

Review

A framework for conceptualizing leadership in conservation

SETH A. WEBB, BRETT BRUYERE, MATT HALLADAY and SARAH WALKER

Abstract Conservation challenges occur in complex social-ecological systems that require scientists and practitioners to recognize and embrace that humans are active agents within these systems. This interdependence of the social and ecological components of systems necessitates effective leadership to address and solve conservation problems successfully. Although conservation practitioners increasingly recognize leadership as critical to achieve conservation goals, clarity about the term leadership remains elusive in terms of specific strategies and behaviours. Our objective in this review of conservation leadership scholarship was to build on prior literature to conceptualize and define the behavioural leadership strategies that lead to successful conservation outcomes. Following an initial review of more than 1,200 peer-reviewed publications, we conducted a systematic review of 59 articles utilizing an inductive analysis approach and identified a set of five leadership domains that contribute to positive conservation outcomes: (1) stakeholder engagement, (2) trust, (3) vision, (4) individual champion, and (5) excellence in internal attributes. Each domain is defined by 2–4 behaviours that we consider leadership practices. To sustain meaningful progress toward global conservation of biodiversity, conservation scientists and practitioners must embrace and invest in leadership as an integral component of solving our collective conservation challenges.

Keywords Collaborative conservation, conservation, conservation leadership, conservation skills, environmental leadership, leadership, leadership framework, natural resource leader

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Introduction

Contemporary conservation issues are complex and require a deep understanding of social-ecological systems to design solutions that sustain both livelihoods

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and the natural environment. Conservation science, an interdisciplinary field that encompasses social and natural systems and their interactions and interdependencies (Kareiva & Marvier, 2012), recognizes that people are active agents in the functioning of these systems, and thus conservation professionals need to build an understanding of both the organizational and ecological systems in which they carry out their work (Black & Groombridge, 2010; Black et al., 2013). Successfully integrating conservation science with processes that effectively mobilize people to achieve a conservation goal is largely a social challenge, involving human attitudes, values, beliefs and behaviours, and requires leaders that understand and embrace this reality (Manolis et al., 2009).

The study of leadership is rooted in management, education and organizational studies spanning more than 6 decades of scholarly work (Bruyere, 2015; Evans et al., 2015). However, although the field of conservation is a well-established discipline, the integration of leadership with conservation in academic research is relatively sparse. In addition, the term conservation leadership lacks a shared understanding, and broader leadership theories from non-conservation disciplines have been underused in their application to conservation and environmental sciences (Dietz et al., 2004; Manolis et al., 2009; Bruyere, 2015; Case et al., 2015; Englefield et al., 2019). Yet, leadership has been considered one of ‘the most important attributes in the tool kit of a conservation biologist’ (Dietz et al., 2004, p. 274).

In addition, there are numerous programmes in post-secondary and non-governmental institutions specifically named ‘conservation leadership’, and more published research about the topic, especially since 2015 (Bruyere, 2015; Black, 2019). Black (2019) searched multiple research databases using leadership and psychology keywords (the inclusion of ‘psychology’ is a key distinction from other conservation leadership literature) and applied a four-part leadership framework (Black et al., 2011) to analyse the results. The framework included broad categories of vision, hands-on management, big picture and details, and learning and improvement; this framework was supported in a subsequent literature search using the same terms ‘leadership and psychology’. Black et al. (2013) followed up the framework by advocating for systems-thinking in effective conservation practice.

Although competent leaders have risen among the ranks of conservation professionals, there is a deficiency of

understanding about what makes them effective (Manolis et al., 2009). Furthermore, although conservation leadership is an important topic of study, the scholarship on this subject generally still lacks a clear and concise definition of the term, with some exceptions (Manolis et al., 2009). Our definition of conservation leadership for the purpose of this review is ‘positively influencing others to engage in behaviours that contribute to a shared goal to protect and conserve social-ecological systems for the long-term health of the planet’. This definition borrows from others’ work that emphasizes leadership as influencing others and pursuing a defined goal or vision (Metcalf & Benn, 2013; Bruyere, 2015).

