

# Chapter 1

## Introduction: Biocultural Diversity and the Participation of Local Communities in National and Global Conservation

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Much of the world's biodiversity is found in areas of human settlement, where people are highly dependent on natural resources for their subsistence. In 1995, more than one billion people were living in 25 biodiversity hotspots of priority for conservation [1, 2]. However, the global tendency has been for official biodiversity conservation measures (i.e., protected areas) to often exclude communities from decision-making or consider their participation and presence as detrimental. Some authors follow this conventional approach, supporting the strict protection of areas important for biodiversity and ecosystem services against people's intervention [3–7]. In contrast, other authors argue that rural and indigenous communities have developed a cumulative body of local ecological knowledge, beliefs, and practices important for biodiversity conservation and sustainable use of natural resources [8, 9]. Along these lines, a new paradigm for understanding and implementing conservation measures considers the concept of “biocultural diversity,” which links linguistic, cultural, and biological diversity. In practice, biocultural diversity refers to the need to sustain both biodiversity and culture, because the two are interrelated and mutually supportive [9]. Based on this approach, as well as evidence showing that strict protected areas have not always been as

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successful in reducing deforestation and forest degradation as intended [10, 11], some authors argue that a global conservation strategy based on the “fines and fences” or “fortress conservation” approach puts both local communities’ subsistence and biodiversity at risk [12].

The academic debate regarding the effectiveness of strict protected areas versus community natural resource management and conservation initiatives continues and is also evident at a policy level. In Mexico, for example, there are policies at the national level that continue to consider human activities as threats to forests and biodiversity. This is illustrated by the fact that, in December 2010, during the celebration of World Forest Day, as part of the 16th Conference of the Parties to the UN Framework Convention on Climate Change in Cancun, Mexican President Felipe Calderón attributed deforestation in Mexico to traditional forms of agriculture of indigenous peoples and smallholders, along with illegal logging. He also affirmed that the integration of rural people into financial mechanisms that would allow them to receive economic compensation instead of continuing to cultivate their land was on the national environmental agenda [13].

At the same time, community-based conservation is gaining currency. The participation and importance of indigenous and local communities, including their traditional management practices, in biodiversity and landscape conservation, has been increasingly recognized both in national and international policies. Community-based conservation, for our purposes, refers to any voluntary initiative of “natural resources or biodiversity protection conducted by, for, and with the local community” [14]. This broad definition includes a great variety of initiatives ranging from self-regulated strategies for natural resources and territorial management to collaborative actions for conservation between communities and external actors. These initiatives may include a variety of objectives, governance types, and levels of local decision-making power [15].

At the international level, in 1992, the Convention on Biological Diversity (CBD) recognized the importance of local communities’ rights and decision-making in management in article 8(j), which states that official policies on biological conservation must consider traditional ecological knowledge and practices, as well as promote their wider application, with the approval and involvement of local communities [16]. Thereafter, the CBD Program of Work on Protected Areas recognized the importance of equity and Indigenous peoples’ rights in conservation (Target 2.2) [17, 18]. Subsequent international agreements have also included recognition of the role of local people in biodiversity conservation, such as the Universal Declaration on Cultural Diversity of the United Nations Educational, Scientific and Cultural Organization in 2001, the GEO-4 report of the United Nations Environment Program in 2007 [19], and the CBD’s 2010 Biodiversity Target [20].

One of the most advanced forms of official acknowledgement of community-based conservation initiatives is the recognition by the International Union for Conservation of Nature (IUCN) of Indigenous People’s and Community Conserved Areas and Territories (ICCAs). During the fifth World Parks Congress (Durban 2003), the role of indigenous peoples and local communities in conservation was explicitly recognized. This status was further developed during the World Conservation

Congresses of 2004<sup>1</sup> and 2008<sup>2</sup> with the formal inclusion of ICCAs in its protected area matrix as a distinct governance category that crosscut the more commonly known management types, which range from Strict Nature Reserves to Managed Resource Protected Areas.

