

Chapter 2: The Dual Role of Local Residents in the Management of Natural Protected Areas in Mexico

Gustavo Perez-Verdin,¹ Martha E. Lee,² and Deborah J. Chavez³

Abstract

In many developing countries, local residents play an important role in the management of protected areas because they represent potential users of natural protected areas (NPA) resources, they receive the benefits (or costs) of developing nature-based recreation, and they are the group most closely interested in the management of an area located near them. In this study, we evaluated the perceptions of local residents toward developing nature-based recreation programs in a protected area in northern Mexico. Personal interviews in three cities were used to assess barriers to recreation participation and the potential impacts that additional recreation programs could bring to the area. We found that residents identified lack of money, lack of time, lack of knowledge, and no interest as the main barriers to participation in nature-based recreation opportunities. No consensus was found among the three communities with regard to recreation impacts. Two communities agreed that recreation can be beneficial, whereas the third community believed that it can bring negative impacts. If more recreation were to develop in this NPA, resource managers would have to consider all residents' perceptions to plan for effective management strategies.

Keywords: Natural protected areas, marginality theory, Michilía Biosphere Reserve, recreation impacts, residents' perceptions.

Introduction

Natural protected areas (NPAs) have been recognized worldwide because of their role in conservation strategies and their historical, intrinsic relationship with humans. People protect areas for spiritual reasons, resource or species management, or for the sustainable use of natural resources (Chape et al. 2005). An NPA is a human response to perceived threats to nature and, further, the type

We evaluated the perceptions of local residents toward developing nature-based recreation programs in a protected area in northern Mexico.

¹ Assistant professor, Department of Forestry, Mississippi State University, Box 9681, Starkville, MS 39762, e-mail: gperez@cfr.msstate.edu.

² Professor, School of Forestry, Northern Arizona University, Box 15018, Flagstaff, AZ 86011, e-mail: Martha.Lee@nau.edu.

³ Supervisory social scientist, USDA Forest Service, Pacific Southwest Research Station, 4955 Canyon Crest Drive, Riverside, CA 92507, e-mail: dchavez@fs.fed.us.

and characteristics of the protected area are determined by the current generation's values (McNeely 1997). For example, Yellowstone National Park established in 1872 and considered one of the first protected areas in the modern era, was created as a result of society's increasing needs for wildland recreation uses and wildlife protection (Haines 1974). The Yellowstone National Park concept as an NPA eventually sparked the creation of more protected areas to address specific concerns within the United States and transcended to other parts of the world. These include Canada (Banff), Mexico (El Chico), New Zealand (Tongariro), and Switzerland (Swiss National Park), among others (Mulongoy and Chape 2004). Today, there are more than 100,000 NPAs registered in the World Database on Protected Areas, covering almost 12 percent of Earth's land area (Chape et al. 2005).

Although the concept of NPAs implies different land uses for various objectives, depending in part on a country's legislative regime (Chape et al. 2005), the majority of these areas have similar objectives with regard to wilderness protection, preservation of species, maintenance of environmental services, tourism and recreation, scientific research, and education (Mulongoy and Chape 2004). Tourism and recreation have recently seen tremendous increases because of the growing number of visits and the economic impacts visitors bring to the regional economy of many countries (Barkin 2000). The economic value of ecotourism in Canada and the United States in 1996, for example, was estimated to be worth between \$237 and \$370 billion (Mulongoy and Chape 2004). Likewise, visits to the Monarch butterfly (*Danaus plexippus*) sanctuary in central Mexico greatly increased from about 25,000 people in 1986 to some 250,000 in 1999 (Barkin 2000). Ideal goals of ecotourism are to simultaneously pursue environmental conservation, benefits to local communities, and sustain profitable business (Jones 2005).

In many developing countries, NPAs are created in areas removed from mainstream development. As soon as an NPA is established, an exchange process between protected resources and humans begins, making the linkage between nature conservation and economic development especially challenging. Local residents respond to that process by giving support to its establishment to the extent that such areas continue to provide benefits to them, especially in the form of continued resource availability (Mulongoy and Chape 2004). Visitors in turn are compensated by the quality of services found and the level of accomplishment of their personal goals. This exchange process has been the topic of many studies in areas such as tourism, ecotourism, and recreation (Bryant and Napier 1981; Madrigal 1993, 1995; Perdue et al. 1987, 1990; Teye et al. 2002).

