Appendix D—Recreation Demand Analysis

A recreation demand analysis was prepared for the Monument for use in this planning process. This analysis is independent of the alternatives developed for the final EIS; predicted recreation demand does not change by alternative. What does vary by alternative is how well the alternative responds to the predicted recreation demand. That variation is discussed in the effects on recreation section in Chapter 4, not in this appendix.

This recreation demand analysis is not a needs assessment that compares recreation demand with the existing Monument supply of recreation opportunities and use patterns. A gap analysis (demand minus supply equals needs) was not performed, because such an analysis yields simplistic results that are not reflective of the complexities inherent in predicting human behavior or the uncertainties associated with predicting changing circumstances in the future.

This recreation demand analysis looks at recreation participation trends and factors (societal, lifestyle, demographic) that affect recreation participation (Cordell 1999, Sheffield 2005, USDA Forest Service 2006a).

Influences on Recreation Participation

Several factors, relating to societal, lifestyle, and demographic trends, can affect recreation participation (Cordell 1999, Sheffield 2005, USDA Forest Service 2006a); race, ethnicity, and gender also affect recreation participation (Cordell 1999). The aging of the baby boomer generation, income changes, time constraints, changes in family structure, and immigration are examples of trends that can all affect recreation (Sheffield 2005). Some specific examples of how trends affect recreation are that people are tending to take more frequent, shorter trips, rather than the traditional two-week vacation (Cordell 1999); many people are looking for opportunities that are close to home (APPL 2004, California State Parks 2009, Cordell 1999); and more families and singles are recreating.

The diversity of "family" has greatly changed over the past several years and will continue to do so (Sheffield 2005). An increasing divorce rate over the past several years has created greater numbers of single parent households (APPL 2004). Families increasingly may be a blend of adults and children, who may be related by marriage, but not necessarily blood. The number of households with multiple generations is also increasing. A greater number of persons are also living alone, by personal choice, death of a spouse, or divorce. These factors affect who people want to recreate with and the number of people who want to recreate together. Many people want to recreate in groups.

Income can affect participation (California State Parks 2009, Cordell 1999). An example is activities that have a high cost investment in recreation equipment. Some researchers have also noticed that participation is lower in households with very low or very high incomes (California State Parks 1998). Economic recession or prosperity also affects participation patterns, as equipment sales, travel distance, travel frequency, and activity choices can all be affected by the amount of disposable income available (Cordell et al. 2009b). Whether by choice or economic necessity, two income households with or without children have become the rule, although with the current recession, many people are unemployed.

As the baby boom generation ages, the proportion of the population that is elderly will increase. The attitude is generally changing that leisure time is not a privilege, but a right earned by years of hard work, and seniors have more free time available for activities. Improved health care, greater emphasis on maintaining lifelong physical fitness, and a changing image of what "old" people can or cannot do are also factors that contribute to greater participation in outdoor recreation and leisure activities than previous generations (California State Parks 2002, 2009, Cordell 1999, USDA Forest Service 2006a).

Baby boomers are a diverse group. Some people are interested in continuing education and have a strong desire to learn about nature, wildlife viewing, and history/culture, for example. Some are interested in high-risk activities, and a number of people over the age of 40 are beginning such activities as rock climbing (California State Parks 1998, 2002, Sheffield 2005, USDA Forest Service 2006a). Not all older people will increase their recreation participation,

however, as health concerns and mobility problems will affect their ability and desire to participate.

People have a continuing desire to get away from the stress of everyday life and to enjoy the outdoors (California State Parks 1998, 2002, 2003, 2009). Interest and concern for overall physical fitness, wellness, and improving health are substantial, although a report from the Surgeon General found that 60 percent of Americans are not regularly active, while 25 percent are not active at all. For young people, physical activity declines dramatically during adolescence. The same report concluded that a variety of medical conditions can be prevented or improved through lifelong moderate physical activity, which will improve the quality of life. Americans see outdoor recreation as a potent tool in attacking societal problems. Those who participate in outdoor recreation are markedly more content with their lives, in general, their families, their jobs, and their physical well-being (California State Parks 1998, 2002, 2003, 2009, Cordell 1999, Hill et al. 2009, Sheffield 2005, 2008).

People will continue to have an increasing number of choices on how to spend their leisure time. Recreation areas face competition from a myriad of leisure opportunities, both at home and away. At the same time, the public is developing higher expectations for quality and service. Convenient products and services that give people more time will continue to proliferate. As more people work, they have less time available to do anything else. The importance of convenience will extend to all areas of life, even recreation, as close-to-home recreation will increase in importance. Visitors will be interested in a diversity of activities and conveniences/amenities (APPL 2004, Hill et al. 2009, Sheffield 2005).

In determining future recreation demand, looking at current recreation participation patterns is useful (Cordell 1999, Sheffield 2005, USDA Forest Service 2006a). What is currently occurring forms a baseline for estimating what might happen in the future. In addition, when people are asked what activities they would participate in if opportunities were available, comparing those responses to current behavior can be useful. What activities people say they would participate in does not necessarily equate to what they actually do. For example, if people say they would go camping if more opportunities were available, but do not camp now, even though opportunities are currently available, they still may not camp in the future, even if more opportunities are provided.

