

Regular Paper

Using IUCN Best Practice Principles to Evaluate National Park Management: A Zambia Case Study

John Holland,^a Trisia Farrelly,^b and Ackim Mwape^c

^a Department of Environmental Management, Institute of Agriculture and Environment, Massey University, New Zealand

^b Department of Anthropology, School of People, Environment and Planning, Massey University, New Zealand.

^c New Zealand Agricultural Greenhouse Gas Research Centre

Please send correspondence to John Holland, zambezialley@gmail.com

Executive Summary

Over the last three decades, a series of best practice principles have been advanced by the International Union for the Conservation of Nature (IUCN) to guide national park management policy and practice. This study investigates how these best practice principles have informed the management of Zambia's national parks. We performed qualitative and quantitative thematic content analysis on 23 park management documents and found that, for the most part, the reported performance of Zambia's national parks is not well aligned with IUCN best practice principles. We argue that improved alignment with IUCN principles can provide a realistic and positive foundation to increase opportunities for national parks to meet their local and international conservation goals. Improved data collection, along with meaningful public access to information will enhance decision making and public participation in national park management. Strengthened public participation will ensure consideration of multiple perspectives and adoption of processes that enable national park authorities to address conservation challenges that span socio-ecological boundaries. Improved capacity building will provide the necessary technical skills and knowledge to ensure effective coordination and implementation. The results show that park management plans are duly submitted with little expectation of implementing them. More often than not, performance reality does not match policy rhetoric. The study highlights the urgent need for national park management to articulate clear goals and action steps with mechanisms to implement them.

Keywords

National parks, natural resource governance, management principles, sustainability, IUCN, Zambia

Introduction

Increasing rates of biodiversity and natural habitat loss are a major international concern with 75% of natural habitats estimated to have been degraded globally over the last 50 years (IPBES, 2019). The International Union for the Conservation of Nature (IUCN), whose mission is to support conservation and the sustainable use of natural resources (IUCN, 2017), has led the worldwide conservation movement to find ways of addressing spiraling biodiversity degradation. The IUCN has produced, *inter alia*, international protected area classification systems, guidelines, approaches and best practice principles that have been endorsed by countries globally to enhance protected areas governance (IUCN, 2012). The IUCN principles offer normative guidance across environmental, cultural, and socioeconomic domains needed to promote conservation effectiveness by facilitating stakeholder decision making and public participation and adoption of processes that enable national park authorities to address conservation challenges spanning socioecological boundaries.

People in many countries, particularly from the Global South, depend upon national parks and protected areas for livelihoods associated with tourism and conservation activities (Naidoo et al., 2019). Poor planning and management, exacerbated by population growth, poverty, long-standing economic stagnation, political instability, and unregulated visitor numbers jeopardize the integrity of national park ecosystems and fragile biological resources (Dudley, 2008; IUCN, 2013; Watson et al., 2014). As a result, many parks have been reduced to mere “paper parks,” incapable of meeting their ecological and socioeconomic goals (Di Minin & Toivonen, 2015).

Global studies show that only 20%–50% of protected areas are effectively managed (Devillers et al., 2014; Di Minin & Toivonen, 2015), suggesting a significant shortfall in effectiveness. Under-resourcing is the main contributor to the deterioration of protected areas in the Global South (Watson et al., 2014) with reported shortages of skilled staff, transport, law enforcement equipment, and infrastructure (Leverington et al., 2010). Protected area effectiveness is further undermined by changes in government policy that open up protected areas to resource extraction and ultimately their downgrading, downsizing and de-gazetting (Mascia & Pailler, 2011). For example, mining activity inside protected areas collectively affects 6% of the global terrestrial protected area estate and is expected to increase (Durán et al., 2013). Other indirect reasons for declining stewardship of protected areas include institutional inefficiency; political corruption; armed conflict; and inadequate technical and institutional support for park managers (Watson et al., 2014). Coupled with climate change and increasing human population, these challenges undermine global conservation efforts and compromise the sustainability of national parks.

A growing body of literature has identified a series of best practice national park management principles to guide and facilitate sustainable stewardship (Hare et al., 2018; Lockwood, 2010). Adoption of such principles can enhance conservation effectiveness by facilitating stakeholder decision making and enhance the management effectiveness and resilience of national park systems (Dencker et al., 2015). Although several studies have explored the application of global best practice principles in specific countries in the Global South, such as Peru and China (Zinngrebe, 2018; Zhao, 2005), for the most part the focus has been on the Global North (Gelcich et al., 2018; Gomar et al., 2014).

The consensus is that the adoption of global best practice principles can lead to more effective management of national parks (Bennett & Dearden, 2014; Dencker et al., 2015; Muhumuza & Balkwill, 2013). Dencker et al. (2015) identified a set of 10 core wildlife governance principles that combine elements of public trust thinking (Hare & Blosssey, 2014) and good governance (Lockwood, 2010). Similarly, Timko and Satterfield (2008, pp. 309, 315), conducted a meta-analysis of management plans from 14 national parks in Canada, Australia, and South Africa, and distinguished between “principles for evaluating social equity” and “principles for ecological integrity.” The principles for evaluating social equity included resolution of land tenure and ownership, maintenance of livelihood opportunities, and participation in park governance. The principles for ecological integrity included “conservation of ecosystem processes” as well as “adaptation to, and mitigation of, threats and stresses.” Similarly, Muhumuza and Balkwill (2013) identified effective management, good governance, and local development as prerequisites for sustainable national park management, while Lockwood (2010) stressed the importance of legitimacy, transparency, accountability, inclusiveness, fairness, and resilience.

The IUCN’s *Guidelines for Protected Areas Legislation* (Lausche, 1980) were a response to the need for overarching categories of principles applicable to national park management. The *Guidelines* were updated in 2011 to support policymakers working closely with protected areas authorities as well as other stakeholders involved in protected areas governance. The guidelines are comprised of 12 principles (Lausche, 2011) listed below and expanded upon in Table 1.

- i. Perpetual integrity
- ii. System planning (e.g. ecosystem approach, buffer zones)
- iii. Management by conservation objectives
- iv. Management plans
- v. Precautionary approach
- vi. Management of invasive alien species
- vii. Management of climate change
- viii. Taking an international perspective
- ix. Good governance
- x. Public participation
- xi. Access to information
- xii. Social equity and justice

These principles are based on scientific and political consensus and they are widely acknowledged in academic literature (Fauchald et al., 2014; Hassan & Hameed, 2016; Vanderzwaag et al., 2012; Yates et al., 2013). The principles offer a normative response to diverse legal realities, societal expectations and institutional cultures, and incorporate ecological and social dimensions (Lausche, 2011). Emanating from an expert international body, IUCN principles are endorsed by the Convention on Biological Diversity to which 196 countries are signatories. To our knowledge, there has been no assessment of the application of IUCN principles in national park management. In this study, IUCN principles are incorporated into a framework (Table 1) that is used to gauge the strengths and weaknesses of national park legislation and management plans in one particular country: Zambia.

