Visitor Management in Brazil's Protected Areas: Benchmarking for Best Practices in Resource Management

Robert C. Burns and Jasmine Cardozo Moreira

Introduction

Recreational planning with a focus on nature-based recreation activities, along with mitigating their potential impacts on natural resources, is a challenge for recreation planners and professionals in many protected areas around the world (Eagles et al. 2002; Moore and Driver 2005; Manning 2011). The case of protected areas in Brazil is somewhat unique, in that little outdoor recreation research has been undertaken, while protected areas are of critical value to the Brazilian people. This paper compares Brazilian protected areas with those in the United States and Central Europe. We will focus on key underlying differences in the legislation that creates the protected areas, and comparisons of how visitor management is different and how that impacts management and visitor perceptions. The objective is to identify key issues that could be addressed in future joint activities on both research and management levels.

Benchmaking Brazilian protected areas

Why focus on comparing South American, North American, and European protected area settings? First, we gain an intimate understanding of how protected areas are classified and managed in other countries, the challenges they face, and how they deal with and solve management and planning problems. This allows for a better reflection of how different managers approach the planning process. Secondly, resource managers and researchers gain an understanding of how diverse cultures deal with similar issues. Alternative strategies may be implemented to reach a similar end result: better management of protected areas. Additionally, a shared understanding can be used to enhance adaptive management and collaborative planning processes by providing "best practice" examples. Communication can be enhanced between protected area managers worldwide, particularly with respect to visitor use dynamics and impacts. Managers can better understand and share similar methodologies, which can result in cross-boundary comparisons of not only problems and issues, but also of how

The George Wright Forum, vol. 30, no. 2, pp. 163–170 (2013).

ISSN 0732-4715. Please direct all permissions requests to info@georgewright.org.

various solutions have been effective (or ineffective) in different places, and why (Table 1). The goal of building capacity is inherent in this process. Having a clear understanding of how resource managers of similar protected areas work, potentially in very different settings, allows the managers to benchmark with one another and understand what works and what does not.

As the potential for activity-induced conflict increases, comparative studies on an international level can help to advance both science and practice of recreation management. However, comparisons are only useful when the basic conditions, managers' values, and frameworks under which management makes decisions are known (von Ruschkowski et al., in press). These are often derived from legislation and policies, and they set the tone for protected area management. Local managers must still interpret and implement management processes, but by making use of best practices methods, and understanding others' reactions to similar problems, they are effectively provided with additional tools with which to make decisions.

Protected areas in Brazil

The preservation of protected areas in Brazil has sometimes taken place at the expense of local populations. This phenomenon has occured globally, with local people bearing the brunt of the negative impacts related to the designation of protected areas (Schmidt-Soltau and Brockington 2004). Over the past decade, however, trends have been noted that indicate a greater reliance on a "balance between top-down preservation and bottom-up sustainable development, which is the result of local social movements" (Bicalho 2011). In 2000, Brazilian protected areas were strengthened by the Sistema Nacional de Unidades de Conservacao (SNUC) (Silva 2005). The SNUC created two broad categories for Brazilian protected areas. The first of these requires that the setting be strictly protected, with biodiversity conservation as the principal objective. This includes national parks, and is roughly equivalent to the International Union for Conservation of Nature (IUCN) category II. The second category is focused on sustainable use, which allows for varying forms of exploitation, with biodiversity protection taking a lesser role. This includes Brazilian national forests, various reserves, and areas of particular ecological interest (Silva 2005). Together, these protected areas account for nearly 70 million hectares, or nearly 8% of Brazil's total land area (Rylands and Brandon 2005).

Table 1. Differences noted among three case study locations regarding social carrying capacity assessment (modified from Burns et al. 2010).