Such international policy development has led Mexican national policies to follow suit. Despite the comments of its past president, Mexico stands out on the international scene [21, 22] as an important trailblazer for community-based conservation, due to its legal achievements and local experiences. Mexico has been an early adopter, at the national and constitutional level, of enabling policy frameworks for community-based conservation [23]. The scope of the laws that grant and govern community-based rights over natural resources is varied, and these laws have their limitations. To begin, the postrevolutionary 1917 Constitution, reformulated in 1992, recognizes collective land and resource ownership in both *comunidades* and *ejidos* in Article 27 and in the current Mexican Agrarian Law.<sup>3</sup> More recent subsequent national legislation affecting community governance of natural resources has followed in the same vein, both enabling and regulating community-based natural resource management. Since 1996, Mexico's General Environmental Law (Ley General del Equilibrio Ecológico y la Protección al Ambiente, or LGEEPA) has allowed private owners and social entities (such as rural communities) that designate land for conservation to receive recognition by the National Commission of Natural Protected Areas (Comisión Nacional de Áreas Naturales Protegidas, or CONANP) [24]. A program of certification of community and ejidal reserves formally started in 2003, and in 2008 the LGEEPA was reformed adopting the new federal protected area category of Voluntary Conserved Areas (in Spanish Áreas Destinadas Voluntariamente a la Conservación -ADVC) that includes community as well as private areas voluntarily designated for conservation [24]. There are other national laws that regulate or allow the formalization of community-based conservation initiatives, such as the Mexican General Wildlife Law (Wildlife Law) (Ley General de Vida Silvestre) [25], which since 1997 has allowed private owners and rural communities to officially establish wildlife management areas (UMAS, by their Spanish acronym). In addition, the Mexican Law on Sustainable Forest

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<sup>1</sup>World Conservation Congress, Bangkok, 2004. Resolution 3.012 ("Governance of natural resources for conservation and sustainable development"); Resolution 3.049 ("Community Conserved Areas"); and Resolution 3.081 ("Implementation of principle 10 by building comprehensive, good governance systems"). Accessed 20 Sept 2012, at: [http://cmsdata.iucn.org/downloads/wcc\\_res\\_rec\\_eng.pdf](http://cmsdata.iucn.org/downloads/wcc_res_rec_eng.pdf)

<sup>2</sup>World Conservation Congress, Barcelona, 2008. Resolution 4.048 ("Indigenous Peoples protected Areas and implementation of the Durban Accord"); Resolution 4.049 ("Supporting Indigenous conservation territories and other Indigenous peoples and community conservation areas") and Resolution 4.050 ("Recognition of Indigenous conserved territories"). Last accessed 10 Oct 2012, at: [http://www.iucn.org/congress\\_08/assembly/policy](http://www.iucn.org/congress_08/assembly/policy)

<sup>3</sup>*Comunidades* are "pre-existing corporate entities in which community members can demonstrate long-standing communal use of land and resources, whereas *ejidos* are collectives of campesinos (peasants) granted access to land and resources for which they have no prior legal claim" (Martin et al. 2010, 196; Ruiz Massieu M (1987) *Derecho Agrario Revolucionario*. México, DF: Porrúa).

Development (Ley General de Desarrollo Forestal Sustentable) [26] regulates the use of national forests and requires communities to design forest management plans in forests managed for timber production; these plans can include the designation of some forested areas for conservation [23].

Setting aside legal developments, more important are the multitude of local experiences that constitute community-based conservation in Mexico. This country is one of the world's 17 most megadiverse [27, 28], and an estimated 75 % of forests are held communally (Chap. 3, this volume) through the land tenure systems of *comunidades* and *ejidos*. Given that in Mexico indigenous populations constitute about 60 % of the *comunidades* [29] and 20 % of the *ejidos* [30, 31], these forms of communal organization represent a highly diverse cultural and linguistic heritage encompassing most of the nation's 68 official indigenous language groups [32]. Recognized under the current Law of Linguistic Rights of Indigenous Languages [33], these language groups represent the most direct indicator of Mexico's high cultural diversity.

