



Policy analysis

An organizational framework for effective conservation organizations

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ABSTRACT

There is a scarcity of studies on how to design conservation organizations to improve biodiversity outcomes. We use information from four conservation organizations (African Parks, Australian Wildlife Conservancy, Mauritian Wildlife Foundation, and Rewilding Argentina) to update and describe an organizational framework for effective conservation organizations. This framework includes (1) clear and shared proactive vision inspired by innovative on-site senior leadership; (2) high contextuality based on shared leadership, on-the-ground administrative autonomy, and practice-based learning; (3) outstanding and well-communicated conservation outcomes; (4) linkages across-scales to access varied types of resources (i.e. political, social and economic); and (5) long-term financial viability. All these attributes form a dynamic and self-reinforcing “virtuous cycle,” with each attribute being both cause and effect at different moments in time, though the whole process is jump-started by on-site senior leaders. We believe that our framework can help to identify key questions that will facilitate the design and assessment of private and public conservation organizations towards improved effectiveness.

1. Introduction

Starting in the second half of the 20th century, there has been increasing concern about the global loss of biodiversity, or what many call, the “sixth extinction” (Wilson, 2016). Today, biodiversity conservation is a multi-billion endeavor involving thousands of public, communal and private organizations in all countries. As result of this, there is a rich literature on the values, strategies, and methods to promote effective biodiversity conservation. However, most of this literature has focused on prioritizing one of two opposed alternatives (e.g. ecocentric vs. anthropocentric, national parks vs. multiple-use areas, wilderness vs. human landscapes, strict conservation vs. sustainable use, or intrinsic value vs. value of use, etc.) (Callicott et al., 1998; Oates, 1999; Terborgh, 1999, 2000; Schwartzman et al., 2000; Wuerthner et al., 2014) or advocating and detailing specific components of conservation programs (e.g. planning, education, activism, research, conflict management, legal issues, etc.) (Caughley and Gunn, 1996; Margoluis and Salafsky, 1998; Jurin et al., 2010; Johns, 2011; Rose, 2012; Redpath et al., 2015; Tandon et al., 2017). Some conservation literature has focused on what Child (2012) describes as institutional ecology: “learning how to design human institutions and organizations to improve economic and biodiversity outcomes”. While institutional analysis of human organization had been an area of concern in political

science for decades, political science and conservation biology ignored each other until recently (Agrawal and Ostrom, 2006). Hardin's (1968) Tragedy of the Commons narrative motivated a sustained response by scholars studying institutions from a diversity of disciplines (e.g., Ostrom, 1990; McCay and Acheson, 1987; Berkes, 1989), opening the door to social science concepts, tools, and methods that are increasingly applied in conservation and resource management (e.g. Ostrom, 2009; Hicks et al., 2016; Breslow et al., 2016; Charnley et al., 2017).

This work and the previous study on which this one is based (Basurto and Jiménez-Pérez, 2013), also constitute an example of the expansion of this literature and directly responds to Child's (2012) call by incorporating institutional analysis tools and adapting them to develop an empirically informed organizational framework for effective conservation. This framework originally aimed to explain the relative success of the Área Conservación Guanacaste (ACG) compared to other conservation areas (i.e. regional systems of protected areas) in Costa Rica (Basurto and Jiménez-Pérez, 2013). The framework was described as a “virtuous cycle” where all components interact in a synergistic, self-reinforcing, and on-going manner. More than ten years have passed since that analysis. The conservation landscape has changed significantly and a number of conservation initiatives have matured. In this article we update this organizational framework and explore its potential validity for a broader set of conservation organizations working in

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very different continents and contexts that have produced outstanding conservation outcomes.

2. Methods

2.1. Analytical framework: the virtuous cycle of conservation organizations

Our updated framework for effective conservation organizations is composed of five attributes: (1) clear and shared proactive vision inspired by innovative on-site senior leadership; (2) high contextuality based on shared leadership, on-the-ground administrative autonomy and practice-based learning; (3) outstanding and well-communicated conservation outcomes; (4) linkages across-scales to access varied types of resources (i.e. political, social and economic); and (5) long-term financial viability (Fig. 1). All these attributes form a dynamic and self-reinforcing “virtuous cycle,” with each attribute being both a cause and effect at different moments in time, though the whole process is jump-started by on-site senior leaders (Basurto and Jiménez-Pérez, 2013; Jiménez, 2022).

2.2. Organizational examples and data collection

In order to explore the external validity and potential application of our virtuous cycle for conservation organizations we chose four conservation organizations: African Parks, Australian Wildlife Conservancy, Rewilding Argentina and Mauritian Wildlife Foundation. These four organizations were chosen based on their outstanding record of results regarding biodiversity conservation and restoration on the ground during the last decades, and the fact that they work at different scales (from a small nation as Mauritius to continental scale in Africa) in very different geographic, ecological, and social contexts. This allowed us to expand our previous framework from one governmental organization in one country (i.e. ACG in Costa Rica) to four NGOs in three continents.

Organizational information was obtained through years of involvement in conservation organizations, a review of ongoing literature on conservation organizations, and interactions with some of their leaders during the last 10 years. Also, the first author worked for one of these organizations (i.e. Rewilding Argentina) for 13 years until 2018. All this was complemented by recent in-depth interviews (each >120 min) with CEOs and/or conservation directors of the four organizations, e-mails

with members of the organizations, and extensive review of institutional information from their official websites, newsletters and annual reports. All organizations provided unpublished data in response to our queries for evidence to back up their claims.

