

# Identifying Threats, Values, and Attributes in Brazilian Wilderness Areas

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**Abstract**—The protection of relatively pristine areas in Brazil provides a great opportunity to recognize the values of natural ecosystems. At the same time, it provides opportunities for economic development. The growing interest in these areas in Brazil has stimulated techniques for management and research to study the consequences of human activities on the natural environment and the experience of visitors. Protection of the values received from these areas in relation to ecological and social conditions and threats to those values and conditions are priority research topics in Brazil. In the year 2003, a Symposium, “Protecting and restoring relationships between humans and wilderness landscapes,” was held in Piracicaba-SP, Brazil. At this meeting a range of protected area issues were discussed; all of them outcomes of actual studies in protected areas and related to defining and protecting the human relationships with natural environments. Participants identified threats, values and attributes of protected areas that could help to guide ecological and social research and monitoring. They used a basic matrix of wilderness attributes and threats used previously at the Leopold Institute. The results reflect, in a way, the situation of other undeveloped countries where the main threats are related to illegal extraction of wood, traffic in wild animals and inadequate agricultural practices.

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## Introduction

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Asking stakeholders and managers to give their opinion about how management could be improved in a protected area assumes that public participation works well. This focus is quite new in Brazilian protected areas and the benefits are still not evaluated. Some authors have made progress on this process. Milano and others (1993) conducted a study evaluating the opinion of individuals involved with protected areas, and more recently, Theulen (2004) has evaluated the current perspective of managers of protected areas, and compared the current state of management and administration with that of 1993. Some of the conclusions obtained

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by Theulen will help us to understand the results obtained from the interaction between stakeholders and managers at a symposium in Brazil focused on chronic problems in Brazilian protected areas.

Shroyer and others (2003) demonstrated the ability to work across interests to define wilderness qualities, threats, values and stakeholders in South Africa. The intention of these authors was to provide a baseline to help the South African government and agencies prioritize research needs. They also provided an exhaustive basis for appeal to stakeholders responsible for decisions about allocation or stewardship of wilderness places in South Africa.

## Methods

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### Working Together and Focusing on the Brazilian Wilderness Context

In the year 2003, the Symposium, *Protecting and Restoring Relationships Between Humans and Wilderness Landscapes*, was held in Piracicaba-SP, Brazil (September 18–19). The participants were mostly composed of students (73 percent), but with professionals (20 percent) and professors (7 percent) that work directly with the protection of Brazilian natural areas. A great deal of recent research was presented to inform participants about how other countries were working to understand the relationship between humans and protected nature. Most presentations concentrated on: 1) Identifying and monitoring experiential aspects of wilderness use; 2) Identifying threats, values and attributes of wilderness to guide ecological and social research and monitoring; 3) Searching for compatibility between traditional, ecotourism and ecological values in protected area planning and management; and 4) The role of wilderness in mega-reserve inventories and monitoring: from South Africa to Nunavut.

During working sessions, participants were asked to formulate a matrix focusing on the values that need to be protected in the Brazilian wilderness context. To complete the analysis they identified the threats to these values and the variety of stakeholders who could gain or lose from protection or restoration of areas and associated values.

## Results and Discussion

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We can have a better understanding of outcomes by analyzing the Symposium in two stages. The first is related to knowledge presented during the Symposium themes, and the second is focused on the working sessions where the threats, values and attributes matrix was developed.

## About the Symposium

### **Monitoring Experiential Aspects of Wilderness Use.**

While much of the research and scientific values associated with protection of places such as wilderness has to do with ecological baselines, much of the political and popular support for wilderness has to do with highly emotional, symbolic relationships with specific places. The Leopold Institute has been the leader in identifying the experiential dimensions of wilderness visits and guiding inventory and monitoring to protect these personal and social meanings. This session presented the current status and range of experiential values monitored in wilderness in the United States.

**Identifying Threats, Values, and Attributes of Wilderness to Guide Ecological and Social Research and Monitoring.** More than a decade of work at the Aldo Leopold Wilderness Research Institute has concentrated on developing a series of matrices of wilderness qualities and threats to guide monitoring and management research. The logic behind this matrix, the degree of implementation, and future direction in the continental United States was presented along with applications in Finland and South Africa.