The difference between what someone says they would do and what they actually do can be attributed to a number of reasons. First, people may simply think it would be nice to do something, but never actually follow through with the action. Limitations on time, disposable income, transportation, health, family needs, and traveling companions, as well as fear of the unknown or perceived crowding are some of the factors that could affect a person's recreation participation (California State Parks 1998, 2002, 2003, 2009, Cordell 1999, Crano et al. n.d., Sheffield 2005).

Crowding can affect how and when people visit an area (Cordell 1999). Some people do not mind crowds and, in fact, crowds can positively influence their recreation experiences. Many others, however, find that crowding adversely affects their recreation experiences. Consequently, they may avoid visiting areas when they perceive the areas will be more crowded and shift their visits to other areas, other times of the week, or seasons of the year. If people perceive that areas are always crowded, they may simply avoid visiting them altogether (California State Parks 1998, 2002, 2003).

The Hispanic population will continue to grow during this century, which will greatly influence recreation participation. According to one researcher (Dwyer 1994 [cited in Cordell 1999]), minorities are projected to account for 75 percent of participation growth in backpacking, birdwatching, hunting, day hiking, tent camping, walking for pleasure, and picnicking. Hispanic recreation participation patterns are somewhat different from predominantly Anglo populations (California State Parks 1998, 2003, Sheffield 2005). One example is in picnicking; Hispanics tend to participate with larger groups, arrive earlier in the day, and spend quite a bit of time in food preparation (Sheffield 2005). Hispanics have different preferences in activities and types of areas visited (California State Parks 1998, 2003, Sheffield 2005).

Recreation is a prime lure for attracting visitors from overseas, and it is a growing factor in travel and residency patterns (California State Parks 2002, Hill et al. 2009). The availability and proximity of

recreation opportunities affect how much people recreate, as well as their choice of activities. The multinational forest users have different expectations for their recreation experiences than those of the traditional forest user. The multinational visitors also provide a challenge in effective communications (Cordell 1999).

International tourism is expected to increase in the future. Natural resources and outdoor recreation play an important role in tourism, as they provide the settings for travel activities and experiences (California State Parks 2002, Cordell 1999, Hill et al. 2009). The Monument already sees a substantial number of international visitors (USDA Forest Service 2008a), and they are expected to increase in the future.

Assessing Future Demand in the Monument

In order to assess future recreation demand in the Giant Sequoia National Monument, various sources of information are examined (listed in the literature cited section and further described in the remainder of this appendix). Useful information includes lifestyle, demographic, and economic trends, all of which can affect how or if people recreate, as well as where and when (Cordell 1999, Sheffield 2005, USDA Forest Service 2006a); race, ethnicity, and gender also affect recreation participation (Cordell 1999). Recreation activity and participation trends are examined. Studies at various scales, covering the nation, California, or portions of the state, are reviewed for their applicability to the Monument.

The various surveys provide a snapshot in time. Due to the facts that the surveys were conducted at different times, different sampling techniques were used, and different questions were asked, the results are not directly comparable. Yet, even though the surveys yield different results, they do provide insight to help determine future recreation demand in the Monument. Despite what the science indicates, predicting the future is uncertain.

Some survey information is specific to the Sequoia National Forest, as a whole, and others provide insight to particular aspects of the Monument, such as visitor information. No one information source provides recreation participation information for the entire Giant Sequoia National Monument (although research [Chavez] was recently completed, which provides information on six day use sites in the Monument; research on a seventh site is being conducted in summer 2011). Consequently, information must be extrapolated from these other sources and applied to the Monument; the results are inherently uncertain. Each source provides a piece of the picture. Together they form a mosaic, through which a picture emerges, to illustrate what future recreation demand might look like in the Giant Sequoia National Monument.

For studies that include income/economic information, those results are not presented here, due to the fact that a separate socioeconomic analysis was conducted for the final EIS (see the socioeconomic sections in Chapters 3 and 4).

The information sources presented in this demand assessment are generally arranged chronologically, from earliest to most recent.

According to a Forest Service estimate in 1996, use at the two districts that comprise the Giant Sequoia National Monument is over half of the forest total (use in the Monument would be less than this, because some district lands are not included in the Monument).

The Sequoia, Inyo, and Sierra national forests account for 45 percent of all recreation visitor days on National Forest System lands in the Sierra Nevada. Together with the adjacent national parks, this portion of the Sierra Nevada probably has one of the highest recreation activity levels in the world. This area of the Sierra Nevada will also experience the largest population growth in nearby urban areas, particularly Bakersfield and Fresno, during the next few decades (Duane 1996).

Various studies have found that recreationists are generally satisfied with their available recreation opportunities (California State Parks 1998, 2002, 2003, 2009, Kocis et al. 2004, USDA Forest Service 2006a). However, they continue to be concerned with the availability of clean restrooms, safe drinking water, and information (directional signs, information on conditions and hazards, and interpretive

information). Safety and security are of more concern in some areas and among some populations (Cordell 1999, Sheffield 2005).

