

Global Sustainable Challenges in Ecuador

AMAZON AND GALAPAGOS

This highly innovative program will combine the majestic Highlands, the incredibly biodiverse Amazon and a 5-day excursion to the Galapagos Islands to guide students along Charles Darwin's voyage of discovery and his development of the theory of the origin of species via natural selection.

This course will integrate both social and biological science and expose participants to the idea that scientists are always living and working within specific societal contexts. There will be various topics about sustainability that professors will teach, the program will visit and discuss with local scientific experts ongoing issues in climate change, environmental degradation, and conservation efforts in Ecuador.

YOUR ITINERARY IN A NUTSHELL

- Regions in Ecuador you'll visit: Andes, Amazon and Galapagos Islands
- Accommodation: 5 nights in Quito, 4 nights in the Amazon and 4 nights in the Galapagos Islands
- Experiences: Academic Lectures, Hands on activities, Walking classrooms, Adventure, Culture, History, Landscapes and Wildlife.



	QUITO	UIDE	QUITO	BAÑOS	PUYO	PUYO	PUYO	QUITO	GPS	GPS	GPS	GPS	GPS	QUITO									
	1	2	3	4	5	6	7	8	9	10	11	12	13	14									
6:00	Arrival to Quito			Breakfast			Bird-watching	Breakfast						Breakfast									
7:00		Breakfast	Breakfast	Transfer to Baños	Breakfast	Animal conditioning practice	Breakfast	Lecture: Highlights of the Amazon and the Andes	Breakfast	Breakfast	Breakfast	Breakfast	Breakfast	Breakfast									
8:00		Transport UIDE	Hotel pick up and transport to Old Town		Lecture	Lecture	Walking classroom Tamandúa	Transfer Termas Papallacta	Transport to Airport	Transport Tortuga Bay	Transfer to Cerro Mesa	Transfer Las Grietas	Transfer aeropuerto	Transfer aeropuerto									
9:00		Lecture by professors of UIDE: Lectures: Ecuadorian culture & history; Sustainable Development; Sustainable tourism	Walking classroom Old Town visit: San Francisco, La Compañía, Presidential palace, Panecillo	Visita the tree house	Walking classroom Yanacocha	Animal conditioning practice									Papallacta Hot Springs	Flight to Baltra-Galapagos	Walking classroom Santa Cruz Highlands and Twin Craters	Free time Tortuga Bay	Cerro Mesa and Garrapatero Visit	Kayak at the Grietas, the cove, mangles, cliffs, lava channels, and beaches beyond	Flight to Quito		
10:00																							
11:00				Visit Baños town	Lunch (Included)	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	Transport to Hotel									
12:00																							
13:00		Lunch at UIDE	Walking classroom Intiñan	Walking classroom Waterfall avenue	Animal Conditioning Lecture	Transport to Tamandúa	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	Transport to Hotel										
14:00		Paintball or horseback riding												Walking classroom Intiñan	Animal Conditioning Lecture	Transport to Tamandúa	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	Transport to Hotel
15:00																							
16:00		Transport to Hotel												Transport to Hotel	Transport to Hotel	Transport Yanacocha	Lecture on Releasing animals to the wild	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch
17:00																							
18:00		Welcome dinner	Dinner (Not included)	Dinner (Not included)	Dinner	Dinner	Dinner	Dinner	Dinner (Not included)	Dinner (Not included)	Dinner	Dinner	Dinner	Dinner (Not included)									
19:00																							
20:00				Lecture: Ecuador's Biodiveristy		Night walk				Lecture: Theory of Evolution	Lecture: Environmental impacts	Dinner	Dinner (Not included)										

Departure to the U.S.

Free day

DAY 1



QUITO

Arrival to Quito and hotel transfer.
Welcome dinner



Overnight: Whyndham
Garden Quito

DAY 2

UIDE QUITO

During your first day in Ecuador you'll visit UIDE and get lectures with our teachers that will tell you all about your amazing journey through Ecuador, you'll talk about the biodiversity of the country and the history that makes Ecuador such a rich mix of cultures and sceneries.

PAINBALL/HORSEBACK RIDING

Feel like you're out of an action movie and enjoy playing with your group or enjoy time with IUDE's horses.



