A Conceptual Framework for Studying Global Change, Tourism, and the Sustainability of Iconic National Parks

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Conservation has a long history of protected area experimentation in Europe, Africa, the Americas, and Oceania. The theme that the biotic and abiotic environment has value for its naturalness and therefore ought to be spared urbanization, industrialization, and other measures of economic development has found expression in the creation of national parks, forest reserves, wilderness reserves, scenic reserves, national monuments, and heritage sites. While the basic idea of national parks has been around for centuries, the formative years of the modern national park movement span the 1850–1950 period (Sheail 2010: 2). The first national park, so-named and federally managed, traces to Progressive Era legislation and the creation of Yellowstone National Park in 1872 (Sheail 2010: 19–20; cf. Meringolo 2012: 37–42). Yellowstone illustrates a double commitment to the goals of protecting nature and fostering responsible human visitation.

The national park experience can be a sacred one for the preservation of the natural environment and the enhancement of human intellect and well-being. Yet it is increasingly evident that humanity and its diverse technologies have great influence, both positive and negative, on the natural environment and on multicultural society. Physical, chemical, and ecological processes, which are affected by human technologies, are potent drivers of change even in protected areas such as national parks. Since the publication of the Brundtland Report, sustainable development has gained international acceptance as an ideal that emphasizes the responsibility of people to act ethically (WCED 1987; Kates et al. 2005). Good governance has also emerged as an ideal the United Nations and the World Bank deem worthy of adopting, despite difficulties in its application (CEPA 2008; World Bank Group 2009). In the national park context, governance options in management models have been usefully examined by Eagles (2009).

This article presents a conceptual framework for examining how iconic national parks with human, natural, and artifactual components are influenced by the internal dynamics of tourism and the external influence of several categories of global processes. As will be seen in the other contributions to this special issue, applications of the conceptual framework take a

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variety of forms, depending on the focus of researchers and the selection of dependent and independent variables of interest. The parks discussed may be described as iconic for the way in which they have captured the imagination of national and international communities, and attracted visitors and scientists. Simply, we take *iconic national parks* to be those parks that have high rates of visitation, and features and amenities that are particularly valued as well as salient in the public and scientific imaginations.

Relatedly, environmental philosopher Eugene Hargrove (1989: 10–11) has commented that "national parks are appreciated and visited for their anthropocentric–intrinsic value…. [They] are valuable to humans for their (relatively) pristine or natural condition." And, environmental philosopher Robert Elliot makes a related point:

> [T]he property of being the result of natural processes is one of the bases of the value possessed by wild nature.... [T]he value of restored or, loosely speaking, faked nature is less than the value of original or authentic nature (1997: vii, xi).

Background

Protected areas. In 1962, the International Union for Conservation of Nature (IUCN) sponsored, with others, the First World Conference on National Parks in Seattle, Washington. In a letter to conference delegates, John F. Kennedy, president of the United States, proposed the value of national parks to people:

> ... national park and reserve programs throughout the world are important to the welfare of the people of every nation. *We must have places where we can find release from the tensions of increasingly industrialized civilization, where we can have personal contact with the natural environment which sustains us.*... It is the course of wisdom to set aside an ample portion of our natural resources as national parks and reserves, thus ensuring that future generations may know the majesty of the earth as we know it today (Adams 1962, emphasis added).

Today, the IUCN defines a protected area as "[a] clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values" (Dudley 2008: 8). National parks fall, with wilderness areas, nature reserves, sanctuaries, national monuments, World Heritage sites, and protected landscapes and seascapes and variants on these forms, along an IUCN continuum according to the level of human activity permitted (see Dudley 2008). At the low end of human-permitted activity on the continuum are "Strict Nature Reserves" (Category Ia) and "Wilderness Areas" (Category Ib), while at the high-end levels of human use are "Protected Area with Sustainable Use of Managed Resources" (Category VI) (see Dudley 2008). National parks (Category II) are positioned near the low end zone of the continuum. They are" large natural or near natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provide a foundation for environmentally and culturally compatible spiritual, scientific, educational, recreational and visitor opportunities" (Dudley 2008: 16).