The National Survey on Recreation and the Environment (NSRE) is one of a continuing series of national recreation surveys, conducted periodically by the federal government since 1960 (USDA Forest Service n.d.). The survey is not specific to recreation on national forest lands. People 16 years and older have been surveyed. Over the years, the survey has noted an increase in participation, although participation rates vary greatly across different demographic strata. The results of the 1994-1995 NSRE survey are published in Outdoor Recreation in American Life (Cordell 1999). Outdoor Recreation for 21st Century America (Cordell 2004) compares the results from the 1994-1995 and 2000-2001 NSRE surveys.

In the 1994-1995 NSRE survey, 94.5 percent of the population participated in some activity during the previous 12 months. The most popular types of recreation included viewing and learning activities, such as birdwatching; trail, street, and road activities, such as biking; social activities, such as picnicking; spectator activities, such as attending an outdoor concert; and swimming (Cordell 1999). Similar to a 1997 California survey (California State Parks 1998), for the most part, these activities are relatively low cost, can be pursued without a great deal of physical exertion, and do not require special equipment or skills. Most of these activity types remain popular with Americans past the age of 60.

Places that can be used for casual activities, such as walking, family gatherings, sightseeing, and visiting beaches, historic sites, and other sites of interest, are most in demand for a broad spectrum of Americans. Viewing and learning, socially oriented activities, and swimming are the most popular forms of recreation, with natural and historic settings contributing significantly to recreationists' expectations. The trend is generally away from consumptive uses (e.g., hunting, fishing) to nonconsumptive uses (e.g., wildlife viewing). Heritage, nature, and educational travel are increasing. Growth seems particularly strong for viewing and learning activities and for new activities (Cordell 1999). More uses continually come into vogue that must compete with existing uses for a limited land base.

Of all the regions nationally, the Pacific Coast will see the largest number of activities for which primary purpose recreation trips grow faster than the rate of increase predicted for the population (about 13 out of 22) from now until 2050. This region will also have the most activities (75 percent) for which participants grow at a rate faster than the population. Activity days should also increase faster than population growth for about 60 percent of the activities (Cordell 1999).

The projected demand for the year 2020 is highest for sightseeing, non-consumptive wildlife, biking, family gatherings, hiking, horseback riding, rock climbing, walking, and camping (NSRE 2000).

According to *Outdoor Recreation for 21st Century America* (Cordell 2004), the most popular activities in the 2000-2001 NSRE survey were walking for pleasure and outdoor family gatherings, across all race/ethnicity groups. In the 1994-1995 survey, walking for pleasure and outdoor family gatherings were also the top two activities, although the rank order was reversed for African Americans. In California, in 2000-2001, the most popular activities, with more than 50 percent participating at least once in the previous 12 months, were walking for pleasure, family gathering, viewing/photographing natural scenery, visiting nature centers, picnicking, and gardening/landscaping for pleasure.

The biggest change in the most popular activities between the two NSRE surveys (1994-1995 and 2000-2001) was an increase in the numbers of people participating. For example, the percentage of people participating in walking for pleasure rose from 67 percent to 83 percent. Family gatherings rose from about 62 percent to nearly 74 percent. Visiting nature centers increased from about 53 percent to about 57 percent. Sightseeing decreased in participation, but still ranked in the top ten, as number five. The only activity that joined the ranks of the top ten in the 2000-2001 survey was viewing/photographing wildlife, which rose from number 12. The remainder of the top ten activities were picnicking, attending outdoor sporting events, visiting historic sites, swimming in lakes or streams, and swimming in outdoor pools (Cordell 2004).

How frequently people engage in an activity indicates the intensity of participation and volume of demand. In 2000-2001, people participated in viewing/

learning/gathering activities the most frequently, with an average of about 136 occasions per person. People walked for pleasure on an average of almost 102 days or occasions per person. No other activity had nearly as frequent participation by such high percentages of participants. For most activities, the highest percentages were for 10 days or less. For many activities, little change occurred in the number of participation days between the two NSRE surveys. For some activities, such as cross-country skiing, snowmobiling, developed camping, hunting, fishing, swimming, backpacking, and off-road driving, a reduction in participation day percentages reflected the addition of new participants to those activities who participated for only a few days (Cordell 2004).

Many activities with the largest growth rates between the two NSRE surveys are physically demanding and may require specialized equipment and/or skills, such as kayaking, snowboarding, backpacking, and mountain climbing. Even though participation increased tremendously for some of these activities, the overall participation rate (percentage of the population participating) is quite small, compared to the most popular activities. In the Pacific region, which includes California, ice fishing, snowboarding, kayaking, snowmobiling, and soccer each exhibited a growth rate of over 100 percent, but less than 10 percent of the population participates in each of those activities. Snowmobiling had a higher growth rate in this region than anywhere else in the country. These growth rates indicate a shift in the mix of activities occurring in many outdoor areas (Cordell 2004).