Table 1
Framework for Examining National Park Policies, Legislation and Management Plans

Key Principle	Operational Definition	Key Features	Indicators*	Keywords
Perpetual integrity	Securing long-term conservation status of an area using the best available means (Lausche, 2011).	<ul style="list-style-type: none"> Secure conservation status over the long term demonstrated through high policy-level designation Clearly defined land tenure rights 	Presence of an official declaration of protected area status obtained at the appropriate level Reference to resolve land tenure conflicts	Perpetual, perpetuity, integrity, long-term, land tenure
System Planning	An organized way of carrying out macro-level conservation planning for protected areas (Lausche, 2011).	<ul style="list-style-type: none"> Plan within ecosystem/large-scale context including connectivity needs Long-term science-based system planning 	Mention of spatial and temporal scales of treatment and the relationships between protected areas and other relevant categories of land Mention the use of scientific knowledge	Ecosystem, integrated, holistic, comprehensive, large-scale, ecological, social, and economic impacts
Management by conservation objectives	The principle that management of a specific protected area should be in accordance with the goals and objectives for which the site was designated (Lausche, 2011).	<ul style="list-style-type: none"> Consider multiple, complex ecological, social, and economic interactions that occur within an area Recognition that the management should be in accordance with the goals and objectives for which the site was established. 	Mention of ecosystem connectivity opportunities and needs Mention of the goals and objectives for which the site was designated	Management categories, zones, conservation objectives
Management plans	Setting realistic but flexible goals, building mechanisms for achieving them including a framework for decision-making to apply in a protected area over a given period (Thomas & Middleton, 2003).	<ul style="list-style-type: none"> Recognition of the IUCN management categories as way to translate conservation objectives for management Clear objectives, and management strategies within given timeframes Guidelines on the preparation and content of management plans 	Mention of the management zones and land use patterns that conform to the established zones Mention of management plans Information on the preparation and content of management plans	Management plan(s)

Table 1 (cont.)

Precautionary principle	A duty to foresee and assess environmental risks, to warn potential victims of such risks, and to behave in ways that prevent such risks (UN, 1992).	<ul style="list-style-type: none"> • Placing the evidentiary burden on proponents and high standard of proof requirements • Adaptive management 	Mention of approaches that demand high standard of proof from development proponents	Precaution(ary), risk, uncertainty, prevention
Management of invasive alien species	Preventing the introduction of, and controlling species, sub-species, or lower taxa (including any part, gametes, seeds, eggs, or propagules of such species), introduced outside their natural past or present distribution and whose introduction and/or spread threaten biological diversity (Shine et al., 2000; CBD, 2002).	<ul style="list-style-type: none"> • Recognise the threat of invasive alien species • Prevent the intentional or accidental introduction of Invasive alien species 	Mention of and information on invasive alien species Presence of IAS control strategies	Invasive, alien, species
Management of climate change	Adaptation to and mitigation of climate change and its predicted impacts, including changing and more extreme patterns of drought, storms and flooding, changes in the ecosystem distribution and quality, and the implications of these for species survival in protected areas (MackImon et al., 2011).	<ul style="list-style-type: none"> • Recognition of the threat of climate change • Clear objectives, targets and management strategies 	Mention of climate change Presence of climate change adaptation and mitigation goals and measures	Climate change, adaptation, mitigation
Taking an international perspective	Considering the relative restrictiveness compared with other countries, and how harmonized the management is with international norms, especially across borders with shared resources or ecosystems, when considering the long-term success of in-situ conservation at the national level	<ul style="list-style-type: none"> • Regional and global coordination and collaboration • Recognises compliance with global and regional conventions as essential 	Mention of the need to promote regional and global coordination and collaboration Mention of goals that promote compliance with regional and global conventions	International, global, regional, coordination, cooperation, collaboration
Good governance	A system of values, policies and institutions by which a society manages its economic, political and social affairs through interactions within and among the state, civil society and private sector (UNDP, 2007).	<ul style="list-style-type: none"> • Accountability • Performance • Transparency • Subsidiarity 	Mention of staff roles, reporting and answerability mechanisms Evidence of staff requirements for wise use of park resources Mention of goals that promote information disclosure to all stakeholders Evidence of management of park by local (sub-national) institutions	Governance, accountability, performance, transparency, accountability, subsidiarity

Table 1 (cont.)

Public participation**	Facilitating and encouraging public awareness and participation by making information widely available and providing effective access to judicial and administrative proceedings, including redress and remedy (UN, 1992)	• Participation in decision-making processes	Evidence of goals that promote local participation	Participation, access involvement, consultation, collaboration, community, public, citizen, stakeholders, information
		• Co-management partnerships	Mention of co-management partnerships	
		• Meaningful public access to information	Goals that promote public access to information	
Social equity and justice	Building mechanisms for fair distribution of the benefits and costs of conservation among different social groups and individuals and recognition of their rights, interests, concerns and grievances (IUCN, 2000).	• Community access to resources, equitable distribution of conservation costs and benefits	Reference to access and benefit/cost sharing	Social equity, benefit sharing, fair distribution, dispute resolution, justice
		• Effective dispute resolution mechanisms	Reference to dispute resolution mechanisms	
		• Intra- and intergenerational equity	Mention of goals that promote access to resources	
			Evidence of mechanisms that address the needs of future generations	

The indicators are intended to signal the presence and magnitude of references associated with the key principles. The choice of indicators stems from the evaluation of management plans by experts familiar with wildlife and park management, national parks policy and procedures.

** The need for access to information is closely linked to and is accepted as an integral element of meaningful public participation. As such, the two principles are considered together in this analytical framework, bringing the total number of principles to 11.