To examine how an individual can be effective as a conservation leader, the guiding question for this systematic review was: What are the practices that positively influence other people and lead to positive conservation outcomes?

Methods

Literature search and inclusion criteria

For our systematic review, we chose Web of Science (Clarivate Analytics, Philadelphia, USA) as the database for our literature search because of its comprehensiveness within the field of conservation. We used the search terms ‘conservation leader*’ OR ‘natural resource leader*’ (performed on 5 July 2018 and again on 13 April 2020 following revision). We intentionally limited the search terms to specifically ascertain how leadership is conceptualized in contemporary conservation and natural resource programmes. The search was restricted to peer-reviewed

proceedings and articles published during 2000–2020. This time range was chosen to capture the more recent research about leadership, which we presume would reflect leadership for more current conservation issues such as climate change and biodiversity loss.

Two authors reviewed the titles and abstracts of all articles in the initial search to determine further inclusion in the systematic review using exclusion criteria described below. When uncertain, an article was retained. The full text of all retained articles was reviewed by the same two researchers, for a second determination of further inclusion in the review. We excluded articles that did not appear to include a conservation context. We also excluded articles that only mentioned or discussed leadership superficially or failed to provide any depth of discussion or behavioural explanation of leadership or generally about the means for positively influencing others. Finally, if an article focused on outcomes that were only indirectly related to conservation, we did not include it. For example, an article about leadership to increase landowner participation in collaborative meetings would not be included as meeting participation is not a conservation outcome, but an article about increasing landowner participation in restoration projects would be (Fig. 1).

Data coding and analysis

Employing an inductive approach during the full-text review, the articles retained were independently examined by two of us, and each independently noted leadership practices discussed in the papers. This led to two initial lists of leadership practices. These were compared (agreement

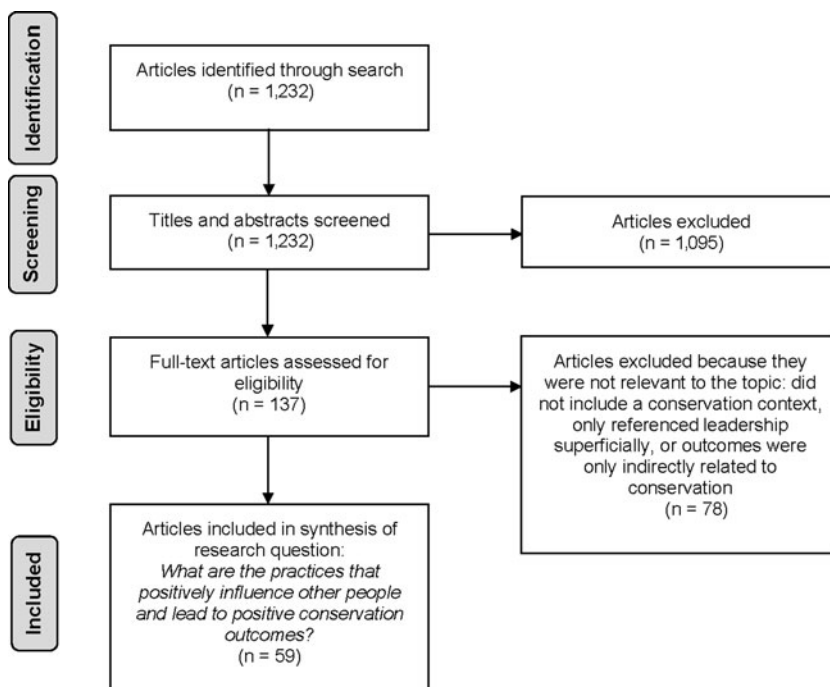


FIG. 1 A flow diagram of the Web of Science literature search. The number of studies that were located, retained and excluded are shown at each stage.

between the two was 90%) and a final list of 15 leadership practices was then compiled.