**Searching for Compatibility Between Traditional, Ecotourism, and Ecological Values in Protected Area Planning and Management.** Protected area scientists and managers in the Polar 8 countries (United States, Finland, Canada, Russia, Norway, Sweden, Iceland, Greenland-Denmark) have come together to define the values associated with protection of areas as wilderness, the attributes of these areas and the major threats and facilitating factors associated with them. Leopold Institute social scientist, Alan Watson, initiated this consortium in 1999 with support from the Fulbright Program, the National Science Foundation, and the Circumpolar University Association. There are many values associated with protection of areas as wilderness, with substantial benefit to identifying those values in common across cultures, but with many similar environmental, economic, geographic, and cultural influences. In spite of differences between the polar area and the tropics, the current efforts in Alaska, Canada, and Finland were presented on understanding how native people describe wild lands, the values they attach to those places, and the threats they identify to those values, and provided great insight into an important issue in Brazil. Symposium participants gained a better understanding on how to consider traditional uses when planning recreation and tourism development in protected areas.

**The Role of Wilderness in Mega-Reserve Inventories and Monitoring—From South Africa to Nunavut.** There is an international movement toward protection of wilderness qualities. Wilderness is often the baseline for large-scale inventories, such as for two proposed megareserves in South Africa and for remote national parks in Canada's Eastern Arctic. The Leopold Institute has been actively engaged in research to support these efforts and an overview of these activities demonstrates the value of consideration of wilderness in the context of larger social and ecological systems.

In the Brazilian context, megareserves also have been created in the Amazon area. Some examples are: Ecological Station Terra do Meio (3,387,799 ha/8,371,434 acres), Araguaia National Park (2,230,824 ha/5,512,486 acres) Tumucumaque Mountains National Park (3,882,120 ha/9,592,927 acres). To manage these areas will demand extensive and complex studies, considering local communities and their demands on the natural resources inside and adjacent to those protected areas.

## The Matrix—Do We Have Values and Qualities to Protect? From What?

After the presentation and discussions, the participants came out with a list of important values, attributes and threats that reflect, in a way, the situation of other undeveloped countries, where the main threats to protected areas are related to illegal extraction of wood, traffic in wild animals and inadequate agricultural practices, such as the use of fire. Table 1 summarizes the workshop results.

As Brazilian National Parks do not receive high visitation, we thought that tourism would not be considered a major threat, but all the groups listed it as a new threat to pristine areas. The groups composed of the managers and professionals that are in charge of the protected areas pointed out that the lack of linkage between the research results and the practice is one of the most important tasks to be worked on. Theulen (2004) pointed to 15 main problems in federal protected areas (fig. 1) that have changed very little in a decade. The managers she interviewed believe that the administrative problems can have alternative solutions related to: 1) Improvement in training and the number of personnel; 2) Encouragement of agreements and programs of co-management of administration; 3) Creating an organization that serves to support protected areas; 4) Land regularization and titling; 5) Creation of an adequate external/internal organization; 6) Revision and elaboration of management plan; 7) Increase in the resources for protected areas; 8) More efficient liberation of resources; 9) Encouragement of the process for educating the community; 10) Increase in the infrastructure/equipment; 11) Make bureaucracy more efficient; and, 12) More administrative and financial freedom for protected areas.

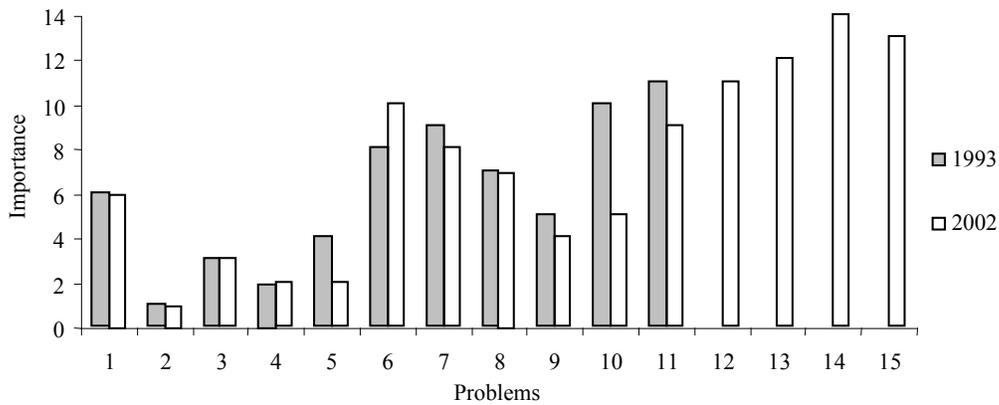
## The Threats Are More Relevant Than the Values?