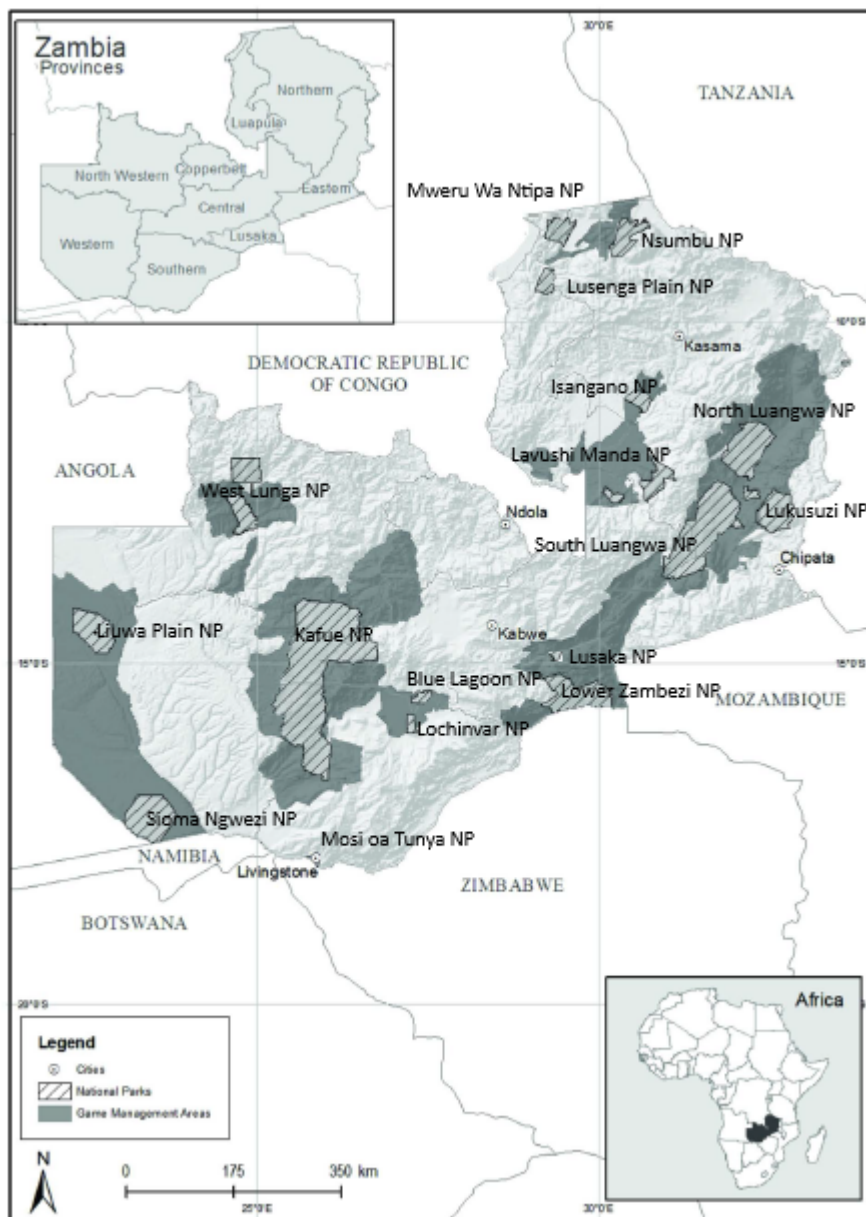
Zambia's Protected Area

Zambia was selected as a case study because of the author's familiarity with its extensive national park system and its history of protected areas legislation. Zambia has the largest national park system in Africa and fourth largest in the world (UNEP-WCMC, 2023), with its protected area network covering more than 40% of the country's 752,614 square kilometers. Zambia has established several protected area management categories. There are 20 national parks covering an area of 63,580 km², and 35 game management areas covering 167,557 km² accounting for 8.5% and 22.3% of the total land area, respectively. There are also approximately 490 forest reserves covering about 75,000 km², or 10.2% of the country. Other protected area categories include two wildlife sanctuaries, two bird sanctuaries, eight wetlands of international importance for migratory birds (Ramsar sites), protected fisheries, heritage sites, game ranches, and botanical and zoological parks (GRZ, 2015a). Figure 1 shows the protected areas in Zambia. Zambia also stands out for its long history of protected areas legislation (dating back to the 1950s), which has passed through numerous iterations to reconcile the competing demands of conservation and community development (Chomba et al., 2011).

Despite their extensive coverage, Zambia's protected areas underperform in ecological, economic, and social terms and, as result, Zambia attracts fewer tourists and thus generates lower revenues than most other countries in the region. For example, Zambia received 0.9 million tourists in 2012, well below the average of 2.5 million tourists for other countries in the region (Lindsey et al., 2014). Zambia's parks also experience many other challenges. Reports of institutional inefficiency in Zambia's park system include a lack of monitoring and evaluation by implementing agencies; unfulfilled compliance arrangements with international organizations; lack of review of institutional arrangements designed to support parks; and inadequate technical, financial and institutional support for park managers (Lindsey et al., 2014; GRZ, 2014; Aongola et al., 2009). Consequently, Zambia, like other countries in the Global South, continues to experience declining biodiversity despite having legislation and policies designed to protect its natural resources (Lindsey et al., 2014). Despite its poor institutional and management architecture, degrading habitat and on-going biodiversity decline, annual revenue from international tourists contributes approximately 10% toward Zambia's exports (World Bank, 2011). Given the country's dependency upon a single non-renewable commodity—copper, which represents 80% of exports—protecting and developing the tourism sector is crucial for the Zambian economy.

The country is making strides to improve protected area management. Zambia is signatory to several multilateral environmental agreements (MEAs) and is obligated to domesticate the principles contained within them into the national policy frameworks. However, evidence suggests that the principles of these MEAs are infrequently or superficially incorporated in national policy (Aongola et al., 2009; Kalaba et al., 2014). Selecting Zambia as a case study provides new insights into the management challenges that plague its national parks and, particularly, how the language of Zambia's major national park legislation and management plans align with IUCN best practice principles for national park management. Thus, the aim of this study is to gauge the extent to which key principles proposed in the IUCN's *Guidelines for Protected Areas Legislation* have been successfully integrated into Zambia's park management system. Results from a Zambia case study would allow us to draw conclusions that may guide

Figure 1
Zambian Protected Area Network (Source: Lindsey et al., 2014, p. 2)



other countries in strengthening park management systems and legislation within the context of sustainable development.

Materials and Methods

The study involved two key steps. First, we identified the main documents that represent the national park policy and legislative framework in Zambia. Second, we developed a framework to identify the presence and efficacy of each of the 11 IUCN park management principles in Zambia's national parks and policies, legislation, park plans, and reports.

Twenty-three key documents relating to Zambia's national parks management that were in use between 2000 and 2015 were selected based on their relevance to park management and availability and included nine management plans, six annual reports, and the Management Effectiveness Tracking Tool for Protected Areas in Zambia (METTPAZ) report (GRZ, 2007b) (see Tables 2 and 3).

Collecting information on Zambia's national parks park operations is challenging because it's either not available or very difficult to access. Only nine out of 20 national park management plans could be traced and were then used in this study. These represent the most recently written plans (Table 2) and were published between 2004 and 2011. However, since the lifespan of a plan is 10 years, two of them (the Blue Lagoon and North Luangwa national park management plans) are currently outdated.

Park annual reports should describe progress on meeting agreed targets as well as the extent to which the park management plan objectives have been achieved. However, of the 20 national parks in Zambia, only one (Kafue) was found to have filed annual reports over the past five years and only six national level annual reports were registered. These, however, lacked information on each of the parks and were therefore, excluded. Whilst this diminished the scope of the study, it foreshadowed a major weakness in Zambia's national park management, namely, timely, complete, and accessible reports.