These practices were then grouped based on similarities, often involving re-examination of the leadership concepts presented in the articles. This process led to five categories, or domains, to which each of the 15 practices were assigned. This inductive approach allowed the research findings to emerge from the frequent, dominant or significant themes inherent in the collection of articles, without influence by pre-determined models, preconceptions or assumptions, which we felt was the best approach given the lack of substantial relevant literature (Thomas, 2006). A third author conducted an additional deductive analysis of the articles, using the list of 15 practices to code them. This provided an additional measure of reliability.

Quantitative analysis included numeric summaries of how frequently the 15 practices were present, to determine how often each specific leadership practice was discussed in the set of retained articles. In addition, the articles were tallied by year of publication to examine the distribution and any temporal trend.

Results

The initial Web of Science search yielded 1,232 articles. Of these, 1,095 were excluded after the initial review of titles and abstracts. The most common rationale for exclusion was the mention of leadership only in passing or in a context inconsistent with the notion of leadership as a strategy for influencing people (e.g. leaders as good technicians or statisticians). The full-text review of the remaining 137 articles resulted in a final set of 59 articles for use in the systematic review (Fig. 1, Supplementary Table 1). These articles usually described original research (two articles were systematic reviews) and were published in a range of journals, including some with the highest impact factors in this field. Articles included both quantitative and qualitative studies and represented many of the major areas of conservation (e.g. fisheries, forestry, marine protected areas, wildlife). The search comprised articles published over 21 years, from 2000 to mid April 2020. Of the 59 articles, 55 (93%) were published during 2008–2019 and only four (7%) during 2000–2007 (Fig. 2). The period 2014–2019 accounted for 60% of articles (35).

Each of the five leadership domains comprised 2–4 of the 15 leadership practices that involve influencing others to achieve positive conservation outcomes (Supplementary Table 1). The five domains were stakeholder engagement (47 of 59 articles, 80%), trust (43, 73%), vision (32, 54%), individual champion (30, 51%), and excellence in internal attributes (28, 47%) (Supplementary Table 1).

Stakeholder engagement Nearly 80% of the articles emphasized the importance of working effectively with others

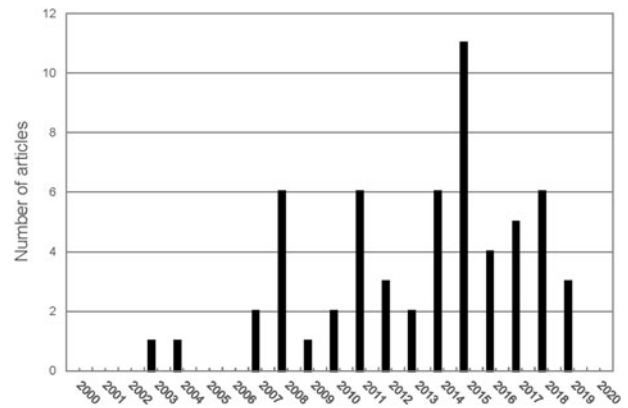


FIG. 2 Number of articles (of a total of 59 reviewed; Fig. 1) on leadership in conservation and natural resources published from 2000 to mid April 2020.

to achieve goals. The four specific leadership practices that emerged from our review for the stakeholder engagement domain were extending access to stakeholders to influence decision-making, sufficient communication with stakeholders, addressing conflict effectively and establishing clear roles for partners. The stakeholder engagement domain represents the skills for working with diverse stakeholder groups and the importance of sharing decision-making with constituents who have something to gain or lose by conservation action. It also encompasses skills related to conflict management and partnership-building; the former is often inevitable given the contention, history, diverse values and other common aspects of conservation issues, and the latter is often a prerequisite for successful action, as conservation issues typically span borders of different land owners and/or land users.

