

DiveCropS

Diversifying Cropping Systems - Traditional knowledge and Innovative Approaches
Diversificación de sistemas de cultivos - Conocimientos Tradicionales y Enfoques Innovadores

DAAD

Deutscher Akademischer Austausch Dienst
Servicio Alemán de Intercambio Académico

PROGRESS & PERSPECTIVES IN ECUADOR



Universität
Rostock

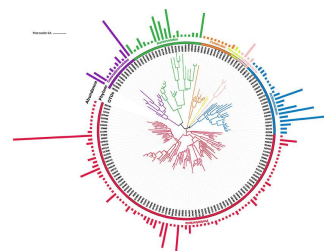


Progress: output 1

Certificate course (in construction)

1. Metagenomic analysis for microbes identification related to biogeochemical cycles in vulnerable ecosystems.

Teachers: Roldán Torres Gutiérrez, Leopoldo A. Naranjo.



2. Restoration of forestry landscape.

Teacher: Pablo Cuenca Capa.



Progress: output 2

Traditional knowledge is integrated in curricula

Region 1. Forest areas in Tena (Kassandra Bazantes).



Goal: influence of microbial communities on forest succession

Progress: output 2

Ikiam (0°49'21.03"S, 78°16'19.25"W – 510m)

Activities planned:

- ✓ **Bacteria and fungi isolation on primary and secondary forest.**
- ✓ **Physicochemical soils analysis in primary forest and land uses (cocoa, livestock) in secondary forest.**
- ✓ **Metagenomics analysis of soil samples (identification).**



Progress: output 2

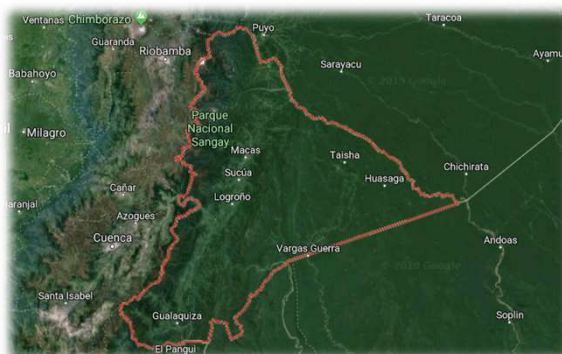
Traditional knowledge is integrated in curricula

Region 2. Agricultural areas in Palora (Laura Esthela Cruz)



Dragon fruit

Tea



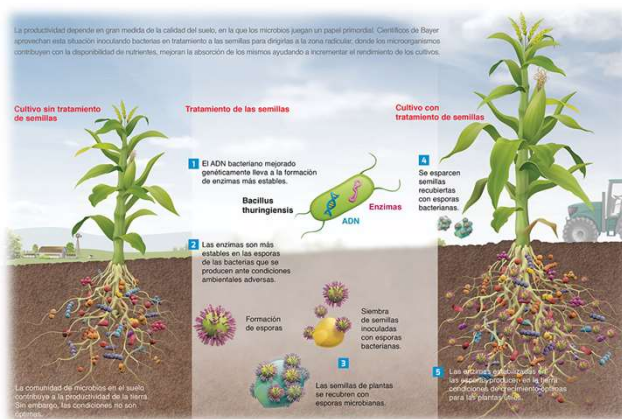
Goal: effect of agricultural systems on physicochemical parameters, microbes quantification and microbial biodiversity

Progress: output 2

Palora (1°71'12.0"S, 98°10'35.8"W – 510m)

Activities planned:

- ✓ Bacteria and fungi isolation on pitahaya and tea soils.
- ✓ Effect of agricultural system on microbes population (quantification) and diversity.
- ✓ Molecular identification and functional genes of isolated microbes.



Progress: output 2

Traditional knowledge is integrated in curricula

Region 3. Agricultural areas in Intag-Cotacachi (Hugo Vallejos)



Goal: impact of silvopastures, agroforestry and crop production on physicochemical and microbiological soils parameters

Progress: output 2

Intag (0°18'0"N, 78°16'0"W – 510m asl)

Activities planned:

- ✓ Assess the physics, chemical and microbiological parameters of soils destined to agroforestry and silvopastures.
- ✓ Effect of the shadow on coffee production.



Progress: output 3

Research on biodiversity topics linked to study programs

Mobility activities:

Roldán Torres Gutierrez and Kassandra Bazantes visiting Rostock

23 days at Faculty of Agriculture and Environmental Sciences

- ✓ Plants and soil analysis.
- ✓ Workshop organization.