Because of the paucity and porosity of annual reports available, the authors drew upon a surrogate alternative, an external consultant report on the Management Effectiveness Tracking Tool for Protected Areas in Zambia (METTPAZ) (GRZ, 2007b) that provided information on the performance of each of the national parks in Zambia. The METTPAZ was a nationwide study conducted in 2007 and 2011 and aimed "to develop baseline information on the management effectiveness of Zambia's protected areas system against which progress can be measured" (GRZ, 2007c, p. xv). The analysis for the report was undertaken by the Zambia Wildlife Authority (ZAWA) (now called Department of National Parks and Wildlife) and the United Nations Development Programme (UNDP) (GRZ, 2007c). The 2007 METTPAZ report provides information on the performance of 19 of the 20 national parks in Zambia (excluding Lusaka National Park which was established in 2014) and 35 game management areas. It was informed by field research and expert opinion including working group discussions, training workshops, and consultations with stakeholders at national and site level.

A limitation to the study is that many of the reports analyzed were written before the IUCN *Guidelines for Protected Areas Legislation* were published in 1980 and revised 2011. However, the limitation is mitigated by the fact that the principles cited by IUCN are drawn from experiences during the previous five decades and, therefore, many were already in place before 1980.

Table 2
Acts of Parliament and Policy Documents Examined Regarding Zambia Protected Areas

Document type	Document Name	Description
Acts of Parliament	Zambia Wildlife Act No. 14, 2015	The principal law providing the legal basis for the conservation and management of Zambia's wildlife ecosystems and biodiversity and provides opportunities for the equitable and sustainable use of national parks.
	Forests Act No. 4, 2015	The principal law that provides for the establishment, control and management of all protected forests in Zambia.
	Environmental Management Act No. 12, 2011	The principal environmental legislation covering a cross section of sectors. It provides for the integrated management of the environment and natural resources in the national development context.
National Policies	National Parks and Wildlife Policy, 1998	A main policy that provides for the establishment, control and management of national parks as a tool for the conservation, protection, and enhancement of wildlife ecosystems and biodiversity.
	National Forestry Policy, 2014	The principal policy that provides a framework for sustainable forest management to enhance forest products and services, contributing to mitigation of climate change, income generation, poverty reduction, job creation and protection and maintenance of biodiversity.
	National Policy on Environment, 2007	An overarching policy that provides a framework for the management of Zambia's environment and natural resources to achieve sustainable development.
National strategic action plan	Zambia's Second National Biodiversity Strategy and Action Plan	The principal strategy for the implementation of national conservation commitments and domestication of international environmental frameworks.

Analytical Framework

The analytical framework employed in the study identified the presence of IUCN principles in each document by searching for keywords (Table 4) and providing a snapshot of the status quo. Because this is a static picture, it does not enable a detailed exploration of developments and trends of IUCN principles over time.

The qualitative analysis focuses on examining the text surrounding the search words linked to the IUCN principles and recording whether the text identifies any goals and action steps associated with each principle. The framework highlighted in Table 1, which described indicators and specific keywords associated with each principle, guided the coding process. NVivo 11 Pro© software, a qualitative data analysis computer software package, was used to facilitate the data storage, coding and analysis (QSR International®, 2017).

The IUCN principles referred to within each park report were analyzed and recorded in the same way as the other study documents along with the adoption of a 'traffic light' scoring system to discriminate between the levels of implementation of IUCN principles. These are coded as follows:

- Green = Strong evidence from the report of the implementation of the IUCN principle in the national parks.

Table 3
Zambian National Park Plans and Reports

Document Type	Document Name	Description
Management Plans	Blue Lagoon National Park GMP 2004 - 2014	General framework for tourism development, community participation, public-private partnerships, joint-management, and natural resource conservation.
	Kafue National Park GMP 2011 - 2022	Framework for tourism development, community participation, public-private partnerships, joint-management, and natural resource conservation.
	Lochinvar National Park GMP 2005 - 2015	Framework for tourism development, community participation, and conservation of both natural and cultural resources inside and outside the Lochinvar National Park.
	Lower Zambezi National Park GMP 2008 - 2018	Management objectives, zoning scheme and management actions aimed at achieving a balance between the conservation of biodiversity and the non-consumptive use of wildlife resources.
	Lusaka National Park GMP 2005 - 2015	Guidelines for the management and tourism development.
	Lusenga Plains National Park GMP 2010 - 2020	Strategic management investment plan and budget for the management, use, and development.
	Mweru-Wa-Ntipa National Park GMP 2010 - 2020	Management and development philosophy.
	North Luangwa National Park GMP 2004 - 2014	Management and development philosophy of supporting strategies to address management objectives of the park.
	Nsumbu National Park GMP 2010 - 2020	Conservation and management guidelines for tourism development, and community participation.
Annual Reports	Annual reports for the Kafue National Park (2005 – 2011)	Six Annual reports on the activities undertaken in Kafue National Park for the years 2005, 2006, 2007, 2008, 2010, and 2011
General Reports	Management Effectiveness Tracking Tool for Protected Areas in Zambia, 2007	A report on the management effectiveness of Zambia's protected areas based on the six management components of the IUCN-WCPA Framework.

- Amber = Some evidence from the report of the implementation of the IUCN principle in the national parks.
- Red = No evidence from the report of the implementation of the IUCN principle in the national parks.

Results

References to IUCN Principles in Park Legislation and Reports

The combined results reveal limited integration of the IUCN principles into the operational management of the country's national parks. None of the 11 IUCN principles are adequately or consistently reflected across policy, legislation, and planning.

Notably, the Policy for National Parks and Wildlife (1998) and the Zambia Wildlife Act No. 14 (2015), the cornerstone of Zambia's national park policy and legislation, exhibited the lowest rate of compliance with the IUCN principles. Only four of the 11 IUCN principles are acknowledged, namely, management plans, precautionary principle, and invasive alien species and climate change.

Of the three national policy documents examined, the IUCN principles are acknowledged on 374 occasions. On 275 occasions the references are accompanied by action steps (green traffic lights in Table 4), and on 99 occasions without stating any action steps (amber traffic lights). These references pertain to a narrow set of indicators where three of the principles are mentioned along with action steps across the documents, namely, encouraging public participation, establishing management plans, and taking an international perspective. Principles such as social equity and justice, management of climate change, and good governance are, in most cases, either mentioned without any action steps or not mentioned at all. Among the legislated Acts, 15 of the 28 indicators of the IUCN principles are absent from the Environmental Management Act (2011) and the Forests Act (2015), while 16 of the 28 indicators are absent from the Zambia Wildlife Act (2015). Similar results were observed at the park level. Across the nine park management plans assessed, there were 1197 references to the 11 IUCN principles (Table 5) of which 216 references are not accompanied with action steps to operationalise recommendations.