Nation / Region	Central Europe	Brazil	USA
Methods	Quantitative	Quantitative	Quantitative
Bias	Ecocentric	Ecocentric	Anthropocentric
Use of frameworks	Very few applications	Very few applications	Heavily relied upon
What drives research	Ecological needs	Ecological needs	Litigation
Settings of parks and protected areas	Mostly developed to highly developed	Remote wilderness to highly developed	Remote wilderness to highly developed
Tools used	Cameras and visitor counters	Very few tools used	Visitor counters

However, a unique challenge within the Brazilian system is the relatively minor discussion of the role of visitors to protected areas in the enabling legislation. Not all of the 68 national parks in Brazil are open for public visitation, and management planning for those parks that do allow it is limited. In some cases, no visitors may enter a national park without the use of a guide. One of the challenges related to Brazilian protected areas lies within the reason for the enabling legislation—as many protected areas were developed primarily to protect natural resources. Many of the protected areas were designated to slow deforestation, while the role of recreation visitation was not truly considered. Thus there has been a slow transition toward viewing a protected area as a setting that should be managed for visitor use.

The legal basis and history as benchmarks: The cases of Austria, Germany, and the United States

Looking at the Brazilian parks, some similarities in terms of their recent history may be found in many European countries. For many of these nations, the development of protected areas is a relatively new phenomenon. For example, the earliest named national park in Germany (Bayerischer Wald) was developed in 1970, and the two most recent (Eifel and Kellerwald-Edersee) were established in 2004. Overall, its 14 national parks cover just over 1 million hectares, equivalent to 0.54% of the country's terrestrial land mass. Similar to the situation in Brazil, most of the German national parks are considered to be in a state of development, with the objective of reaching initial legislative or other objectives within a time frame of 20 to 30 years (e.g., by phasing out existing uses and initiating measures to speed up processes that lead to more natural states of vegetation). The German parks were developed with the main objective to protect nature, but also to allow for environmental science, education, and public experience of nature. The legal basis for national parks is provided within the federal nature conservation act, but the actual mandate for designation and implementation lies with the German federal states. This creates an interesting situation of a combined federal–state management process, which may include both pros and cons. The alignment of federal and state agencies may allow for a more supportive funding structure for protected areas; however, the coordination and synchronization of efforts may be stymied. All parks are now recognized under IUCN category II, with the objective to meet all criteria within the above-mentioned transition period. German parks have no fees, although concessionaires do operate in and near them.

Austria, a closely linked neighbor to Germany, has seven national parks, covering nearly 3% of the total territory. Similar to Germany, Austrian national parks are in IUCN category II, and are co-managed by both federal and state entities. Nearly all Austrian parks are fee-free, with the exception of boating in specific areas in the Gesäuse National Park.

In the United States, by contrast, the first national parks were designated fairly early in the nation's history, with Yosemite, Yellowstone, Sequoia, Mount Rainier, Glacier, and Crater Lake national parks designated in the latter part of the 19th century or early in the 20th century. Among others, the most important enabling legislation for US national parks were the Antiquities Act of 1906 and the Organic Act of 1916, which created the National Park Service and allowed for funding. These acts mandated protective status for the parks and allowed for the conservation of scenery, natural and historic settings, and wildlife, as well as

outdoor recreation. A total of about 28% of the land mass of the US is considered as protected areas, with about 8% designated as part of the US national park system.

Benchmarking visitor management: European and US models

While most US national parks were created in the early part of the 20th century, most European protected areas were designated much more recently. For this reason, it is logical to benchmark the Brazilian protected areas with similar European protected areas. European social science research on visitor management in nature-based recreational settings has traditionally focused on understanding the impacts of use levels on the natural resource. Therefore, the European approach has relied heavily upon visitor monitoring, and several countries have established standardized visitor monitoring programs (Arnberger 2006; Burns et al. 2010). This approach successfully provides indicators to natural resource managers. Nevertheless, valid long-term data about overall visitation are not available for many locations. While data on additional variables that are useful for developing social carrying capacity models (e.g., trip characteristics, sociodemographic variables, and recreation activities) have been regularly collected, variables reflecting the quality of the recreation experience, such as crowding perceptions, have rarely been measured. Germany's national parks serve as a prime example here. Due to the 14 parks' recent history, research and management activities focus mainly on natural resources, whereas socioeconomic issues (e.g., tourism, recreation, and conflicts between different user groups) are considered to a much lesser extent (von Ruschkowski 2010). A similar situation is reported for Austria (Arnberger and Muhar 2008). However, during the past decade, interest in these variables has increased and recent efforts to provide valid and long-term data on overall visitation, visitor preferences and satisfaction, and even crowding perceptions are reported for several German, Swiss, and Austrian protected areas (Arnberger 2006). Several areas have applied integrated visitor monitoring concepts combining monitoring data with survey data. However, in many cases research on crowding is driven by interested researchers and not by park administrations, as they have not yet identified it as a prior management goal.