Conceptual frameworks to explain residents' perceptions toward nature-based recreation include social exchange theory (Bryant and Napier 1981). This theory explains the relationship between individual benefits and perceptions of economic development (Perdue et al. 1987, 1990). The theory specifies that local residents seek benefits in exchange for something estimated as equal to the benefits they offer in return, such as resources provided to tourism developers, tour operators, and visitors (Perdue et al. 1990). Residents offer support for appropriate development, hospitality, and tolerance for inconveniences created by recreation such as pollution, littering, and queuing for services (Teye et al. 2002). If a resident perceives environmental impacts, threats to their cultural status, or anticipate no economic development, the resident will be more likely to oppose a program intended to develop recreation. One way to identify potential impacts of recreation development is by assessing local residents' perceptions. Typically, support for additional recreation development is classified into positive or negative impacts and residents are asked to rate specific variables in each category (Madrigal 1993, 1995; Perdue et al. 1987, 1990).

Although the majority of studies on residents' perceptions about nature-based recreation treat locals as hosts (e.g., Avila-Foucat 2002; Barkin 2000; Pearce 1980; Walker 1996, 1997), few studies have analyzed their role as potential users of NPA's resources. In the absence of available recreation areas, some residents can become active users and still maintain their host status as exchangers for recreational programs. However, the use of recreation areas is restricted as a function of various socioeconomic, demographic, and cultural barriers (Floyd 1998, Johnson et al. 1997). The emphasis on local participation in NPA development implies that host members are often excluded from not only planning, but decisionmaking and management of programs (Teye et al. 2002). The exclusion of locals in NPA management is a common practice in developing countries with a top-down decisionmaking culture.

In this paper, we evaluate the dual role of local residents toward recreation in an NPA in northern Mexico. These roles have been identified as potential users of recreation resources and hosts of outside visitors. In the first case, we examine a social theory that explains limitations to participation in nature-based recreation programs and discuss the differences among residents of three nearby cities. In the second case, we use local residents' perceptions to identify positive and negative impacts for potential recreation development. We begin this paper by providing background on the marginality theory and the system of NPAs in Mexico.

Some residents can become active users and still maintain their host status as exchangers for recreational programs.

Marginality Theory

Several social theories have been developed to analyze the lack of participation in outdoor recreation opportunities in the United States (Johnson et al. 1997). Marginality theory, for example, suggests that differences in leisure participation are a function of poverty or discrimination as reflected in fewer available recreation opportunities, lack of access to transportation, underdeveloped program availability, and lack of information about facilities (Chavez 2000; Johnson et al. 1997, 1998). Other social theories include ethnicity, perceived discrimination, and opportunity (Johnson et al. 1998, Manning 1999). In Mexico, few studies have been conducted to evaluate the factors that keep people from visiting recreation areas. We focused on the marginality theory only because of the presence of a single dominant ethnic group and the existence of well-identified socioeconomic classes. We assumed that the marginality theory could have some effect on recreation participation among residents of Durango, similar to that of Latinos in the Southwestern United States (Chavez 2002, Floyd 1998, Floyd et al. 1993, Tierney et al. 1998). This observational reasoning came from the various similarities between these populations in terms of customs and values (Ai-Camp 2003).

As active users of recreation resources, residents face various limitations, which can reduce their participation in nature-based recreation opportunities. They can be restricted by money, resource accessibility, lack of knowledge of NPA resources, and lack of time, among other factors.

The Natural Protected Areas System in Mexico

According to the National Commission on Natural Protected Areas (or CONANP, its Spanish acronym), there are 159 protected areas in the Mexican system of NPAs. These include 67 national parks, 36 biosphere reserves, 29 wildlife areas, 17 sanctuaries, and 10 national monuments. They cover approximately 22.3 million hectares (11.3 percent of the country's total area) of which about 11 million hectares are biosphere reserves making them the biggest contributor to the protected area system (CONANP, accessible at <http://www.conanp.gob.mx/anp/anp.php>).

Owing to the unique land tenure system in Mexico where the majority of forest lands belong to local communities in the form of common properties (ejidos⁴), nature-based recreation is more likely to occur in NPAs, especially in national parks and biosphere reserves. Although more ejidos and other private properties have started community enterprises for ecotourism development, particularly in

⁴An ejido/comunidad is an expanse of land, title to which resides in a community of beneficiaries of the agrarian reform. In the majority of ejidos the property is collectively owned, and some lands (woodlands, pastures) are for collective use.

tropical areas, the supply of recreation areas is still not enough to satisfy a growing demand for nature-based recreation opportunities. In addition, the cost for visiting community-developed recreation areas is regulated by market and seasonal changes as opposed to the reduced fee (or sometimes free access) to public NPA areas.

