

Adaptation and evolution of institutions and governance in community-based conservation

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Abstract

Within conservation science and practice, community-based conservation (CBC) includes policy and management interventions incorporating engagement or participation of local communities and resource users. Evidence across scales points to the importance of supporting local actors and management institutions for better social and ecological outcomes of CBC interventions. However, the institutional and governance processes underlying CBC outcomes remain poorly understood, specifically how institutions respond to opportunities and constraints posed by CBC. In response, this special issue of *Conservation Science & Practice* solicited contributions investigating adaptation and evolution of institutions and governance in CBC. In this paper, we introduce the special issue and its 13 contributions, representing cases from Africa, Asia, and the Americas across organizational scales and resource systems. We assess the state of knowledge of CBC, identify common themes and lessons learned, and suggest future priorities for research and practice.

KEYWORDS

agency, community conservation, community-based natural resource management, impact evaluation, multilevel systems, social learning

1 | INTRODUCTION

Community-based conservation (CBC) is a fundamental feature of global biodiversity conservation efforts. CBC strategies seek to incorporate engagement or participation of local communities and resource users to align biodiversity conservation and human wellbeing goals (Adams et al., 2004; Western & Wright, 1994), while in practice communities are variably integrated with external conservation interests (Brosius, Tsing, & Zerner, 1998; Galvin, Backman, Luizza, & Beeton, 2020). CBC may involve interventions supporting or imposing change

within local communities (Dressler et al., 2010) or the diversity of endogenous community efforts for conservation (Berkes, 2004).

Programmatic design and implementation of CBC varies and may change over time with shifting conservation priorities (McKinnon et al., 2016; Roe, 2008), but CBC has generally involved both policy change and on-ground interventions (Galvin, Beeton, & Luizza, 2018). For example, national forest policy may be altered, often in partnership with conservation NGOs, to redefine land tenure and user rights, granting communities the authority and autonomy to manage local forests (e.g., Hajjar

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et al., 2020; Wright, Andersson, Gibson, & Evans, 2016). On-ground interventions, for instance in the wildlife sector, may include conservation NGOs providing capacity support for area-based wildlife conservation on community controlled lands, such as ranger training, boundary demarcation, and tourism sector development (e.g., Keane et al., 2020; Salerno et al., 2016).

Despite these general intents, however, CBC has also been used as a tool by governments and the elite to appropriate community rights over lands and resources (Andersson et al., 2018; Benjaminsen, Goldman, Minwary, & Maganga, 2013; Nelson, 2010), with external conservation actors often failing to understand varied dimensions of “community” and how rights and access might be patterned along lines of wealth, ethnicity, and gender (Abebe, Jones, Solomon, Galvin, & Evangelista, 2020; Agrawal & Gibson, 1999; Andersson, 2013; Brosius et al., 1998; Dressler et al., 2010; Lund & Saito-Jensen, 2013). As such, communities may hold weak or no de facto rights and management authority under CBC (Hajjar et al., 2020; Hulme & Murphree, 2001). While there have been repeated calls for more progressive and inclusive CBC policy and practice integrated within broader conservation efforts, CBC still struggles to enfold representative community leadership into program design and implementation (Biggs et al., 2019; Cassidy & Salerno, 2020).

Given the diverse ways in which CBC policies and interventions have been designed and implemented, it is not surprising that outcomes are mixed or uncertain and that tradeoffs are common (Brooks, 2017; Galvin et al., 2018; Keane et al., 2020; Songorwa, Bührs, & Hughey, 2000). Due to the variation in outcomes within and between projects, the need to examine the process of CBC, or mechanisms through which outcomes are reached, is increasingly recognized (Brooks, Franzen, Holmes, Grote, & Borgerhoff Mulder, 2006; McKinnon et al., 2016). Researchers and practitioners have acknowledged the absence of theories of change for CBC program design, implementation, and evaluation (Agrawal & Redford, 2006; Mahajan et al., 2019). However, there remain few general principles or tools to synthesize across outcomes in ways that could support redesign or adaptation of CBC as a more robust model (Cheng et al., 2020; Shackleton, Willis, Brown, & Polunin, 2010).