Most US federal natural resource agencies tend to manage by using one of the traditional frameworks designed by US researchers and proved in the country's national parks and forests. These frameworks have also addressed the quality of the recreation experience. These frameworks typically include the recreation opportunity spectrum (ROS), visitor impact management (VIM), limits of acceptable change (LAC), and the visitor experience and resource protection framework (VERP) (Stankey and Lime 1973; Graefe, Kuss, and Vaske 1990; National Park Service 1997). Much of the North American research conducted using the above-mentioned frameworks focuses on user crowding, conflict, trip characteristics, sociodemographics, and satisfaction. Only in recent years have the variables associated with visitor use monitoring been included in understanding North American social carrying capacity (Manning 2011). These frameworks have been applied over several decades and are very common to US national park managers.

Over 30 years of natural resource research in and outside of the United States has revealed many similarities in problems and distinctly different approaches to addressing them.

European research tends to focus on land use in an ecocentric manner, while the US body of literature is often more anthropocentric in scope. Nearly all European parks are recent additions to the world's loosely held collection of protected areas, and are often a means to minimize social use after hundreds or thousands of years of such use. Conversely, the approach to managing most US protected areas is to provide access for social use. Whereas social carrying capacity seems to be treated as a separate research topic in the United States, recent European efforts focus on the combination of socioeconomic data with ecological data, although only a few studies (mostly from Alpine habitats) exist. Thus, more studies and a better emphasis on the integration of both research fields should be the focus of future research. Visitor satisfaction data and conclusions are also needed as key pillars of park management to convey the message about overused areas where the intentions for displacement lead to more potential conflicts, as the Austrian study shows. Especially in densely populated areas, park managers have the difficult task of finding compromises between land user interests and natural resource protection on a daily basis. In such cases, it is even more important to have sound knowledge about visitors' intentions, because only this will provide for solid and transparent decision-making (Burns et al. 2010). It is assumed here that one of the reasons why the topics of crowding and social carrying capacity in general are pursued with a lesser emphasis in Europe is that (besides the different legal situation) the actual occurrence of crowding would actually lead to consequences through management actions. These would include the limitation of visitor numbers or restrictions on certain recreational activities—in other words, measures that are not popular with visitors and users. This is more complicated when—because of the overall dense situation in Central Europe—protected areas are urgently needed for daily recreation.

Visitor use restrictions, such as special-use permits for certain recreational activities, are very much an exception in most European protected areas. In the United States, many efforts to cap visitor impacts are spurred by lawsuits, followed by the need for more litigation. It remains questionable whether management frameworks provide an answer to these unsettled cases. As such frameworks more or less do not exist in Europe, protected and recreational areas can make their decisions without any methodological restrictions, thus providing a test bed for new, even unconventional, methods to measure social carrying capacity or crowding.

Additionally, on a meta level, no quality standards for collecting visitor use data in Germany or Austria currently exist, thus making it impossible to guarantee standardized methods for visitor counts (Sievänen et al. 2008), while standardized approaches are used, for example, by the US Forest Service. One additional crucial point is the long-term perspective. While in the United States the management frameworks require long-term monitoring efforts regarding social aspects, in most of the Central European countries this long-term perspective is not taken; long-term monitoring is applied only for ecological issues.

Although management frameworks to address the impact of visitor use on natural resources (VIM, VERP, and LAC, among others) exist, the topic of addressing social carrying capacity has been rather neglected in Austrian and German protected area management. As visitation to the national parks is high, even by international standards, social science research (visitor satisfaction, crowding, etc.) needs to be included in the management stan-

dards for Austrian and German national parks. Thus, researchers are required to identify and define valid methods, quality standards, and criteria in order to ensure integrated approaches that are implemented on an individual basis (Burns, Arnberger, and von Ruschkowski 2010).