Where people recreate has also been questioned in NSRE surveys. People were asked if their activities occurred in forested settings, which includes national forests, among all other forestlands in the country. Between the two NSRE surveys, the activities with increased participation in forested settings were walking, outdoor family gatherings, viewing/photographing wildlife, hiking, picnicking, visiting nature centers/museums, viewing/photographing birds, camping in developed campgrounds, visiting historic sites, and driving motor vehicles off-road (Cordell 2004).

Outdoor Recreation in America (Roper Starch Worldwide 2001) is a report on the eighth national survey in an annual series for the Recreation Roundtable. The survey is not specific to recreation on national forest lands. The survey found a broad increase in outdoor recreation participation, with 20 of 37 activities showing a percentage increase over the previous twelve months. The sharpest climbs were in wildlife viewing (up 4 percent), hiking, running/jogging, and motorboating (each up 3 percent). Half reported a visit to a federal recreation site over the past two years. However, the survey showed a decrease in the frequency of participation, roughly balanced by gender, but more pronounced in the 18-29 age group. This statistic is important, because, historically, individuals in the 18-29 age bracket are much more active outdoors than those who are older. If those born between 1972 and 1982 continue to live a less active life, their lifestyles will affect not only their health, but also business and government serving their needs. The drop was also greater among higher income Americans (43 percent to 31 percent). The decline in frequency of participation was very strong among internet users, who reported a several times weekly participation drop of 17 percent, versus an 11 percent drop for the public overall. Households with children showed a less pronounced drop.

The state of California conducted a survey on recreation in 2002 (California State Parks 2003), which partially replicated previous California surveys. (A recreation demand analysis completed for the Giant Sequoia National Monument in 2002 examined results from the 1997 California survey [California State Parks 1998].) The survey results apply to recreation areas operated by all levels of government and are not specific to the Forest Service. However, in the 2002 survey, some questions were split, to get a better idea of recreation use, satisfaction, condition, and management emphases for regional, state, and federal recreation providers (including the Forest Service) versus local recreation providers. The survey also gathered information on Hispanic recreation patterns, which may be different from non-Hispanics, and for the first time, gathered information on youth participation (under the age of 18).

Most (84.1 percent) Californians (up slightly from 82 percent in 1997) believe that outdoor recreation areas and facilities are “important” or “very important” to their quality of life. More than two-thirds (69.1 percent) spent the same or more time on outdoor activities than they did five years ago. People who spent less time were asked why. Most of the reasons

(81.6 percent) were beyond the control of recreation managers to change (such as time constraints). For those reasons given that could be within managerial control, issues related to security and enforcement (36.4 percent) and lack of appropriate facilities (27.3 percent) were stated most often, followed by crowding (12.7 percent) and activities not available (10.8 percent). Also mentioned were poor maintenance (7.3 percent) and entrance costs and fees (5.5 percent). A larger percentage of Hispanics (59.8 percent) than non-Hispanics (52.3 percent) strongly supported increasing user fees (California State Parks 2003).

People were asked about factors that influence enjoyment of their favorite recreation activities. In the 2002 California survey, the factor considered most important to most people (75.9 percent) was being able to relax (being outdoors was highest ranked in 1997). More than 60 percent reported feeling safe and secure (68.3 percent), being outdoors (67.4 percent), and beauty of the area (61.8 percent). Meeting new people was the least important factor. Only one factor (quality of the natural setting) was significantly different for Hispanics (45 percent), compared to non-Hispanics (60.6 percent) (California State Parks 2003).

The 2002 California survey asked about five broad types of outdoor recreation areas: natural and undeveloped areas; developed nature oriented parks and recreation areas located outside of or on the fringe of urban areas; historical or cultural buildings, sites, or areas, regardless of their location; highly developed parks and recreation areas in or near urban areas; and private, not public outdoor recreation areas and facilities. Highly developed areas were visited with the greatest frequency, followed closely by developed nature oriented parks and recreation areas (90.1 percent) and historic or cultural buildings, sites, or areas (86.7 percent). People were also asked their favorite type of area to visit. Developed nature oriented parks and recreation areas were reported as the favorite (35.4 percent), which was a significant change from 1997, when natural and undeveloped areas were reported as the favorite. The change was speculated to be the result of changing demographics, as the Hispanic population has grown since the 1997 survey, and natural and undeveloped areas are significantly less popular (16.4 percent) with them than developed nature oriented areas (40.3 percent). Developed nature oriented areas were the favorite for both Hispanics and non-Hispanics (California State Parks 2003).

The mean travel time to Californians' favorite recreation area in the 2002 survey was 45 minutes, with just 13.7 percent reporting more than 60 minutes (in National Visitor Use Monitoring, the average distance for Sequoia visitors was 61 miles or about an hour [USDA Forest Service 2006a]). About half (50.4 percent) reported using non-local parks several times in 2002 (California State Parks 2003).

People were asked about their satisfaction with recreation areas, facilities, and services. For opportunities outside of their local communities (more likely to be a regional, state, or federal area), 73.7 percent said they were "satisfied" or "very satisfied." In addition, 82 percent reported that the condition of those facilities was the "same as" or "better than" five years ago (California State Parks 2003).