Although there are no area restrictions in using national parks for recreation, biosphere reserves have barriers to unlimited access (Borrini 1996). A typical biosphere reserve contains a secure central core area designed strictly for nature preservation, a surrounding buffer area in which relatively nondestructive multiple uses may occur, and an outermost transition area that allows greater human participation (Baker 1994). It is in the buffer and transition areas of reserves where properly managed ecotourism can bring considerable income to locals without threatening the natural resource base (Kaus 1993, Mulongoy and Chape 2004).

Although participation in nature-based recreation opportunities has increased in recent years, a considerable portion of Mexican society still faces many restrictions, mostly economic, to visitation. Cothran and Cothran (1998) suggested that nature-based recreation is still exclusive for the middle and upper socioeconomic classes, leaving city parks and other outdoor attractions to the low socioeconomic class. The fact that NPAs are located in remote areas, coupled with little knowledge of NPA resources, have resulted in few visitors to the areas. Not surprisingly, city parks and other town attractions report overcrowding, especially on the weekends.

It is in the buffer and transition areas of reserves where properly managed ecotourism can bring considerable income to locals without threatening the natural resource base.

Methods

The Michilía Biosphere Reserve (MBR), one of the two biosphere reserves in the state of Durango, was examined in this research. The MBR receives more than a thousand visitors per year mostly from in-state cities such as Durango City, Súchil, El Mezquital, and Vicente Guerrero, but others travel from distant areas like Mexico City, Monterrey, and Torreón. Currently, resource managers are developing a comprehensive management plan for the reserve in which nature-based recreation programs are considered to promote a sense of conservation and environmental education among local residents and visitors. Our study focused on this area because of its potential to provide recreation opportunities, its low popularity, and its developing facilities. To learn residents' perceptions, we conducted personal interviews in the cities of Durango, El Mezquital, and Súchil in 2002. The sample sizes for each city were Durango 105, El Mezquital 96, and Súchil 95 (fig. 2-1). More on the characteristics of the study area can be found in Perez-Verdin (2003).

The survey instrument consisted primarily of closed-ended questions asking individuals to identify barriers to recreation participation and indicate their level of agreement with perceived recreation impacts. Response categories included 7-point