FACULTY LECTURE HOURS: 6 HOURS

Lectures led by: MSc. Cecilia Puertas, MSc. Francis Vivanco and PhD (c) MSc. Sebastián Donoso

- Ecuadorian culture & history
- Sustainable Development
- Sustainable tourism



Overnight: Whyndham
Garden Quito



DAY 3



QUITO

Enjoy a visit to the best-preserved historic centers in all of Latin America. The narrow streets are lined with centuries-old buildings, and the entire area was declared a UNESCO Heritage Site back in 1978.

Then, get ready to interact with exhibits that demonstrate events that occur only on the equator, you'll be surprised how different things work here! You'll visit the Middle of the World.

WALKING CLASSROOM: 8 HOURS

Led by PhD (c) MSc. Sebastian Donoso, learn about Ecuadorian history and culture in the capital of Ecuador Quito and submerge yourself in a walking class around the biggest and best well-preserved old town in Latin América. Then visit the famous Middle of the Word and learn about Ecuadorian culture and history in a visit led by Intiñan museum guides.



Overnight: Whyndham Garden Quito

DAY 4

BAÑOS AND AMAZON

After breakfast, you'll journey from Quito to the city of Baños de Agua Santa.

The small town of Baños is located at the foot of the Tungurahua volcano and is surrounded by verdant mountains, rivers and hot springs.

First things first take the most Instagramable photo in the Highlands at the swing at the end of the world.

After lunch you'll get the chance to travel the Ruta de las Cascadas, it takes you past some pretty incredible scenery and past many waterfalls along the way.

At night you'll arrive to Yanacocha Animal rescue Center and after a quick welcome and dinner you'll sleep in the peaceful Amazon.





WALKING CLASSROOM: 4 HOURS

Led by MSc. Cecilia Puertas Learn about the hydrography of Ecuador and its rivers and waterfalls.

LECTURE TIME: 2 HOURS

- Taught by Biologist Raul Cuatrecasas Head biologist of Yanacocha, you'll learn about Nocturnal animals of Yanacocha
- Taught by MSc. Cecilia Puertas learn about Ecuador's Biodiversity