In the 2002 California survey, people were asked 16 questions about their attitudes regarding recreation lands and facilities, many of which have applicability to federal lands. A few are noted here. On the top of the list was the statement, "Maintaining the natural environment in outdoor recreation areas is important to me," with 96.7 percent agreement (moderately agree or strongly agree). Lower on the list was "More outdoor recreational facilities are needed at lakes and reservoirs, such as picnic and camping sites," with 80.3 percent agreement. "More outdoor recreation areas are needed for camping or overnight use" was agreed to by 76.1 percent. "More developed campgrounds with hot showers and electrical and water hook-ups are needed in outdoor recreation areas" was agreed to by 69.3 percent. Less than a third (31.3 percent) agreed that they do not feel safe using outdoor recreation areas (California State Parks 2003).

The 2002 California survey reported that over two-thirds (68.2 percent) of respondents indicated facilities are too crowded when they want to use them (California State Parks 2003). Within the Monument, some areas are filled to capacity, at times, especially on holiday weekends.

The attitudes of Hispanics were significantly different from those of non-Hispanics for 12 of the 16 questions. Most Hispanics (87.9 percent) agreed that more recreation areas are needed by lakes than non-Hispanics (77.8 percent). More than three-quarters (78.3 percent) of Hispanics agreed that recreation areas are too crowded, compared to 64.9 percent of non-Hispanics. 45.3 percent of Hispanics agreed that they do not feel safe using recreation areas, while only 25.8 percent of non-Hispanics agreed with that statement. Hispanics also agreed that outdoor recreation areas should promote tourism (47.1 percent), while only 34.9 percent of non-Hispanics agreed with that statement. Most Hispanics (82.2 percent) agreed that additional developed campgrounds are needed, while only about two-thirds (65.6 percent) of non-Hispanics felt that way (California State Parks 2003).

The 2002 California survey questioned people on their participation in 55 activities (California State Parks 2003). The largest percentage (91.1 percent) engaged in walking for fitness and fun, followed by driving for pleasure, sightseeing, and driving through natural scenery (90.2 percent), while the lowest (3.4 percent) participated in windsurfing. Other activities that typically occur on national forests (and their rankings) include:

- Visiting historic or cultural sites, museums (3)
- Attending outdoor cultural events (festivals, fairs, concerts, theater, etc.) (4)
- Beach activities (including sunbathing), surf play (5)
- Picnicking in developed sites (7)
- Wildlife viewing, bird watching, viewing natural scenery (8)
- Trail hiking (9)
- Camping in developed sites with facilities such as toilets and tables (12)
- Fishing – freshwater (19)
- Camping at a primitive site without facilities (21)
- Bicycling on unpaved surfaces and trails, mountain biking (24)
- Winter sports (non-mechanized – sledding, snow play, ice skating) (28)
- Backpack camping (29)
- Camping in trailer or RV sites with hook-ups (30)
- Off-road vehicle use – four-wheel drive (31)
- Horseback riding, horse shows, and events (32)
- Gathering mushrooms, berries, or other natural products (37)
- Off-road vehicle use – motorcycles, dirt bikes, ATVs, dune buggies (38)
- Rock climbing/bouldering (40)
- Hunting (large and small game) (49)
- Cross-country skiing (51)
- Snowmobiling (54)

The 2002 survey found that California youth were very active in outdoor recreation, participating in many activities. The largest percentage (92 percent) participated in walking for fitness and fun, followed by pool swimming (80.7 percent), visiting water sites other than beaches (79.3 percent), beach activities (including sunbathing) (78.7 percent), and visiting outdoor nature museums/zoos/arboretums (78.4 percent). Snowmobiling had the lowest youth participation rate (3.9 percent), with windsurfing the next lowest (4.7 percent) (California State Parks 2003).

The number of days people participated in activities was also recorded in the 2002 California survey. Participation appears to be higher for activities that can be done near where people live and without specialized facilities, which is consistent with findings from other surveys. People participated in walking for fitness and fun for the greatest number of days (102.8 days) (82.6 days for the youth survey). Other activities with frequent participation (ranked in the top 10 for people who participated in outdoor recreation) included driving for pleasure, sightseeing, driving through natural scenery, and wildlife viewing, bird watching, viewing natural scenery. Many of the activities with low participation rates appear to have avid participants. For example, 9 percent participated in hunting, but they did it for an average of 20.7 days. Other activities in the youth survey with frequent participation included jogging, skateboarding, walking a pet, and using play equipment (California State Parks 2003).

In order to determine unmet or latent demand, the 2002 California survey asked respondents to identify and rank the top five activities in which they would most probably increase participation if good opportunities were available. The rankings were weighted and given an index number. The five activities with the highest index numbers were: camping in developed sites with facilities such as toilets and tables; trail hiking; walking for fitness and fun; wildlife viewing, birdwatching, viewing natural scenery; and bicycling on paved surfaces. The highest ranked activities for Hispanics included walking for fitness and fun; bicycling on unpaved surfaces and trails, mountain biking; driving for pleasure, sightseeing, driving through natural scenery; and snowboarding. The highest ranked activities for youth included beach activities (including sunbathing); swimming in freshwater lakes, rivers, and/or streams; camping in developed sites with facilities such as toilets and tables; and bicycling on paved surfaces (California State Parks 2003).