Comparing Reported Park Plans Intentions with Outcomes

Table 6 contrasts the reported intentions of park managers to implement IUCN principles with actual implementation of such principles. The table shows that, while park management plans make explicit references to the 11 IUCN principles, there is a chasm between the rhetoric and the reality. In other words, reports of what is intended to be actioned falls short of what is actually done. The METTPAZ report shows that, while 224 of the indicators for the IUCN principles are mentioned in the park management plans, an average of only four of these indicators per park (15%) appear to have been implemented, an average of four per park (15%) show some evidence of implementation and an average of 20 per park (70%) report no evidence of being implemented in Zambia's parks.

Discussion

Zambia's national park management plans aspire to accommodate the IUCN principles but, of the 11 IUCN principles, only five (management by conservation objectives, management system planning, public participation, and perpetual integrity) are usually mentioned along with action steps. The remaining six principles are, in most instances, either mentioned without accompanying action steps or not mentioned at all.

Omitting many of the IUCN best practice principles in park action plans could further erode effective stewardship of Zambia's national parks' resources and exacerbate the challenges policymakers and planners face in trying to develop effective management and implementation mechanisms. Stakeholders' rights and concerns and grievances may be ignored when principles such as social equity and justice are not explicitly acknowledged. Further, management efforts to maintain the status of national parks over the long term is hampered when principles such as good governance are partially applied. Among the four dimensions of good governance considered in this

Table 4
Rating the Alignment of Zambian National Park Policies, Laws, and National-Level Strategic Plan with Selected IUCN Park Management Principles

Key: = IUCN principles mentioned with action steps; = IUCN principles mentioned but action steps missing; = IUCN principles not mentioned at all.	Nat. Pks, Env. & Forestry Pol.			Nat. Wildlife, For. & Env. Legislation			Nat. Bio Str.
	PNP	NPE	NFP	ZWA	FA	EMA	BS
IUCN Principles and Indicators							
Perpetual Integrity <input type="checkbox"/> Evidence of an official declaration of protected area status obtained at the appropriate level <input type="checkbox"/> Reference to resolve land tenure conflicts	 	 	 	 	 	 	
System Planning <input type="checkbox"/> Evidence of spatial and temporal scales of treatment and the relationships between protected areas and other lands <input type="checkbox"/> Evidence of the use of scientific knowledge <input type="checkbox"/> Acknowledging ecosystem connectivity opportunities/needs	 	 	 	 	 	 	
Management by Conservation Objectives <input type="checkbox"/> Acknowledging goals/objectives for which the designated site <input type="checkbox"/> Acknowledging management zones and land use patterns that conform to the established zones	 	 	 	 	 	 	
Management Plans <input type="checkbox"/> Evidence of management plans <input type="checkbox"/> Evidence of the preparation and content of management plans	 	 	 	 	 	 	
Precautionary Principle <input type="checkbox"/> Evidence of approaches that demand high standard of proof from development proponents <input type="checkbox"/> Evidence of adaptive management	 	 	 	 	 	 	
Management of Invasive Alien Species <input type="checkbox"/> Provision of information on invasive alien species <input type="checkbox"/> Evidence of IAS control strategies	 	 	 	 	 	 	
Management of Climate Change <input type="checkbox"/> Acknowledging the threat of climate change <input type="checkbox"/> Clear objectives, targets and mgmt. strategies	 	 	 	 	 	 	
Taking an International Perspective <input type="checkbox"/> Promotion of regional/global coordination and collaboration <input type="checkbox"/> Goals promoting compliance with regional/global conventions	 	 	 	 	 	 	
Good Governance <input type="checkbox"/> Acknowledging staff roles and responsibilities, and evidence of reporting and answerability mechanisms <input type="checkbox"/> Evidence of staff requirements for wise use of park resources <input type="checkbox"/> Goals that promote information disclosure to all stakeholders <input type="checkbox"/> Evidence of management of park by local institution	 	 	 	 	 	 	
Public Participation <input type="checkbox"/> Evidence of goals that promote local participation <input type="checkbox"/> Evidence of co-management partnerships <input type="checkbox"/> Goals that promote access to information	 	 	 	 	 	 	
Social Equity and Justice <input type="checkbox"/> Evidence of access and benefit/cost sharing <input type="checkbox"/> Evidence of dispute resolution mechanisms <input type="checkbox"/> Evidence of goals that promote access to resources <input type="checkbox"/> Evidence of ways to address the needs of future generations	 	 	 	 	 	 	

PNP = Policy for National Parks and Wildlife (1998); NPE = National Policy on Environment (2007); NFP = National Forestry Policy (2014); ZWA = Zambia Wildlife Act (2015); FA = Forests Act (2015); EMA = Environmental Management Act (2011); BS = National Biodiversity Strategy and Action Plan (2015)

Table 5
Rating of the Alignment of Zambia's National Park Management Plans with IUCN Principles

Key

- = IUCN principles mentioned in the management plans along with required action steps
 - = IUCN principle mentioned in the management plans but action steps missing
 - = IUCN principles not mentioned in the management plans
- The numbers in each circle = the frequency of reference(s) to the IUCN principle

IUCN Principles	Indicators	National Park Management Plans								Total number of mentions	
		BLNP	KNP	LGNP	LZNP	LP	LPNP	MwNP	NINP		NsNP
Perpetual Integrity	Presence of an official declaration of protected area status obtained at the appropriate level	1	1	1	1	1	1	1	1	1	71
		7	4	11	8	4	5	5	9	9	
		1	11	6	2	2	8	2	14	4	
System Planning	Mention of spatial and temporal scales of treatment and the relationships between protected areas and other relevant categories of land	4	18	5	12	6	15	5	11	4	139
		1	3	1	1	1	1	3	1	1	
		26	14	24	25	18	22	19	24	16	
Management by Conservation Objectives	Mention of the goals and objectives for which the site was designated	22	22	13	9	8	15	14	22	16	329
		26	14	24	25	18	22	19	24	16	
		22	22	13	9	8	15	14	22	16	
Management Plans	Mention of the park goals and values	26	14	24	25	18	22	19	24	16	295
		14	28	10	5	2	11	13	13	11	
		14	28	10	5	2	11	13	13	11	

Table 5 (cont.)