A protected area is often named to suggest that its management aligns with a particular IUCN category, but in practice it may actually be managed in a way more fitting to another category. For example, a national park, which might be expected to foster both protection and human access goals, may in fact be managed as a wilderness where access is a very low priority. Also, individual protected areas, which fall appropriately in the same IUCN category, can differ substantially in terms of their management. To illustrate, national parks can vary in size, environmental and cultural amenities, lead management authority (e.g., state, federal, provincial entity), research priority and effort, operational and enforcement emphasis, educational programs, and goal priorities.

National park goals. National parks are systems that link people and nature and contribute to human health and well-being (see Maller et al. 2008). Generally, national parks can be contrasted with national forests and national wildernesses by the quantity and kinds of human access encouraged or discouraged. US parks, forests, and wildernesses are managed with blends of three kinds of conservation: *extractive conservation*, *biotelic* (*bio* = life, *télos* = purpose [Greek]) *conservation*, and *aesthetic conservation* (see Miller 2008b). US national forests are managed primarily for sustainable yield, along with recreational use. The *extractive conservation* goal permits timber to be generated for the marketplace on a sustainable basis. Recreational activities in national forests may include hiking, skiing, boating, and fishing, among others, but these generally occur alongside the extractive operations. National wildernesses are managed for *biotelic conservation* so that human presence is minimized and (relatively) pristine nature is preserved. When national parks are managed for *aesthetic conservation*, nature is preserved to a degree, but human access and enjoyment are priorities.

National parks, then, are not parks unless they are visited (see Beltrán 2000; Eagles and McCool 2002; Taylor et al. 2011). While nature preservation is a key goal, it does not trump providing recreational and transcendental opportunities to people. Certainly, one very positive target outcome of park visitation is for people to adopt an environmental ethic that changes their conduct regarding environmental practices. Correlatively, people visiting the parks helps to generate funds to maintain park infrastructure and natural resources. However, people's park experience does not only function as a means to the end of a protected environment. It also functions to enhance the individual psyche of visitors. Simply, we become better and more interesting persons for a park visit. Thus, national parks can function to create a more intelligent and creative human.

Iconic national parks

The successful design and management of national parks depends on finding an acceptable position along the continuum between extra-preservationist agendas that allow virtually no tourism, and extra-touristic agendas that encourage high levels of visitation and associated infrastructure development to service visitor needs as well as minimize visitor impact. The issue then is not simply the number of visitors *per se*, but rather the capacity to manage visitation within desired social settings. This has given rise to park planning concepts such as Recreation Opportunity Spectrum (see Clark and Stankey 1979) and Limits of Acceptable

Change (Stankey et al. 1985). However, in park management, the very language used by different constituencies often reflects underlying personal values and preferred management priorities. For our purposes, we use the term "nature" to refer to the non-human and non-artifactual world. Healthy nature indirectly benefits all living things in providing ecosystem goods and services. In a complementary way, some elements of nature, commonly referred to as "natural resources" or "natural capital," more directly benefit humankind.

We note that a working group of the Millennium Ecosystem Assessment series adopts a more restrictive terminology in which ecosystem services are limited to those particularly important for society:

> Ecosystem services are the benefits people obtain from ecosystems. These include *provisioning services* such as food, water, timber, and fiber; *regulating services* that affect climate, floods, disease, wastes, and water quality; *cultural services* that provide recreational, aesthetic, and spiritual benefits; and *supporting services* such as soil formation, photosynthesis, and nutrient cycling (Hassan et al. 2005: vii).

Of course, some would argue that *all* of nature is important for people. In addition, natural resources can have either extractive or aesthetic value to humans, or both (cf. Carter and Bramley 2002).