The 2002 California survey respondents were also asked to rank the top five activities to which the government should give the highest priority when spending public money (public support). The results were again weighted and given an index number. Four of the top five are the same as on the latent demand index (previous paragraph). The five activities with the highest index numbers were: camping in developed sites with facilities such as toilets and tables; trail hiking; walking for fitness and fun; wildlife viewing, bird watching, viewing natural scenery; and picnicking in developed sites. Visiting historic or cultural sites also received a high degree of public support. The highest ranked activities for Hispanics included walking for fitness and fun; driving for pleasure, sightseeing, driving through natural scenery; and snowboarding. Trail hiking was ranked significantly lower by Hispanics than non-Hispanics (California State Parks 2003).

In order to assess recreation needs, the 2002 California survey combined the results of the unmet demand question with the results of the question on which activities should have the highest priority for the expenditure of public funds (public support). The top five activities on the needs index were: camping in developed sites with facilities such as toilets and tables; trail hiking; walking for fitness and fun; wildlife viewing, bird watching, viewing natural scenery; and bicycling on paved surfaces (California State Parks 2003).

Given limited agency budgets, the 2002 California survey respondents were asked about priority categories for public spending. For state and federal agencies, over 80 percent of respondents placed emphasis ("more emphasis" or "about the same emphasis") on all eight categories (protecting natural resources; protecting historic resources; remodeling and improving existing facilities; providing educational programs; maintaining or caring for park and recreation areas; buying additional parkland and open space for recreation purposes; providing more organized activities and special events; and building new facilities) (California State Parks 2003).

While Hispanics also placed emphasis on all eight categories, the order in which they ranked them was significantly different (buying additional parkland and open space for recreation purposes; maintaining or caring for park and recreation areas; providing educational programs; building new facilities; remodeling and improving existing facilities; protecting natural resources; protecting historic resources; and providing more organized activities and special events) (California State Parks 2003).

Priorities for possible changes/improvements in facilities and services included providing more public use opportunities at lakes and reservoirs; constructing more developed campgrounds with flush toilets, hot showers, and food lockers; increasing the number of wilderness type areas where no vehicles or developments are allowed; constructing more basic campgrounds with picnic tables, cold water, and pit toilets; developing more multi-use, non-motorized trails for horseback riding, hiking, and/or mountain biking; and providing more education programs and services in parks and outdoor recreation areas (California State Parks 2003).

The 2002 California survey asked people how they prefer to receive information about recreation areas. The largest percentage said they prefer word of mouth from family and friends (59 percent), the internet (54.1 percent), and brochures (53.4 percent) (California State Parks 2003).

In 2002, the Forest Service published *Effectiveness of Visitor Information Programs in Giant Sequoia National Monument* (James and Absher 2002). Study results indicated that the vast majority of visitors to the Monument use visitor services. Before their forest visits, the majority (53 percent) sought information, such as directions (38 percent), entrance fees (33 percent), weather (32 percent), things to do (30 percent), lodging (26 percent), bears/bear safety (25 percent), and camping safety (24 percent). Some also sought interpretive information about giant sequoias (24 percent) and other available programs/interpretive services (10 percent). Before their visits, their information sources were family and friends (34 percent), maps (34 percent), the internet (26 percent), travel guides (23 percent), books (20 percent), newspapers (9 percent), magazines (8 percent), and classes or lectures (1 percent). While on-site, visitors continued to seek information, including forest rules and regulations (64 percent), campsite availability (60 percent), activities (45 percent), current fire restrictions (45 percent), interpretive information (36 percent plants and animals; 33 percent forest history), and directions to specific sites (65 percent) and nature trails (57 percent). On-site information sources included visitor maps (52 percent), signs (48 percent), park visitor centers (46 percent), and ranger station staff (46 percent).

A survey conducted on-site in 2002 in Sequoia and Kings Canyon National Parks also included some questions specific to the Sequoia National Forest. The results were published in 2003 in *Sequoia & Kings Canyon National Parks, Visitor Study, Summer 2002* (Littlejohn and Gramann 2003). For future visits, 47 percent of visitors said their preferred information source would be the Forest Service internet. When asked for their primary reason for visiting, 10 percent said they came to the area to primarily visit the Sequoia National Forest. Among the forest areas visited on the trip when the survey occurred were Hume Lake (63 percent), Big Meadows (42 percent), and Montecito (24 percent). Most visitors (73 percent) stayed overnight somewhere in the area. Of those who stayed overnight, 51 percent stayed one or more nights in the Sequoia National Forest. Over half (54 percent) camped in the forest or parks. Visitors were asked about the importance of various facilities and services and the quality. Developed Forest Service campgrounds were rated as extremely important or very important by 90 percent of visitors; the quality was rated as very good or good by 81 percent. Forest Service picnic areas were rated as extremely important or very important by 91 percent of visitors; the quality was rated as very good or good by 88 percent.

