Positioning human heritage at the center of conservation practice

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Abstract: Conservation projects subscribing to a community-based paradigm have predominated in the 21st century. We examined the context in which the phrase was coined and traced its growth over time. Community-based conservation first appeared in the literature in the early 1990s; but grew little until after the 5th World Parks Congress in 2003. Thereafter, publications describing community-based conservation approaches increased exponentially. The conference theme was Benefits Beyond Boundaries, and its goal was to provide an economic model based on revenue accrued from conservation fundraising and ecotourism to support ecosystems, wildlife, and people, particularly in the Global South. Such models tended not to incorporate, as a core principle, the heritage of local human communities. Human heritage varies substantially over time and space making generalization of conservation principles across scales challenging. Pitfalls that have grown out of the community-based conservation approaches in the Global South include fortress conservation, conservation militarism, consumptive and nonconsumptive ecotourism, and whiz-bang solutions. We propose 10 tenets in a human heritage-centered conservation framework (e.g., engage in conservation practices using local languages, thoughtfully propose and apply solutions consistent with human heritage, provide clear professional development pathways for individuals from local communities, and promote alternative revenue-generating programs centered in local communities, among others). Progressive philosophies can derive from authentic and ethical integration of local communities in conservation practice.

Keywords: biodiversity, community-based, conservation biology, fortress conservation, protected areas

Resumen: Los proyectos de conservación que siguen un paradigma basado en la comunidad han predominado en el siglo XXI. Examinamos el contexto en el cual se acuñó la frase y rastreamos su crecimiento con el tiempo. La frase conservación basada en la comunidad apareció por primera vez en la literatura a principios de la década de 1990; casi no creció hasta después del quinto Congreso Mundial de Parques en 2003. Después de esto, las publicaciones que describen estrategias de conservación basadas en la comunidad incrementaron exponencialmente. El tema de dicha conferencia fue Beneficios Más Allá de las Fronteras y su objetivo era proporcionar un modelo económico basado en las ganancias acumuladas por la recaudación de fondos para la conservación y el ecoturismo para apoyar a los ecosistemas, la fauna y a las personas, particularmente en el hemisferio sur. Dichos modelos tuvieron la tendencia de no incorporar, como principio nuclear, el patrimonio de las comunidades humanas locales. El patrimonio humano varía sustancialmente con el tiempo y en el espacio, lo que complica la generalización de los principios de conservación en todas las escamas. Algunos obstáculos que han surgido de las estrategias de conservación basadas en la comunidad en el hemisferio sur son la conservación en fortalezas, el militarismo por la conservación, ecoturismo consumible y no consumible y las soluciones estrepitosas. Proponemos diez principios...
para un marco de trabajo de conservación centrado en el patrimonio humano (p. ej.: participar en prácticas de conservación con el uso de lenguajes locales, proponer y aplicar cuidadosamente soluciones consistentes con el patrimonio humano, proporcionar vías de desarrollo profesional claras para los individuos de las comunidades locales y promover programas alternativos de generación de ingresos centrados en las comunidades locales, entre otros). Las filosofías progresivas pueden derivar de una integración auténtica y ética de las comunidades locales dentro de la práctica de la conservación.

**Palabras Clave:** áreas protegidas, basado en la comunidad, biodiversidad, biología de la conservación, conservación en fortaleza

**Abstract:** The protection of the human heritage (e.g., language, culture, and traditional knowledge) is increasingly recognized as a critical component of conservation biology. In recent years, there has been a growing emphasis on community-based conservation, which aims to involve local communities in conservation efforts. This approach recognizes the importance of local knowledge and the need to address the specific needs and values of the communities involved.

**Introduction**

Conservation biology has a foundational structure of barely 50 years (Soule 1985, 1986, 1987). This inherently multidisciplinary field has its origins in much older disciplines, including ecology, population biology, ethology, genetics, and ethics (e.g., Soule & Wilcox 1980; Caughley & Gunn 1996; Meine et al. 2006). From the outset, conservation biology was formed with clearly defined goals (Trombulak et al. 2004), including assessing and documenting factors associated with biodiversity loss and testing, validating, and scaling practical and applied mechanisms to evidently conserve biodiversity (Soule 1986). At its inception, conservation biology featured 2 main conservation paradigms related to how small populations and the factors associated with declining populations affected the species persistence (Caughley 1994). Although the main subjects of conservation research (community ecology, population biology, habitat change, and species conservation) have been consistently pursued over time (Griffiths & Dos Santos 2012), the distribution of individual research themes is more nuanced (Di Marco et al. 2017).