Scientific iconicity of species. In the overlapping "applied science" and natural resource management literatures (e.g., wildlife science, forestry, parks and recreation, marine and environmental affairs, protected area management, and tourism management), analysts and practitioners alike have found it appropriate to signal that some species (and ecosystems) merit more attention than others. This is also the case for the closely associated "basic science" literatures (e.g., zoology, biology, botany, ecology, sociology, political science, anthropology). Species categorized as *endangered, keystone, flagship, indicator* and the like are variously considered to exhibit fragility or an extra-potent functionality. To illustrate:

- The *IUCN Red List* (2014) categorizes "endangered and vulnerable species" as *extinct, extinct in the wild, critically endangered, endangered, vulnerable,* and *near threatened* to indicate their status and reflect their survivability; and
- It is common in the ecological literature to refer to some species as *keystone species* that have a disproportionately large effect on the environment relative to their abundance, thus playing a significant role in determining the structure and viability of the larger ecological community (see Paine 1995).

Levels of *scientific iconicity* of a species may be gauged in two ways. First, scientists may regard a species as iconic for its sheer potency in shaping larger ecosystem dynamics. In considering the emphasis given preservation and visitation, it is perhaps worth noting that not all visitors have equal impacts on the long-term creation and management of parks. Theodore Roosevelt (US president, 1901–1909) and Pierre Elliott Trudeau (Canadian prime minister, 1968–1979 and 1980–1984) were known to have a love of the outdoors and parks,

which possibly influenced their overseeing of the creation of more national parks than any other national leader in their respective countries (P. Eagles, pers. comm.). In the context of this paper, they could be considered to be iconic and keystone individuals for national parks.

Second, scientists may regard some of these species (or the ecosystems in which they occur) at risk. In the first instance, the scientifically iconic species is theoretically interesting, but not at risk. In the second instance, the scientifically iconic species is at risk (and, perhaps also interesting).

Touristic iconicity of species. With other motivational factors, tourists may be attracted to particular national parks to experience species for their scientific iconicity. Tourists (and scientists when not focused on their jobs) also may be attracted to experience nature subjectively, as well as objectively. *Touristic iconicity* overlaps with scientific iconicity and reflects that park visitors and scientists sometimes employ different criteria in their attributions of iconicity. Touristic iconicity is attributed by visitors to species that they accept as being scientifically iconic, and also to those that they regard as having exceptional appeal, measured in aesthetic, transcendental, historic, and spiritual terms. For example, park managers in the US refer to the attraction of "charismatic megafauna" as evidence of iconicity. Depending on the species in question, this iconicity can be scientific or touristic or both. While tourists may be drawn to national parks by touristic iconicity of species, they also enjoy seeing species that do not quite fit into this category and are not particularly special or unique.

Iconicity of national parks. Touristic amenities in national parks can be divided into three categories, which often have overlapping and interacting human, artifactual, and natural characteristics: (1) cultural units (e.g., indigenous, traditional, and resident communities; see West and Brechin 1991; Bray and Velázquez 2009; Andrade and Rhodes 2012), (2) infrastructure with social and historical value, and technologies with recreational utility (e.g., park accommodations, monuments, battlefields, archaeological sites, boats and canoes, off-road vehicles), and (3) aspects of nature with aesthetic qualities (e.g., mountains, reefs, glaciers, rivers, individual species and ecosystems, scenic viewscapes and soundscapes) and extractive value (e.g., fish and subsistence game). Just as some species compared with others are perceived as being iconic, some touristic amenities in each of these categories are more attractive, memorable and interesting to visitors and the scientific community. Therefore, we employ the term *iconic national park* to point to those national parks with *touristic iconicity* and/or *scientific iconicity.* A simple indicator of iconic status are those parks that people aspire to visit and protect (cf. Carter et al., this issue), although the aspiration may never be realized and vicarious use suffices. Most would agree that exemplars include Yellowstone, Galapagos, and Kruger national parks, and the Great Barrier Reef Marine Park area.

Conceptual framework for national park systems

Our conceptual framework (Figure 1) shows that a *national park system* (NPS) has three components. The structures of components are shaped by internal dynamics and cross-component dynamics or processes. In addition, all components are influenced by three types of external or global drivers of change. Examples of impacts of NPS components on one another in iconic parks, and some of the processes involved, are provided later in this paper.

