

Alfredo Ortega-Rubio *Editor*

Socio-ecological Studies in Natural Protected Areas

Linking Community Development and
Conservation in Mexico

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Chapter 22

Visions of the Future in the Oases of Baja California Sur, Mexico



Aurora Breceda, Alicia Tenza-Peral, Andrés Giménez-Casalduero, Micheline Cariño-Olvera, and Yven Echeverría-Ayala

Abstract The wetlands occupies less than 1% of the Baja California Peninsula and are patches with a mesic environment, habitat, and refuge of wild flora and fauna. The wetlands were enclaves for the indigenous populations. However, it was not until the end of the seventeenth century, with the establishment of the Jesuit missions, were transformed in oases with a deep environmental and cultural changes, resembling as those of the arid belt of the northern hemisphere. These socio-ecosystems have subsisted for 300 years; they constitute sites of great biocultural value. However, it was until the arrived of the Jesuit missionaries, in the late seventeenth century, that the wetlands were transformed into oases, with deep environmental and cultural changes, reseambing as those of the arid belt of the northern hemisphere. The recovery and revaluation of traditional socio-ecosystems can lead to a substantial change in the development model of Baja California Sur. In this chapter we summarize the results of the research of the Interdisciplinary Network for Integral and Sustainable Development of the Sudcalifornian Oases (RIDISOS) in the oasis of Comondú and present the results of visions of the future of the communities of San José and San Miguel de Comondú, which were analyzed during two

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workshops in these locations. In these workshops, the communities identified their main environmental units, assessed their current status, noted current community organization structures (COS) and existing gaps, and described the desired status of their communities for the future. The results of this activity were presented to the decision-makers (government authorities) and to the community, through written reports and a meeting on October 21, 2016, in San Miguel de Comondú, where agreements and commitments were signed between communities and authorities.

Keywords Traditional socio-ecosystems · Wetlands · Community participation · Comondú · RIDISOS

22.1 Wetlands of Baja California: Foundations of the Baja California Oases

In the Baja California Peninsula, Mexico, there are 184 wetlands, 171 of them located in the state of Baja California Sur (Maya et al. 1997). These ecosystems are characterized by the presence of water, whether by springs or subsurface water, allowing the development of dense vegetation which contrasts with the arid matrix around them. The surface of these wetlands represents only 1% of the peninsular land. However, these unique enclaves are patches with a mesic environment (more temperate), which constitutes the habitat and refuge for wild flora and fauna species, which find in their interior a more stable microclimate, and a source of water and food more constant than in the surrounding desert matrix. In these wetlands there are still plant species of tropical characteristics that can be relic of a vegetation that in the past had a greater distribution in the peninsula (CONANP 2006). These patches constitute stopover sites for migratory birds that stop at these sites on their trips to the south (Rodríguez-Estrella et al. 1997, 2005; Rubio et al. 1997).

The complex geological history of the peninsula, the diverse origins of its biota, and the evolutionary processes derived from its geographical and ecological isolation have developed a unique biodiversity, with a high number of endemic species, some of them endemic to a particular oasis such is the case of spiders (Jiménez et al. 2015). These ecosystems contain one of the densest forest biomass in the region, starting with the palm grove which have a complex vertical structure, with various overlapping strata, being the captures of CO₂, one of the environmental services they provide, as well as flood control, retention, and export of sediments and nutrients.

Within these ecosystems, soil saturation or proximity to the water permits the presence of different types of functional vegetation, which in turn creates different microenvironments, some of them highly fragile. In the water bodies and on its edges predominate a certain kind of vegetation like hydrophilic species such as the cattail (*Typha domingensis*), yerba del manso (*Anemopsis californica*), and reeds (*Phragmites* spp.). In the area that is occasionally flooded by water, palm trees are

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