3. Results

3.1. Origins, senior leadership and vision

Effective conservation initiatives start with an inspiring and innovative vision established and communicated by leaders with direct contact with the reality they want to change. This component jump-starts the process of building conservation organizations that carry out the initiatives. In each of our cases a small group of people with complementary skills and good onsite knowledge have played strong senior local leadership roles that have inspired the rest of the staff with an innovative and clearly-defined vision focused on a common-good: biodiversity conservation.

African Parks (AP) was founded in 2000 “in response to the dramatic decline of (African) protected areas due to poor management and lack of funding” (www.africanparks.org). The organization was founded by five individuals who came from very different areas and backgrounds but all shared a passion for nature conservation in Africa. Peter Fearnhead was a Zimbabwe born and raised resource economist with a personal interest in conservation management schemes and practical experience both in businesses and PA management in South Africa. Dr. Anthony Hall-Martin was a highly-respected ecologist with 50 years of experience in several African countries. Mavuso Msimang was a senior political figure with international academic training and diplomatic contacts, who filled executive political positions in the post-apartheid South African government, including CEO of South African National Parks. Michael Eustace was a South African commercial banker with strong connections with Zimbabwe, and Paul Fentener van Vlissingen was a Dutch businessman and philanthropist who funded much of AP's first initiatives. Fearnhead was the group's junior by two or three decades and serves as AP's CEO since 2007.

Their vision was to improve the management of African protected areas (PAs) by using a business approach that would increase accountability and improve on-the-ground management without compromising sovereign governmental authority. The African Parks model was inspired by a wealth of innovations on PA management taking place in Southern Africa in the late 1990s, with a special role played by the public-private partnership initiative aimed to restore Marakele National Park in South Africa (Suich et al., 2012; AP, 2004). The “Marakele experiment” anticipated many of AP's current main management strategies: a) a business-approach to park management and restoration, b) wholesale restoration of vanished or depleted wildlife, c) establishment of competitive ecotourism infrastructure, and d) significant investment in providing local jobs and basic services to neighboring communities. To achieve its vision, AP establishes long-term agreements (20 to 30 years) with African governments to take over complete management of public parks in agreement with existing national laws and policies.

AP was formally registered in 2000 as a commercial company, and they started their first two projects in Zambia and Malawi under that structure. In 2005 it was turned into an NGO once it became obvious that it would facilitate working with governments and donors. AP's main offices are in Johannesburg where Fearnhead spends around a third of his time working in organizational governance and general management, another third is spent on the parks including park visits, government meetings, daily park operational issues, and a last third in fundraising (Fearnhead, pers. comm.).

Australian Wildlife Conservancy (AWC) had its origins in 1991 when British insurance businessman Martin Copley acquired 180 ha of remnant bushland outside of Perth to establish Karakamia Wildlife Sanctuary. Martin was inspired by a visit to Warrawong Sanctuary, a 40 ha fenced area established by Dr. John Wamsley in the Adelaide Hills,

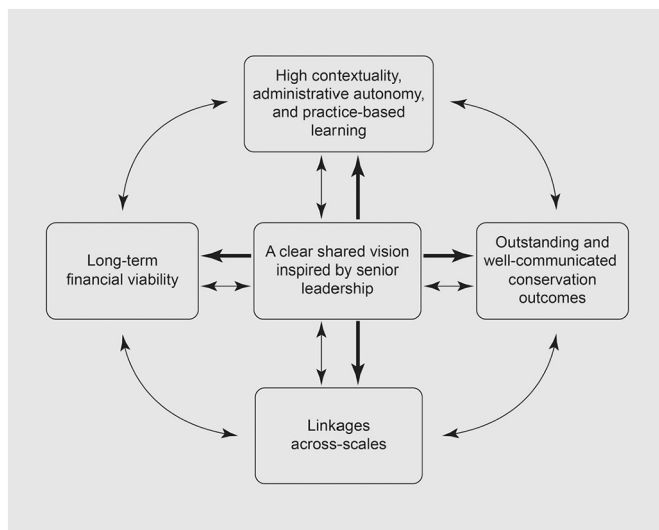


Fig. 1. The “virtuous cycle” of effective conservation organizations. Wider arrows indicate that senior leadership jump-starts the formation of the other attributes. Once these attributes are in place they all interact with all others in a synergistic, self-reinforcing, and on-going manner.

which protected several native mammals from predation by foxes and cats. At that time most Australian ecologists didn't acknowledge the key role played by cats and foxes in the catastrophic decline of small to medium-size Australian mammals. Copley and colleagues' strategy was to address this problem by establishing fenced sanctuaries that excluded exotic predators and where native mammals were recovered/reintroduced.

Martin received scientific and technical advice from John Wamsley and Barry Wilson—former head of Nature Conservation at the Department of Conservation and Land Management—and later from paleontologist Tim Flannery, Director of the South Australian Museum. He also received significant input from Ross Ledger, his accountant, and his wife Lorraine, a tourism manager in Australia with experience on PR and marketing. By the late 90's, Martin had withdrawn from his business in the United Kingdom and settled permanently in Perth. Inspired by the results obtained at Karakamia and using Martin's wealth, AWC acquired and managed new properties, and within a few years their portfolio of high conservation value properties included five sanctuaries covering over 450,000 ha.

In 2001 the organization officially became Australian Wildlife Conservancy, which was registered as a non-profit organization under Australian Federal legislation. Atticus Fleming was hired as first Executive Officer. Atticus had been advisor for the minister of environment Robert Hill in developing and implementing Australia's first national biodiversity legislation. The AWC team reported to a Board of Directors chaired by Martin Copley and composed of a mix of scientists and business leaders. By that time “the blueprint was set: acquire land of outstanding conservation value, implement practical and measurable strategies, grow a network and work with others, engage the best people, take the community along with you, let the results do the talking—and share the story” (Schmitz, 2021).