IUCN Principles	Indicators	National Park Management Plans										Total number of mentions
		BLNP	KNP	LcNP	LZNP	LP	LPNP	MwNP	NINP	NsNP		
Public Participation	Mention of goals that promote local participation	4	11	4	1	3	5	4	1	3		74
	Mention of co-management partnerships	4	7	4	1	3	2	1	3	3		
	Mention of goals that promote access to information	1	3	1	1	4	2	1	2	1		
Social Equity and Justice	Reference to access and benefit/cost sharing	4	2	3	1	1	7	1	1	1	1	42
	Existence of dispute resolution mechanisms	1	1	1	1	1	1	1	1	1		
	Mention of goals that promote access to resources	1	5	1	1	1	1	2	1	1		
	Evidence of mechanisms that address the needs of future generations	1	6	1	1	1	1	1	1	1		

BLNP = Blue Lagoon National Park General Management Plan (2004-2014)

KNP = Kafue National Park General Management Plan (2012-2022)

LcNP = Lochinvar National Park General Management Plan (2005-2015)

LZNP = Lower Zambezi National Park GMP (2008-2018)

LP = Lusaka Park General Management Plan (2005-2015)

LPNP = Lusenga Plain National Park General Management Plan (2010-2020)

MwNP = Mweru-wa-Ntupa National Park General Management Plan (2010-2020)

NINP = North Luangwa National Park General Management Plan (2004-2014)

NsNP = Nsumbu National Park General Management Plan (2010-2020)

Table 6

Comparison of Intent to Manage Using the IUCN Principles Versus Actual Management Actions Taken in Zambia's National Parks as Reported in the METTPAZ Report

Description	National Parks								Total Average		
	BLNP	KNP	LcNP	LZNP	LPNP	MwNP	NLNP	NsNP			
Intention	Frequency with which the 28 indicators of the IUCN principles are mentioned in Zambia's national park management plans										
	No. of indicators of the IUCN principles mentioned in the management plans along <i>with required action steps</i>	10 (36%)	17 (61%)	13 (46%)	9 (32%)	11 (39%)	9 (32%)	12 (43%)	12 (43%)	12 (42%)	
	No. of indicators of the IUCN principles mentioned in the management plans but <i>action steps missing</i>	9 (32%)	10 (36%)	7 (25%)	10 (36%)	9 (32%)	9 (32%)	5 (18%)	7 (25%)		8 (29%)
	No. of indicators of the IUCN <i>principles not mentioned</i> in the management plans	9 (32%)	1 (4%)	8 (29%)	9 (32%)	8 (29%)	10 (36%)	11 (39%)	9 (32%)		8 (29%)
Evidence of implementation	Frequency with which the 28 indicators of the IUCN principles are mentioned the METTPAZ report										
	No. of indicators of the IUCN principles with <i>good</i> evidence of implementation in the parks	5 (18%)	6 (21%)	3 (11%)	2 (7%)	3 (11%)	4 (14%)	8 (29%)	2 (7%)	4 (15%)	
	No. of indicators of the IUCN principles with <i>some</i> evidence of implementation in the parks	3 (11%)	4 (14%)	2 (7%)	4 (14%)	3 (11%)	5 (18%)	4 (14%)	7 (25%)		4 (15%)
	No. of indicators of the IUCN principles with <i>no</i> evidence of implementation in the parks	20 (71%)	18 (64%)	23 (82%)	22 (79%)	22 (79%)	19 (68%)	16 (5%)	19 (68%)		20 (70%)

BLNP = Blue Lagoon National Park Management Plan 2004-2014)

LPNP = Lusenga Plain National Park Management Plan 2010-2020)

KNP = Kafue National Park Management Plan 2012-2022)

MwNP = Mweru-wa-Ntipa National Park Management Plan 2010-2020)

LcNP = Lochinvar National Park Management Plan 2005-2015)

NLNP = North Luangwa National Park Management Plan 2004-2014)

LZNP = Lower Zambezi National Park GMP 2008-2018)

NsNP = Nsumbu National Park Management Plan 2010-2020)

study (performance, accountability, transparency and subsidiarity), only the performance dimension is well referenced in national park laws, policies and management plans. Yet all dimensions of good governance are central to effective protected areas management and are fundamental to securing the political and community support to underpin sound management decisions (Borrini-Feyerabend et al., 2013; Lockwood, 2010). For example, a lack of transparency in revenue sharing has led to conflict and

mistrust among communities and consequently continues to foster ill feeling towards conservation efforts across many Zambian communities (GRZ/UNDP, 2007; Lindsey et al., 2014).

When broadly defined, best practice principles are introduced or interpreted through the lens of local conditions, individuals, organizations, and institutions in place. This might explain why some IUCN principles get more prominence in the documents than others. Local contextual factors such as availability of resources, access to information, technical and institutional capacities and policy development processes may inform how the principles are interpreted and operationalised (Berrisford, 2011). For example, adequate technical understanding of the meaning of the principles and how to ensure their translation into practice by the policymakers and planners responsible for the development of the plans may explain why implementation of some principles has occurred, but not others.

Our comparison of stated principle-related project and programme intentions reported in park management plans with concrete outcomes related to these intentions (expressed in the METTPAS reports) shows little evidence of action or implementation. Only four out of the 11 IUCN principles are mentioned and implemented across all the parks, namely, perpetual integrity, management by conservation objectives, management plans, and public participation. The indicators for the perpetual integrity principle, however, are typically addressed when parks are established and do not require ongoing management intervention. Focusing on those principles with no evidence of implementation reveals three areas of either poor performance or none at all: social equity and justice; governance; and management of climate change and invasive alien species. If conservation of biodiversity is to remain a priority, greater attention must be given to effective enforcement and implementation mechanisms.

The results suggest that, even when park management plans explicitly reference IUCN principles, this remains no more than an empty gesture if they are not translated into practice. Successful transfer and implementation of IUCN principles requires both the willingness as well as the ability on the part of government to act. Zambia's national park governance system struggles because the government cannot match their willingness to implement the IUCN principles with the actions required to do so. In this study we found that, in most cases, annual reports were not filed and when they were they were difficult to access. Access to timely, reliable, and complete data and information, along with meaningful public access to such information, enhances decision making and public participation in national park management (Borrini-Feyerabend et al., 2013; Dhliwayo et al. 2009; Lockwood, 2010).

Inadequate human capital (knowledge, skills, and technical capacity) is one of the most limiting factors to effective protected area management (Ervin et al., 2010). Earlier studies undertaken in Zambia concluded that the declining status of its national parks is associated with insufficient park management institutional capacity (Berrisford, 2011; Ng'andwe & Chundama 2012; Nyirenda & Nkhata 2013). Ng'andwe and Chundama (2012) cited inadequate technical capacity in the Zambia Wildlife Authority (ZAWA) as one major reason for the poor performance of Zambia's national park system, as most parks were characterized by low staffing numbers, poor infrastructure, and inadequate financial resources. Lindsey et al. (2014) highlight the lack of funding to Zambia's national park system in more detail, describing how it hampered the operations of the then Zambia Wildlife Authority (ZAWA). Lindsey et al. (2014) compared the economic productivity of Zambia's national park system with that of other Sub-

Saharan African countries (South Africa, Botswana, Zimbabwe, Kenya, Mozambique, Tanzania, and Namibia) found that the Zambian national park system attracts fewer tourists and generates lower revenues than the other countries. The government only covered about 15% of ZAWA's annual operational costs while the revenue from the game management areas only covered 30%–50% thereby leaving a substantial annual deficit (GRZ, 2007c). This prevented ZAWA from achieving its potential and made it heavily reliant upon game management areas for its income (Lindsey et al., 2014).

For any country in the world, the sustainability of national parks and surrounding communities and the effectiveness of its governance systems is a function of natural, human and financial capital (Armitage et al., 2009). All three are needed for successful policy implementation based on IUCN guidelines, and must work in concert with one another to strengthen the integrity and sustainability of national park systems into the 21st century.