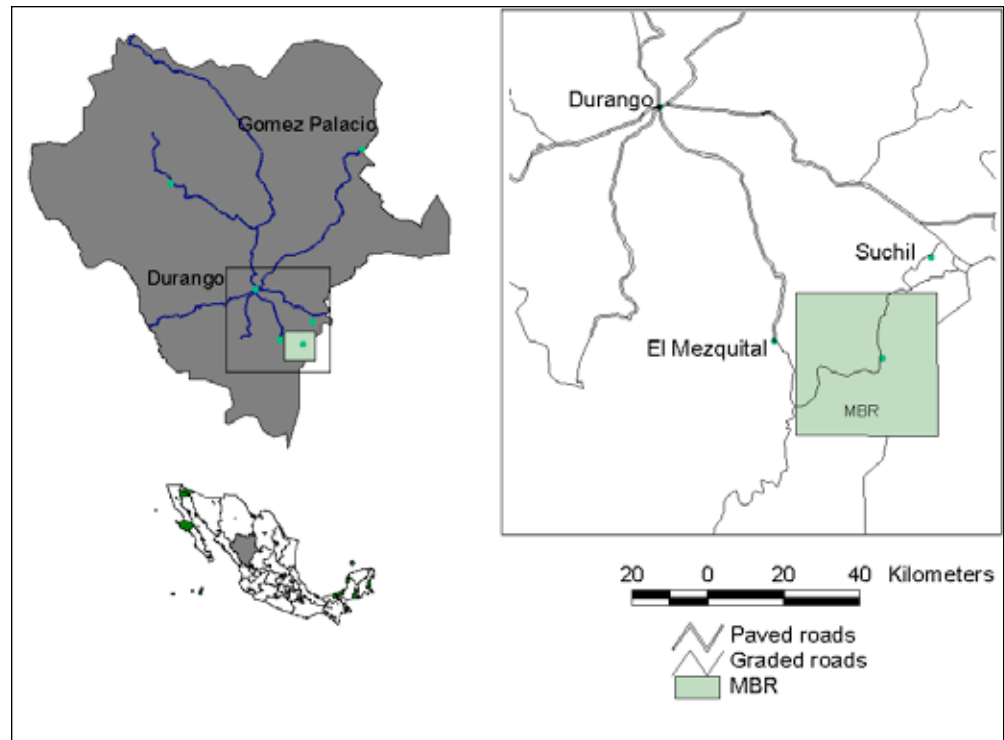


Figure 2-1—Michilía Biosphere Reserve (MBR) and the communities involved in the study of local residents' perceptions in Durango, Mexico. The communities are Durango, El Mezquital, and SÚchil.

scales with endpoints labeled -3 (either very unimportant, or strongly disagree) and +3 (either very important, or strongly agree). Other questions required dichotomous answers ("yes/no") or open-ended responses such as basic demographic data. Consistent with the marginality theory (Johnson et al. 1997), barriers to visitation included lack of money, lack of time, lack of knowledge, and no interest in recreation participation among others. Other nonmarginality factors included discomfort in MBR settings, feeling unsafe in the area, and the weather. The perceived impacts were classified into positive and negative impacts. The negative impacts group included higher risk of wildfires, ecological impacts to flora and fauna, loss of cultural values, change in customs, and overcrowding by visitors. The positive impacts groups consisted of creation of new facilities, increase in investments, increase in labor supply, and increase in the standard of living (Perez-Verdin et al. 2004). Cross tabulations, one-way analysis of variance, and discriminant function analysis were the statistical tools most used to differentiate residents' perceptions.

Results

In general, most of the interviewees (79 percent) had visited forest lands, but only 31 percent had visited MBR. In these visits, survey respondents tended to participate in large groups (average nine people per visit; no significant difference was found among the three cities), and 68 percent of residents spent fewer than 2 days per visit. The city of Durango reported the highest percentage of non visitors (84 percent), compared to El Mezquital (60 percent), and SÚchil (47 percent).

Marginality Theory Effects

A majority of respondents reported lack of time (65 percent) as the main reason for not visiting MBR.⁵ Lack of knowledge (63 percent), family and friends not liking this type of recreation (43 percent), lack of money (42 percent), and lack of interest (37 percent) were other reasons respondents provided for their relatively few visits to MBR. Nonetheless, when asked the question “If the reason you expressed as the most important could be changed, would you consider visiting the MBR in the future?” 90 percent of the respondents answered “yes.”

Residents of El Mezquital and SÚchil were more likely than Durango residents to report being constrained by lack of money and lack of interest (fig. 2-2). Lack of time and lack of knowledge did not show significant differences among the cities. The results agreed somewhat with the socioeconomic profiles of the cities: Durango

⁵ This number is fairly analogous to the 77 percent of Latino-Americans who indicated the same variable as the main participation barrier in the United States (Cordell et al. 1999).

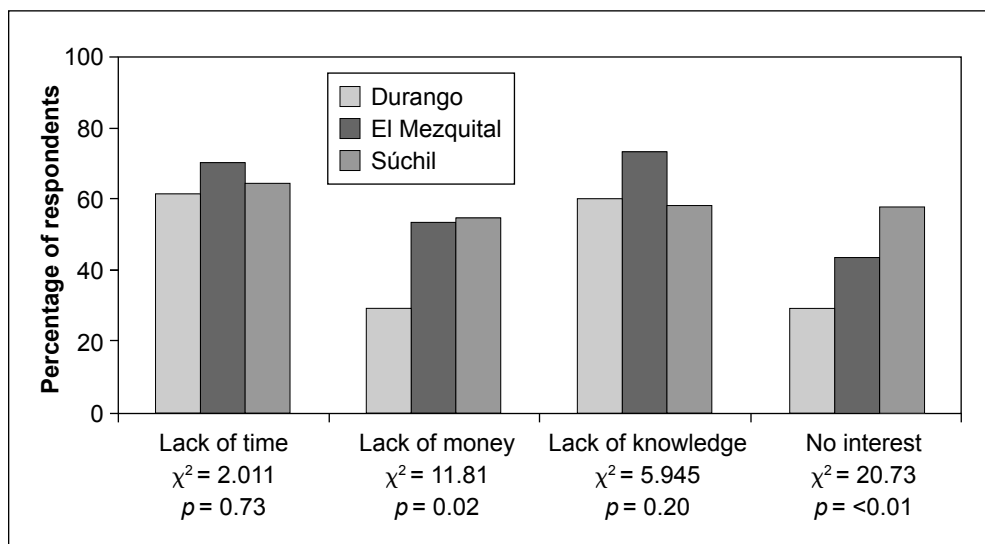


Figure 2-2—Cross tabulations of reasons that keep people from visiting the Michilia Biosphere Reserve in Durango, Mexico.