AWC's vision has been the same through the years: the conservation of Australian wildlife and their habitats. To achieve this vision they: a) establish and manage a network of sanctuaries which protect threatened wildlife and ecosystems; b) implement practical, on-ground conservation programs to protect wildlife that include feral animal control, fire management, weed eradication and the translocation of threatened species; c) conduct (either alone or in collaboration with other organizations) scientific research aimed to address the key threats to Australian native wildlife; and d) host visitor programs at their sanctuaries for the purposes of education and promoting awareness about the plight of Australia's wildlife (AWC, 2021). Martin Copley died in 2014 and Tim Allard became AWC's CEO in 2018. Tim has a military background and business managerial expertise from the corporate world but also had a personal affinity with nature conservation inherited from his father who was a national park ranger. AWC's central offices are in Perth and Allard aims to visit 50% of the sanctuaries in a given year in order to support field staff and promote local-based leadership (Tim Allard, pers. comm.).

Rewilding Argentina (RA) was originally founded as Conservation Land Trust Argentina. After founding and selling global companies like The North Face and Esprit in the 1990s, American Douglas Tompkins decided to invest his assets and managerial expertise into biodiversity conservation. His move from business to nature philanthropy came as result of a deep personal connection with wild places honed by decades of mountaineering, skiing and kayaking, combined with a good knowledge of the literature on conservation biology, environmental activism and deep ecology philosophy (Butler, 2016; Franklin, 2021). In 1992 Tompkins created and endowed The Conservation Land Trust (CLT) a private operating foundation incorporated in California, to establish nature reserves and support conservation projects in southern South America. He was supported and received advice from his wife, Kristine McDivitt Tompkins, former CEO of Patagonia Inc. Douglas had been visiting South America since the 1960s and had a good knowledge of Chilean and Argentinean society by the time he moved to those countries. Tompkins' original vision was to purchase and restore large pieces of wilderness in the Southern Cone in order to donate them to the

governments as national parks.

In 1998 Tompkins founded Conservation Land Trust Argentina (CLTA), a subsidiary of CLT, to administer land and wildlife recovery projects in the Iberá region of Corrientes Province (Argentina). The Iberá Project aimed to establish a 600,000 ha national park and to reintroduce several species of locally-extinct mammals following the concept of rewilding proposed by American conservationists in the 80s (Soulé and Noss, 1998; Butler, 2016). In 2005 Argentinean Sofia Heinonen, an experienced national park manager and conservation activist, was hired as CLTA's first CEO. Between 2005 and 2015 CLTA was mainly lead by the Tompkins and Heinonen through mostly shared decisions. Based on their reserves in Iberá they built a vast rewilding program, reintroduced several wildlife species, restored damaged lands, established top-notch public campgrounds, halted illegal infrastructures, and negotiated the donation of their lands to establish a national park. In 2015, Douglas Tompkins died in a kayak accident in Chile but that didn't slow Heinonen's and McDivitt Tompkins' work in Argentina, which expanded to other ecoregions. In 2020 Rewilding Argentina was created as a fully independent Argentinean NGO under Heinonen's leadership inheriting all assets from CLTA and keeping close strategic connections with US-based foundation Tompkins Conservation lead by McDivitt Tompkins (Heinonen, pers. comm.). Besides the CEO, RA's conservation director and financial director play key senior leadership roles. The first two lack a fixed office and spend most of their time moving between parks or attending meetings with authorities. This allows senior leaders to have direct information about what's happening on the ground and each team's performance and challenges (Jiménez, direct observations). The existence of shared leadership supported by a shared vision was attested by AWC's and RA's ability to expand their activities and outputs after losing their original founders and visionary leaders: Martin Copley and Douglas Tompkins.

In the second half of the 20th Century several international organizations identified the Mascarene Islands and the country of Mauritius as a priority for biodiversity conservation based on its high rate of endemism and endangered species. This interest was sparked after the government of Mauritius invited Sir Peter Scott, a founder of WWF, to visit the country in the early 70s. Soon, organizations like the Peregrine Fund, The International Council for Bird Preservation (ICBP), Jersey Zoo, Kew Gardens, Flora & Fauna International, and WWF became interested in working in the archipelago. By the early 80s some of these organizations promoted the establishment of a local conservation NGO. Thus, in 1984 Mauritian Wildlife Foundation (MWF) was registered as a Mauritian charity. From the beginning MWF counted on support from high-profile international conservation figures such as Gerald Durrell and Peter Scott, and included scientific expertise from other expats working on the ground like Carl Jones, who focused initially on the recovery of endangered birds, and Wendy Strahm, focused on native plants. In order to build strong local support they convinced Colin Hare, the chairman of the largest business conglomerate in the country and an astute businessman with little knowledge of wildlife, to act as chairman of the board, role that he fulfilled from 1984 to 2003 (Vikash Tatayah, pers. comm.). MWF's mission statements have changed a little through the years but the general vision has remained the same: saving local endangered species from extinction (Carl Jones, pers. comm.). MWF's senior leadership is a triumvirate composed of UK-based Carl Jones acting as Scientific Director, Deborah de Chazal, a Mauritian resident, acting as Executive Director, and Mauritian Vikash Tatayah as Conservation Director. Thanks to the small size of the country, the last two are in close and regular contact with field teams while, pre-COVID, Jones visited Mauritius two or three times per year and is regularly in contact with the other two (Vikash Tatayah and Carl Jones, pers. comm.).