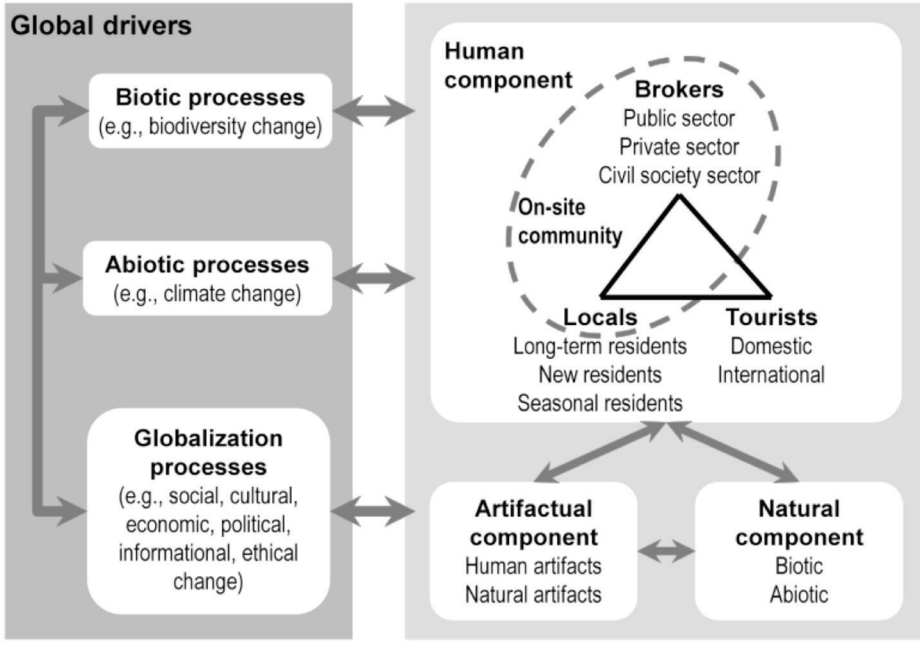

Figure 1. National park system (NPS) conceptual framework.

A national park is an example of a human–artifactual–natural system (HANS). HANSs are our modification of coupled natural and human systems (see McDonnell and Pickett 1993; Walsh and Mena 2013) and social–ecological systems (SESs; see Berkes and Folke 1998; Walker and Salt 2006; Miller et al. 2012). HANSs are elaborations of these related frameworks in that an artifactual component is added as a stand-alone element of the system. This is in recognition of the powerful influence that infrastructures, technologies, tools, and devices have on society and the environment. To be clear, we do regard humanity to be "natural" and therefore part of "nature." This said, we separate the human from the natural in the artifactual component of the HANS framework to acknowledge the unique character and extra-potency of humans to effect change in the world. This separation also acknowledges the importance of artifacts created by non-human organisms in ecological systems, their vulnerability, and their potential interest to tourists.

NPSs are relatively localized in scale. In the examples in this special issue, they encompass formally bounded national parks as well as territories immediately adjacent to parks. In a fractal way, NPSs are parts of systems within systems and, as such, respond to pressures at the regional, national, and global level.

Human component. The human component of an NPS pertains to the identification of human actors in park-dependent communities. These communities are located both within and adjacent to national parks and include gateway communities. In some cases, for example, when native cultures and traditional peoples are concerned, park-dependent communities pre-date the national parks in which they are now found. The behaviors, beliefs, knowledge,

preferences, and emotions of community members affect not only one another, but also the condition of entities in the natural and technological realms. Sociologically, this component of an NPS is described by a Broker–Local–Tourist (BLT) model (Miller and Auyong 1991; Miller 2008a and 2008b).

Tourism *brokers* are found in government (e.g., national park policymakers, managers, rangers, scientists, interpreters, enforcement agents), in the private sector (e.g., guides, service providers, retail entrepreneurs), and in civil society (e.g., nongovernmental and not-for-profit organizations with environmental and park agendas). Brokers interact with *locals* who are not engaged in the business or management of tourism (e.g., farmers, fishermen, pastoralists, homemakers, teachers, bakers) and *tourists* (both domestic and international), while some locals are part of the tourism business (bed and breakfast owners, gateway store owners, etc.).