CBC interventions often implicitly draw from principles of collective action and common pool resource governance (Berkes, 2007; Biggs et al., 2019; Nelson & Agrawal, 2008). Theory suggests that community institutions can be formalized into governance processes for sustainable natural resource management (Agrawal & Ostrom, 2001; Andersson & Agrawal, 2011). Likewise, empirical work across scales identifies institutions and

governance as critical design elements affecting CBC outcomes (e.g., Andersson, Benavides, & León, 2014; Hajjar et al., 2020; Persha, Agrawal, & Chhatre, 2011). At the same time, however, institutions and governance are insufficiently understood and under-represented in programmatic evaluation (Galvin et al., 2018). Key gaps exist in our understanding of multilevel processes inherent in CBC (Andersson & Ostrom, 2008; Seixas & Berkes, 2010). The links and feedbacks between individual resource users, local institutions, CBC program administration, central state resource policies, and international conservation interests are complex and not well understood (Alexander, Andrachuk, & Armitage, 2016; Cash et al., 2006). Moreover, the science and practice of CBC generally lack an explicit consideration of agency of local actors and institutions, which belies understanding of individual- and group-level decision-making in response to CBC efforts (Cassidy & Salerno, 2020; Dawson, Martin, & Danielsen, 2018).

The purpose of this special issue is to create a space for science and practice to engage with questions about how community institutions and governance change in response to threats, opportunities, and outcomes associated with decades of CBC interventions globally—what we term the adaptation and evolution of institutions and define below. Our goals for the issue and this paper are three-fold: (1) assess the state of knowledge; (2) identify common themes and lessons learned; and, (3) suggest future priorities for research and practice. Based on the inclusive scope we define for the issue and this paper, our intended audience includes researchers, conservation policy-makers and practitioners, and communities alike.

1.1 | Institutions and governance in CBC

The decision-making processes embedded in multiple levels of community resource management have garnered increasing attention in recent years (Alexander et al., 2016). Galvin et al. (2018) define CBC generally as inclusive of institutions that simultaneously enhance human development—especially for people living directly with nature—and conserve biodiversity. We build on this definition, adding that institutions are fundamentally the shared social norms and rules within and among groups of people, and that governance consists of the decision-making processes that produce formalized sets of institutions at a scale relevant to involved actors (Berkes, 2004; Matson, Clark, & Andersson, 2016). We also acknowledge the definition provided by the IUCN for environmental governance as, “the means by which society determines and acts on goals and priorities related to the management of natural resources, [including] the

rules, both formal and informal, that govern human behavior in decision-making processes as well as the decisions themselves.”

The institutions and governance processes underlying CBC are recognized as critically important in affecting program outcomes. Yet these features are also challenging to conceptualize and measure (Andersson & Van Laerhoven, 2007; Salerno et al., 2016). While decades of scholarship has identified conditions associated with effective common pool resource management institutions (e.g., Andersson, Chang, & Molina-Garzón, 2020; Ostrom, 1990), there is significant uncertainty regarding the institutional processes through which CBC interventions may effectively work (Alexander et al., 2016; Galvin et al., 2018). These processes may involve features both external (e.g., bridging or boundary organizations, decentralization of power) and local (e.g., leadership, governance arrangements, worldviews) that shape outcomes in various ways (Berkes, 2007). For instance, government agencies can be important for political support or legal recognition, while international NGOs and local civil society can provide funding and capacity building (Carlsson & Berkes, 2005; Persha & Andersson, 2014). Further, these actors will interact with existing local governance and Indigenous knowledge systems in various ways, which can inform the relevance and appropriateness of conservation and resource management strategies (Gavin et al., 2015; Tengö, Brondizio, Elmqvist, Malmer, & Spierenburg, 2014).

However it might occur, devolution or power-sharing within CBC is important but rarely realized (Brockington, 2006; Galvin et al., 2020). Inequity in decision-making and participation continues to hinder CBC goals (Galvin et al., 2018). Yet, both community residents and their institutions will adapt to opportunities and constraints brought on by CBC interventions, potentially affecting lasting change at multiple levels of organization (Berkes, 2009; Dawson et al., 2018; Upton, 2012).