In sum, in all four cases, organizational visions are: a) firmly rooted in the belief of the intrinsic value of wild nature and biodiversity, b) clear and easy to understand, c) ambitious and inspiring, d) oriented to obtaining concrete results on the ground regarding biodiversity, and e) aim towards ecological restoration instead of just preservation. Senior

leaders and their organizations went far beyond the standard conservation practices of their contexts and rallied key stakeholders to invest on those visions. In the case of AP, their founding leaders challenged the generally accepted belief that national parks must only be managed by national governmental agencies. AWC also challenged common conservation practices by identifying exotic predators as one of Australia's main ecological threats and proposing fenced areas as a viable solution. In the words of Graeme Morgan, AWC's current chairman: "It would be easy to underestimate the radical change in thinking that this new model implied, how counter to the general ethos of conservation it was at the time. But Martin found a language for it and, with it, a way to engage people with AWC's mission" (Morgan, 2021). CLTA (RA's original name) rocked Argentina's conservation world by introducing such unprecedented strategies as conservation philanthropy aimed at large-scale land purchases and donation for park creation, and multispecies reintroduction, including the country's largest predator (i.e. rewilding). Finally, Carl Jones and colleagues challenged standard preservationist practices in Mauritius by promoting the control of exotic species and the reestablishment of native ones. They also had to fight resistance from respected international conservationists regarding investing so much energy and resources in "doomed" species like the Mauritius kestrel (Cheke and Hume, 2010; Quammen, 2012). Senior leaders have been able to communicate their vision to the rest of the staff to establish strong *esprit-de-corp*s. This may be exemplified by the words of John Kanowski, AWC's Chief Science Officer: "We are quite a unified organization. We have a very simple mission, which is conservation. Everybody knows it, and we all work with each other to achieve it. No matter which part of the company we work in".

3.2. High contextuality based on shared leadership, on-the-ground administrative autonomy and practice-based learning

As a continental organization, AP has built several governance mechanisms to balance the search for a unified vision, strategy and brand with promoting adequate and timely responses to local opportunities and challenges. Each park managed by African Parks (or sometimes a group of related parks within one country) has its own legal entity with a local board set up in each country. These boards include representatives from partner institutions, key stakeholders and representatives from African Parks head office, and are directly accountable to government for the professional management of the park. Each park derives its activities from a management plan that is agreed between the relevant government and the organization. This mechanism ensures that sovereign laws and conservation policies as determined by the states are enshrined, while allowing management practices and activities to be determined by local level circumstances. Once a management plan and budget have been agreed, it's mostly up to each park manager and their team to decide their implementation in accordance with the Standard Operating Procedures determined by African Parks central offices (Fearnhead, pers. comm.).

In the case of AWC, the CEO, Chief Science and Chief Operations officers spend much time on the road, meeting with local teams and visiting the parks. This allows for "a lot of information flow between local teams and central offices" (John Kanowski, pers. comm.). At the park level leadership is shared between a park manager in charge of operations and a wildlife ecologist in charge of ecological monitoring and wildlife management. These two officers adapt AWC's standard activities (e.g. fire management, translocations, fencing, pest control, education, ecotourism, etc.) to local ecological, social and political needs and constraints.

During RA/CLTA's first ten years contextuality was guaranteed by the fact that the three senior leaders were living inside Iberia reserve, far away from central offices in California. Thus, strategic decisions were taking on the ground by people who were actually living in the future park. At that time annual operating plans and budgets were designed in a bottom-up process presented to the CEO by the program coordinators

and later discussed by her with the Tompkins for approval. Once these plans and budgets were approved program coordinators would have great autonomy of decision-making regarding their implementation (Jiménez, direct observation). This decision process empowered mid-level onsite-based coordinators, and promoted the wise use of local, timely, and practical knowledge. After Tompkins' passing, the organization grew in spatial scale with several projects in a large country and gained bigger financial and administrative autonomy from the US-based staff. Presently, contextuality is promoted by the fact that Heinonen has no fixed office in the country's capital (Buenos Aires) and spends most of the time exchanging ideas with local teams and stakeholders. Meanwhile, she discusses global strategies with McDivitt Tompkins as leader of a US-based partner organization, main national strategies with RA's conservation and financial directors (Heinonen, pers. comm.). In a similar fashion as AWC, on-the-ground autonomy is promoted by empowering park/community and conservation coordinators for each park who are in charge of designing and managing their annual goals and budget.

In the case of MWF, the need for local context was explicitly addressed by its international promoters by deciding to establish a Mauritian organization instead of a European-based one with a local office in Mauritius. Once the central offices, governing board and executive officers were based in Mauritius, strong local linkages (see below) were almost guaranteed by the small size of the country.

Practice-based learning is promoted in all four organizations through different strategies. In the case of AP, challenging and experimental activities like wildlife reintroductions are managed by outsourcing main activities with some of southern Africa's highly experienced game capture companies and pairing them with AP's local park management teams in joint operations that become powerful learning-by-doing exercises. During its first years, AWC gained practical experience in wildlife reintroductions by getting direct advice and inspiration from a similar experience at Warrawong Sanctuary. Today AWC's wildlife ecologists who conduct the reintroductions are the same people who undertake the research and monitoring, ensuring that their work is tightly focused on issues of applied conservation relevant at the local level. This promotes a continuous learning loop based on ecological surveys-management actions-monitoring-improvement of those actions.