In analyses of the human component, it is important to keep in mind (1) that the several categories of brokers and locals constitute the on-site community, (2) that locals and brokers may use national parks in their recreation, and (3) that broker–broker interactions, whether marked by consensus or conflict, directly influence the overall quality of an NPS (see Cheong and Miller 2000). In addition, national park "visitors" include not only tourists, but also brokers and locals.

Artifactual component. We use the term *artifact* to encompass all of the elements of material culture that are the products of human innovation, as well as natural and non-natural objects created or utilized by non-human organisms.

Human artifacts include technologies, tools, machines, utensils, utilities, art, clothing, artificial foodstuffs, and the countless parts constituting the built environment. NPS artifacts include a wide range of infrastructures, devices, and instruments that meet basic transportation and access needs (roads, airports, piers, boardwalks, marinas), accommodation needs (hotels, rental homes, campgrounds, restaurants) and special activity needs (scuba equipment, cameras, binoculars). The artifactual component of an NPS is an explicit acknowledgment that human daily behaviors and routines are, in part, determined by our artifacts in the same way they are by cultural and social standards, language itself, and the outer environment. What we decide to wear, where we choose to interact, and what we equip ourselves to accomplish in a national park are simultaneously facilitated and constrained by artifacts.

Technologies among artifacts are particularly influential in NPSs. Indeed, the very definition of 'technology' has changed substantially over the centuries as we have gradually come to realize that a tool or any other form of technology cannot exist without a user. In 1934, sociologist Lewis Mumford's *Technics and Civilization* made the case that machines are inextricably linked to people:

> We find there are human values in machinery we did not suspect.... No matter how completely technics relies upon the objective procedures of the sciences, it does not form an independent system, like the universe: it exists as an element in human culture and it promises well or ill as the social groups that exploit it promise well or ill (1963: vii, 6; see also Pacey 1982).

Natural artifacts denote a wide range of objects, tools, and products that are deliber-

ately employed by non-human organisms in the modification of the biotic and abiotic environment. Natural artifacts arise through what ecologists term "niche construction" and "ecosystem engineering" (Odling-Smee et al. 2013). These artifacts, as well as the behaviors exhibited by their non-human engineers, can be of significant tourist interest to national park visitors. Examples include the building of dams by beavers, the construction of nests, burrows, webs, and hives by birds, moles, spiders, and bees.

Natural component. The natural component of an NPS involves the structure and function of biotic and abiotic entities. In analyses of this component, it is important to distinguish and recognize the overlap between the elements of nature that can be extracted and are therefore valuable to humans as natural resources, those that are visited for their value as touristic amenities, and those of little immediate utility or interest to humans.

In passing, we point out that the interdependencies of the human, artifactual, and natural components of NPSs can be cast in terms of several kinds of capital. The work of political scientist and public policy expert Robert Putnam has been influential for demonstrating how social capital, as found in various kinds of social networks, can greatly increase individual and collective productivity and political power. Putnam also observes that the strategic use of social capital can result in negative as well as positive outcomes: "Therefore, it is important to ask how the positive consequences of social capital—mutual support, cooperation, trust, institutional effectiveness—can be maximized and the negative manifestations—sectarianism, ethnocentrism, corruption—minimized" (Putnam 2000: 22).

In the NPS context, the power of social capital is at play in the protection of the environment (natural capital) and the development of infrastructures and the built environment (artifactual capital; see Portes 1998; Maller et al. 2008).

Global drivers. Finally, NPSs are influenced by external or global drivers. These drivers concern three dominant categories of processes.

1. *Biotic processes,* as illustrated by biological and ecological processes influencing change in biodiversity.
2. *Abiotic processes,* as illustrated by physical and chemical processes contributing to change in climate.
3. *Globalization processes,* as illustrated by social, cultural, economic, political, ethical, informational processes shaping change in the social order.

