others For Clean Air's mission is to protect children's health by reducing the impacts of air pollution and climate change throughout the Southeast. As their research intern, I have been developing an online webtool helping regular people identify sources of indoor air pollution. Did you know that nonstick pans can release chemicals called PFOAs, known to cause cancer in most animals? The Healthy Indoor Breathing Toolkit teaches this and more. I will speak about my experience assembling the tool's research and how I tested my final product by traveling to local stores and seeing if I could shop smarter.

SDG Theme: SDG 3 - Good Health & Wellbeing, SDG 4 - Quality Education, SDG 12 - Responsible Consumption & Production

Type: Short talk (e.g. PowerPoint, Google Slides)

Edible Forests: Addressing Urban Heat Islands Through Food Security

Amanda D'Agostino¹

¹Indiana University

Urban Heat Islands are built environments that retain heat and lack greenspaces which absorb heat, causing cooler temperatures. According to Jenerette et al. (2011), there is a correlation between lower income and lack of greenspaces in the neighborhood, segregating those with lower financial power. An example of this is the 1995 heatwave in Chicago that killed 700 people, often elderly or lower income residents. Developing and maintaining edible forests will help cool the neighborhood and help feed the community with locally grown nutritious food in areas of food insecurity. Partnerships with local farmers, volunteers, community members, and municipalities should be explored.

SDG Theme: SDG 10 - Reduced Inequalities, SDG 11 - Sustainable Cities & Communities, SDG 13 - Climate Action

Type: E-poster

Daily Nature Activities for School Children in the COVID-19 Era

Ryann Hartung¹

¹Indiana University

Kindergarten through grade twelve programs need to have more nature based recreation programs in their daily lesson plans. This would encourage kids to take control of their own relationship with nature. It could also encourage kids to choose different career paths that they would like to do. I think using recess time to go on nature hikes or doing nature therapy techniques would be more beneficial than doing sport games or playground activities. This would also be more sanitary and adhere to COVID-19 recommended guidelines. They could be masked, distanced and have a more educational experience while still having fun.

SDG Theme: SDG 3 - Good Health & Wellbeing, SDG 4 - Quality Education, SDG 8 - Decent Work & Economic Growth

Type: E-poster

The benefits of nature on human health during the COVID-19 pandemic

Erica Eason¹, Zoe Goldenberg¹, Emily Hayden¹, Kennedy Little¹, Madeline Moss¹, John Schalk¹

¹Indiana University

Throughout the COVID-19 pandemic and resulting lockdown, human experiences in nature became increasingly prevalent. Studies have concluded that these experiences and encounters with nature have had a significant benefit on human health both physically and psychologically. One study conducted on the use of greenspace during lockdown found "...consistent positive associations between frequency of greenspace use and the five measures of mental health outcomes" (Soga et al., 2020). We aim to analyze the findings of other research studies in an attempt to fully describe the total benefits of nature within the context of current pandemic life, including Covid-related compliance.

SDG Theme: SDG 3 - Good Health & Wellbeing, SDG 4 - Quality Education, SDG 11 - Sustainable Cities & Communities

Type: E-poster

Bees at the Table: Ecological and Cultural Connections between African American and Native American Cuisines

Soleil Culley¹

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What are the ecological and cultural connections between squash bees, African American, and Native American food cultures? Two subfamilies (Peponapis and Xenoglossa) were identified as bees of interest because their host plants (Cucurbita) could be connected to food cultures. Cucurbita was found to be a common host squash species found throughout North and South America. Searches in academic literature databases connected cultural and ecological knowledge to agricultural history of the Trans-Atlantic slave trade. Skilled slave labor and products were not the only trading goods; various plants were transplanted during the Trans-Atlantic slave trade. Throughout history squash became more integrated in food culture as seen throughout a series of cookbooks created by Native and African American people. Phylogenetic history of squash bees and Cucurbita connects both groups to species in Africa with divergence events caused by dispersal into milder climates. This research connects squash bees to food cultures, and the possible consequences that today's environmental conditions have on cultural food systems.

SDG Theme: SDG 3 - Good Health & Wellbeing, SDG 4 - Quality Education, SDG 11 - Sustainable Cities & Communities

Type: Short talk (e.g. PowerPoint, Google Slides)

Session 2G. Climate Action Dialogues: An Open Conversation on Student Action