When RA and MWF decided to start endangered species recovery or reintroduction programs in Argentina and Mauritius there were no similar experiences in these countries that would serve as models. In order to acquire this practical experience, leaders from both organizations invited highly-experienced practitioners from other countries as advisors and also visited successful ongoing projects in search for inspiration (Jiménez direct observation; Carl Jones, pers. comm.). Information from these foreign examples was turned into ecological restoration experiments led by local teams. As in the case of AWC, RA and MWF established standard protocols for monitoring their restoration projects which allowed them to improve their methods and even challenge initial assumptions on how their species or habitats would behave. This culture of "learning from the best" and "learning by doing", allowed RA and MWF to become regional leaders in ecological restoration and rewilding through the implementation of several successful and unprecedented projects. It also turned untrained local professionals into nationally and internationally recognized experts and motivated leaders.

3.3. Outstanding and well-communicated conservation outcomes

The four organizations have produced outstanding conservation outcomes within their national and continental contexts (Table 1). In just 20 years AP has become the private organization managing the largest area of nature reserves in the Southern Hemisphere: 19 national parks and protected areas in 11 countries covering over 14.7 million ha in nine of the 13 biomes on mainland Africa (AP, 2020). After a few years of management these parks and their surroundings show

Table 1

Conservation outcomes and organizational trends of four conservation organizations. Sources: annual reports, official websites and unpublished information provided by the organizations.

Organization	Conservation outcomes		Organizational trends		
	Area protected	Species	Annual income (US\$000)	Donors	Employees
African Parks	Direct management of 19 national parks and protected areas in 11 countries covering over 14.7 million ha	Translocation of over 6100 individuals of 24 mammal and bird species to 8 parks	62,194 in 2019; 664% increase since 2010.	103 donors donating more than \$10,000 in 2018; 472% increase since 2010.	2620 employees in 2019; 247% increase since 2010 (mostly locals).
Australian Wildlife Conservancy	Direct or shared management of 31 sites covering over 6.5 million ha	Reestablished populations of 19 mammals in 10 sites; 2 species are classified as Critically Endangered and 1 as Endangered.	15,872 in 2019; 50% in AUD since 2010.	31,398 donations in 2019; 70% increase since 2010.	229 employees in 2019; 236% increase since 2010 (almost exclusively nationals).
Rewilding Argentina	Creation or expansion of 6 terrestrial national parks covering over 491,590 ha and Argentina's first marine national parks covering over 10.1 million ha. Direct management over 102,700 ha outside of national parks.	Translocation of 365 individuals of 4 mammal and 1 bird species to 2 parks and neighboring reserves.	19,700 in 2019; 198% increase since 2014.	31 donors in 2019; 138% increase since 2014.	116 employees in 2019; 32% increase since 2014 (mostly locals and almost exclusively nationals).
Mauritian Wildlife Foundation	Restoration of 4 small islands and islets and direct management or co-management of 4 reserves covering 356 ha in Mauritius and Rodrigues.	Recovery of Critically Endangered species: seven bird species, Rodrigues fruit bat, several species of reptiles, and c. 100 species of endemic plants.	998 in 2019; stable with an average of 1 million USD/year.	139 donors in 2019; 20% increase since 2010.	137 employees in 2019; 9% increase since 2010 (<10% expats).

significant improvements regarding the recovery of depleted populations of wildlife, reintroduction of vanished species, dramatic declines in poaching incidents, increase in staffing, total infrastructure build-out and even provision of basic social services such education and health to adjacent communities (www.africanparks.org). As part of its rewilding efforts, AP has carried out the translocation of over 6100 individuals of 24 mammal and bird species to eight parks. Also, most parks managed by AP become the largest employer in their regions having a clear positive impact on local economies.

Covering over 6.5 million ha across 31 sites in six of seven Australian ecoregions (AGDSEWPC, 2012), AWC owns, manages or works in partnership on more land than any other non-government conservation organization in Australia. Through their work they have become continental leaders in species reintroductions, having reestablished populations of 19 mammals in 10 sites. Of these species, two – western ringtail possum (*Pseudocheirus occidentalis*) and brush-tailed bettong (*Bettongia penicillata*) – are globally classified as Critically Endangered and one as Endangered—Numbat (*Myrmecobius fasciatus*) (AWC, unpublished data; Burgin et al., 2020). AWC also plays a critical role in the recovery of the critically endangered Kangaroo Island dunnart (*Sminthopsis aitkeni*) (Kanowski, 2021). AWC has established many of the largest feral cat- and fox-free areas in Australia, including Faure Island (4600 ha) and eight fenced areas, ranging in size from 252 ha at Karkamia to 9570 ha at Mallee Cliffs National Park (Kanowski, 2021). AWC has also established several areas free of exotic ungulates covering 410,000 ha, controls populations of exotic animals and plants on all of its 31 sites, and implements an extensive fire management program covering over 7.8 million ha (AWC properties, partnership sites and regional fire projects).

RA (previously CLTA) is a continental leader in park creation, having donated lands to establish or expand six terrestrial national parks covering over 491,590 ha in Argentina, and negotiated the establishment of the country's first marine national parks covering over 10.1 million ha. They also manage 102,700 ha of private reserves adjacent to two national parks. RA's numbers regarding the establishment of terrestrial national parks are only surpassed in South America by its sister organization Tompkins Conservation in Chile. RA is also leading the largest rewilding program in the Neotropics involving the reintroduction of four mammal and one bird species to Iberá National Park, including the first reintroduction program for jaguars (*Panthera onca*) in the world. There are two other species in prerelease pens – including the globally endangered giant otter (*Pteronura brasiliensis*) – waiting to be

reintroduced.