1.2 | Adaptation and evolution under CBC

We define these individual- and group-level changes brought on by CBC interventions as adaptation, including decisions or adjustments made to actual or expected impacts, in order to moderate harm or exploit beneficial opportunities (McCarthy, Canziani, Leary, Dokken, & White, 2001). The theoretical underpinnings of CBC from commons and governance scholarship include explicit treatment of evolution, or cumulative institutional adaptation over time (Currie et al., 2016; Ostrom, 1990). However, much of the science and practice of CBC,

particularly evaluation, focus on case-study observations and shorter-term project timelines, and so are less attentive to longer-term dynamics that might reveal such cumulative change (Agrawal & Redford, 2006; McKinnon et al., 2016; Miller, Rana, & Wahlén, 2017). Complex adaptive systems scholarship provides insights into these institutional processes and has been applied to CBC science (Berkes, 2009), though remains under engaged in practice (Mahajan et al., 2019).

Adaptation of institutions for conservation, including those at community, CBC, and higher levels of organization, is akin to learning by doing under complexity and uncertainty (Holling, 1978), within social-ecological systems that are multilevel, inter-connected, and path dependent (Levin et al., 1998, 2013). In the case of CBC, it is likely that constituent livelihoods, partnerships, and institutions shift over time and in response to interventions (Alexander et al., 2016; Armitage et al., 2009; Seixas et al., 2009). These shifts can be described as occurring through processes of social learning, where actors form new relationships, build trust, share knowledge, and resolve conflict, thereby adapting institutions for management (Berkes, 2009; Biggs et al., 2019; Seixas & Berkes, 2010). Within CBC, such processes are greatly enhanced by integrating local management and cultural knowledge (Davidson-Hunt et al., 2012; Gavin et al., 2015). Notably, actors and interests in these systems (e.g., participating communities, central state authorities) may both cooperate and compete to serve varied goals, and the institutional change associated with CBC may not align with conservation objectives (Brown, 2003; Lubell, 2013).

A component but comparatively less developed scholarship applies evolutionary theory and systems science to understand institutional change (Currie et al., 2016; Gual & Norgaard, 2010). An important distinction is made through the explicit consideration of the transmission mechanisms of cultural traits, behaviors, norms, and institutions akin to the selection pressures of genetic evolution (Boyd & Richerson, 1985; Waring et al., 2015). Contributions from multiple disciplines (e.g., anthropology, psychology, economics) show evolutionary cultural dynamics acting across levels of organization to shape individual (e.g., resource use strategies) and group behaviors (e.g., management institutions) through competition and differential benefit (Gintis, 2007). For example, in small-scale fisheries systems, selection pressures variably acting at individual, community, and regional levels can explain the emergence of sustainable harvest practices and management institutions, such as in the Maine lobster fishery (Acheson, 2003; Waring & Acheson, 2018). While explicit evolutionary approaches have been recently applied to

understand mechanisms underlying conservation and sustainability at various levels (Brooks, Waring, Borgerhoff Mulder, & Richerson, 2018), they have not yet been integrated into CBC science and practice. Because such approaches are well suited to understand the environmental collective action problems (Richerson, Boyd, & Paciotti, 2002) fundamental to CBC, they may present productive avenues for future work.

2 | THE SPECIAL ISSUE

We introduce the special issue through five themes described below that emerged from the 13 contributions. Papers represent cases from CBC in Africa, Asia, and North and South America, engaging at all levels of governance, from community to international (Figure 1). The natural resource or conservation systems discussed are diverse, including wildlife-based CBC and trophy hunting, community forestry, fisheries, rangelands, and a theory-based approach to conservation practice.

2.1 | Theme 1: Changing models of CBC in practice

Contributions illustrate how the models of CBC have changed and diversified since early interventions began. There is evidence that some contemporary CBC interventions are differentiating from traditional top-down approaches (i.e., CBC implemented by the state or conservation partners, with little community input),

allowing for communities to be more integrated in conservation planning processes and assume explicit roles in decision-making. For instance, Gonzales Tovar, Sarmiento Barletti, Larson, Barnes, and Tucker (2021) describe how multi-stakeholder forums can provide space for community voices in participatory territorial planning in Brazil, although these spaces remain politicized and do not guarantee community empowerment in decision-making. Mahajan et al. (2021) apply a theoretically-grounded framework to guide CBC planning and management from the perspective of implementing partners. Applied through multiple cases, their experience highlights community institution-building within the project design process (e.g., through establishing common understanding, trust and reciprocity, and collaboration over time) as critical to what they consider successful establishment of CBC interventions, while top-down implementation posed risk to the sustainability of interventions.