Early research themes in conservation biology sought to differentiate the principles of conservation biology from other disciplines (Dobson et al. 1997; Callicott et al. 1999; Young 2000) or to articulate the responsive tendencies of this field of study (e.g., primacy of action [Soule & Kohm 1989]). Later, conservation research grew dramatically and the topics, species, geographical range, and conservation risk factors studied varied (Soule & Orians 2001; Griffiths & Dos Santos 2012; Di Marco et al. 2017). In the midst of these temporally dynamic pursuits, 1 re-search theme grew steadily and consistently: community-based conservation.

Community-based conservation endorses the engagement, in some way, of local human communities in conservation practice (Agrawal & Gibson 2001; Berkes 2007). Though coupled human and natural systems research has become commonplace (Liu et al. 2007; Feraro et al. 2019), the consideration of humans as integral parts of ecosystems is relatively recent (Miller et al. 2012). Thus, the timing of community-based conservation coincided with a broader conceptual shift in applied ecology that began considering humans as functional components in ecosystem studies in the late 20th century (Berkes 2004). Presumably, community-based conservation was borne out of the recognition that failure to consider stakeholders among the local communities could be detrimental to conservation. However, the context within which community-based conservation expanded remains unclear.

We investigated the origins of the phrase community-based conservation and explored the ways in which it spread throughout conservation science. First applied some 25 years ago, we predict community-based conservation is about to enter the next phase of development. To facilitate this progression, we sought to identify weaknesses in the application of community-based conservation and delineated tenets necessary to ethically collaborate with local communities. Within this context we considered how community-based conservation can become human heritage-centered conservation so as to preserve biodiversity via honest and ethical partnership with local people.
Community-Based Conservation

We reviewed the conservation literature to determine the first application and subsequent growth in the use of the term community-based conservation. We conducted our search in Web of Science and used the keywords “community-based conservation” or “community based conservation.” We identified 774 articles published from 1993 to 2018 that included the phrase. According to our research, Well and Brandon (1993) were the first to use the phrase. They examined integrated conservation-development projects with the intent of describing the benefits local people derived from biodiversity conservation. Thus, community-based conservation was coined to articulate the processes by which local people could participate in and derive benefits from conservation development.

Following this publication, community-based conservation was used sparingly over the next decade; it occurred on average in 7.9 articles/year (SD 6.23) (Fig. 1). From 2003 to 2018, use of the term grew nearly exponentially (\( y = 13.487e^{0.1192x} \), \( R^2 = 0.76 \)) (Fig. 1). The phrase appeared on average in 57.3 articles/year (SD 9.18) from 2009 to 2018 (Fig. 1).

Benefits Beyond Boundaries

In 2003 the International Union for Conservation of Nature and Natural Resources (IUCN) held the 5th World Parks Congress. A decade in the making, this congress, called Benefits Beyond Boundaries, featured 3000 experts in park and protected area management, conservation, and development from 160 countries. The ceremonies were opened with speeches from then South African President Thabo Mbeki, Queen Noor of Jordan, and former South African President Nelson Mandela. These individuals emphasized “...the extraordinary success story of creating protected areas...” and “the essential need for protected areas to become mainstreamed into broader human concerns, culturally and economically, to capitalise on... [what] they can contribute to sustainable development and poverty reduction” (IUCN 2005:7). The featured speakers challenged participants to develop “an inclusive approach” that “forges productive partnerships and builds trust” (IUCN 2005:7). After this congress, research referencing community-based conservation exploded (Fig. 1). However, the extent to which this research has met the mandate of the congress, particularly with reference to inclusivity, productive partnership, and trust building, is unclear.