The experiences of community-based conservation in Mexico reflect this biological and cultural diversity, including heterogeneous approaches and levels of community participation. As in other countries, there are two major trends. The first is for grassroots, self-regulated initiatives that foster sustainable resources use and lead to the conservation of biodiversity, ecological functions, and associated cultural values [15, 17]. The establishment or perpetuation of ICCAs that are "natural and/or modified ecosystems containing biodiversity values, ecological services, and cultural values, voluntarily conserved by indigenous and other communities through local or customary laws," fit into this tendency [34]. The second trend is the implementation of conservation activities originally proposed, promoted, and decided by external actors, mainly nongovernmental organizations (NGO), government institutions, and international agencies, which involve local people in decision-making around natural resource use. This includes, for example, the comanagement of protected areas or externally-driven programs established as a means to reclaim ownership of land foreseen as having conservation value under national policy (Chap. 5, this volume).

Although both trends coexist and interrelate in real life, the chapters in this volume show their effects on level of participation and decision-making power and the sustainability of the conservation outcomes. This is especially true because one of the defining characteristics of the grassroots, self-regulated strategies such as ICCAs is that communities hold *de jure* or *de facto* power in deciding, implementing, and enforcing management decisions [34]. ICCAs themselves constitute only a sampling of the diversity of experiences in Mexico, as these range from localized sacred sites to vast expanses of territory, and from secret to widely publicized areas. They can be categorized broadly into five types, with different degrees of official recognition [35]: (1) government-certified areas, (2) community protected areas without official recognition, (3) protected areas with a forestry certification, (4) natural sacred sites, and (5) wildlife management units. Community-based conservation promoted by external actors can also include actions such as setting land aside for conservation in exchange for monetary resources without selling the land (e.g., conservation easements and usufructs), areas established for Payments for

Ecosystem Services (PES), and establishment of conserved areas after conducting community territorial planning, among others. In an unpublished report by some of the authors of this volume, prepared for the United Nations Development Program in 2010 [36], 312 ICCAs were identified in part of the Southeast of Mexico,<sup>4</sup> corresponding to more than 1,100,000 ha. These areas included 146 government-certified areas, 121 community protected areas without official recognition, 38 protected areas with a forestry certification, three examples of natural sacred sites, and four examples of wildlife management units.

This volume addresses some of the issues facing community-based conservation through specific cases within Mexico, with a particular focus on the southeastern portion of the country. It presents examples and reflections on diverse community initiatives for conservation that range from ICCAs to comanaged areas and related issues affecting local participation in conservation. We also include several chapters that focus on methodological aspects for understanding participation or addressing other aspects of community-based conservation. The contributions presented herein are addressed to policymakers, NGOs, academics, and practitioners interested in the broad subject of conservation conducted by, for, and with local communities. They add to the debate regarding the effectiveness of different conservation strategies and sustain the argument that, in a changing world, the need to incorporate a locally based approach to the protection of nature becomes a global imperative. Yet community-based conservation initiatives need to be documented and analyzed.

The volume is divided into three parts. Part I presents two chapters that provide a general approach to the context of community-based conservation in Mexico. Victor M. Toledo begins his contribution, *Community conservation and ethnoecology: the three dimensions of local-level biodiversity maintenance*, by situating his work at the local level within the complex realm of biodiversity conservation. In this realm, he explains, citing Berkes' work, a multitude of actors and institutions interact at different levels (i.e., global, regional, and local). At the local scale, Dr. Toledo points to the prominent role of rural communities and within these the role of indigenous people in conservation, both in Mexico and throughout the world. To frame this position, he defines three main characteristics of indigenous groups that are relevant: *kosmos* (belief systems), *corpus* (knowledge systems), and *praxis* (management systems). He provides several case examples of indigenous groups throughout Mexico, making particular emphasis on the Maya. These examples provide descriptions of current management systems in which local beliefs, knowledge, and practices contribute greatly to the production and reproduction of biodiversity. This multicultural aspect of Mexico endows the country with valuable characteristics for community-based conservation that should be recognized and valued.