There is also evidence of endogenous, community-driven engagement in CBC processes. Bennett, Knapp, Knight, and Glenn (2021) describe ranch owners in the western United States collaborating to leverage agricultural land trusts to secure livelihoods and lands against development. The emergent institution served as a coalition of land trusts while forming new partnerships with conservation organizations and the private sector. Similarly, Quintana and Basurto (2021) describe fishing communities in Baja California Sur, Mexico, that have exploited a state legal provision to formalize property rights to fishing areas and institute more effective self-governance and exclusion of non-local fishers.

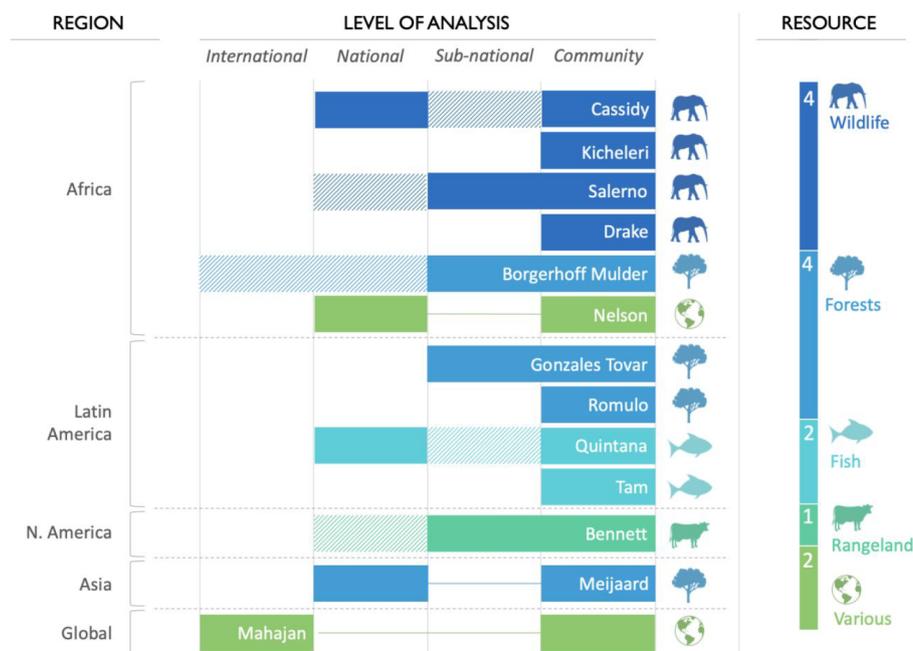


FIGURE 1 Graphical table of contents for contributions to the special issue. Contributions target various geographies, resource systems (colored icons), and levels of analysis (filled bars, main focus; hatched bars, secondary focus)

Importantly, in each of these cases, external interests recognized the autonomy and authority of local actors.

While the above examples illustrate changing models of CBC, there is evidence that in some cases traditional, top-down approaches remain, or are even becoming retrenched. Drake et al. (2021), Kicheleri, Mangewa, Nielsen, Kajembe, and Treue (2021), and Salerno et al. (2021) each report dynamics from long-running wildlife-based CBC interventions in Africa, representative of the early CBC model from the 1990s, and show varied outcomes on community governance and institutions, with a lack of community agency being a common thread among interventions. Cassidy (2021) and Nelson, Mupeta-Muyamwa, Muyengwa, Sulle, and Kaelo (2021) go further to argue that there has been a trend toward governments recentralizing control over wildlife in Africa, against the core tenet of CBC, although there may still be examples of strong community institutions enduring under the right conditions. Strong state policy yielding varied outcomes is also illustrated through a rapid move to decentralized forest management in Indonesia (Meijaard et al., 2021), where some communities could secure forest and livelihood gains, but many could not.

Contributions to the issue illustrate the diversity of CBC models existing in practice. Unsurprisingly, the presented cases do not suggest a silver bullet model to have emerged over the decades of trials. However, there appears to be at least increasing evidence of opportunities for communities to engage in CBC planning processes (e.g., Gonzales Tovar et al., 2021; Mahajan et al., 2021) and assume agency in decision-making (e.g., Bennett et al., 2021; Quintana & Basurto, 2021), with some outcomes affecting stronger governance institutions for conservation (e.g., Borgerhoff Mulder, Caro, & Ngwali, 2021; Salerno et al., 2021).