Human Costs of a Mission-Driven Discipline

Conservation biology has been presented as a crisis discipline or a mission-driven discipline, and this has been a powerful way to actualize practices, enactments, and policies relating to the protection of land, environmental preservation, and conservation of flora and fauna (Soulé & Wilcox 1980; Soulé et al. 2005; Meine et al. 2006). A career in conservation has been likened to a calling, a vocation, or even a career that necessarily involves sacrifice (Van Dyke 2008). However, this devotion and the prioritization of biodiversity conservation has, at times, come at a cost to local human communities (e.g., Hutton et al. 2005; Sodhi et al. 2006; Mbaria & Ogada 2016). In January of 2019, the United Nations (UN) hosted an international expert group meeting to explore Conservation and the Rights of Indigenous Peoples. This meeting was deemed necessary after the UN’s (2019:1) assessment that “[i]ndigenous peoples have consistently expressed their concern with mainstream conservation efforts that frequently fail to consider the rights and knowledge of indigenous peoples in the designation of conservation areas leading to displacement and loss of livelihoods for a significant number of people.” Participants discussed the value of land and the underlying natural resources that spatially correlate with the distribution of indigenous peoples in the Global South (i.e., countries in South America, Central America, Africa, and Asia that are low and middle income relative to countries in the Global North). It is in the Global South, which possess an estimated 40% of the world’s remaining biodiversity, that value systems relating to conservation and human livelihood often conflict (Ochieng et al. 2018). Indigenous peoples “often face the negative impacts of conservation programs, which have often been based on the concept of protecting biological resources and land and seascapes, while excluding human beings from these areas” (UN 2019:1-2). These observations and
investigations demonstrate there are real costs to local people associated with adherence to misconstrued mission-driven conservation that challenges the integrity of community-based conservation (Ogada 2016).

Issues Associated with Community-Based Conservation Practice

We identified 4 macro issues that threaten the original tenets of community-based conservation (i.e., inclusivity, partnership, and trust building): fortress conservation, militarization of conservation, consumptive and nonconsumptive tourism, and whiz-bang solutions.

Fortress Conservation

Fortress conservation describes a set of practices that seek to protect wildlife and wild places as fortresses (Neumann 1998; Brockington 2002). These practices bear a strong resemblance to colonialism, under which land-tenure systems often involved the forced eviction of local people (Grove 1996; Neumann 1998; Gissibl et al. 2012). Community-based conservation was originally envisioned to run counter to the ethos of fortress conservation (Berkes 2004). Whether conscious or subconscious, however, many conservation philosophies seek to maintain the integrity of these fortresses. Ecotourism opportunities, for example, are advertised to provide access to pristine, untouched, wild, and virgin wilderness (Kearsley 1997; Honey 2008). Images are packaged into promotional brochures that capture wildlife in backdrops without representation of the concurrent human communities (Mowforth & Munt 1998). These people-free practices (Redford et al. 1998; Schwartzman et al. 2000) perpetuate the notion that local people are a threat to conservation (for review, see Happold [1995]) or that wildlife cannot be wild if local people live alongside them.

Emergent rhetoric continues to maintain these notions by advocating for the whole-scale fencing of protected areas to limit, or prevent altogether, access by human and nonhuman agents (Bode & Wintle 2010; Packer et al. 2013). This has been presented as a means to protect wildlife from poaching, invasive speciation, disease, and habitat loss, fragmentation, and degradation (Packer et al. 2013). Fences are an effective means to meet a number of conservation goals (Hayward & Kerley 2009; Packer et al. 2013). However, fences may contribute to animal population isolation and cultivate an environment that is akin to an outdoor zoo (Newmark 2008; Hayward & Somers 2012). Further, fortress conservation often displaces or alienates local people by limiting their participation in biodiversity conservation (Neumann 1998; Brockington 2002).

Conservation Militarism

Fortresses, of course, require both maintenance and protection. As part of that protection, conservation militarism has grown rapidly in the 21st century (Massé & Lunstrum 2016; Duffy et al. 2019). Green militarization (Lunstrum 2014; Annecke & Masubelele 2016) involves elite military-trained individuals, often adopting Western-based conservation philosophies, training in-country military and wildlife authorities to conduct antipoaching patrols in protected areas and adjacent communities (Duffy et al. 2019). The presentation of these antipoaching and antitrafficking activities has led to shoot-on-site practices in many countries in the Global South (Neumann 2004; Mogomotsi & Madigele 2017). Conservation militarism has begun to be heavily scrutinized for human rights violations (Duffy et al. 2019). Beatings, torture, and rape have been documented among conservation militants in certain parts of the Global South (Warren & Baker 2019; Warren et al. 2019). These crimes can permanently sever trust between local communities and conservation practitioners and have subsequent effects that can destabilize the legitimacy of community-based conservation practices.