residents had the highest economic status and the highest level of education, thus marginality issues were less important than for the other two cities involved in the study. Cross tabulations showed that all marginality factors together accounted for 88 percent of responses, whereas nonmarginality factors accounted for 12 percent ($\chi^2 = 13.34$, $p < 0.01$).

Perceived Impacts of Nature-Based Recreation Programs

A one-way ANOVA was conducted to test for differences in the perceived impacts among the three cities. Six of the nine impacts, including all items within the negative impacts group plus an increase in labor supply, reported significant differences among the communities (fig. 2-3). A discriminant function analysis was performed to identify the relative weights of each recreation impact and differentiate residents' perceptions. The nine recreation impact variables were entered as independent variables with residency membership as the grouping variable. The first discriminant function ($\lambda = 0.61$, $\chi^2 = 129.1$, $p < 0.001$) accounted for 96 percent of the total variance and correlated most highly with the negative impacts groups, which include higher risk of wildfires (0.65), loss of cultural values (0.54), overcrowding by visitors (0.49), change of customs (0.27), and ecological impacts to fauna and flora (0.19). The correlation coefficients for the

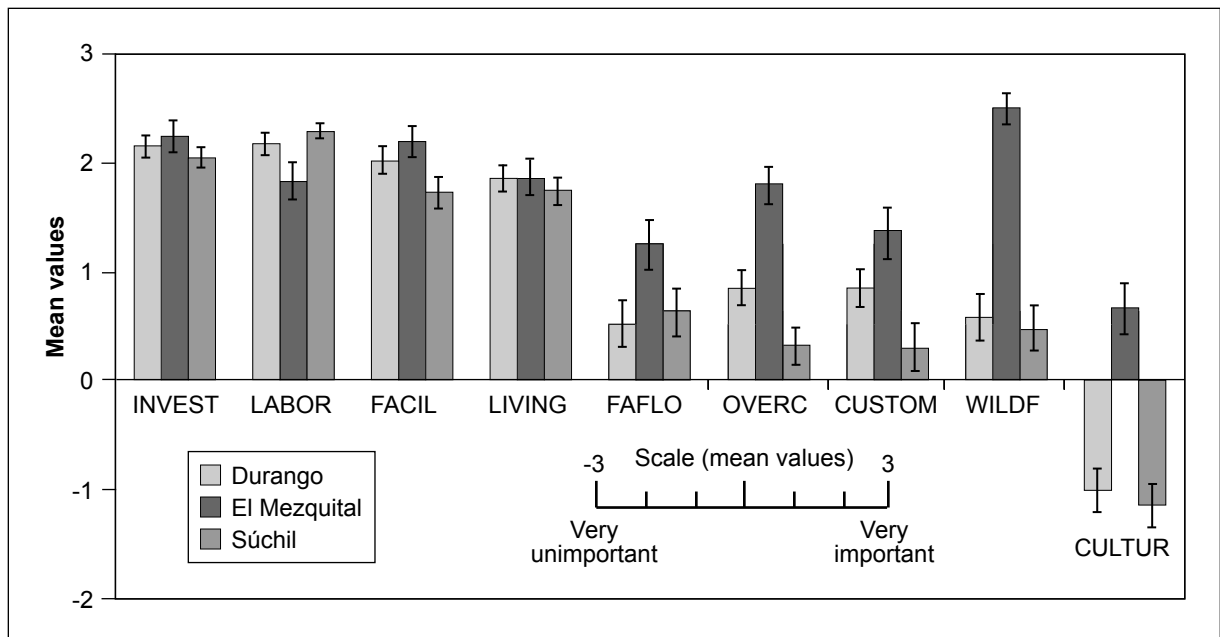


Figure 2-3—Perceived impacts of developing outdoor recreation programs in the Michilía Biosphere Reserve. The positive impacts included increase in investments (INVEST), increase in labor supply (LABOR), creation of new facilities (FACIL), and increase in the standard of living (LIVING). The negative impacts included ecological impacts to fauna and flora (FAFLO), overcrowding by visitors (OVERC), change in customs (CUSTOM), higher risk of wildfires (WILDF), and loss of cultural values (CULTUR).