2.2 | Theme 2: Multilevel processes

Since inception, the structure of CBC interventions has been multilevel by design (Alexander et al., 2016), at minimum involving higher-level authorities (e.g., state wildlife agencies) and local CBC bodies managing resources (e.g., trophy hunting concessions) (Nelson, 2010). Strong vertical and horizontal institutional linkages connecting actors within and across organizational levels are presumed critical for well-functioning CBC (Cash et al., 2006; Seixas & Berkes, 2010). However, such robust or polycentric governance structures (Carlisle & Gruby, 2019; McGinnis, 1999) have proven fleeting within CBC practice, often weakened by certain actors consolidating disproportionate power and benefit at

various levels (Lund & Saito-Jensen, 2013; Persha & Andersson, 2014). But again, studying these institutional dynamics remains challenging (Galvin et al., 2018).

Multilevel processes, even if not effective decentralized or polycentric governance, are clearly present in all the contributions to this special issue. Examples of more robust CBC exist where there are strong vertical linkages, which connect communities, local actors, and their institutions to higher levels of organization and authority, such as the state commission on fisheries (Quintana & Basurto, 2021), a national livestock industry association (Bennett et al., 2021), and international NGO implementers (Mahajan et al., 2021). As noted above, there must be reciprocity and recognition of power and authority on both sides of these linkages. The complementarity of vertical and horizontal linkages is demonstrated by Gonzales Tovar et al. (2021) through the inclusion of Indigenous and traditional communities within land use planning processes alongside regional government, private interests, and other actors. Similarly, Quintana and Basurto (2021) demonstrate the importance of communities working together with local civil society to provide legal capacity and the ability to engage with state fisheries policy.

CBC interventions have long struggled with the balance of decentralized control and higher-level support, with the ideal described as, “as much local solution as possible and only so much government regulation as necessary.” (Berkes, 2004, p. 626). In this issue, cases described by Drake et al. (2021), Kicheleri et al. (2021), and Salerno et al. (2021) show a clear imbalance of control in the wildlife sector, with power concentrated at the state level. This suggests the persistence of a “missing middle” (Tomich et al., 2004) in wildlife management; that is, even if decision-making authority is devolved to communities, institutions may not be in place or may lack the capacity to function effectively (e.g., to manage wildlife populations to support photo and trophy hunting tourism and distribute benefits). Borgerhoff Mulder et al. (2021) describe a similar lack of supporting vertical links in a REDD+ pilot project in Pemba, Tanzania, where the higher-level institution meant to verify and secure payments for carbon sequestration failed to deliver benefits to participating community forest associations. Evaluating the rapid effort to shift forest management from the Indonesian state to communities, Meijaard et al. (2021) identify significant barriers faced by many communities to embrace the policy changes and both conserve and capitalize on forest resources, while external NGO partners were seen as necessary to fund and facilitate more effective transition to community forest governance.

2.3 | Theme 3: Adaptive and evolutionary features of CBC

Contributions to this issue suggest that establishment or modification of CBC institutions can be a form of adaptation by communities to external risk or opportunity. Mahajan et al. (2021) integrate social science theory into a framework to explain the emergence, persistence, and diffusion of CBC. While their framework is applied to cases where external partners play a significant role, their contribution nevertheless identifies pre-conditions relevant to endogenous community establishment of CBC. As noted above, both Quintana and Basurto (2021; fish refugia) and Bennett et al. (2021; rangeland trusts) describe a process where community institutions emerged and were formalized in response to risks to livelihoods. Interestingly, while Borgerhoff Mulder et al. (2021) describe the failure of REDD+ payments to reach community forest associations, they document the spread of formally registered associations independently of the larger CBC intervention (discussed further below). While CBC establishment took different forms, each of these cases underscores adaptation through emergence of institutions to secure property rights.

Contributions also describe adaptation by local institutions to opportunities and constraints presented by external CBC interventions and associated top-down policy environments. Despite reform and recentralization of state control in the wildlife sector of East and southern Africa, Nelson et al. (2021) describe local entrepreneurial organizations (e.g., carbon credit schemes, game ranching) and public–private–civil society collaborations that have worked under the top-down CBC policy framework to secure land rights, generate revenue, and manage resources. Similarly, Salerno et al. (2021) show evidence of strengthened community governance associated with a long-term multi-community CBC intervention. Although the mechanisms underlying adaptation are unclear, the authors suggest that local residents were able to leverage intervention resources to support collaboration and entrepreneurship. However, these contributions are careful to note that significant challenges remain for CBC in the region, and that CBC institutions are unlikely to change following the programmatic design anticipated by interventions. Cassidy (2021) details the process of increasingly centralized control of CBC in Botswana, yet they also note potential for a path forward that involves a polycentric or modular approach to enable and incentivize local institutions to engage as independent actors in wildlife management.