We could take the risk to say that the threats, even if they can be worked on and solved (sometimes with larger budgets and in other cases with creative solutions co-management), are often so powerful that they blind the managers who then avoid solving them.

In order to complete this study, we will send this matrix to Federal and State Protected Area Managers in Brazil and ask them to comment on their perceptions of the importance of the various values and threats to wilderness in this country, in order to expand on our understanding of the Symposium results.

**Table 1**—Matrix of wilderness qualities and threats in a Brazilian context.

<b>Qualities</b> "What to protect"	<b>Values</b> "Why protect it"	<b>Threats</b> "What to protect from"	<b>Stakeholders</b> "Protecting for whom"	<b>Influence factors</b> "Things that facilitate or constrain protection"
Air	Air, water and soil quality	Activities on the buffer zone	Agriculturists	Access
Biodiversity / Endemic species	Appreciative / Experiential	Alien fauna and flora	Army	Anthropogenic pressure
Contact with wilderness	Beauty / Scenic view	Farming and cattle raising	Cooperative societies / Associations / Syndicates	Contact with other ways of life
Ecological process	Biodiversity sustainability	Fish and hunt	Educators	Economic pressure
Education/ Interpretation	Cultural diversity and identity	Flora and fauna over use by local communities	Enterprisers	Education
Emotional and sensorial experience	Education	Forest fire	Financiers / Investors	Environmental education
Flora and fauna	Emotional value	Human behavior	Future generations	Globalization
Genetic heritage	Environmental quality	Infrastructure	Governmental agencies	Information
Historical and cultural values	History	Invasions	Guides, lodges	Infrastructure
Microclimate	Human health	Lack of good policies	Indigenous communities	Land management
Pleasure / Interaction with natural environment	Human life	Lack of human and financial resources	Inspectorate / Licensing	Land situation
Scenic view/ Landscape/ Esthetic	Identity / Proud of preservation	Lack of link between research results and management	International communities	Land use
Soils / Geology / Geomorphology	Maintenance of ecological process	Lack of management	Local communities	Legislation
Subsistence/natural products	Perpetuation	Land regularization and titling	Local trades	Marketing / Publicity
Traditional cultures	Potential uses (energy, food, pharmaceuticals)	Military activities	Media	Media
Unmodified	Pristine condition	Mining / oil exploration	National and international NGOs	NGOs
Water resources	Recreation	Pollution	Pharmaceutical companies	Poverty
	Scientific knowledge	Recreation	Political groups	Public politics
	Spiritual inspiration	Research	Protected Areas Council	Researches / Knowledge
	Traditional Knowledge	Tourism	Protected Areas Staff	Socio-economic differences
	Unique opportunities for wilderness recreation	Urbanization / Roads	Religious groups / mystics	Tourism
	Wilderness maintenance		Scientific communities	Urban development
			Tour operators	
			Traditional communities	
			Visitors / Tourists	
			Wilderness management	



- 1=Hierarchic relation of executive management(s)  
 2=Need for personnel in the protected area  
 3=Lack of qualification/training of existing personnel  
 4=Lack of financial resources  
 5=Bureaucracy of public administration  
 6=Inexperience of administrative personnel in protected areas  
 7=Internal organization flawed  
 8=Lack of orientation and documentation of reference  
 9=Frequent political-administrative changes that cause discontinuities in programs and efforts  
 10=Local/regional political interference  
 11=Geographic location if the protected area in relation to executive management(s)  
 12=Protected area has not been firmly established or lacks land titling  
 13=Lack of adequate management plan  
 14=Lack of co-administration in management activities  
 15=Anthropic interference

**Figure 1**—Main problems in federal protected areas from the perspective of their managers (Theulen 2004).

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