positive impacts were increase in labor supply (-0.21), creation of new facilities (0.15), increase in investments (0.08), and increase in standard of living (0.03). Analysis of group centroids clearly identified that El Mezquital residents had higher scores on the discriminant function than the Durango and Súchil residents. The functions at group centroids were Durango -0.38, El Mezquital 1.06, and Súchil -0.72 (fig. 2-4). If a person had strong negative perceptions toward the development of outdoor recreation programs, she or he was more likely to be identified as an El Mezquital resident.

Excluding increase in labor supply, El Mezquital residents agreed that recreation is beneficial in terms of providing greater investments in the region, more facilities, and an increase in living standards. However, they were concerned about the potential negative impacts of recreation such as the risk of wildfires and loss of traditional, cultural values. In 1998, a forest fire burned several hectares in the MBR and killed one firefighter near El Mezquital. It is not clear what caused this wildfire, but apparently visitors did not completely extinguish a campfire. Events like this could have influenced residents' perceptions on nature-based recreation impacts, particularly the risk of wildfires. We also attributed the score differences of El Mezquital residents in part to the physical and social conditions of this community. El Mezquital is isolated from other towns or communities and is home to Tepehuanos, one of the most important indigenous groups in Durango. More than 90 percent of the El Mezquital residents have been in a forest land and have

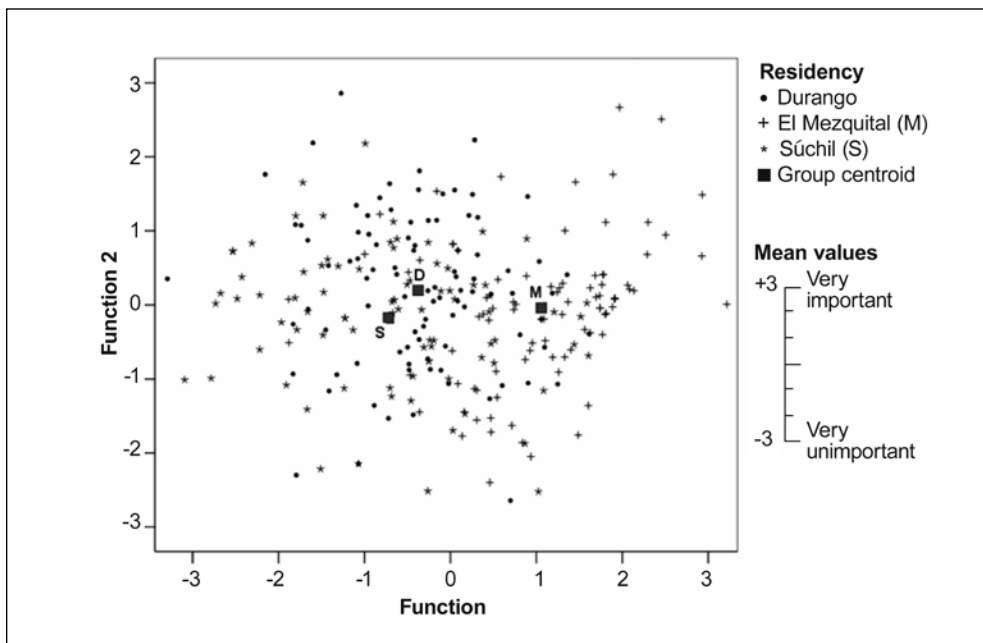


Figure 2-4—Discriminant function analysis of the perceived impacts by local residents in Durango, Mexico. Function 1 accounted for 96 percent of the total explained variance and is the reference axis.

The case study presented here provides support for the marginality theory in understanding factors that influence recreation participation. Residents reported lack of money, time, knowledge, and interest as the main barriers to participation in nature-based recreation opportunities in the area.

perceived threats to natural resources. For example, we found a slight negative correlation ($r = -.20, p < 0.05$) between visitors to forest lands and perceived risk of wildfires. Visitors were more concerned about the potential increase of wildfires than nonvisitors. In sum, it appeared that El Mezquital residents' perceptions reflected past experiences when rating the importance of the perceived impacts of recreation in MBR.