The next chapter (Chap. 3), by Leticia Merino-Perez, *Conservation and forest communities in Mexico: Experiences, visions and rights*, focuses on aspects that relate tenure history with forest management and conservation. Dr. Merino explains

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<sup>4</sup>The review included the states of Distrito Federal, Estado de Mexico; Guerrero; Hidalgo; Michoacán; Morelos; Puebla; Querétaro; San Luis Potosí; Tabasco; Tlaxcala; Oaxaca Veracruz.

the distinctive character of Mexico in which, after Mexican Revolution, agrarian policy favored communal forest tenure. The latter has made rural communities the predominant forest holders in the country. This makes the local participation in forest conservation particularly important. Nonetheless, history indicates that forest tenure has been accompanied by restrictions on communities' forest use rights, rendering local inhabitants, for the most part, historically excluded from forest stewardship and management. In her contribution, Dr. Merino reports that although sustainable forestry is only present in a small minority of Mexican forested regions, many communities are involved, to different extents, in forest protection. However, the challenges inherent in potentiating their participation in conservation include tenure conflicts, poverty, and the need to strengthen local institutions, among others. Dr. Merino also explains that one of the biggest challenges is the way environmental policy favors an official discourse (reflecting global trends) in which conservation and forestry agendas remain separate, rather than bridging the gap between forest management and conservation. In her words "'No use' nowadays, appears to be the ideal management strategy, and empty territories the preferred conservation landscape" (p. 25, this volume). This exemplifies the contentious context underlying issues inherent in community-based conservation in Mexico.

Part II presents a series of case studies regarding local participation in conservation. Although these case studies are not comprehensive of all issues facing community-based conservation in the different regions of Mexico, they represent examples of some of the contested issues at stake. We favored case studies in the southeast of Mexico and particularly the Yucatan Peninsula not because they proved more relevant, but rather because of personal bias, given the authors' work. However, it is important to highlight that the southeastern region of the country has some of the nation's highest proportions of speakers of indigenous languages and the highest floral diversity in the country. Specifically, the state of Oaxaca alone, a leader in community-based conservation, had 43 registered community conservation initiatives in 2010, in addition to many others that decided not register their conservation areas [35].

Chapter 4, *Community Conservation Experiences in Three Ejidos of the Lower Balsas River Basin, Michoacán*, by Andrés Camou-Guerrero, Tamara Ortiz-Avila, Daniel Ortiz-Avila, and Jorge Odenthal, discusses their experiences in the formation of community-based conservation areas in three *ejidos*. The *ejidos* participated in an internationally funded but nationally administered project called Conservation of Biodiversity in Indigenous Communities (COINBIO). In their chapter, the authors provide an analysis of the elements that both supported and limited the establishment of community conservation areas. They explain how the process of creating the conservation areas was based on the reconstruction of the territory's socio-ecological history. The authors found that all three cases showed that the establishment of community conservation areas promoted collective action, caused people to reflect on their perspectives concerning the mid- and long-term use of their territory and its natural resources, and strengthened the search for productive alternatives. Among the limitations was the initiatives' lack of coordination with regional

processes of biodiversity conservation promoted by governmental agencies, such as the creation of the Zicuirán-Infiernillo Biosphere Reserve, putting both local and national efforts at risk of failure.

Chapter 5, *Challenges in ICCA governance: the case of El Cordon del Retén in San Miguel Chimalapa, Oaxaca*, is presented by Constanza Monterrubio-Solís and Helen S. Newing. With this example the authors bring to the discussion a conflictive case known for its resistance to externally imposed conservation measures. These are seen by local people as diminishing community control over natural resources and illustrate how official recognition of community-based conservation does not necessarily imply greater local autonomy and legitimacy. The authors point out this contradiction as one of the challenges being identified in ICCAs around the world. The case of *El Retén* shows the potential of formal state recognition to weaken community control over ICCA decision-making and management. Through the case study Ms. Monterrubio and Dr. Newing also illustrate the need for a broader landscape approach to find a way to engage with overriding local concerns. The authors explain that this means transcending an isolated protected areas framework by integrating them into a landscape approach, in which larger-scale patterns of tenure and use are considered. This case emphasizes the conservation importance of developing participatory, long-term, sustainable processes that focus not only on the market profitability of projects but also on transparency and cultural sovereignty.