Consumptive and Nonconsumptive Ecotourism

In some conservation sectors, practitioners contend that ecosystems and organisms must earn money so as to justify their conservation (Norton-Griffiths 2008). One of the main ways they can pay is via consumptive or nonconsumptive ecotourism (Berkes 2004; Kiss 2004). We use consumptive ecotourism to refer to hunting (game and trophy) activities and nonconsumptive ecotourism to refer to photographic safaris. Fee systems can be implemented to charge people for access to protected areas. Over time the exact costs fluctuate according to local conditions, species rarity, or market demands. Consequently, ecotourism has become an incredibly potent revenue generator and contributes significant amounts to the gross domestic product of many nations in the Global South (Hawkins & Lamoureux 2001; UNWTO 2016; Brant & Buckley 2018). However, the deferred benefits of ecotourism to local people are modest (Kiss 2004). In many cases in the Global South, there is a complete disconnect between local people’s livelihoods and the revenue generated by ecotourism. For instance, >90% of local people living in the 31 parishes directly adjacent to the boundary of Murchison Falls National Park (largest national park in Uganda) have never been inside or derived any benefits from the park (T.M., unpublished data). Murchison Falls is an unfenced savannah park with tens of thousands of people living along its boundary. This serves to demonstrate that isolation from protected areas is not exclusively fostered by fences. Frustration over limited or no benefits from ecotourism is a common complaint.
of local communities across the Global South (Salafsky et al. 2001). These observations have occurred around the globe and on the heels of 24 years of community-based conservation practices challenging the notion that local human livelihoods have been uplifted via these approaches (Nelson & Agrawal 2008; Bersaglio & Cleaver 2018; Taruvinga 2019).

Whiz-Bang Solutions

Conservation funding often supports whiz-bang solutions. We use the term *whiz-bang* to describe solutions that are purportedly so novel that they not only solve the stated problem in the area of interest, but also can be readily scaled across space with similarly positive effects. Conservation practice is an incredibly complex process that sits at the convergence of a number of environmental and social systems (Berkes 2004). For example, sustainable solutions to human–carnivore conflict are often predicated on detailed knowledge of no less than 5 dimensions (i.e., humans, carnivores, wild prey, livestock, and environmental factors) (Montgomery et al. 2018). The individual variables are virtually infinite when considering the interactions between and across these 5 dimensions (Beck et al. 2019). Thus, conservation problems are often wicked (Game et al. 2014) and in need of interdisciplinary solutions (Sodhi et al. 2006; Ledford 2015). It is within this context that we contend that whiz-bang solutions are fallacies. No one approach can, once funded and implemented, demonstrate full efficacy across scales. Support for whiz-bang solutions overlooks, or completely ignores, underlying variation in local socioecological systems. Conservation practitioners may come into a system with a well-funded idea, but failure to appreciate the local human heritage or to sustainably maintain that idea over time may lead to the demise of the whiz-bang solution itself and break trust with local people.

Importance of Human Heritage

A unifying characteristic among these 4 primary threats to community-based conservation is the tendency to look past local human heritage. Heritage broadly represents cultural aspects of human communities that exhibit considerable variation across the world, especially in the Global South (Moore et al. 2002). There are many instances in which a single protected area has several ethnic groups sharing its border. For example, inhabitants of the villages bordering the Arabuko-Sokoke Forest in Kilifi County, Kenya, are from 5 tribes and 6 subtribes (Musila et al. 2018). Consequently, there are considerable differences in perceptions, beliefs, values, and behaviors across the extent of just one protected area. Thus, a successful conservation solution in a community on the western portion of a national park, for instance, may not be applicable in a community in the eastern portion, much less in communities surrounding numerous other national parks across the country, region, or world.