Conclusion

Globally, national park management authorities are under increasing pressure to address biodiversity loss. To effectively confront mounting pressures and facilitate sustainable stewardship in Zambia, drastic changes in conservation policy and practice are needed. IUCN best practice principles, if implemented consistently, can provide a realistic and positive foundation that could help increase opportunities for national parks to meet their local and international conservation goals by facilitating a conservation approach that embraces the interests and participation of multiple stakeholders (Büscher & Fletcher, 2019).

Our study indicates that, as a whole, Zambia's national park legislation and management plans are poorly aligned with IUCN best practice principles. Most of the park management plans and reports are outdated or difficult to access and are seldom linked to specific goals, action steps, or implementation mechanisms (Game et al., 2013). Zambia can either maintain the status quo, which will likely see continued biodiversity decline or, alternatively, align its national park legislation and management plans more closely with proven IUCN best practice principles. This will require renewed focus on data collection, monitoring and reporting, improved public access to information, improved technical and human capacity, and strengthened multi-stakeholder engagement to broaden social, political and financial support for biodiversity conservation.

Disclosure Statement: The authors have no disclosures or competing interests to declare.

Funding: No external funding was received.

References

- Aongola, L., Bass, S., Chileshe, J., Daka, J., Dalal-Clayton, B., Liayo, I., Makumba, J., Maimbolwa, M., Munyinda, K., Nosiku Munyinda, N., Ndopu, D., Nyamb, I., Pope, A., & Sichilongo, M. (2009). *Creating and protecting Zambia's wealth: Experience and next steps in environmental mainstreaming*. Natural Resource Issues No. 14. International Institute for Environment and Development.
- Armitage, D. R., Plummer, R., Berkes, F., Arthur, R. I., Charles, A. T., Davidson-Hunt, I. J., & Wollenberg, E. K. (2009). Adaptive co-management for social-ecological complexity. *Frontiers in Ecology and the Environment*, 7(2), 95–102.

- Bennett, N. J., & Dearden, P. (2014). From measuring outcomes to providing inputs: Governance, management, and local development for more effective marine protected areas. *Marine Policy*, 50, 96–110.
- Berrisford, S. (2011). Revising spatial planning legislation in Zambia: A case study. *Urban Forum*, 22(3), 229–245.
- Borrini-Feyerabend, G., Dudley, N., Jaeger, T., Lassen, B., Pathak, N., Phillips, A., & Sandwith, T. (2013). *Governance of protected areas: From understanding to action*. Best practice protected area guidelines series No. 20. IUCN.
- Brechin, S. R., West, P. C., Harmon, D., & Kutay, K. (2001). Resident peoples and protected areas: A framework for inquiry. In P. C. West & S. R. Brechin (Eds.), *Resident peoples and national parks: Social dilemmas and strategies in international conservation* (pp. 5–28). The University of Arizona Press.
- Büscher, B., & Fletcher, R. (2019). Towards convivial conservation. *Conservation & Society*, 17(3), 283–296.
- CBD (Secretariat of the Convention on Biological Diversity). (2002). *Decision VI/23: Alien species that threaten ecosystems, habitats and species*. Document UNEP/CBD/COP/6/23. Convention on Biological Diversity Secretariat, Montreal, Canada.
- Chomba, C., Mwenya, A. N., & Nyirenda, V. (2011). Wildlife legislation and institutional reforms in Zambia for the period 1912–2011. *Journal of Sustainable Development in Africa*, 13(6), 218–236.
- Devillers, R., Pressey, R. L., Grech, A., & Kittinger, J. N. (2014). Reinventing residual reserves in the sea: Are we favouring ease of establishment over need for protection? *Aquatic Conservation Marine and Freshwater Ecosystems*, 25(4), 480–504.
- Dhliwayo, M., Breen, C., & Nyambe, N. (2009). Legal, policy, and institutional provisions for community participation and empowerment in Transfrontier conservation in Southern Africa. *Journal of International Wildlife Law Policy*, 12(1), 60–107.
- Di Minin, E., & Toivonen, T. (2015). Global protected area expansion: Creating more than paper parks. *BioScience*, 65(7), 637–638.
- Dudley, N. (2008). *Guidelines for applying protected area management categories*. IUCN.
- Durán, A. P., Rauch, J., & Gaston, K. J. (2013). Global spatial coincidence between protected areas and metal mining activities. *Biological Conservation*, 160, 272–278.
- Fauchald, O. K., Gulbrandsen, L. H., & Zachrisson, A. (2014). Internationalisation of protected areas in Norway and Sweden: Examining pathways of influence in similar countries. *International Journal of Biodiversity Science, Ecosystem Services & Management*, 10(3), 240–252.
- Game, E. T., Kareiva, P., & Possingham, H. P. (2013). Six common mistakes in conservation priority setting. *Conservation Biology* 27, 480–485.
- Gelcich, S., Reyes-Mendy, F., Arriagada, R., & Castillo, B. (2018). Assessing the implementation of marine ecosystem-based management into national policies: Insights from agenda setting and policy responses. *Marine Policy*, 92(1), 40–47.
- Gomar, J. O. V., Stringer, L. C., & Paavola, J. (2014). Regime complexes and national policy coherence: Experiences in the biodiversity cluster. *Global Governance* 20(1), 119–145.
- GRZ (Government of the Republic of Zambia). (1998). *Policy for national parks and wildlife*. Ministry of Tourism, Environment and Natural Resources.
- GRZ (Government of the Republic of Zambia). (1999). *National biodiversity strategy and action plan*. Ministry of Environment and Natural Resources.