MWF stands out as a global leader in critically endangered species recovery. Out of a global list of 27 bird species likely to have been saved from extinction in the last decades, MWF has been directly involved in the recovery of five of them (Butchart et al., 2006; Young et al., 2014). The Echo parakeet (*Alexandrinus eques*) was recovered from 5 pairs to nearly 800 individuals, Pink pigeon (*Nesoenas mayeri*) from 70 individuals to around 500 mature individuals, Mauritius kestrel (*Falco punctatus*) from four individuals in the wild to 300 individuals, Rodrigues warbler (*Acrocephalus rodericanus*) went from “considered extinct” in the 1960s and from 8 known pairs when rediscovered in the early 1970s to 20,000 individuals, and Rodrigues fody (*Foudia flavicans*) went from five to six pairs to 14,000 individuals (BirdLife International, 2016a, 2016b, 2016c, 2018a, 2019; unpublished data). MWF also played a key role in the recovery of the Rodrigues Flying Fox (*Pteropus rodricensis*), which went from a total population of 70 individuals to 20,000 individuals, the critically endangered Mauritius Olive White-eye (*Zosterops chloronothos*) and Mauritius fody (*Foudia rubra*), several species of reptiles and around 100 species of endemic plants (BirdLife International, 2016d, 2018b; Tatayah et al., 2017; Vikash Tatayah and Carl Jones, pers. comm.). They have also led the restoration of several highly degraded islets and nature reserves (e.g. Round Island, Ile aux Aigrettes), and pioneered projects to introduce land tortoises as ecological surrogates of extinct species (i.e. tortoise rewilding), managed PAs, and implemented ecological surveys, conservation education, and a pioneer ecotourism program.

The four organizations have been very proactive in communicating their vision, strategies and results. All four organizations manage professional and visually attractive websites that include news, newsletters and comprehensive annual reports. Their social media are also very active and use short videos as a frequent and powerful communication tool. Besides these virtual channels, the four organizations use their field sites (either owned or managed) to engage with local stakeholders, school-children, donors, authorities and media on a regular basis. Throughout the years the four organizations have been able to effectively communicate their story to an ample and diverse constituency that supports their work at the local, national and international levels. As result of the wide and proactive communication of outstanding conservation outcomes, all four organizations have established cross-scale linkages at multiples scales that bring many needed resources, including long-term funding.

3.4. Cross-scale linkages

Linkages with key local, national, and international actors and organizations like the surrounding rural communities, park and wildlife authorities, scientists, and international researchers, funding and development organizations, are essential to access different types of political, social and economic resources. These links become more important as the working scale and the need of foreign resources increases. This is exactly the case for AP, which needs to bring resources and support from international organizations, national authorities and local stakeholders. Financial support comes mainly from organizations based outside of Africa through AP's Network in Johannesburg, and affiliated organizations in The Netherlands, the USA, Germany, and Switzerland. National linkages are established through their continental prestige and the park governing boards that include park authorities, business people and other key figures working at that level. Finally, local support is built through significant investments in local employment, education, health, and timely relief measures. As an example, when Cyclone Idai affected Mozambique and Malawi in 2019, AP was able to raise US\$200,000, to launch an emergency operation from Bazaruto Archipelago National Park that deployed a helicopter and two boats, 37 doctors, 13 rangers, over 140 tons of food, and over 3700 kg of medical supplies and other essential items to more than 2900 families (AP, 2020). As a result of these local linkages and support from local communities, no park management agreements with national authorities have been revoked through their 20 years of existence (Fearnhead, pers. comm.)

As with AP, AWC and RA have established partnerships with charities in US and Europe to channel funding to their projects. AWC doesn't need so much support from abroad because they are based in a developed country and most of their financial, political and technical support comes from within Australia. Thanks to their outstanding results, this organization has been able to build a place of prestige with national environmental authorities, national funders, and the media. This is complemented by a culture of collaboration, based on "sharing knowledge, being transparent, and learning from other people" (John Kanowski, pers. comm.). From the beginning, RA had the rare advantage of being funded and managed by American philanthropists who actually lived on the reserves they were managing. The combination of two foreign funders with strong international contacts in the realms of conservation science, activism, and business, an Argentinean CEO with years of practice within the national parks services and national NGOs, and mid-level managers coming from the provinces and local communities, assured linkages at those three levels (i.e. international, national and local). MWF always had strong international links, best represented by Carl Jones' double role as an employee of the UK-based Durrell Wildlife Conservation Trust's Chief Scientist and as MWF's Scientific Director. In parallel, they gained national support through good connections with the environmental authorities and a governing board made up of influential Mauritians.

Senior leaders played and still play a critical role in establishing these linkages across scales and cultures. In all four cases founding members, senior leaders and governing boards include people with good knowledge and contacts in business, science and government. Key figures like the Tompkins, Copley, Jones, Durrell, Fearnhead, Hall-Martin, Msimang or van Vlissingen seem to fit the term "bilateral activists" (Steinberg, 2001), which refers to those individuals able to successfully navigate local and international arenas, bringing the best of both worlds to their projects. As proof of their national and international prestige, at the time of their death, both Douglas Tompkins and Martin Copley were honored by global, Australian, Chilean and Argentinean conservationists, scientists, and authorities (AWC, 2015; Franklin, 2021).