Trust Almost three-quarters of the 59 articles described activities around building trust among stakeholders and communities as critical for successful conservation programmes. Leadership practices included investing time to become familiar with local context and culture; taking time to build relationships and understand stakeholders' needs, values and concerns; and facilitating a two-way exchange of knowledge with the local community. The trust domain also encompasses interpersonal and cross-cultural skills needed to bridge spheres of knowledge and understanding, which ultimately helps to foster relationships with reciprocity and mutuality.

Vision Vision is well-established in leadership literature from the business and education sectors, understood as an explicitly defined and often aspirational goal for what a team is working towards (Kouzes & Posner, 2012). In 54% of the articles, vision was noted as important for building and achieving effective conservation effort, which aligns with

aspects of leadership in other disciplines. The vision domain included two practices: defining a vision about what is to be achieved, and integrating the input of external groups/stakeholders to build the vision. This domain embodies the need to collaboratively develop and articulate a vision that fosters innovation, as well as commitment and ownership among stakeholders, and helps define the scope of the work to be accomplished and a path for achieving the goals.

Individual champion The significance of a strong and steadfast leader to champion the conservation cause was cited in just over 50% of the articles. An individual who embodies persistence and passion, and inspires and influences those around them to act, can be important to achieve successful conservation outcomes. The individual champion domain included the practices of persisting through challenging periods, demonstrating unwavering passion for the conservation cause, and inspiring others to act. Someone who is able to engage and inspire partners and stakeholders, catalyse support, build and maintain trusting relationships, and persist through the fluctuations of conservation action, typifies the notion of the individual champion.

Excellence in internal attributes This domain was represented in 48% of the articles, and focuses on the attributes of how a conservation organization or collaborative group functions internally. Conservation organizations and leaders must be adaptable to the fluctuating forces that shape their work. In this domain the practices included exhibiting clear and effective communication with staff or team members, demonstrating the ability to understand and/or address the conservation issue at different scales, and adapting to changing circumstances.

Discussion

Conservation leadership is an emerging area of interest to scholars. Although our review covered articles published during 2000–2020, more than half of the articles were published from 2014 onwards, indicating the recent interest in this subject. This trend is consistent with the rise in training initiatives from universities and NGOs with ‘conservation leadership’ in the title, such as the Conservation Leadership master’s programme at the University of Cambridge (UK), the Conservation Leadership Programme offered jointly by BirdLife International, the Wildlife Conservation Society and Fauna & Flora International, the Conservation Leadership through Learning master’s programme at Colorado State University (USA), and the MBA for Conservation Leaders at the African Leadership University (Rwanda). These and other recent programmes focus on the skills needed to influence others to work collectively towards

conservation goals. The increase in scholarship on this subject and the simultaneous rise in training programmes indicates that conservation leadership is receiving unprecedented attention.

One of our goals was to examine what conservation leadership means. Several articles in our review noted the lack of consensus around a clear definition of conservation leadership (Dietz et al., 2004; Manolis et al., 2009; Black et al., 2011; Bruyere, 2015; Case et al., 2015), and Bruyere (2015) called on conservation academics and practitioners to work towards a shared understanding of conservation leadership as a term with a specific definition and suite of practices. In a separate anecdotal review of programmes, we found leadership programmes that were mostly focused on technical skills (e.g. mapping, field-based data collection skills), and others that were focused on skills we associate more with leadership, such as motivating others, establishing vision, and working collaboratively. The latter programmes are more consistent with how leadership has been historically conceptualized in other sectors (Grint, 2011).

Our review brings us closer to a clarified understanding of conservation leadership. The framework of our five leadership domains (stakeholder engagement, trust, vision, individual champion and excellence in internal attributes) helps conceptualize what conservation leadership means and is consistent with aspects of leadership theories more broadly. For example, most of the domains and practices in our results are accounted for in Mango’s (2018) synthesis of non-conservation leadership theories, such as trust (in Mango’s character domain); adaptability, vision and passion (characteristics domain); conflict, communication, inspiration/motivation (people practices domain); and knowing local context, stakeholder engagement (context domain). Overall, what it means to be a conservation leader overlaps with how many scholars in fields with a longer history of studying leadership have described it (Grint, 2011; Kouzes & Posner, 2012).