Conclusions

This research contributes to an understanding of the dual role of local residents in managing NPAs. Residents can be active users of recreation areas and at the same time hosts of outside visitors and judges of potential impacts from developing recreational programs. The case study presented here provides support for the marginality theory in understanding factors that influence recreation participation. Residents reported lack of money, time, knowledge, and interest as the main barriers to participation in nature-based recreation opportunities in the area. However, there is significant latent demand for MBR visitation in the three cities. Nearly 90 percent of the survey respondents would consider visiting MBR if their main reason for not visiting could be changed in the future, which means that if outdoor recreation programs are developed in the MBR, resource managers should consider strategies to overcome these marginality-related barriers. These strategies could include alternative transportation, improving existing roads, and providing more facilities in the area, particularly for large groups.

We also found that recreational development is positively supported by two of the three communities involved in this study. El Mezquital residents, the differing community, perceived that more recreation could bring potential negative impacts such as higher risk of wildfires, loss of traditional cultural values, change in customs, and overcrowding. The cultural richness of El Mezquital is based in part on the ethnic diversity and on the traditional ways values and customs are kept. Having more people visit the MBR may result in locals breaking traditional rules by working through the weekends (typically the days with most visitation), and employing women, which may affect family unity and community cohesiveness. El Mezquital residents agreed that recreation could bring more employment to the region, but this agreement was not as strong as in the other two communities. If more commercial recreation were to develop in MBR, resource managers would have to consider all residents' perceptions to arrive at successful management strategies.

The implications of these findings are particularly relevant for NPA managers who have to recognize and accept the delicate role of local residents in the management of protected areas. The results from residents' perceptions may indicate whether people associate relevant social problems with managing natural resources. Negative perceptions and potential conflicts could indicate the urgency for political arbitration and possible interventions, whereas positive perceptions could be interpreted as public policies finding acceptance and satisfaction. These results can be helpful to integrating the opinions and demands of all stakeholders into political planning and decisionmaking processes of MBR resources. However, we recommend more studies of the relationships among recreation participation, land conservation, and economic development of rural communities interacting with NPAs.

Acknowledgments

This research was funded by the USDA Forest Service Pacific Southwest Research Station and Northern Arizona University under the agreement PSW-02-JV-11272137-010. The authors wish to express their gratitude to the residents that participated in the interviews as well as to the staff of the Forest Department of the state of Durango and the Michilía Biosphere Reserve.

Literature Cited

- Ai-Camp, R. 2003.** Learning democracy in Mexico and the United States. *Mexican Studies*. 19(1): 3–27.
- Avila-Foucat, V.S. 2002.** Community-based ecotourism management moving towards sustainability, in Ventanilla, Oaxaca, Mexico. *Ocean and Coastal Management*. 45(8): 511–529.
- Baker, W.L. 1994.** The landscape ecology of large disturbances in the design and management of nature reserves. In: Grumbine, R.E., ed. *Environmental policy and biodiversity*. Washington, DC: Island Press: 75–98.
- Barkin, D. 2000.** The economic impacts of ecotourism: conflicts and solutions in highland Mexico. In: Godde, R.E.; Price, M.F.; Zimmermann, F.M., eds. *Tourism and development in mountain regions*. Wallingford, United Kingdom. CABI Publishing: 157–171.
- Borrini, G. 1996.** Collaborative management of protected areas: tailoring the approach to the context. IUCN, Social Policy Group. <http://www.iucn.org/themes/spg/Files/tailor.html>. (May 24, 2007).