Recreation Statistics Update (Cordell et al. 2004) updated information collected through NSRE. For the period 1999-2004, the highest percentage of the population participated in walking (82.5 percent), while the lowest participated in windsurfing (0.8 percent). Rounding out the top five were outdoor family gatherings (74.2 percent), gardening, viewing/photographing natural scenery (58.5 percent), and visiting nature centers (56.5 percent). Two general trends were noticed. The percentage of the population participating increased for many activities over the period of 1999-2004. However, from fall 2001 to summer 2002, many activities experienced a dip in participation, presumably in reaction to the tragedies of September 11, 2001.

In 2005, the state of California published *Parks and Recreation Trends in California* (Sheffield 2005). This publication stated that the changes in the state's population in the coming years will affect outdoor recreation more than anything else. The population is growing rapidly, is becoming more culturally and racially diverse, and is aging. According to predictions, based on existing growth rates (in 2005), the population in California will surpass 50 million before 2040 (about 2032) and reach 60 million by about 2050 (projected by the California Department of Finance). With the rate of population growth predicted, even if outdoor recreation participation rates are static or decline, overall participation will increase in sheer numbers simply because more Californians exist. Families with children, youth, and seniors are large markets for outdoor recreation and will grow, particularly in southern and central California urban areas, increasing recreation demand.

According to the report (Sheffield 2005), California is already culturally and racially diverse, with significant proportions of the United States total for various racial and ethnic groups (e.g., 36.1 percent of the nation's total Asian American population; 31.1 percent of the nation's Hispanic population). By 2030, 43 percent of the state's population is projected to

be Hispanic (52 percent by 2050, projected by the California Department of Finance). Between 2000 and 2020, the state should see a 58 percent increase in Hispanics, a 55 percent increase in Asian/Pacific Islanders, a 29 percent increase in Native Americans, a 20 percent increase in African Americans, and a 4 percent increase in people of European descent. California has more foreign-born residents than any other state, and many of them are recent (since 1990). Many recent immigrants have limited outdoor recreation experience on public lands.

The senior population (those 60 and older) will double by 2020. As the baby boom generation enters its retirement years, this generation of seniors will generally be healthier and more active than any previous senior generation. They will tend to continue to seek outdoor recreation experiences. They will also be drawn to be active in conservation and heritage causes (Sheffield 2005).

Younger age groups will also have a huge effect on outdoor recreation. Californians between the ages of 18 and 40 are creating new ways to recreate, drawn by opportunities for excitement, such as extreme sports and adventure recreation. Children (from kindergarten through high school) are more racially and culturally diverse and are more urban than previous generations (Sheffield 2005).

According to the report (Sheffield 2005), Californians will likely continue involvement in outdoor recreation for the forseeable future, although in some new and different ways. Participation in some already popular activities will continue to increase, along with the state's population. Many of these activities can be done without much equipment, and can be enjoyed by people with a variety of skill levels. Many activities have a strong social component, drawing families to participate. These continuing favorite activities are:

- Walking
- Picnicking and family gatherings in the outdoors
- Swimming (pools, lakes, streams)
- Developed camping
- Visiting beaches
- Sightseeing
- Outdoor sports events and concerts
- Visiting nature centers and historic sites

Day hiking, bicycling (including mountain biking), running, and wildlife viewing are rapidly increasing in popularity, and, if growth rates continue, will join the previous list of favorites. Activities with learning components, trail-related activities, and water-based recreation will grow. Muscle-powered, mechanized, and motorized activity demand will continue to grow. Activities that are high cost, require specialized equipment, or require specialized settings draw dedicated enthusiasts, but their future demand is less clear, due to varying participation rates and rates of growth (Sheffield 2005).

Baby boomers and older adults want more amenities and improved access, while younger adults want more immediate and lively information and access. People expect instantaneous information, thanks to the internet, so that they can customize their recreation experiences, as well as have virtual experiences (Sheffield 2005).

For Hispanics of Mexican origin, the most popular outdoor recreation activities are family gatherings, walking for pleasure, day hiking, picnicking, visiting nature centers, and viewing/photographing scenery. They are less likely to sightsee, photograph wildlife, photograph wildflowers, visit historic sites, or drive for pleasure (Cordell et al. 2005 [cited in Sheffield 2008]).

For Asians/Pacific Islanders, the most popular activities are walking for pleasure, family gatherings, gardening/landscaping, picnicking, driving for pleasure, and attending outdoor concerts. They are less likely to visit wilderness, visit farms/agricultural lands, or hunt (Cordell et al. 2005 [cited in Sheffield 2008]).

Activities that remain most popular (40 percent or more participation) across the lifespan are walking, family gathering, and gardening/landscaping. Viewing/photographing scenery and picnicking are popular up to age 84. Visiting nature centers, driving for pleasure, and sightseeing are popular up to age 74. For those age 16-64, 40 percent or more also visit historic sites, view/photograph wildlife or wildflowers, visit beaches, and swim in lakes/streams/

outdoor pools (Cordell and Betz 2005 [cited in Sheffield 2008]).