As noted above, explicit evolutionary approaches are well-suited to understanding the mechanisms of collective action problems and solutions, yet are under-utilized

in conservation science and practice, particularly regarding CBC. This issue presents two papers reporting cultural evolutionary processes within CBC systems, focusing on the individual resource user and institutional levels. Tam, Waring, Gelcich, Chan, and Scatterfield (2021) focus on behavioral social learning (i.e., individuals acquiring behaviors from others) among small-scale Chilean fishers to understand how institutions for resource management may emerge. Testing a novel method to measure behavioral social learning through experimental games, the authors validate the method and suggest that behavioral social learning may act as a mediating process supporting institutions for collective action. Borgerhoff Mulder et al. (2021) report the spread of formal governance arrangements (e.g., legal recognition by higher officials, authority to issue use permits and sanctions) implemented by communities to strengthen forest management. In the absence of payments from the REDD+ program that established a formal process to secure land rights, the authors argue that the spread indicates institutional adaptation to secure tenure, prevent extraction by outsiders, and support agency over local forest preservation. Cultural evolutionary mechanisms could underlie the spread of these institutions, for instance, if the opportunity to formalize governance shifted the selection pressures or cost–benefit ratios to favor collective action and group-beneficial forest conservation. Well-functioning forest associations, and protected forests, may then provide a model for adoption in other communities.

2.4 | Theme 4: Impact evaluation and enabling conditions

The lack of rigorous impact evaluation of CBC interventions has hindered adaptive management and evidence-based design (Brooks et al., 2006; Hajjar et al., 2016). Multiple contributions to the issue articulate the challenges to evaluation facing communities and implementing partners, such as high cost, limited capacity, and the mismatch between time-bounded interventions and long-term timescales of many social and ecological outcomes (Borgerhoff Mulder et al., 2021; Meijaard et al., 2021; Romulo, Gilmore, Endress, & Kennedy, 2021). While these challenges will likely persist, there is increasing recognition of the importance of impact evaluation within conservation, as well as tools to support its use (Cheng et al., 2020). For instance, in their organizing framework supporting CBC interventions, Mahajan et al. (2021) pair theoretical principles with simplified conservation actions, which can help to structure evaluation of CBC persistence specific to the mechanisms

underlying institutional change and subsequent impacts on people and natural resources. Mainstreaming theory into project design, while allowing for flexibility of evaluation methods, may indeed help overcome some barriers to adaptive management.

Controlled and counterfactual-based evaluation is critical for measuring the impacts of CBC. While Meijaard et al. (2021) report that only a small fraction of research implements a counterfactual design to evaluate impacts of Indonesian social forestry, their practice-based review highlights robust findings from these few studies, such as teasing apart context-dependent factors affecting environmental (e.g., avoided deforestation) versus social outcomes (e.g., forest income). In a control-treatment design, Salerno et al. (2021) are able to infer positive effects of CBC on community governance. However, even though the findings are triangulated with different qualitative and quantitative data sources, the authors are cautious with claims of causality in the absence of longitudinal data.

While the majority of contributions do not implement counterfactual approaches, nearly all conducted forms of in-depth institutional analyses of CBC. Both qualitative and quantitative approaches uncovered enabling conditions for better community outcomes and CBC governance in specific contexts, such as the presence of a local conservation champion or civil society organizations (e.g., Quintana & Basurto, 2021; Romulo et al., 2021), a facilitative higher-level policy environment (e.g., Borgerhoff Mulder et al., 2021; Gonzales Tovar et al., 2021), and agency and innovation within communities (e.g., Bennett et al., 2021; Nelson et al., 2021).