Using the NPS conceptual framework

Just as no system can be completely studied, there is no single best approach to the analyses of NPSs as expressed in our framework. In our view, a variety of approaches and foci are valid, wherever they may fall along a basic–applied continuum (see the papers in this issue by Carter et al., Fidelman, Peake and Carter, and Walsh et al.). Any approach, however, should provide a clear specification of the overarching research goal, underlying questions, theoretical and management constructs of primary focus, methodologies appropriate to the selected dependent and independent variables, and finally, the management, academic, or public clients and audiences of the research. While the framework can be used in theoretical basic

science inquiries (i.e., studies not designed to have any immediate real-world application), we suggest its strength lies in the management context. It can help managers focus on issues specific to a park and the processes that need research to clarify interrelationships between components. Our ideas here are informed by the discussions of resource and people management approaches identified in Hockings et al. (1998: 644–646) and Orams (1999: 71–93).

In terms of overarching goals, we endorse approaches that fit NPS studies to the ideals of sustainable development and good governance. We see a continuing need for multidisciplinary and interdisciplinary research that, in complementary fashion, protects the environment while improving the quality of human life. This said, the theoretical and management constructs of central priority for any particular study will vary. Thus, studies will be attuned to a wide range of concepts (and their variants), which include natural and social system resilience, species and ecosystem vulnerability, social and environmental justice, triple bottom line sustainability, governance, optimum yield (e.g., for recreational and subsistence fisheries), and optimum visitation.

Certainly, we advocate research designed to inform park managers and others in government who make natural resource laws and policies, as well as those who implement and enforce natural resource regulations, and plan and apply technologies (e.g., facilities and access). We equally support research with education, interpretation, and outreach objectives.

As noted earlier, every component in the NPS framework can influence (positively or negatively) change in other components, as well as within its own domain. The direction of influence can, in many cases, be reversed, or can be seen to work in both directions. Change can flow also in a causal chain so that components and their parts can be linked diagrammatically in a "spaghetti-like" way (see Walsh et al. this issue, for a dynamic systems model).

In a very preliminary way, we provide a small sample of possible research topics that concern opportunities and problems within and across NPS components that may be particularly relevant to iconic national parks (Table 1; Figure 2). The list is far from being compre-

Figure 2. HANS interactions in an iconic national park: Tourists, locals, brokers and their artifacts at Fraser Island within Great Sandy National Park, Queensland, Australia. Photo courtesy of the authors.

Table 1. Sample of possible research topics that may be particularly relevant to iconic national parks.
Human component dynamics (internal)
governance: implications of institutional change for co-management, adaptive management, ecosystem-based management, social learning approaches to management
specialized tourism: impacts of broker projects and programs focused on wildlife tourism, ecotourism, pro-poor tourism, pro-women tourism, community-based tourism, heritage tourism
occupational diversification: implications of locals entering the tourism sector to become private-sector brokers
empowerment: implications for minorities and disadvantaged persons finding new jobs and roles in the tourism sector
cultural relocation: consequences of traditional cultures being displaced through increased park visitation
fishery–tourism interactions: consequences of social conflict between subsistence/ commercial fishermen and recreational boaters
enforcement: effectiveness of park management efforts to inhibit poaching and illegal activities by locals and tourists
public contact: effectiveness of park education and outreach programs to disseminate an environmental ethos to tourists, locals, and tourism businesses
optimum visitation: success of efforts to attract target markets, such as low-income and ethnic minorities to national parks
quality of life: impacts of increased tourism on the well-being of tourists, locals, and brokers
Artifactual component dynamics (internal)
technology–technology conflicts: consequences of jet skiing interference with scuba diving and kayaking
technology–technology impacts: consequences of new roadways and airports providing stimulus for commercial development and residential housing
Natural component dynamics (internal)
population dynamics: changes in population sizes of iconic/other species due to predator–prey relationships or arrival of invasive species
ecosystem dynamics: changes in the sizes/health of ecosystems due to changes in population size and behavior of iconic and other species
Human–natural dynamics (cross-component interaction)
tourist motivation: implications of change in tourist awareness of, and motivations to see, iconic species
species/ecosystem health: implications of disturbance by increased visitation and demand for resource extraction for iconic and other species and ecosystem vulnerability/resilience
Human–artifactual dynamics (cross-component interaction)
touristic attractions: management implications of increases in tourist visits to developed facilities (e.g., zip lines, suspension bridges, wildlife viewing platforms)
tourist safety and risk management: effectiveness of trail signage in alerting park visitors to dangerous routes and areas
tourism project investment: policy implications of entrepreneurial activities in finding finances to support development of infrastructure
social carrying capacity: approaches to resolving conflict between cruise ship presence inhibiting satisfaction of small-craft whale watchers
social media and technology: citizen science, monitoring and interpretation implications of GoPro cameras, apps, affordable GPS technology and social media
Natural–artifactual dynamics (cross-component interaction)
habitat boundaries: roadway impacts on wildlife corridors
environmental quality: degradation in iconic /other species and ecosystem health due to waste facilities