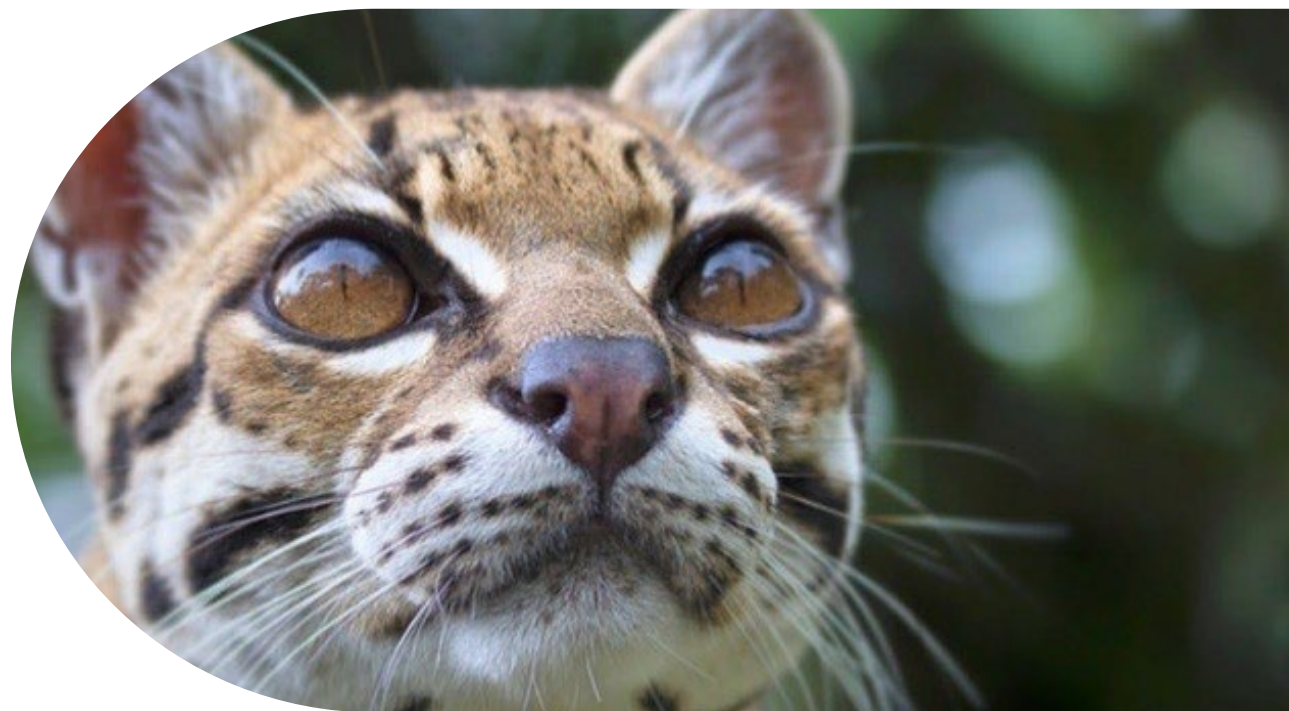
Overnight: Yanacocha

DAY 5

YANACOCHA ANIMAL RESCUE CENTER

On this day you'll say good bye to the Highlands and travel to the Amazon rainforest. This journey will take you to YanaCocha, this amazing project has its beginnings in 2006 and has been developing important work to benefit the conservation of flora and fauna in the province of Pastaza.

This animal sanctuary receives animal victims of trafficking, which are confiscated by the environmental authorities that find the specimens in major markets, plazas and homes where people have them as pets or companion animals.



Generally, animals that are rescued are specimens that have been living in unfavorable condition like very small cages or small spaces, they've also lacked care and didn't get fed according to their species need.

Currently the YanaCocha Bio Park houses more than 200 specimens (42 species), the same that are under the care and attention of specialists, volunteers and workers who put all their love and effort to make the lives of these animals better.

WALKING CLASSROOM: 4 HOURS

Led by the Director of Yanacocha, learn about the job this Rescue Center does to save wild animals in the Amazon

LECTURE HOURS: 3 HOURS

Presented by the Head Biologist of Yanacocha learn about Animal Conditioning, how to make animals' lives better when they can't be released.

Yanacocha Rescue Center Information:
Animal Rescue and Rehabilitation Center in the Amazon of Ecuador.
It houses a multidisciplinary team of expert biologists, veterinarians and researchers.
www.yanacocharescue.org
YanaCocha - Animal Rescue Centre - YouTube



Overnight: Yanacocha



DAY 6



LECTURE HOURS: 3 HOURS

- Led by Raul Cuatrecasas Head Biologist of Yanacocha you'll learn about the project of releasing animals to the wild at Tamandua.
- Led by MSc. Cecilia Puertas learn about nocturnal animals of the Amazon in a Night walk.

PRACTICE HOURS: 4 HOURS

Animal Conditioning, you'll get to work hands on with an animal to help them get adapted to human contact while they are manipulated for checkups.



Overnight: Yanacocha

YANACOCHA - HANDS ON ANIMAL CONDITIONING PROGRAM

After breakfast you'll visit Yanacocha and get an idea of the program and how they've managed to raise public awareness on the protection and respect for wildlife, as well, as how they have changed the lives of hundreds of wild animals in the reserve Tamandua freeing them, these species now find themselves at home in the wild. After lunch you'll get a lecture by one of the biologists in charge of an amazing initiative to make the animals that can't be released more comfortable in their enclosures.



DAY 7

TAMANDUA

Tamandua Ecological Reserve was created in 2012, and aims to contribute directly to the work carried out by the YanaCocha Rescue Centre Wildlife, in the process of hosting, investigate and rehabilitate wildlife victims of tenure and illegal trafficking in the Ecuadorian Amazon.

Just an hour from Yanacocha it has an area of 70 hectares of primary forest, that are the habitat of thousands of species of plants and animals.

While constantly working on programs and research projects to determine the main species of animals and plants that inhabit this area, in order to make an inventory of the existing species in the reserve.





The reserve has registered 45 species of mammals, 258 types of birds, 60 of amphibians and reptiles, as well as bears, squirrels, foxes, guatusas, herons, parrots, toucans, hummingbirds, tanagers, and countless other species of animals.

WALKING CLASSROOM: 4 HOURS

Tour the home of the animals Yanacocha reinserts in Nature.