It is within this context that we envision the future of community-based conservation to be one that positions human heritage at the center of conservation practice. We devised 10 tenets that are integral to our human-heritage-centered conservation framework (Table 1). These tenets foster sustainable conservation practice by acknowledging and inculcating the knowledge, desires, and aspirations of local people. Our human-heritage-centered conservation ideals focus on the practical techniques that can build trust and increase the ethical engagement of conservation practitioners in local communities.

Table 1. The 10 tenets integral to human heritage-centered conservation.

| Tenet number | Tenet |
|--------------|-------|
| 1            | Engage in conservation practices using local languages |
| 2            | Incorporate traditional ecological knowledge into conservation practices |
| 3            | Foster interdisciplinary research teams to develop novel conservation solutions |
| 4            | Collaborate with local environmental authorities in research-informed conservation |
| 5            | Thoughtfully propose and apply solutions that are consistent with human heritage |
| 6            | Present clear professional development opportunities for employees from local communities |
| 7            | Provide educational and technical training to people from local communities |
| 8            | Facilitate terminal degree training pathways for students from local communities |
| 9            | Promote alternative revenue-generating programs centered in local communities |
| 10           | Develop peer-reviewed evidence of the efficacy of the conservation solutions |

Human Heritage-Centered Conservation

Western countries are a dominant force in conservation biology. Approximately 40% of all conservation projects were situated in the United States, the United Kingdom, or Australia (Di Marco et al. 2017). Regardless of project location, most of the technologies and models of intervention in conservation have been led by individuals affiliated with institutions, organizations, and universities based in the Global North (Pimbert & Pretty 1997; Levine 2002; Griffiths & Dos Santos 2012). The languages these individuals speak are often foreign to people in local communities. Thus, the first tenet of our heritage-centered design is that conservation practitioners endeavor to learn and
conduct discourse in local languages (Table 1). As a requirement for validity, agreements made with indigenous communities must be developed in the local languages so that all community members can be intellectual participants privy to the provisions therein. From a philosophical standpoint, the combination of language and culture creates a living organism, greater than the sum of the two (Jiang 2000). Within this context, language has been presented as flesh and culture has been depicted as the blood (Jiang 2000). Thus, neither culture nor language is able to survive without the other (Jiang 2000; wa Thiong’o 2008). The key message in this philosophy is that culture cannot transcend language, or vice versa. Once this connection is fully appreciated by conservation practitioners, the indigenous cultural aspects of conservation will be easier to bring into the mainstream via practices that are steeped in local language and culture.

Our second tenet involves the incorporation of traditional ecological knowledge (TEK) in conservation practice (Table 1). Despite being a consistent recommendation of many conservation scientists over time, TEK has yet to be widely adopted (Berkes 2004; Drew & Henne 2006; Borona 2019). Traditional ecological knowledge is integral to the connection of communities to their landscapes and the means by which local people navigate dynamic environmental conditions. The subjugation of TEK has facilitated the sustained abuse of people and landscapes across scales (Borona 2019). We also advocate for the creation of interdisciplinary research-informed conservation teams (Sodhi et al. 2006) (Table 1). Interdisciplinarity has historically been rather low among teams of conservation practitioners (Bawa 2006; Montgomery et al. 2018). Further, much of the peer-reviewed conservation research based in the Global South does not feature a host-country individual on the list of authors (Griffiths & Dos Santos 2012; Montgomery et al. 2018; Bauer et al. 2019). We identify that the other productive partners of interdisciplinary collaborations must include people from the local communities and members of the host country’s wildlife or environmental agencies. Involvement of agencies in research could help bridge the research-implementation gap that is highly prevalent in conservation science (Knight et al. 2008; Arlettaz et al. 2010). Inclusion of local community members in these teams will help conservation practitioners align implementation of their activities with human heritage (Table 1). Thus, we encourage conservation practitioners to thoughtfully develop and present options for local communities to participate in the implementation of potential conservation solutions that are drawn from their own heritage. This approach does not presume local communities cannot be exposed to new ideologies, but rather, it honors the primary importance of heritage. Human heritage is constantly changing in much the same ways culture modulates according to new innovations (Hobsbawn & Ranger 1983). Thereby, progressive and effective conservation practice should be expected to be similarly dynamic and customizable to changing human heritage.