3.5. Long-term financial viability

RA had a financial endowment from the beginning, designed to

advance their long-term vision. African Parks acquired the same in 2010. Copley's personal wealth funded most of Australian Wildlife Conservancy's initial activities. MWF lacked this kind of long-term financial support. Endowments and personal investments from senior leaders allowed these organizations to build their projects with little dependence on the priorities of external partners and donors. As they grew in size, fundraising became more important to maintain their functioning, taking a bigger portion of the CEOs' time and promoting the establishment of sophisticated fundraising and marketing teams, and likely a larger bureaucratic apparatus. Both in the case of RA and AWC the fact that their senior leaders (the Tompkins and Copley) were investing their personal fortunes and most of their time and energy in advancing their organizations' goals became an excellent way to attract support and commitment from other philanthropists. In the case of AP, AWC and MWF, prestigious, well-connected and/or wealthy board members (e.g. Prince Harry, Duke of Sussex serving as president of AP's network) also play a key role in fundraising.

As a result of these strategies and efforts, AP, AWC and RA have been able to maintain a clear growth in income, number of donors and staff, which has also expressed itself in an increase in their conservation impact (Table 1). On the other hand, MWF, being an older organization working in a much smaller area, has been able to maintain a stable annual income for the last decade while increasing its number of donors, staff, and ongoing field programs.

4. Discussion

Our findings allow us to explore and refine an organizational framework that supports several mutually self-reinforcing traits that can enhance effectiveness in conservation. These attributes form a dynamic and self-reinforcing "virtuous cycle," with each attribute being both cause and effect at different moments in time, though the whole process is jump-started by on-site senior leaders. By analyzing the history, results, and organizational patterns of four outstanding conservation organizations we have been able to identify important components within each part of this framework.

First, in agreement with other authors (Manolis et al., 2009; Black et al., 2011; Black, 2019; Englefield et al., 2019), we identify senior leadership as a foundational trait of effective conservation organizations. This leadership fits within the system-thinking approach where leaders: a) focus on results relating to the organization's purpose (i.e. biodiversity conservation) instead of other personal, institutional, or political objectives; b) consider and respond appropriately to high levels of uncertainty associated with natural and social systems; c) examine how performance is measured, how people are motivated, and how work is designed and improved; d) motivate their teams towards continuous learning to improve their capability, and e) involve themselves not only in strategic tasks but also get close to operational activity (Black et al., 2011). We argue that is also important that leaders spend enough time on the ecosystems that they are working in, in order to get first-hand information and a "direct feeling" about the area, local teams, operational means, and local stakeholders.

Heifetz et al. (2009) described adaptive leadership as the ability of some people to create a new world of organizational possibilities by going beyond other people's expectations and their formal and informal authority. Visionary leaders in all our cases established innovative visions that challenged standard conservation practices in their contexts and still challenge many global standard conservation practices. By doing this, they opened a world of unexpected possibilities to advance biodiversity conservation and restoration. In all our cases, senior leadership in conservation organizations benefited from bringing to bear extensive working experience in environmental science, business and government. This is often achieved by establishing coalitions composed of leaders from these different realms, as it is exemplified in our cases.

Black et al. (2011) also identified the need for conservation leaders to create and communicate an inspiring long-term vision that provides

purpose to an organization, attracting peers and stakeholders to pursue relevant short-term goals in a framework of accountability. These leaders must promote institutional visions that are inspirational, easy to understand, ambitious but also realistic, and clearly related with tangible conservation outcomes expressed in habitats, species or populations. In a time identified by the UN as the decade for ecological restoration, operational visions offering tangible results towards improving the state of natural ecosystems may connect with society's zeitgeist better than narratives focused on global disasters and blaming others (Knowlton, 2017). Leaders need to communicate these visions internally so that they are known, understood and shared by most of the organization's staff, especially those working at high and mid-level positions. Leaders and team members must also communicate their organization's vision, values and achievements externally to build a wide constituency (e.g. local communities, authorities, politicians, academics, other conservation organizations, donors, cooperatives, businesses, etc.) that will provide necessary resources to advance what should be perceived as a shared and collective endeavor (Stalmans et al., *in press*). It is especially important to achieve and identify clear conservation outcomes, and communicate them with efficiency and transparency, using narratives and techniques that connect with both the intellect and emotions (i.e. mind and heart) of a wide audience at the local, national and global levels (Jiménez, 2022).

Contextuality refers to the ability of local teams and their leaders to translate general policies from their organization into practical solutions to local conditions and their particular challenges. Autonomy implies the ability of a conservation program to participate in decision-making and implementation on issues in their areas of competence without being frequently overruled by a higher level authority (Ostrom, 1990). All four organizations promoted contextuality through on-the-ground administrative autonomy, practice-based learning and shared-leadership at different levels. This requires that local managers are empowered to make decisions while senior officers provide guidance but also delegate the details of actual implementation. In order to promote leadership at different levels, staff with entrepreneurial skills must be allowed to take risks and learn from mistakes while trying to advance the general vision through specific actions adapted to their time and setting. We call this a practice-based culture where mistakes can foster learning, and learning also helps build respect, self-confidence, and adaptive capacity (Basurto, 2013).

Conservation organizations need sufficient long-term financial resources to advance their vision, often in direct relation to the size of their working area. AP, AWC and RA had the advantage of having wealthy business people and philanthropists acting as founders and/or senior leaders. However, having wealthy founders should not be seen as a requisite for this organizational model. Professionals without significant personal wealth like Janzen, Jones, Fearnhead and Heinonen acted as key visionary leaders in the case of Guanacaste Conservation Area (see above), MWF, AP and RA. In all cases probably their single most important fundraising strategy is having a clear and inspiring vision, and being able to communicate this vision and their conservation outcomes to a wide range of potential donors in an effective manner. In order to achieve significant results it is important that the horses of vision are placed before the chariot of fundraising instead of the opposite.