LECTURE HOURS: 5 HOURS

- Presented by B. S. Jorge Flores the Director of Tamandua you'll learn about o Rehabilitating animals as part of a sustainable project in the Amazon
- Taught by MSc. Cecilia Puertas learn about Birdwatching and the Amazon



Overnight: Tamandua

DAY 8

PAPALLACTA HOTSPRINGS

After Breakfast you'll have an hour to reflect on what you've learned from the Amazon. Then, we start our journey back to Quito but not before a well-deserved soak in the hot springs of Papallacta, get your energy renewed with this healing waters. Get ready for the Galapagos you'll travel there the next day!

LECTURE: 1 HOURS

Led by MSc. Cecilia Puertas this is your opportunity to put in words the Highlights of the Amazon and the Andes.



Overnight: Whyndham Garden Quito

DAY 9



GALAPAGOS – BALTRA – SANTA CRUZ

You'll have the opportunity to see giant tortoises in their habitat, there is nothing better than seeing these giants in the wild.

After lunch, you'll visit the Twin craters that are empty magma chambers that eventually collapsed resulting in two large holes, this is the habitat of the very clever the carpenter finch, which uses tools to search for food.

Helping out this beautiful Islands is very important so, after a forum to understand why the reforestation is key on the islands, students will plant its own tree helping the restoration of native and endemic plant species.



WALKING CLASSROOM: 1 HOURS

Led by our private tour guide Specialized in the Galapagos, you'll learn about volcanic formations at the Twin craters.

PRACTICE HOURS: 3 HOURS

Hands on work, help with the reforestation of Galapagos.



**Overnight: Hotel Fiesta,
Santa Cruz**

DAY 10

TORTUGA BAY

This day your program will take you to two of Puerto Ayora's most popular excursions.

To start your day, you will visit the Charles Darwin Research Station and the headquarters of the Galapagos National Park Service, from which biological research and indispensable conservation management of this unique but vulnerable archipelago are directed.

Next, you will hike from Puerto Ayora, through a tropical dry forest where you can compare different species of Darwin finch, to be rewarded with an unbeatable panoramic ocean view of the wild natural beach of Turtle Bay. Popular amongst experienced surfers due to its impressive waves.

This day we will have an expert biologist who will talk deeply about all the conservation efforts that are being made. Also, he will explain that most species in Galapagos are endemic and that means that if threats to these are not kept in check, the wildlife could be put at risk and ultimately could become extinct.



LECTURE TIME: 4 HOURS

- Presented by a Biologist from the Charles Darwin Foundation learn about the theory of evolution.
- Taught by Cecilia Puertas learn about Galápagos and the Theory of Evolution.

WALKING CLASSROOM: 2 HOURS

Led by our Specialized tour guide, learn about the different species of Darwin finch and the biodiversity of the Islands



**Overnight: Hotel Fiesta,
Santa Cruz**

DAY 11

CERRO MESA AND GARRAPATERO

On this memorable visit to Cerro Mesa Ecological Reserve you will enjoy a picturesque hike along its paths, admiring the wildlife and taking in the spectacular views of the island and its surroundings from the lookout point.

Next, we continue to Garrapatero beach, where you can discover the beautiful wildlife species that can be found in the area, such as flamingos and mallards in a nearby lagoon. You may choose to rent a kayak and paddle around the island before we return to Puerto Ayora.

In the afternoon you'll have a chance to tour the main Island of Galapagos and Identify sustainable practices with the help of Msc. Cecilia Puertas you'll visit different businesses, watch the flora and fauna and how they integrate together.



Overnight: Hotel Fiesta, Santa Cruz

FOR OUR MORNING ACTIVITY YOU WILL:

- Identify and log fauna
- Identify native and endemic species
- Check species from a Galapagos Species Checklist

WALKING CLASSROOM HOURS: 4 HOURS

Led by MSc. Cecilia Puertas Tour the town and identify sustainable practices of tourism.

PRACTICE HOURS: 1 HOUR

Become a scientist of the Island and learn how to identify and log different species.



DAY 12

KAYAK PLAYA DE LOS ALEMANES + COOKING CLASS

This day will Be a very memorable and adventurous day since you will be kayaking around Academy Bay and la "Playa de los Alemanes".

You will explore the cove, mangles, cliffs, lava channels, and beaches beyond. A nearby popular site, called Las Grietas (The Cracks), invites to a refreshing swim or some snorkeling in its impressive gorge.

In the afternoon you'll have a chance to present a project about your finds of sustainability of the islands.





At night, be ready for a farewell dinner with a cooking show in which you will become the chef of well-known Ecuadorian delicacies.