- Government of the Republic of Zambia (GRZ). (2007a). *National Parks and Wildlife Policy (2007)*. <http://www.parliament.gov.zm>
- Government of the Republic of Zambia (GRZ). (2007b). *Management effectiveness tracking tool for the protected areas managed by the Zambia Wildlife Authority for the year 2007*. Ministry of Tourism, Environment and Natural Resources.
- Government of the Republic of Zambia (GRZ). (2007c). *Synthesis of completed management effectiveness tracking tool for protected areas managed by the Zambia Wildlife Authority for the year 2007*. Ministry of Tourism, Environment and Natural Resources.
- Government of the Republic of Zambia (GRZ). (2011a). *Environmental Management Act No 12 (2011)*. <http://www.parliament.gov.zm>
- Government of the Republic of Zambia (GRZ). (2011b). *National Policy on Environment (2011)*. <http://www.parliament.gov.zm>
- Government of the Republic of Zambia (GRZ). (2014a). *National Forestry Policy (2014)*. <http://www.parliament.gov.zm>
- Government of the Republic of Zambia (GRZ). (2014b). *Report of the Auditor General on the management of wildlife*. Office of the Auditor General.
- Government of the Republic of Zambia (GRZ). (2015a). *Forests Act No 4 (2015)*. <http://www.parliament.gov.zm>
- Government of the Republic of Zambia (GRZ). (2015b). *Zambia's Second National Biodiversity Strategy and Action Plan (2015-2025)*. Ministry of Lands, Natural Resources and Environmental Protection.
- Government of the Republic of Zambia (GRZ). (2016). *Constitution of Zambia, Amendment, Act No. 2 of 2016*. <http://www.parliament.gov.zm>
- Hare, D., & Blosssey, B. (2014). Principles of public trust thinking. *Human Dimensions of Wildlife*, 19, 397–406.
- Hare, D., Forstchen, A. B., Smith, C. A., & Decker, D. J. (2018). Developing governance principles for public natural resources. *Society and Natural Resources* 31(3), 382–388.
- Hassan, K. H., & Hameed, A. A. (2016). Wildlife protection: An assessment of Japan's legal system in meeting the global standards. *Social Science (Pakistan)*, 11(2), 59–66.
- IPBES. (2019). In E. S. Brondizio, J. Settele, S. Díaz, & H. T. Ngo (Eds.), *Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services*. <https://doi.org/10.5281/zenodo.3553579>
- IUCN. (2000). *Policy on social equity in conservation and sustainable use of natural resources*.
- IUCN. (2012). *A review of the impact of IUCN resolutions on international conservation efforts*. World Conservation Conference Paper.
- IUCN. (2013). *Guidelines for applying protected area management*.
- IUCN. (2017). *Vision and mission*. <https://www.iucn.org/regions/west-asia/about-rowa/mission-and-vision>
- Kalaba, F. K., Quinn, C. H., & Dougill, A. J. (2014). Policy coherence and interplay between Zambia's forest, energy, agricultural and climate change policies and multilateral environmental agreements. *International Environmental Agreements: Politics, Law and Economics*, 14(2), 181–198.

- Lausche, B. J. (1980). *Guidelines for protected areas legislation*. IUCN environmental policy and law paper, no. 16.
- Lausche, B. (2011). *Guidelines for protected areas legislation*. IUCN Environmental Policy and Law Paper. IUCN.
- Leverington, F., Costa, K. L., Pavese, H., Lisle, A. & Hockings, M. (2010). A global analysis of protected area management effectiveness. *Environmental Management*, 46, 685–698.
- Lindsey, P. A., Nyirenda, V. R., Barnes, J. I., Becker, M. S., McRobb, R., Tambling, C. J., Taylor, A. G., Watson, F., & t'Sas-Rolfes, M. (2014). Underperformance of African protected area networks and the case for new conservation models: Insights from Zambia. *PLoS ONE*, 9(5), 9–14. <https://doi.org/10.1371/journal.pone.0094109>
- Lockwood, M. (2010). Good governance for terrestrial protected areas: A framework, principles, and performance outcomes. *Journal of Environmental Management* 91(3), 754–766.
- MacKinnon, K., Dudley, N., & Sandwith, T. (2011). *Natural solutions: Protected areas helping people cope with climate change*. IUCN-WCPA, TNC, UNDP, WCS, The World Bank and WWF.
- Mascia, M. B., & Pailler, S. (2011). Protected area downgrading, downsizing, and degazettement (PADDD) and its conservation implications. *Conservation Letters*, 4, 9–20.
- Muhumuza, M., & Balkwill, K. (2013). Factors affecting the success of conserving biodiversity in national parks: A review of case studies from Africa. *International Journal of Biodiversity*. <http://dx.doi.org/10.1155/2013/798101>
- Naidoo, R., Gerkey, D., Hole, D., Pfaff, A., Ellis, A. M., Golden, C. D., & Fisher, B. (2019). Evaluating the impacts of protected areas on human well-being across the developing world. *Science Advances*, 5(4), eaav3006.
- Ng'andwe, C., & Chundama, M. (2012). *Terminal evaluation of the reclassification and effective management of the National Protected Areas System Project*. Ministry of Tourism, Environment and Natural Resources.
- Nyirenda, V. R., & Nkhata, B. A. (2013). Collaborative governance and benefit sharing in Liuwa Plain National Park, Western Zambia. *Parks*, 19(1), 103–114.
- QSR International. (2017). *What is NVivo*. <http://www.qsrinternational.com>
- Shine, C., Williams, N., & Gündling, L. (2000). *A guide to designing legal and institutional frameworks on alien invasive species*. IUCN Environmental Law Programme.
- Sichilongo, M., Mbewe, B., Machaya, C., & Mulozi, P. (2011). *Wildlife sector situational analysis report*. Ministry of Tourism, Environment and Natural Resources.
- Thomas, L., & Middleton, J. (2003). *Guidelines for management planning of protected areas*. WCPA best practice protected area guidelines series No. 10. IUCN.
- Timko, J., & Satterfield, T. (2008). Criteria and indicators for evaluating social equity and ecological integrity in national parks and protected areas. *Natural Areas Journal*, 28(3), 307–319.
- UN (United Nations). (1992). *Agenda 21: The United Nations Conference on Environment and Development*. <https://sustainabledevelopment.un.org>
- UNDP (United Nations Development Programme). (2007). *Institutional and coordination mechanisms*. Guidance note on facilitating integration and coherence for SDG Implementation.

- UNEP-WCMC. (2023). *Protected area profile for Zambia from the world database on protected areas*. <http://www.protectedplanet.net>
- Vanderzwaag, D. L., Hutchings, J. A., Jennings, S., & Peterman, R. M. (2012). Canada's international and national commitments to sustain marine biodiversity. *Environmental Reviews*, 20(4), 312–352.
- Watson, F. G. R., Becker, M. S., Milanzi, J., & Nyirenda, M. (2014). Human encroachment into protected area networks in Zambia: Implications for large carnivore conservation. *Regional Environmental Change*, 15(2), 415–429.
- Watson, J. E. M., Dudley, N., Segan, D. B., & Hockings, M. (2014). The performance and potential of protected areas. *Nature*, 515, 67–73.
- World Bank. (2011). *What would it take for Zambia's tourism industry to achieve its potential?* <http://siteresources.worldbank.org>
- Yates, K. L., Payo, A., & Schoeman, D. S. (2013). International, regional and national commitments meet local implementation: A case study of marine conservation in Northern Ireland. *Marine Policy*, 38, 140–150.
- ZAWA (Zambia Wildlife Authority). (2004). *Programme for the development of the Kafue National Park as a model of sustainable economic use and biodiversity conservation in a management extensive environment, 2005–2009*.
- Zhao, J. (2005). Implementing international environmental treaties in developing countries: China's compliance with the Montreal Protocol. *Global Environmental Politics*, 5(1), 58–81.
- Zinngrebe, Y. M. (2018). Mainstreaming across political sectors: Assessing biodiversity policy integration in Peru. *Environmental Policy and Governance*, 28(3), 153–171.