Conclusions

Brazil's array of protected areas is more than impressive—in scope, in sheer beauty, and in diversity (Janer 2010). With more than 300 protected areas, including 68 national parks, one could argue that Brazil has made an adequate supply of natural resources available to its recreating public and tourists. The resources have been inventoried and most protected areas either have a management plan in place or under consideration. Inevitably, new protected areas will be created, either out of a desire to protect environmentally sensitive ecosystems, or as a result of legislation or political will.

What is unknown, however, is the demand that will be placed on Brazil's protected areas over the next 20–30 years. With estimates suggesting tourism will increase twofold over the next 20 years, it is imperative that demand be understood such that managers can begin to focus on protected areas in a way that will sustain the future of their settings and also account for visitor use (Hall et al. 2012). There are many forces that have the potential to influence the scope of tourism demand on these natural resources. Brazil, as one of the so-called BRIC nations (Brazil, Russia, India, and China), has become a global economic power. It is expected that this economic power will move Brazil forward in many different ways, most outside the scope of this paper. Over the next few years, Brazil will host the 2014 FIFA World Cup and the 2016 Summer Olympics. That Brazil is hosting two of the world's largest and most important international sporting events is evidence of the emerging global importance of the nation. Opportunities and challenges abound, and there will be an immense financial investment into protected area infrastructure, including about $15 billion into the Parques da Copa (Palhares 2012). The hundreds of thousands of visitors drawn by these worldwide events will have an impact on Brazil's protected areas. However, it is the residual effect—the emergence of Brazil as a nation that is more and more easily accessible—that has the potential to have a long-lasting effect on its protected areas. If tourism does indeed increase significantly over the next 10–20 years, Brazil's protected areas must be prepared to provide quality experiences to visitors.

Future research

Transportation and access to protected areas is a challenge in the United States, and less so in Europe. The challenges associated with access and transportation in Brazil cannot be understated. Although a lack of access does help, in some ways, to protect sensitive ecosystems, this issue must be addressed. With a relatively low level of visitor use in Brazilian protected areas, it can be surmised that crowding and conflict may not be a critical issue in these settings. However, in order for Brazil's protected areas to be relevant to its citizens, an effort to provide for adequate access should be undertaken. When citizens have access and feel the natural resources are indeed "theirs" rather than belonging to the government, a sense of place and relevance can be developed.

In conclusion, a systematic, broad-based visitor management plan, one which can be benchmarked against other visitor management systems, is suggested. Resource managers

and researchers may want to focus on understanding visitor use monitoring, working together to develop park management plans that will be effective for managers and allow access for visitors. Additionally, marketing should be an important concept in the management plans of Brazil's protected areas. Marketing efforts should be matched to the existing infrastructure so potential visitors to protected areas have realistic expectations.

References

Arnberger, A. 2006. Recreation use of urban forests: An inter-area comparison. *Urban Forestry and Urban Greening* 4: 135–144.

Arnberger, A., R. Eder, B. Allex, P. Sterl, and R.C. Burns. 2012. Relationships between national park affinity and attitudes towards protected area management of visitors to the Gesäuse National Park, Austria. *Forest Policy and Economics* 19: 48–55.

Arnberger, A., and A. Muhar. 2008. Recreation and nature tourism demand, supply and actual usage in Austria: Cost action e33 WG2 country report. In *Forest Recreation Monitoring: A European Perspective.* T. Sievänen, A. Arnberger, L. Dehez, N. Grant, F.S. Jensen, and H. Skov-Petersen, eds. Working Paper no. 79. Helsinki: Finnish Forest Research Institute, 106–114.

Bicalho, A.M. 2011. Forestry management in inhabited conservation units: The Tapajos National Forest as a model of community governance in Brazil. In *Proceedings of the 19th Colloquium of the IGU Commission on the Sustainability of Rural Systems*. On-line at http://www.nuigalway.ie/cisc/documents/geog_coll_ana_bicalho_forestry_management.pdf.