The third of these case studies, *Local perceptions of conservation initiatives in the Calakmul region*, by Luciana Porter-Bolland, Eduardo García-Frapolli, and María Consuelo Sánchez-González, addresses the issue of local participation within officially established protected areas. The studied *ejidos* are located in the Calakmul Biosphere Reserve, one of the largest reserves in tropical Mexico, and the authors' analysis illustrates local perceptions of involvement (and limitations) for those living within a protected area. As in the previous case study, the chapter asserts the importance of viewing conservation not only within a local, delimited area, but also as a broader regional strategy in which livelihood production (including external opportunities regarding forest and agricultural development, private investment, and markets) align with environmental stewardship. Greater autonomy, participation in decision-making, and building up local institutions are crucial aspects for strengthening local involvement in protected areas, making long-term biodiversity conservation possible.

The last case study, *Community Conservation in Punta Laguna: a case of adaptive ecotourism management*, by Eduardo García-Frapolli, Martha Bonilla-Moheno, and Gabriel Ramos-Fernandez, is based on more than 30 years experience of community-based conservation based on ecotourism in the small Yucatec Mayan community of Punta Laguna. In their chapter, the authors explain how, at different moments during these three decades, the community has employed different ecotourism management approaches. These have driven a learning process that has led them to modify exclusionary behaviors, increase the importance of local decision-making, and implement entrepreneurial attitudes towards managing their community-based conservation initiative. The process, they explain, has been characterized

by complexity and conflict among community members and other stakeholders. The process has also been influenced by external disturbances such as hurricanes, global economic crises, and pressures resulting from changes in regional tourism development. From an adaptive management perspective, the authors show how learning occurs, adjustments are made over time, and new understandings are incorporated into the community's experience, strengthening the community initiative.

Part III, the last section of the volume, contains three chapters on methodology for understanding and strengthening community-based conservation and the way it is studied. First, Isabel Ruiz-Mallén, Antonio de la Peña, María Elena Méndez-Lopez, and Luciana Porter-Bolland, in their chapter *Local participation in community conservation: Methodological contributions*, point to different theoretical frameworks used for understanding and measuring participation. They refer to a dominant approach that understands participation as an intrinsic value within a community and measures it in terms of its social capital. In contrast, a second approach assumes that human individuals are hierarchically arranged into divisions of power and wealth within a community, determining their participation. Both theoretical frameworks use a variety of methods to assess different levels and types of local participation in natural resource management. In their chapter, the authors discuss the methodological implications of both approaches by reviewing evidence from research on participation in protected area management and conservation. They focus on previous literature based on research that draws on both qualitative and quantitative methodologies for assessing rural and indigenous community participation on environmental decision-making in developing countries. They also provide an example of a research design using aspects of both approaches for studying local participation in conservation in different areas of the Mexican southeast.

The second contribution in this section is by Diana J. Pritchard. In her chapter *Community-based biodiversity monitoring in Mexico: Current status, challenges and future strategies for collaboration with scientists*, Dr. Pritchard discusses the potential for community-based monitoring to support the need for measurements of biodiversity status and trends, to fulfill a national and international demand by entities engaged in understanding and supporting conservation. She also lays out the potential role of monitoring for strengthening sustainable use of biological diversity; analyzing threats and the integrity, goods, and functions of ecosystems; documenting the value of traditional knowledge and practices; and facilitating access and benefit sharing. The chapter draws on cases from across the world to outline the merits of local involvement in monitoring relative to conventional monitoring. It also establishes a conceptual framework to distinguish the qualitative differences between different monitoring schemes that involve both scientists and communities. In her chapter, Dr. Pritchard characterizes existing monitoring activities underway in Mexico within the public and private sectors and among rural communities and sets out some strategies to promote engagement with community participation in monitoring activities.

Finally, in their chapter, *Drawing analysis: tools for understanding children's perceptions of community conservation*, Roser Maneja-Zaragoza, Diego Varga Linde, and Martí Boada Juncà provide methodologies for environmental education



that can improve knowledge of children's interests and perceptions regarding the environment. They use young people's drawings to understand their perceptions of their community as a basis for formulating educational and planning proposals to promote learning and action regarding local environmental issues in a regional and local context. These proposals can increase awareness of problems in the relationship between humans and nature and thereby the potential for positive social and environmental change. They conclude that pictorial representations of the environment represent an effective tool to reveal the perceptions and interests of new generations involved in spaces of formal and informal conservation.

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