

Proposal to hold Biocrust 5 in 2021

Title of meeting:

“Biocrusts: understanding systems within systems”

Organizer: MEX Crustnet

Coordinator: Elisabeth Huber-Sannwald, IPICYT, San Luis Potosí, Mexico

Preferred time: May - June

Socio-ecological context: Mexico has the potential to be a future hotspot of biocrust research. It is home to a wide variety of biocrust habitats. For example, drylands cover close to 60% of its land area, encompassing temperate and tropical shrublands, grasslands, and woodlands, and fog-driven systems, leading to an extraordinary high diversity of biocrust communities. Some biocrust communities are unique to Mexico. Mexico also is home to high mountains, which to date have been unexplored from a biocrust perspective. Most drylands are communal lands managed at the local scale by rural communities (ejidos), thus the well-being of rural people is closely tied to the condition of their land-base.



Mexico could benefit from increased biocrust research, and from researchers working in participatory fashion with ejidos, and policy makers. Many of these lands have a long history of extensive livestock production that has reduced vascular vegetation cover and opened land for potential biocrust colonization. Depending on soil type, precipitation patterns and management

practices biocrusts have developed a broad spectrum of communities with resistant, resilient, and vulnerable taxa adopting complex feedbacks on ecosystem functional aspects.



Mexican drylands reflect a long legacy of the tight coupledness of humans and nature

Mexico: Country of high contrasts and diversity

In Mexico, attendees would have opportunities to learn about fascinating indigenous cultures, see our diverse ecosystems, and experience our world-class food traditions. San Luis Potosi, is a middle-sized state at the Southern end of the Chihuahua Desert. The capital San Luis Potosi is situated in the Central Plateau of Mexico at about 1800 m above sea level. Currently close to 1 million people live in this rapidly growing city at the transition between the deserts in the west of the state and the tropical region to the east, on the east side of the Sierra Madre Oriental. So within this State you will find from desert grasslands, to desert scrubs, oak, pine and oak-pine forests, tropical deciduous and evergreen forests almost every possible biome. Linked to these different ecosystem types are different local cultures, traditions, customs, handcrafts, food bedding within fascinating contrasting landscapes.

The origin of the capital of San Luis Potosi, like of other nearby cities in the Central Plateau like Zacatecas, Aguascalientes, Guanajuato is gold and silver mining. Today tourist attracting ghost villages are the testimony of long-lasting prosperous mining eras.

Mexican cuisine has been declared **Intangible Cultural Heritage** of Humanity by UNESCO in 2010. It protects one of the most traditional and ancestral foods and recipes on our planet; they include a broad spectrum of flavors, odors and colors deriving of endemic vegetables, fruits, chili and bean varieties, a large number of spices, herbs, and innumerable dishes and drinks made of corn (tortillas,

enchiladas, tacos, quesadillas, flautas, atole, pinole), regional specialties like “mole”, enchiladas potosinas, chilaquiles, chiles enogadas, etc. Besides, Mexico has a famous tradition of producing unique liquors from desert plants, like tequila, mezcal, sotol, pulque, in particular mezcal produced in San Luis Potosi, follows traditions that date back over 300 years. Escamoles (ant larvae), desert rat, and grasshoppers are considered delicacies of the desert cuisine. Desert plants are also the origin of many handcrafts, ornaments, medicine, pharmaceuticals, fiber, etc.

Mexican biocrust research groups: Recently, 10 independent biocrust research groups got together at a Mini-Symposium on Biocrust Research in Mexico organized in San Luis Potosi. These groups are complementary in disciplinary focus (from molecular to landscape ecology), research type (observational, experimental, laboratory, greenhouse, field studies), functional (from N₂ fixation to ecohydrology), and geographic distribution (all desert types of Mexico). At this meeting the Mexican Biocrust Network (Mex-Crustnet) was launched to coordinate national biocrust research, facilitate student exchange, generate joint publications, link to Crustnet International, and to organize national and international meetings. In particular, Mex-Crustnet agreed to host Biocrust 5 in Mexico should we be selected as hosts. We are ready and would be delighted to host Biocrust 5 in Mexico in 2021. There are several options where to hold the meeting, either in San Luis Potosi, Chihuahua, Saltillo, Cuatro Ciénegas, La Paz, Baja California, or Durango.



Planning for Biocrust 5: On October 2, Mex-Crustnet will hold the Symposium “Studies and perspectives of biological soil crusts in arid and semiarid ecosystems” at the 7th Congress of the Mexican Ecological Society in Querétaro. We will convene after the Symposium and jointly discuss and agree on timing and venues for Biocrust 5. To make our decision, we will consider the opportunity for common or clustered housing arrangements because of the interaction it fosters, in addition to connectivity, and opportunities to engage with Mexican nature (including biocrusts!) and culture. We will make sure we will pick a place, where costs can be kept low. Overall, organizing Biocrust 5 in Mexico would be comparatively more economic compared to Europe or Australia.

Independently we will fundraise and look for opportunities to support student participation, in particular we plan to waive registration fees of almost all students and award travel funds for novel biocrust presentations presented by students.

Why Biocrust 5 in 2021 in Mexico? Apart from strengthening national collaboration, Mex-Crustnet is also strongly interested to reach out to our Latin American biocrust colleagues (e.g. emerging research communities in Argentina, Peru, Chile and elsewhere). South America has long been a notable data gap in biocrust research, but this is poised to change fast. Biocrust 5 could be a great opportunity both to increase Mexican membership in the international Biocrust community and also to reach out to other Latin American biocrust research groups, **which are strongly underrepresented** in attendance at our international meetings. Organizing Biocrust 5 in Mexico could greatly help achieve geographical balance in attendance, particularly since over sea travel is very expensive for Latin American researchers and can rarely be justified in research grants. There are many more Latin American “crusties” than are currently attending, **and we are excited to meet you!**

Now is the time, because there are more of us than ever before. As you know, the Biocrust conference series has fostered a strong sense of community, enthusiasm, and openness. This in turn has seeded many new collaborations. A Latin American Biocrust 5 would indelibly integrate a significant number of *new underrepresented colleagues* into the international biocrust community, and have positive repercussions for years to come.

