FRESHWATER BIODIVERSITY OF TEMPORARY STREAMS FROM THE CANARY ISLANDS IN A CONTEXT OF WATER SCARCITY AND INVASIVE SPECIES: THE CONACAN AND BIOACUANA PROJECTS

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Introduction and framework

Freshwater biodiversity is disappearing at an accelerated rate as a result of human pressures. This situation is especially relevant in oceanic islands, where native communities are characterized by high levels of endemicity but also high vulnerability to human impacts. Considering this it is possible that many undescribed freshwater species might have been already lost.

Study site

The projects were performed in three Canary Islands: Tenerife, La Palma and La Gomera. We sampled diatoms and macroinvertebrates in 48 streams sites covering a wide range of hydrological conditions. In addition, 20 sites were assessed for invasive species using environmental DNA.

Why is there high vulnerability in freshwater species among Canary Islands?

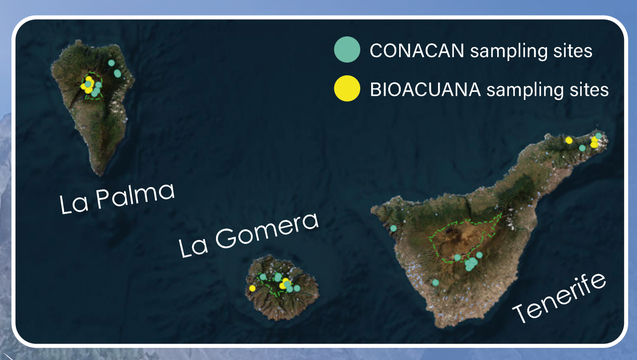
Biogeographical issues

- Volcanic origin, which means they have never had physical contact with any continent and increases the isolation of species.
- Subtropical climate, with warm temperatures and little seasonal variation.
- High altitude gradients.
- Influence of trade winds and relict laurel forests.
- Low rainfall and soils and bedrock high permeability do not favor the presence of surface water.

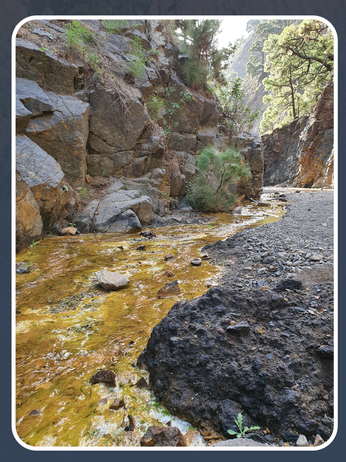
Human pressures

- Deforestation alters the important moisture condensation processes favored by the "sea of clouds" typical of Canarian forests.
- Severe water scarcity associated to climate change and a strong human water demand.
- Proliferation of invasive species brought by humans.

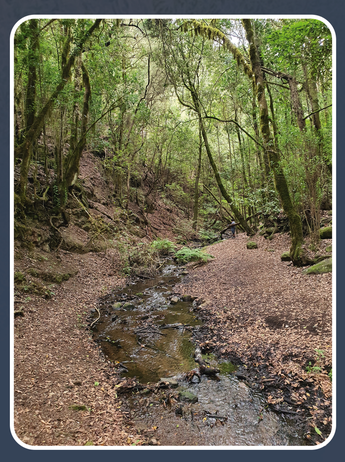




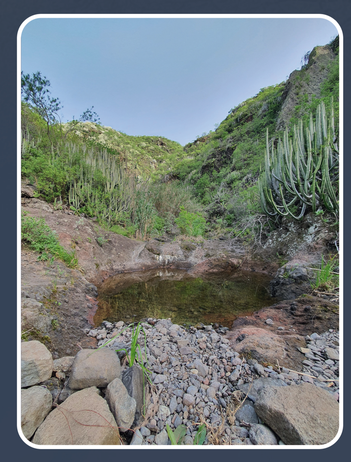
- BIOACUANA focuses on macroinvertebrates in natural areas.
- CONACAN focuses on macroinvertebrates, diatoms and invasive species in National Parks.



Barranco Salto del Agua, La Palma. Caldera de Taburiente National Park



Barranco del Cedro, La Gomera. Garajonay National Park



Barranco de Igueste, Tenerife. Anaga Rural Park

Goals of the projects

1. Hydrologically characterize the presence/absence of water in the sampled streams of the islands
2. Produce basic information on the taxonomic and genetic diversity of aquatic diatoms and macroinvertebrates
3. Evaluate the current status of aquatic invasive species
4. Determine the vulnerability of the species to global change
5. Identify priority areas for the conservation of diatoms and aquatic macroinvertebrates insect biodiversity using systematic planning tools

Sampling methods

Macroinvertebrates



Kick sampling



UV light trap



Emergence traps

Hydrology



Conductivity-Temperature sensor



Interviews with local people and satellite images from wikiloc and Google earth

Diatoms

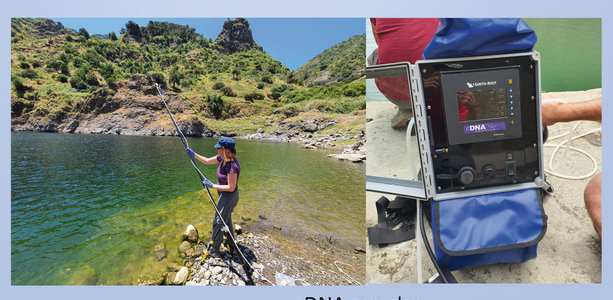


Waterfall brushing



Stones brushing

eDNA



eDNA sampler

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Funders

BIOACUANA by BBVA

CONACAN by ORGANISMO AUTÓNOMO PARQUES NACIONALES

For more information on the results of the projects, attend the presentations by Raúl Acosta for macroinvertebrates (Monday - 12h - Auditorium) and Paula Mendoza for diatoms (Thursday - 13h - Room 1).

SCAN ME!