Stakeholder engagement Some of our results were not surprising. Many of them are consistent with prior research that points to the importance of approaches such as collaborative conservation, local involvement, stakeholder participation, and similar concepts for conservation success (Brooks, 2017; Sterling et al., 2017). Consequently, the inclusion of stakeholder engagement in 80% of the articles we reviewed is consistent with more widely studied and accepted best practices of contemporary conservation, practices that fit under the term conservation leadership. Few conservation problems can be addressed within a single organization or group (Dietz et al., 2004; Manolis et al., 2009), which further highlights the importance of stakeholder input for designing solutions, and partnerships for helping solutions come to fruition. Leadership with a focus on stakeholder engagement values diverse interests and perspectives in

conservation decision-making, characterized by the practice of bridging differences and bringing diverse parties together to jointly solve problems and make shared decisions (Ardoin et al., 2015). For example, in an examination of three community-based natural resource management projects in southern Africa, Dyer et al. (2014) found direct links between engagement with community members and conservation outcomes. Best practices in the study's community-based natural resource management encompassed regular communication, mutual respect, and clarity of roles and responsibilities. Their findings also suggested that community understanding and ownership of the project goals and empowerment in the implementation of the project can lead to successful project outcomes. Similarly, a quantitative analysis of 48 mammalian recovery programmes concluded that community support and stakeholder agreement were key factors in successful species recovery outcomes (Crees et al., 2016), with effective stakeholder coordination and informal collaboration connected to the capacity and ability of partners to influence decision making.

Trust Our trust domain aligns with our findings on stakeholder engagement: building trust is a logical prerequisite to collaborating effectively with stakeholder groups. Trust is particularly important given that conservation action often involves behaviour change, and prior to advocating for behaviour change, conservationists need to establish credibility and trust. To do this, our results indicated that knowing the local culture, building relationships, and exchanging knowledge are critical investments. Investigating effective leadership competencies and qualities through the perspective of followers within conservation initiatives, Englefield et al. (2019) discovered that the ability to build trust between individuals was the most important competency and played a foundational role in other critical competencies such as collaboration among stakeholders. Similarly, in an analysis of social science research on large carnivore governance and management in Sweden, a fundamental requirement for building relationships among stakeholders and decision-makers was the establishment of trust, particularly when the issue at hand can appear to have significant competing values and interests (Sjolander-Lindqvist et al., 2015). In evaluating community support for locally managed coral reef restoration projects in Bali, local leaders who integrated scientific knowledge with local spiritual beliefs were able to garner trust, positive perceptions and robust participation of the community (Trialfhianty & Suadi, 2017). An examination of 18 case studies of small-scale fisheries concluded that when facilitation is conducted by an individual or an organization from outside the local community (e.g. a research institution or governmental entity), an exchange and integration of science with local ecological knowledge was crucial for building trust

and promoting mutual respect between the local community and scientists (Sutton & Rudd, 2016). A review of 15 studies from various areas concluded that although concepts such as trust may be universally important, strategies for building trust can vary widely; an effective strategy in one region could be detrimental in another (Straka et al., 2018).

Vision In a qualitative study to examine what motivates people to understand and adopt sustainable, pro-environmental behaviours, transformational and collaborative leaders inspired new ways of conceptualizing a problem and invoked a commitment to work collectively towards a common vision and shared goals (Ardoin et al., 2015). In a case study examining wetland ecology and a citizen science programme in Maine (USA), a visionary leader who helped stakeholders define clear goals also provided sustained motivation and continuity between programme phases (McGreavy et al., 2016). In an exploratory analysis of the elements behind the effectiveness of a long-term community-based conservation and development project in South Africa, the vision of a strong tribal leader was a major factor contributing to success (Davenport & Hassan, 2019).