Burns, R.C., A. Arnberger, and E. von Ruschkowski. 2010. Social carrying capacity challenges in parks, forests, and protected areas: An examination of transatlantic methodologies and practices. *International Journal of Sociology* 403: 30–50.

Dudley, N., ed. 2008. *Guidelines for Applying Protected Area Management Categories.* Gland, Switzerland: IUCN.

Eagles, P., S. McCool, and C. Haynes. 2002. *Sustainable Tourism in Protected Areas: Guidelines for Planning and Management*. Gland, Switzerland and Cambridge, UK: IUCN.

Federal Republic of Germany. N.d. Federal Nature Conservation Act BNatSchG, article 24, paragraph 1. On-line at www.gesetze-im-internet.de/bundesrecht/bnatschg_2009/gesamt.pdf.

Graefe, A.R., F.R. Kuss, and J.J. Vaske. 1990. *Visitor Impact Management: The Planning Framework.* Washington DC: National Parks and Conservation Association.

Hall, J., S. Matos, L. Sheehan, and B. Silvestre. 2012. Entrepreneurship and innovation at the base of the pyramid: A recipe for inclusive growth or social exclusion? *Journal of Management Studies* 49(4): 785–812.

Janer, A. 2010. The national parks of Brazil. N.p.: Instituto EcoBrasil. On-line at http://www.ecobrasil.org.br/.

Palhares, G.L. 2012. Tourism in Brazil: Environment, management and segments. In *Contemporary Geographies of Leisure, Tourism, and Mobility*. G. Lohman and D. Dredge, eds. London: Routledge.

Manning, R.E. 2011. *Studies in Outdoor Recreation: Search and Research for Satisfaction*.

3rd ed. Corvallis: Oregon State University Press.
Moore, R.L., and B.L. Driver. 2005. *Introduction to Outdoor Recreation: Providing and Managing Natural Resource Based Opportunities*. State College, PA: Venture.
National Park Service. 1997. *VERP: Visitor Experience and Resource Protection Framework.* Denver, CO: US National Park Service, Denver Service Center.
Rylands, A.B., and K. Brandon. 2005. The Brazilian protected areas program. Conservation Biology 19(3): 612–618.
Schmidt-Soltau, K., and D. Brockington. 2004. The social impacts of protected areas. IUCN Commission on Environmental, Economic and Social Policy, Sustainable Livelihood Working Group. Accessed July 11, 2013.
Sievänen, T., A. Arnberger, L. Dehez, N. Grant, A. Jensen, and H. Skov-Petersen, eds. 2008. *Forest Recreation Monitoring: A European Perspective*. Working Paper no. 79. Helsinki: Finnish Forest Research Institute.
Silva, M. 2005. The Brazilian protected areas program. *Conservation Biology* 19(3): 608–611.
Stankey G.H., and D.W. Lime. 1973. *Visitor Perceptions of Wilderness Recreation Carrying Capacity*. INT-142. Ogden, UT: US Department of Agriculture–Forest Service, Intermountain Forest and Range Experiment Station.
von Ruschkowski, E. 2010. *Ursachen und Lösungsansätze für Akzeptanzprobleme von Großschutzgebieten am Beispiel von zwei Fallstudien im Nationalpark Harz und im Yosemite National Park* [*Causes and Potential Solutions for Conflicts Between Protected Areas and Local Communities*]. Hannover and Stuttgart: ibidem-Verlag.
von Ruschkowski, E., R.C. Burns, A. Arnberger, D. Smaldone, and J. Meybin. 2013. Recreation management in protected parks and forests: A comparative study of Austria, Germany, and the United States of America. *Journal of Park and Recreation Administration* 31(2): 95–114.

Robert C. Burns, West Virginia University, Division of Forestry and Natural Resources, 6125 Percival Hall, Morgantown WV 26501; robert.burns@mail.wvu.edu
Jasmine Cardozo Moreira, Ponta Grossa State University, Departamento de Turismo, Pca Santos Andrade, 01, Ponta Grossa, 84100-000, Parana, Brazil; jasmine@uepg.br