



# Recreation Research Update



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## A Multi-Ethnic Comparison of Angeles National Forest Recreation

A report by Drs. Chieh-Lu Li, Harry Zinn and Alan Graefe (Penn State University) and Jim Absher (PSW) focused on recreation use by ethnically diverse National Forest visitors and examined the relationships among cultural background, perceived service quality, satisfaction, and related variables. Using purposive sampling at sites known to be heavily used by individuals of particular ethnic backgrounds (Hispanic, Asian and White) 1,172 Angeles National Forest (ANF) visitors were contacted over the summer of 2002.

Results showed that cultural, service quality, and other measures differed among the ethnic groups. For instance, Asians and Hispanics were more willing to endorse Hofstede's power distance (a cultural measure) but Hofstede's masculinity dimension showed no significant differences. Other differences and similarities are noted for socio-demographic, trip details, previous experience and crowding measures. Service quality and trip satisfaction measures showed that Asians were likely to perceive lower service quality than Whites or Hispanics. Because Asians perceived lower service quality, they also tended to be less satisfied than White or Hispanic visitors to the ANF.

Using a structural equation model analysis, perceived service quality and satisfaction were highly positively correlated, and perceived lower service quality led to less satisfaction. Further analysis discusses the mediation effects in the model, especially those of service quality and experience and show that they play an important role in the relationship between culture and satisfaction. The reasons for these findings are somewhat complex and discussed at length in the report. Nonetheless, the results show that managers need to understand the diverse cultural background of visitors they serve, so as to customize their services to an increasingly diverse clientele to achieve high customer satisfaction.

Overall, results suggest that managers should ensure diverse opportunities by providing extensive day-use oriented facilities, use multiple language brochures and signage to create an "ethnic-friendly" ambience, and provide informational programs tailored specifically to these groups. *For more information about this study contact Jim Absher at 909-680-1559 or [jabsher@fs.fed.us](mailto:jabsher@fs.fed.us).*

## Gifford Pinchot National Forest: Evaluation of International Symbols

The goal of this research was to evaluate the comprehension of International Symbols (graphical symbols depicting ideas without words) on the Gifford Pinchot National Forest (GPNF) in Washington State. Data were collected from 214 recreationists at day-use sites. Survey teams from Oregon State University at Corvallis collected data under a cooperative agreement. The International Symbols selected included those from readily available on-line sources. Each unique response for the symbols was coded for level of correctness by two independent coders using the International Standards Organization standard adapted for this study. There were seven categories into which judges placed responses: 1) correct understanding of the symbol is certain; 2) correct understanding of the symbol is likely; 3) correct understanding of the symbol is marginally likely; 4) the meaning which is conveyed is the opposite to that intended; 5) the response is wrong; 6) the response given is "do not know"; and 7) no response is given. Any disagreement in coding was resolved by a third independent coder.

The typical GPNF visitor was male, 47 years old with 15 years of education, and white. Most visitors were recreating with family and/or friends and most were visiting the site for the first time. Typical activities were sightseeing, relaxing, driving for pleasure, hiking, picnicking, and camping.

Thirteen of the 20 symbols in the study were considered well-understood, that is, there was a high percentage of respondents who correctly comprehended them. At least two-thirds of respondents were able to name the activity/facility to which the symbol was referring [these were symbols for Fishing, Litter Container, Swimming, Hiking Trail, Rowboating, Group Picnicking, Camping (Tent), Campfire, Hunting, All-Terrain Vehicles, Drinking Water, Pets on Leash, and Information]. These need no further management action. The two moderately understood symbols probably need modification to clarify the intended message--perhaps these should only be used if there is accompanying text (these were Amphitheater and Wading). Most of the respondents did not understand the intended message of these five symbols:



Interpre-  
tive trail



Winter  
Recreation  
Area



Fish  
Hatchery



Natural  
Study  
Area



Environmental  
Study Area

The five misunderstood symbols may require major modification or discontinued use on the GPNF. *For more information about this study contact Debbie Chavez at 909-680-1558 or [dchavez@fs.fed.us](mailto:dchavez@fs.fed.us).*

## Southwesterners' Opinions on Threatened and Endangered Species Management

The management of habitat for threatened and endangered species continues to be a primary task for large natural resource management agencies, including the Forest Service. Opinions and preferences for threatened and endangered species management on forest lands, with a specific focus on recreation-related interventions, were gathered from residents of California, Arizona, New Mexico, and Colorado. Telephone interviews were completed with 1,807 residents.