Individual champion Our individual champion domain resonates with older models of leadership as a behaviour of a singular individual, often a person at or towards the top of an organizational hierarchy, or an individual with charisma (Sankar, 2003). This is counter to more contemporary views of leadership (Mango, 2018), in which individuals can lead from anywhere within a group, and leadership can be practiced quietly (e.g. by example). Nevertheless, we recognize that leading a group sometimes requires inspirational words delivered with enthusiasm and emotion by a positional leader. There can be a role for charisma in conservation, to mobilize support and action. However, as contemporary leadership models posit, such characteristics are not required to be effective leaders (Kouzes & Posner, 2012; Mango, 2018). Comparing two case studies of programmes that attempted to protect rapidly declining iconic species in Australia, a key difference between successful and unsuccessful species recovery initiatives was the presence of a leader who had intimate ecological knowledge of the species, guided the management and implementation processes, and advocated for the urgent need to act (Martin et al., 2012). Likewise, in an examination of 130 co-managed fisheries in a variety of countries, the presence of a respected and entrepreneurial local community leader who was highly motivated and committed to the co-management implementation process was essential for success (Gutiérrez et al., 2011). Diverging from the finding that an individual champion typically arises from the local community, Sutton

& Rudd (2014) noted that in community-based fisheries management it is more important that a project champion exists.

Excellence in internal attributes In their study of wetland restoration in Sweden, Blicharska & Rönnbäck (2018) identified several essential internal attributes of project leaders that contributed to successful implementation of conservation projects. These encompassed several strategies represented in our domains, including the need for an adaptive management approach, a collaborative mindset and exchange of knowledge. Highlighting the need to be accommodating to changing circumstances, through interviews with conservation practitioners around the world, Bruyere (2015) concluded that adaptive management requires leaders to be adjustable and willing to change course when external forces or organizational priorities shift, and to operate in a context of uncertainty. On an organizational level, Bartlett (2018) identified effective communication and dissemination of knowledge, programme implementation flexibility, monitoring and review, and a willingness to innovate as frequently cited factors for success in collaborative forestry research projects in Papua New Guinea.

Conclusion

Overall, our review is consistent with what Englefield et al. (2019) labelled ‘interpersonal competencies.’ Our findings have some consistencies with Black’s (2019) review: there are parallels about vision, partnerships, clearly defined roles and effective internal communication. Comparing our findings with those of Englefield et al. (2019) and Black (2019), there is a shared understanding of conservation leadership as comprising skills to motivate effectively and positively, and interact with and inspire others toward a shared conservation outcome.

In addition, similar to the conclusions of Straka et al. (2018), we note that conservation leadership needs to be researched and applied with attention to culture and context. The importance of our individual domains will vary depending on context: some domains will be more important than others, and other strategies may be successful that we did not capture in our review, depending on the specific nuances of a situation. This need to take a case-specific approach, as illustrated by interviews with female conservation leaders, which included findings that were not captured in our review, related to inequalities and the importance of supportive networks of peers (Jones & Solomon, 2019).

Leadership is lauded as a critical tool for conservation scientists and practitioners, although this is still an emerging area of research. The findings of our review indicate there is some agreement regarding the strategies and behaviours associated with effective leadership and positive conservation outcomes. A continued reflective and empirical focus on

leadership is essential for further developing the impact leadership can have in helping to advance the goals of conservation science. Clearly defining the term, and further linking the practices that individuals must employ to have a positive influence on others to achieve conservation outcomes, are among the most pressing topics for research on conservation leadership. The framework we have presented here could be applied to future research on this relationship and lead to the development of context-relevant models for conservation leadership practice.

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Conflicts of interest None.

Ethical standards This research abided by the *Oryx* guidelines on ethical standards.

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