WALKING CLASSROOM: 6 HOURS

Led by our specialized tour guide, learn about rock formations and how salty and sweet water converge to form ideal ecosystems for animals.

LECTURE AND CLOSING DAY: 5 HOURS

Presented by Cecilia Puertas and the Students

- Proposals of innovative sustainable practices



**Overnight: Hotel Fiesta,
Santa Cruz**

DAY 13

BACK TO THE CONTINENT

It's time to say goodbye to Galapagos!

After breakfast you will be transported from your hotel to the airport for your domestic flight back to the continent.

The rest of the afternoon is for you! Go shopping, get some souvenirs or visit that church you liked so much again.



**Overnight: Whyndham
Garden Quito**

DAY 14



BACK TO THE US!

We hope you had a lovely time in Ecuador!



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GLOBAL SUSTAINABLE CHALLENGES IN ECUADOR
AMAZON & GALAPAGOS ISLANDS
S5-PP-GSCAMG



COURSE DETAIL

Course code and name: S5-PP-GSCAMG Global Sustainable Challenges in Ecuador: Amazon and Galapagos.

Dates: Summer of 2023

Number of academic hours: 69

Duration: 2 weeks

Pre-requisites: no prerequisites

COURSE OVERVIEW

Ecuador is one of the seventeen most megadiverse countries in the world. The Amazon rainforest and the Galapagos Islands are two Ecuadorian regions known for their unique flora and fauna. They are home to endangered species and delicate ecosystems. Hence, sustainable practices and conservation projects in these areas are highly needed. Given the efforts made on this aspect, the Galapagos Islands were awarded as the best sustainable destination, while the Ecuadorian Amazon holds several flora and fauna conservation centers.

This small country located on the equator is not only rich in biodiversity but also in history and culture, being a multi-ethnic country with around 15 indigenous nationalities. Two processes of conquest and the environmental differences of each of the 4 Ecuadorian regions led Ecuador to become the country that now exists.

Because of the above, Ecuador is a perfect destination for an interdisciplinary two-week summer program aiming to explore deeper how historical processes and environment shape the forming process of species and culture. This program considers the co-incidence of nature and humans through history. Nature impacts human groups' culture, ideas, and knowledge. For instance, Charles Darwin shaped the theory of the origin of species via natural selection by closely looking at endemic species of the Galapagos Islands, while human action endangered some ecosystems and species.

Specific components of this program:

- Walking classrooms around the Historic Center of the city of Quito and the Intiñan Solar Museum to actively identify in a real-life context the cultural and historic elements addressed in the lecture.
- Excursions to the Galapagos Islands and Amazon rainforest to learn about endemic species and their conservation.
- Analysis of human impact on the environment and the value of biological research and conservation management of these unique ecosystems.
- Observation and comparison of different flora and fauna species in their natural habitat.

This short program encompasses lectures, discussions, field trips, and practices. At the end of the course, students will be able to identify characteristics of some endemic species, understand the relationship between environment and species, and comprehend how human action can positively or negatively impact nature. All the

activities included in the program require students' active participation and promote discussion with faculty and other students.

LEARNING OBJECTIVES

The learning objectives of this interdisciplinary summer program are:

1. Explore the historical and environmental factors that shaped Ecuador as a multi-ethnic and megadiverse country.
2. Gauge human impact on fragile ecosystems.
3. Assess the socio-environmental impacts of human intervention through in-field comparison in various ecological regions
4. Learn about conservation efforts
5. Know about the sustainable development goals and Ecuador's actions towards sustainability achievement.
6. Understand the importance of sustainable and conservation projects to ensure endangered species and restore native and endemic plants.
7. Learn about the theory of evolution through the observation of species.

ASSESSMENT

Students will be assessed according to the following components:

Assessment item	VALUE %
Exam 1: History and culture	20
Exam 2: Biodiversity, conservation, sustainability	20
Practice 1: conditioning	10
Practice 2: reforestation	10
Group project: sustainable innovative proposals	10
Field work/data gathering	10
Final paper	10
Oral presentation	10
Participation	10
TOTAL	100

Exam 1 (20%): A first written examination will be given based on material analyzed in lectures, discussions, readings, and field exercises regarding Ecuadorian history and culture.

Exam 2 (20%): a second written examination will be given based on material analyzed in lectures, discussions, readings, and field exercises about biodiversity, conservation, and sustainability.