The next 3 tenets focus on the provision of education and training for members of the local communities in which the conservation practices are being developed. Far too often, local people are provided menial jobs (i.e., cooks, cleaners, and guards) working on conservation projects without opportunities for professional advancement. Thus, our human heritage-centered conservation framework offers transparencies in these structures to enable project employees to ascend in their career (Table 1). Along with these professional development opportunities, various structures need to be in place to articulate how a local person can access raises in salary and benefits corresponding to their investment in the project. Concurrently, conservation organizations should be responsible for raising support to provide educational and technical training to additional members, including youth, of the broader community in which the project is situated (Table 1). This is a very clear way in which local communities can directly benefit from the implementation of conservation practices. Finally, we advocate for terminal degree training for host-country individuals so that these educated people can compete for decision-making positions within the conservation program (Table 1). This has not yet been a widely explored practice in conservation, likely because of the costs associated with higher education (particularly when provided in Western countries) and perhaps even because of the potential for a terminally degree trained host-country individual outcompeting a comparably educated Westerner. Training of host-country individuals should not be perceived as a threat, but rather an opportunity to develop the types of interdisciplinary research-informed conservation teams described above.

A crucial part of our human heritage-centered conservation framework is focused on alternative revenue-generating approaches that can sustain program activities over time (Table 1). Conservation practitioners can be motivated by immediate gratification from donors who increasingly see involvement in conservation as a form of self-actualization. Donors typically favor project proposals that illustrate simple, easily measured, and direct conservation gains within a definitive (preferably short) time frame. Thus, inability to sustain donor support over time frequently ends conservation practices that can, once again, break trust with local communities. Thus, our human heritage-centered conservation design is motivated not only by the recruitment of a broad base of support (from private donors, agencies, foundations, and societies), but also from alternative revenue-generating approaches that are co-created with local communities. The proceeds from these revenue-generating approaches, whether they derive from the marketing of conservation technologies, products, or experiences,
must flow back into the communities to provide local employment and economic growth. Finally, the efficacy of each of these human heritage-centered conservation tenets must be assessed and quantified, with resultant manuscripts submitted for peer-reviewed consideration (Table 1). Publication is a vital way to make the output of conservation work accessible to science and society. Oddly, publication is a step that is often not pursued. For example, only 6% (of 667 total) of wildlife management and conservation research conducted in the United States and Canada undergoes external review (Artelle et al. 2018). This is a deficiency that must be addressed so that information on the challenges and successes of sustained conservation practice in local communities is subject to the highest standards of evaluation and shared widely.

**Conclusion**

We see these heritage-centered tenets as essential ways to reconnect community-based conservation with the original ideals described at the Benefits Beyond Boundaries Congress in 2003. Our human heritage-centered conservation framework fosters inclusivity, develops productive partnerships, and builds trust with local communities. Of course, implementation of our heritage-centered design will cost money, but conservation has succeeded in mobilizing unprecedented levels of financial support historically. The greatest gap lies in the inability (or unwillingness) to summon the requisite investment of time. The rapport and trust required to genuinely place human heritage at the center of conservation practice cannot be achieved rapidly, regardless of the magnitude of financial resources available to a given project. However, the directionality of conservation research historically has been modulated by changes in funding appropriations (Stroud et al. 2014; Di Marco et al. 2017). Thus, the application of our human heritage-centered conservation framework could be accelerated by shifts in perceptions among donors, comparable to that which has occurred previously (sensu Rylance 2015). Both conservation practitioners and funding organizations need to demonstrate they are placing human heritage at the center of their decision making. We recommend that funding organizations adequately investigate whether practitioners are aware of the risks to local people associated with their proposed conservation practice and have demonstrated an ability to build legitimate capacities in those communities. Within this context, the connections between the implementation of conservation practice and human livelihood improvement must be made clear (Robinson 2006). This process will likely involve the measurement of new indicators of success and capacity building that fully encompass the heritage of local human communities. We believe these are the ways in which conservation practices centering their programs in the heritage of local communities can be sustained over time to maximize benefits for biodiversity and the improvement of human well-being.

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