Table 1. Sample of possible research topics that may be particularly relevant to iconic national parks (cont'd).
Global driver dynamics (cross-component interaction)
biodiversity: impacts on species distributions
climate change: impacts on NPS iconic species/other species and ecosystem health, and on tourist motivation to visit park destinations
sea-level rise: impacts on NPS human communities and ecologies
globalization: impacts of changes in the global economic/political order on patterns of international travel to NPSs
disasters: impacts of tsunamis, earthquakes, and other extreme weather events on NPSs

hensive (e.g., we do not identify the important issues related to park financing and tourism demand), and we do not seek to infer priority, which will vary between parks. We do however seek to identify the types of links that exist between system components.

Conclusion

In this article, we have introduced a conceptual framework for the study of national parks. The NPS framework identifies key components and subcomponents or elements that have their own internal dynamics, and each component can affect others through ecological, social, and economic processes. At a larger scale of analysis, three global drivers are identified that can affect change in framework components.

This framework provides a context for the research of our colleagues concerning iconic national parks in Australia, Ecuador, South Africa, and the USA, and reported in this special issue. All of the iconic national parks discussed qualify for having both touristic and scientific iconicity. The companion articles, then, utilize the NPS conceptual framework in different ways, depending on the training and focus of the authors and the interests of their target audiences. We propose that the framework has particular relevance to the study of iconic national parks because such parks are usually the focus of public attention, are places where undesirable change is often first identified and rapid response is expected, and public tolerance of management mistakes or inactivity may be low. Iconic national parks are also places where the human component is often most influential on other components and the impact of global drivers on the human component can cascade throughout the NPS to create management complexity and increased uncertainty in terms of the efficacy of any management response applied to minimize undesirable change. Thus, the framework can provide a focus for identifying gaps in knowledge where research is needed to manage the internal dynamics of components and preempt the change effects of global drivers.

Looking ahead, we hope that our framework will prove useful in existing and new studies of national parks exhibiting the two types of iconic appeal. However, it can also be of use when the national parks of interest show only one form of iconic appeal. A national park, for example, could have substantial scientific iconicity for being interesting and/or at risk, but low touristic iconicity. One possible research topic with such a park would be to identify what might be done to reduce the risk of species extinction or increase touristic appeal, even if the species is not likely to ever be regarded by tourists as iconic.

Our framework can also be used to study national parks without any measure of iconic-

ity, but which could become iconic as sensitivities and knowledge change. Parks of this kind (i.e., not having species considered to be of any special interest or at risk by the scientific community, nor high on a tourist's travel agenda), might be studied to protect non-iconic species or to attract more tourists to help park-dependent businesses. Of course, scientific iconicity, whether concerning a species prominent for its influence or a species at risk, is, in the last analysis, a judgment call. Few scientists are comfortable with the idea that some species are uninteresting or expendable.

Finally, our framework can be used to understand and improve other protected areas that are not formally designated as national parks (e.g., monuments, reserves, heritage sites, sanctuaries), but which are, in practice, being managed as parks, or have the potential to be managed as parks. There are many examples worldwide where biotelic and extractive conservation goals drive marine protected area decisions, and where aesthetic conservation goals are not given consideration.

We hope that this national park conceptual framework will have value to those who endorse the very idea of national parks for the way in which they, by facilitating engagement of people with nature, improve the very person and life of the tourist, and protect nature.

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