Practice 1 (10%): We will grade students' active participation and application of rehabilitation knowledge during the hands-on activity "Conditioning mammals, Psittacidae, and raptors on the Ecuadorian Amazon".

Practice 2 (10%): 10 percent of the punctuation depends on students' active participation and knowledge about endemic species during the hands-on reforestation activity on the Galapagos Islands.

Group project (30%): Students will work in groups to propose a sustainable innovation. The project's final grade considers fieldwork, a final written paper, and an oral presentation of the proposal. Each aspect provides one third of the final grade.

- Students are required to meet the deadlines established by the lecturers at the beginning of the short program
- Assistance is mandatory for all lectures and activities.
- Students will receive transcripts for the short program and a certificate of approval if minimum grades are acquired.

GRADES CONVERSION SYSTEM

	FAIL	SUFFICIENT	GOOD	VERY GOOD	EXCELLENT
UIDE	0-69	70 - 76	77 - 86	87 - 92	93 - 100
ASU	F	C - C+	B - B	B+ - B+	A

COURSE CONTENT

Key: L=lecture, FL= Field Lecture, P=Practic

Lecture	Type	Contact hours
Ecuadorian culture & history: <ul style="list-style-type: none"> * Ecuador's ancient history focused on human groups * Processes of Incas and the Spanish conquest of the Ecuadorian territory. 	L=4	12

<ul style="list-style-type: none"> * Last Inca sovereign and the falling of an empire that led to the beginning of a new order * pre-hispanic, Hispanic, pre-Columbian, and baroque art observation through a visit to the Historic Center of the city of Quito. * Center of the earth physics and history 	FL=8	
<p>Sustainable Development:</p> <ul style="list-style-type: none"> * 17 sustainable development goals * Ecuador's actions toward the achievement of sustainability * Reasons for the biological richness of Ecuador * Sustainable and non-sustainable practices in the Galapagos Islands * Human-based environmental impacts on the Islands ➤ Projects of innovative sustainable practices proposals 	L=9 FL=4	13
<p>Unique flora and fauna observation:</p> <ul style="list-style-type: none"> * Observation of unique flora and fauna on the Ruta de las Cascadas * Caimans observation at Yanacocha Animal Rescue Center * Amazon representative flora and fauna and its main characteristics * Nightlife of species of the Ecuadorian Amazon * Early birds live in the rainforest * Tamandua project * Carpenter finch habitat and tools * Compare different species of Darwin finch * The Voyage of discovery that Charles Darwin took to develop his theory of evolution * Evolution of species and natural selection 	FL= 11 L= 3	14
<p>Flora and Fauna conservation:</p>		

<ul style="list-style-type: none"> * Conservation of flora and fauna at the Yanacocha Rescue Center * Operant conditioning with positive reinforcement as a tool to ensure animal welfare * Practice conditioning with mammals, Psittacidae, and raptors * Aspects of the rehabilitation of wildlife victims of illegal possession and trafficking in the Ecuadorian Amazon * Importance of the repopulation of endemic species * Empty jungle phenomenon * Reforestation of native endemic plants of the Galapagos Islands practice * Development of the Galapagos National Park * Value of research and conservation management of unique environments as the archipelago * Local restoration projects in the Galapagos Islands (Cerro Mesa) 	FL= 12 L= 10 P=8	30
Lectures		26
Field lectures		35
Practice		8
Projects		n/a
Total instructional hours:		69

READINGS

Ballesteros-Mejia, L., Angulo, E., Diagne, C., Cooke, B., Nuñez, M. & Courchamp, F. (2021). Economic costs of biological invasions in Ecuador: the importance of the Galapagos Islands. *NeoBiota* 67:375 – 400 <https://hal.archives-ouvertes.fr/hal-03410336/document>

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<https://doi.org/10.1016/j.ecochg.2021.100029>

Knauß, S. (2018). Conceptualizing Human Stewardship in the Anthropocene: The Rights of Nature in Ecuador, New Zealand and India. *J Agric Environ Ethics* 31, 703–722. <https://doi.org/10.1007/s10806-018-9731-x>

Quick, J., & Spartz, J. (2018). On the Pursuit of Good Living in Highland Ecuador: Critical Indigenous Discourses of Sumak Kawsay. *Latin American Research Review*, 53(4), 757-769. doi:10.25222/larr.132

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