2.5 | Theme 5: Critical perspectives and persistent challenges

Contributions to this issue reflect the deep critical scholarship of CBC that has amassed since the 1990s. Notably, qualitative and ethnographic research documents negative livelihood and governance outcomes of CBC interventions (Brosius et al., 1998; Dressler et al., 2010), and of conservation strategy more generally (Brockington & Wilkie, 2015; West, Igoe, & Brockington, 2006), across geographies and resource systems. In this vein, Kicheleri et al. (2021) revisit a long-running CBC program in Tanzania and go beyond questioning community benefit to identify overt dispossession of community rights embedded within the state-sponsored governance process.

Focusing at the national level, Cassidy (2021) provides a critique of CBC in Botswana, arguing that any real decision-making authority that communities once had over wildlife and resources has been eroded by the central government, with CBC now existing only in name

and to disburse funds. And yet, local governance institutions in Botswana hold potential to contribute to conservation goals while provisioning local benefit from lands and resources, if communities were to be meaningfully integrated into policy and management. Nelson et al. (2021) paint a similar picture for CBC governance across Africa, where central governments may be continuing to extract rents and limit self-governance, but a new form of CBC governance supported by local civil society, entrepreneurship, and innovation may suggest more positive paths forward.

3 | LESSONS LEARNED AND FUTURE PRIORITIES FOR RESEARCH AND PRACTICE

Contributions to this issue provide further evidence that institutions and formal governance processes within communities adapt in response to opportunities and constraints of CBC. This is evident both in the context of external interventions (e.g., Borgerhoff Mulder et al., 2021; Salerno et al., 2021) and as institutions forming and changing endogenously within communities (e.g., Bennett et al., 2021; Quintana & Basurto, 2021). In part, motivation for this issue was to highlight people and communities as adaptive agents rather than passive recipients or targets of intervention efforts. Indeed, the importance of agency in the form of local entrepreneurship and policy innovation emerged as a key message for future CBC efforts (e.g., Cassidy, 2021; Nelson et al., 2021).

Contributions suggest future priorities for research and practice regarding institutions and governance of CBC. (1) Programmatic design must continue to work toward integrating communities into the design process and granting communities authority over resource management; cases demonstrate new tools and models that may better enfold communities into CBC decision-making (e.g., Bennett et al., 2021; Gonzales Tovar et al., 2021; Mahajan et al., 2021). (2) Explicit consideration of the multilevel nature of institutional processes is necessary, and interventions may better support adaptation and social learning by actively facilitating vertical and horizontal linkages for communities (e.g., Cassidy, 2021; Quintana & Basurto, 2021). (3) Better integration of theory with project design will help target strategies at the mechanisms underlying CBC success and failure (Mahajan et al., 2021), and explicit cultural evolutionary approaches may provide new ways for the science of CBC to address fundamental issues such as collective action and the transmission of effective behavioral and institutional strategies (Borgerhoff Mulder et al., 2021; Tam et al., 2021). (4) Better understanding of and facilitating the emergence and spread of conservation-

relevant institutions will support both intervention efficacy and stronger local management (Mahajan et al., 2021; Quintana & Basurto, 2021; Romulo et al., 2021). (5) Institutions and governance may adapt surprisingly fast, or over years to decades following CBC interventions (Quintana & Basurto, 2021; Salerno et al., 2021); there remains a clear need for monitoring and evaluation over time that is careful to define appropriate measures of success while being attentive to the processes underlying change.

These priorities must be advanced with stronger links between science and practice (Armitage, de Loë, & Plummer, 2012; Galvin et al., 2018). The research-implementation gap is not new, nor is it limited to CBC within the broader field of conservation (Agrawal & Redford, 2006; Cook, Mascia, Schwartz, Possingham, & Fuller, 2013). Contributions to this issue highlight the importance of co-designing CBC together with scientists, practitioners, and communities (Walsh, Dicks, Raymond, & Sutherland, 2019), and provide a candidate framework to guide the process (Mahajan et al., 2021; also Bennett et al., 2021). These and other papers articulate the necessity of both research and practice being inclusive of communities as decision-makers (e.g., Cassidy, 2021), along with an awareness that power and politics may shape engagement and value placed on knowledge (Adams & Sandbrook, 2013; Gonzales Tovar et al., 2021). Inclusive and collaborative approaches underlying CBC efforts will indeed help to support local institutions and institutional change for better alignment of conservation and wellbeing goals.

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CONFLICT OF INTEREST

The authors declare no conflicts of interest.

ETHICS STATEMENT

No data were collected or used for this paper. Institutional ethics review was not required.

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