The majority of respondents had visited a national forest in their state (81.4%) and more than half engaged in some form of outdoor recreation at least on a monthly basis. Respondents shared a strong concern for threatened and endangered species, though less than one-third rated themselves as knowledgeable about species in their state.

Among three general opinion statements about threatened and endangered species, about half of the respondents selected "we probably have to let some species go, we cannot save them all" as best representing their opinion. About another third selected "we must preserve all species regardless of cost," while slightly more than one-tenth chose "economic growth and human concerns must come first."

The majority viewed the negative impact of recreational activities on species as relatively insignificant compared to other uses of forest lands such as grazing and mining. Among a series of management interventions designed to address species and habitat protection, signs and closure of some picnic or campsites were most approved of, while closures, signs, and banning mechanically based uses were viewed as effective by the majority.

Most trusted the Forest Service's efforts to address threatened and endangered species problems, and viewed their own values, goals and views regarding species management as similar. However, geographic variations were significant, with Californians' giving the highest ratings on each of these items, and residents of New Mexico giving the lowest ratings. These differences are of great interest given the impact of trust

on proposed and actual management actions, as well as communication and education efforts.

The shared concern about threatened and endangered species, paired with conservative ratings of knowledge suggests that an opportunity for education exists. Efforts should be tailored to the specific information needs and interests of publics, as well as their levels of trust or distrust in the agency. *For more information about this study contact Pat Winter at 909-680-1557 or [pwinter@fs.fed.us](mailto:pwinter@fs.fed.us).*

## Unit Publications

Chavez, D.; Hendricks, W. 2003. **Fire & recreation research on a fire-prone ecosystem: The Big Sur region, report on 2002 data.** Unpublished report. Riverside, CA: Pacific Southwest Research Station, Forest Service, U. S. Department of Agriculture. 14 p.

Graefe, A.R.; Absher, J.D.; Confer, J.; Thapa, B. 2003. **Communication needs and approaches for the visitor management: A case study of the Allegheny National Forest.** Unpublished report. Riverside, CA: Pacific Southwest Research Station, Forest Service, U. S. Department of Agriculture. 58 p.

Li, C., Zinn, H.R., Graefe, A.R., Absher, J.D. 2003. **A multi-ethnic comparison of service quality and satisfaction in national forest recreation.** Unpublished report. Riverside, CA: Pacific Southwest Research Station, Forest Service, U. S. Department of Agriculture. 67 p.

Proceedings of the Ninth International Symposium on Society and Resource Management. 2003. In Jakes, P.J. (comp), Homeowners, communities, and wildfire: Science findings from the National Fire Plan. 2002 June 2-5; Bloomington, IN. *General Technical Report NC-231*. St. Paul, MN: North Central Research Station, Forest Service, U.S. Department of Agriculture. Included are:

Bright, A.D.; Vaske, J.J.; Kneeshaw, K.; Absher, J.D. **Scale development of wildfire management basic beliefs.** p. 18-25.

Hendricks, W.; Chavez, D.; Phippen, K. **Observance-influence of fire management and place attachment at Big Sur.** p. 45-54.

Vogt, C. **Seasonal and permanent home owners' past experiences and approval of fuels reduction.** p. 63-73.

Winter, P.L. **Californians' opinions on wildland and wilderness fire management.** p. 84-92.

Vogt, C.A.; Cindrity, S.J. 2003. **A changing landscape in the wildland-urban interface: Permanent and seasonal homeowners, recreation and fuel management.** In Schuster, R. (comp/ed). Proceedings of the 2002 Northeastern Recreation Research Symposium; 2002 April 13-16; Bolton Landing, NY. *General Technical Report NE-302*. Newtown Square, PA: Northeastern Research Station, Forest Service, U.S. Department of Agriculture. p. 208-214.

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SARR Symposium 2004, San Francisco, February 4 - 6. Visit our website for more information.

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