- Bryant, E.G.; Napier, T.L. 1981.** The application of social exchange theory to the study of satisfaction with outdoor recreation facilities. In: Napier, T.L., ed. Outdoor recreation planning, perspectives, and research. Dubuque, IA: Kendall Hunt Publishing: 83–98.
- Chape, S.; Harrison, J.; Spalding, M.; Lysenko, I. 2005.** Measuring the extent and effectiveness of protected areas as an indicator for meeting global biodiversity targets. *Philosophical Transactions of the Royal Society B*. 360: 443–455.
- Chavez, D.J. 2000.** Invite, include, and involve! Racial groups, ethnic groups, and leisure. In: Allison, M.T.; Schneider, I., eds. Diversity and the recreation profession. State College, PA: Venture Publishing, Inc.: 179–194.
- Chavez, D.J. 2002.** Adaptive management in outdoor recreation: serving Hispanics in southern California. *Western Journal of Applied Forestry*. 17(3): 129–133.
- Cordell, H.K.; McDonald, B.L.; Teasley, R.J.; Bergstrom, J.C.; Martin, J.; Bason, J.; Lee Worthy, V.R. 1999.** Outdoor recreation in American life: a national assessment of demand and supply trends. Champaign, IL: Sagamore Publishing. 449 p.
- Cothran, D.A.; Cothran, C.C. 1998.** Promise or political risk for Mexican tourism. *Annals of Tourism Research*. 25(2): 477–497.
- Floyd, M.F. 1998.** Getting beyond marginality and ethnicity: the challenge for race and ethnic studies in leisure research. *Journal of Leisure Research*. 30(1): 3–22.
- Floyd, M.F.; Gramann, J.H.; Saenz, R. 1993.** Ethnic factors and the use of public outdoor recreation areas: the case of Mexican Americans. *Leisure Sciences*. 15(2): 83–98.
- Haines, A.L. 1974.** Yellowstone National Park: its exploration and establishment. Washington, DC: U.S. Department of the Interior, National Park Service. http://www.cr.nps.gov/history/online_books/haines1/index.htm. (May 24, 2007)
- Johnson, C.Y.; Bowker, J.M.; English, D.B.K.; Worthen, D. 1997.** Theoretical perspectives of ethnicity and outdoor recreation: a review and synthesis of African-American and European-American participation. Gen. Tech. Rep. SRS-11. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station. 21 p.

- Johnson, C.Y.; Bowker, J.M.; English, D.B.K.; Worthen, D. 1998.** Wildland recreation in the rural South: an examination of marginality and ethnicity theory. *Journal of Leisure Research*. 30(1): 101–120.
- Jones, S. 2005.** Community-based ecotourism: the significance of social capital. *Annals of Tourism Research*. 32(2): 303–324.
- Kaus, A. 1993.** Environmental perceptions and social relations in the Mapimi Biosphere Reserve. *Conservation Biology*. 7(2): 398–406.
- Madrigal, R. 1993.** A tale of tourism in two cities. *Annals of Tourism Research*. 20: 336–353.
- Madrigal, R. 1995.** Residents' perceptions and the role of government. *Annals of Tourism Research*. 22(1): 86–102.
- Manning, R.E. 1999.** Studies in outdoor recreation: search and research for satisfaction. Corvallis, OR: Oregon State University Press. 374 p.
- McNeely, J.A. 1997.** How protected areas can respond to the changing nature of society. Paper presented at IUCN World Commission symposium "Protected areas in the 21st century: from islands to networks" on file with: Northern Arizona University, Flagstaff, AZ 86011.
- Mulongoy, K.J.; Chape, S. 2004.** Protected areas and biodiversity: an overview of key issues. *Philosophical Transactions of the Royal Society*. 360: 443–455.
- Pearce, J.A. 1980.** Host community acceptance of foreign tourists: strategic considerations. *Annals of Tourism Research*. 7(2): 224–233.
- Perdue, R.R.; Long, P.T.; Allen, L. 1987.** Rural resident tourism perceptions and attitudes. *Annals of Tourism Research*. 14(3): 420–429.
- Perdue, R.R.; Long, P.T.; Allen, L. 1990.** Resident support for tourism development. *Annals of Tourism Research*. 17(4): 586–599.
- Perez-Verdin, G. 2003.** Evaluating strategies for managing outdoor recreation opportunities in southern Durango, Mexico. 140 p. Unpublished document. On file with: School of Forestry, Northern Arizona University, Box 15018, Flagstaff, AZ 86011.
- Perez-Verdin, G.; Lee, M.E.; Chavez, D.J. 2004.** Outdoor recreation in a protected area in southern Durango, Mexico: analysis of local residents' perceptions. *Society and Natural Resources*. 17: 897–910.

Teye, V.; Sonmez, S.F.; Sirakaya, E. 2002. Residents' attitudes toward tourism development. *Annals of Tourism Research*. 29(3): 668–688.

Tierney, P.T.; Dahl, R.F.; Chavez, D.J. 1998. Cultural diversity of Los Angeles County residents using undeveloped natural areas. Res. Pap. PSW-RP-236. Albany, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station. 76 p.

Walker, S. 1996. Ecotourism impact awareness. *Annals of Tourism Research*. 23(4): 944–945.

Walker, S. 1997. Perceived impacts of ecotourism development. *Annals of Tourism Research*. 24(1): 743–745.