One may wonder if the critical role played by the initial senior leaders could create organizational fragility once they are absent. Our analysis suggests that once this virtuous cycle is well-established and all mutually-reinforcing traits are well in place, organizations may even thrive without the jump-starting role of their "maverick" and/or wealthy leaders. This seems to have been the case of RA, AWC and AP after the deaths of Tompkins, Copley and van Vliissingen, respectively. However, to avoid organizational decay it will still be crucial that new senior leaders are still able to maintain, renew, and communicate an inspiring vision that will act as their organization's main glue and compass, and also as the main attractor to gain support from other people and organizations. Strong senior leaders who are not able to establish this shared

vision, training and empowering other leaders within the organization so they can carry their "torch" once they are gone, could promote long-term the fragility and the eventual decline of the organizations that they helped to create.

Another way to describe our organizational framework would be to summarize common traits that are present in dysfunctional or average conservation organizations. These include: a) central leadership roles are filled by people with no ability to create and articulate a clear and inspiring vision, no particular passion for their work, and very limited transdisciplinary or integrative skills; b) budget is tightly controlled by a central office that is far away from actual implementation; c) practice-based mid-level leadership is discouraged by promoting a passive attitude based on following orders and punishing team members that propose and implement adaptive and experimental new approaches; d) a clear focus on intermediate results (i.e. communication/outreach campaigns, plans, strategies, rules, buildings, fundraising, etc.) compared to measurable conservation outcomes expressed on the improved status of populations or habitats; e) poor communication of clear conservation outcomes, preventing the existence of a wide constituency supporting their programs; f) lack of necessary linkages at the local, national or international that could bring resources (funding, knowledge, skills, credibility, authority, etc.) needed for the organization; g) absence of long-term financial support towards a clear and stable vision, combined with erratic changes on the amount and direction of investments.

5. Conclusions

Following Child (2012) call for an institutional ecology, the virtuous cycle organizational framework can act as a simple but comprehensive tool that may help conservation practitioners and academics to identify questions aimed to improve the design, management, and evaluation of conservation organizations (Table 2). The four organizations analyzed in this study achieved outstanding conservation results even though they were often acting in unfavorable contexts and had to face significant opposition. RA and MWF started reintroduction/restoration projects in countries with none or very little tradition on this matter. AWC focused on predator-proof fenced sanctuaries to restore endangered native fauna when this went against standard conservation practice in Australia. In general, these three organizations started their programs rowing against the tide of their national conservation cultures. Finally, AP has been able to start and maintain successful conservation programs in countries with serious problems of governance, poverty and corruption. Other organizations working in more favorable environments in financial, political and professional terms can't show a similar record of results. Though this study has focused on four non-governmental organizations, this doesn't mean that effective conservation can't be led by governments. The ACG in Costa Rica (Basurto and Jiménez-Pérez, 2013) and Iberian lynx ex situ program in Spain (Vargas et al., 2009; Jiménez, 2022) are good examples of innovative and highly successful conservation initiatives nested within governmental bureaucracies. We don't see our organizational framework as an exhaustive, conclusive list of all relevant factors and relationships determining organizational effectiveness, but as the basis for constant improvement through iterations between theory and new empirical information from which to build further locally-relevant models and analysis. Future studies based on a larger set of conservation organizations will continue to help to test the framework's general applicability and suitability to integrate theoretical insights including from such diverse fields as anthropology, natural resource management, business administration, conservation psychology or the policy sciences. Such studies could expand the proposed model including other critical factors not yet included. As our planet continues to experience rapid environmental change, frameworks that can integrate experiences and knowledge from all corners of academia and practice, will be the most useful to reach and inform conservation practitioners working on the ground, like those described in the case studies here.

Table 2

A list of potential questions for conservation organizations derived from our framework.

Does senior leadership include practical knowledge from the world of science, government and business?
 Do senior leaders spend enough time where conservation actually happens? Do they share enough time with field staff to provide vision and inspiration, and to listen to their ideas?
 Is the organization's vision understood and shared by the whole team and people from outside? Does it inspire them and make them participate as active partners?
 Does our vision break new ground in conservation aiming towards restoration and not only preservation?
 Is there room for other members of the organization to hone and improve that vision?
 Is there a culture of delegation where midlevel officers can take their own decisions to advance the shared vision?
 Are managers held accountable for their performance against targets, adherence to budgets and compliance with the standard operating procedures?
 Are field teams able to make their own decisions and manage their own budget within a shared vision, strategy and standard procedures?
 Is the organization able to respond in a timely manner to local challenges and opportunities?
 Is there a culture that promotes practice-based learning without pointing fingers for most mistakes?
 Is the organization successfully communicating its vision and results to a broad and diverse audience through many diverse channels? Does it use this communication to build organized support for the mission of the organization?
 Has the organization established an increasing pool of donors and financial supporters?
 Has the organization built a wide constituency supporting its vision at the local, regional, national and international scales?
 Are the vision and actual programs getting support from local communities and governmental authorities?

More important than their ability to grow or persist in the long-term, the four organizations stand out for their ability not only to conserve but to restore threatened populations and habitats in ways that changed the previous unfavorable *status quo*. A common theme shared by these organizations is a deep care for nature and its intrinsic value complemented by an understanding that is necessary to engage with local human communities to create long-term change. Equity and justice for biodiversity and the humans that interact with it most closely becomes part of an ethic applied to the territory where these organizations operate, both for philosophical and pragmatic reasons. At the end, they all seem to follow Johns (2020) *dictum*: “only by keeping one's eyes on the prize – the recovery of biodiversity and the Earth – and not being diverted by other goals, can the prize be attained.”

Declaration of competing interest

The authors declare that they have no conflict of interest.

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