Progress: output 3



Progress: output 3



Progress: output 4

**FIRST JOINT WORKSHOP
“Biodiversity in agricultural and forestry
systems of Ecuador: experiences for
sustainability”**



Progress: output 4

DiveCropS:
Diversifying Cropping Systems - Traditional Knowledge and Innovative approaches
Diversificación de sistemas de cultivos - Conocimientos tradicionales y enfoques innovadores



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FIRST JOINT WORKSHOP

"Biodiversity in agricultural and forestry systems of Ecuador: experiences for sustainability"

SCIENTIFIC PROGRAM

Date	Time	Activities
02/11/2019	All day	Departure from city or country of origin to Quito (Quito Airport / Ictus Hotel Aeropuerto)
03/11/2019	08:00 - 18:00	Departure for excursion at the North Technical University (UTN) and agroforestry ecosystems of Barua (overnight in Barua Hotel Agave)
	10:00 - 13:00	Breakfast at the UTN and lunch
	13:30 - 17:00	Excursion to two agroforestry systems of Highland North region
04/11/2019	07:00	Departure to Tena (Regional Amazon University Base)
	15:00 - 16:00	Visit to Ikiam and its facilities
	16:30 - 17:30	Excursion to agrodiversity systems of the Amazon region (vanilla, cocoa and guava plantations)
	18:00	Departure to Puyo (El Piguál Inn)
	08:30 - 10:30	Morning session of the agrodiversity workshop
05/11/2019	10:30 - 11:00	Coffee break
	11:00 - 13:00	Continuation of morning session of the agrodiversity workshop
	13:00 - 14:30	Lunch
	14:30 - 17:30	Afternoon session of the agrodiversity workshop
	19:00 - 21:00	Dinner and integration night
06/11/2019	08:00 - 10:30	Visit to the Center for Amazon Research, Postgraduate and Conservation (COPCA) of the Amazon State University (UEA)
	10:30 - 16:00	Excursion to agrodiversity systems of the Amazon region (chinese potato, sugarcane, cinnamon and cocoa chakra)
	19:00 - 21:00	Dinner and integration night
07/11/2019	07:00 - 18:00	Excursion to agrodiversity systems of Highland-Center region (Tungurahua and Cotacachi provinces)
	08:30 - 11:00	Morning session of the agrodiversity workshop
	11:00 - 11:30	Coffee break
	11:30 - 12:00	Workshop rapporteur and certificate delivery
08/11/2019	12:00 - 13:00	Lunch
	13:00	Departure to Quito / Guayaquil for return to origin city or country
09/11/2019		Return to origin city or country

Date: 05/11/2019 Place: Hosteria El Piguál			
Schedule	Speaker	Institution	Contribution title
08:30 - 09:00	Registration of participants.		
09:00 - 09:15	Welcome by Rectors	Regional Amazon University Ikiam, Amazon State University.	Welcome.
09:15 - 09:30	Bettina Eichler-Lobermann.	Rostock University, Germany.	Welcome.
Oral presentations on biodiverse agricultural and forestry systems. Moderator: Dr. Roldán Torres Gutiérrez. Rapporteur: Kassandra del R. Bazantes Salto.			
09:30 - 09:45	Pablo R. Cuenca Capa.	Regional Amazon University Ikiam, Ecuador.	Restoration in tropical agroecosystems.
09:45 - 10:00	Dong-Gill Kim.	Hawassa University, Ethiopia.	Carbon sequestration and mitigation potentials of greenhouse gases in agroforestry: summary of global data and implications in the era of climate change.
10:00 - 10:15	Mario J. Añazco Romero.	North Technical University, Ecuador.	Development of agroforestry practices with the species <i>Alnus nepalensis</i> in the area of Intrag, northwestern Ecuador.
10:15 - 10:30	Jael B. Cruz Castillo.	National Agrarian University, Nicaragua.	Carbon storage in two permanent sampling plots in wildlife refuge of the Rio Escalante Chacocente
10:30 - 11:00	Coffee break.		
11:00 - 11:15	Marcel Ackermann.	Rostock University, Germany.	Soil and water analysis methods.



Progress: output 4



Progress: output 4



DiveCropS

**PERSPECTIVES
2020**

Perspectives: certificate courses

Delivery of certificates of SIG-RS course given in UEA.



UNIVERSIDAD ESTADAL AMAZÓNICA
DEPARTAMENTO DE EDUCACIÓN CONTÍNUA

CURSO CAPACITACIÓN
05
NOVIEMBRE
2019

SIG-SR
Sistemas de Información Geográfica y Sensores Remotos
Aplicados a campos específicos de las GEO-Ciencias y BIO-Ciencias
El curso será dictado en inglés
Lugar: Auditorio 1 de Turismo

Facilitadores

- Prof. Dr. Ralf Bill, Universidad de Rostock, Alemania.
- Prof. Dr. Gorres Grendorffer, Universidad de Rostock, Alemania.

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Rostock, El Salvador | Rostock, Alemania

Dirigido a docente y estudiantes de la UEA
www.uea.edu.ec

Perspectives: certificate courses

Complete and submit:

Restoration of forestry landscape.



Metagenomic analysis for microbes identification related to biogeochemical cycles in vulnerable ecosystems.

Perspectives: mobility



**Sayaro Guaña: Germany-Rostock
(March 2020)**



**Pablo Cuenca: Cuba-
Pinar del Río
(March 2020)**



**Leopoldo Naranjo: Argentina-
La Plata (September 2020)**



Perspectives: exchange



- ✓ Visits to Itag-Cotacachi
- ✓ Soil sampling and analysis in Ikiam-UEA
- ✓ Assessment of microbe diversity in coffee under shadow and without



- ✓ Project application and specify collaboration for microbe identification with Leibniz-Institut für Gemüse- und Zierpflanzenbau

Thanks a lot 2 everyone



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