In 2002 and 2003, the Sequoia National Forest first participated in the National Visitor Use Monitoring (NVUM) process. A stratified random sampling process was used to select which sites would be surveyed, based on the type of site or area (day use developed site, overnight use developed site, general forest area, wilderness) and level of use (high, medium, low, or closed). Data was collected throughout the year. The information gathered includes visitation estimates, activity participation, satisfaction, expenditures, and demographic information. Due to the sample size, the information is only valid at the forest level and cannot be strictly applied to the Monument or a particular district or a particular site (Kocis et al. 2004, USDA Forest Service 2008b).

In 2006, NVUM data were used, along with information from NSRE, the United States Census Bureau, the National Association of Counties, and local information, to develop market data, including recreation demand information, for the Sequoia National Forest. These market data were used in the recreation facility analysis process to help define the forest's recreation niche (USDA Forest Service 2006a).

The market data indicated that the Sequoia National Forest's market zone consisted of about 25 million people in 2006. About 75 percent of visits are of California origin, within a 275-mile distance, from Sacramento and San Francisco down to Orange County; this area is the market zone. The population centers of Sacramento, Bakersfield, Orange County, and Los Angeles contribute a large influx of visitors. About half of the visits are from the local counties of Fresno, Tulare, and Kern. The remaining 25 percent of visitors come from throughout the United States or are international visitors (USDA Forest Service 2006a).

Population in the market zone is predicted to increase by 38 percent from 2000 to 2030. Visitation to the Sequoia National Forest is estimated to increase by a similar amount (37 percent) over the years 2005-2025, which would equate to 26,400 more visitors each year (USDA Forest Service 2006a).

The Sequoia is an overnight destination, rather than a day use destination. The forest is a primary destination for 83 percent of visitors; the percentage of visitors from non-local origins who stay overnight in the forest is more than twice the regional average, and even visitors from local origins (Fresno, Tulare, and Kern counties) are staying overnight (more than the regional average). The average distance that visitors travel from home to their forest destination is 61 miles; consequently, for many visitors (except for those who live in communities within or adjacent to the forest), the Sequoia does not provide a quick, out-the-back-door day use experience. The average stay duration of 30 hours connotes a significant amount of overnight use. Overnight visitors are camping more in developed sites than they are primitive camping (USDA Forest Service 2006a) (although dispersed camping in concentrated use areas, which is not really primitive, is also popular, based on visual observation).

Visitor use data from NVUM show that the Sequoia is a very family oriented forest. Indicators that show this family orientation are a higher average number of people per car than the regional average (3.0 people per car in the Sequoia versus 2.2 per car regionally) and a higher percentage of use by both young people and persons over the age of 61 than the regional average (25 percent of the Sequoia's visitors are less than 16 years old). Use by nontraditional user groups, especially Hispanics and Asian, is prevalent and growing, although not well represented compared to the population base (USDA Forest Service 2006a).

Group facilities for both camping and day use are important and will become even more important in the future, as larger "families" want to recreate together (USDA Forest Service 2006a). What constitutes a family has changed over the years, due to changing demographics. Where, in the past, a family was viewed as a mother, father, and their children, today a family may be multi-generational and may or may not be related by blood or marriage (Sheffield 2005). Research has shown that people often want to recreate in groups (one study showed an average of 11 people).

Public demand for outdoor opportunities to accommodate larger social groups presents forest managers with challenges, including effects from human waste, littering, soil compaction and erosion, and vegetation disturbance. Larger groups can mean

concentrated resource effects, especially in riparian areas and other environmentally sensitive areas. Many of these users are urbanites, lower income groups, and culturally diverse user groups, unfamiliar or unconcerned with the dangers and vulnerabilities of the natural environment they have come to enjoy. This situation is especially true of lakes and rivers within a one-hour drive of urban centers. Interpretive programs the increase agency presence, using peers to deliver the messages, and provide audience-valued resource information, incorporating low-impact use messages, could be effective ways to increase outreach to these users, while mitigating resource effects (USDA Forest Service 2008a).

With the forest's spectacular scenery, viewing it is very popular, again resulting in a higher percentage of visitors participating in this activity than the regional average. Water is a magnet, attracting people to recreate; areas with water attract more visitors than areas without it (USDA Forest Service 2006a).

Escape from the heat is a primary motivation of many visitors to the Sequoia, so that higher elevations are popular. Although water attracts people in most locations, here it provides an additional escape from the heat, and water-related activities are popular (USDA Forest Service 2006a).

Visitors to the Sequoia are active while they are here. They do not spend all their time relaxing in the campground, as evidenced by a higher participation rate than the regional average for many activities (15 of 26 activities) (USDA Forest Service 2006a, 2008a).

Based on both current use and projections in the market and survey data, the following activities are expected to be primary in the next ten years for the Sequoia National Forest: relaxing/escaping heat, hiking, viewing natural features/wildlife, driving for pleasure, fishing and hunting (although many studies [California State Parks 1998, 2002, Cordell 1999] show the demand for hunting to be decreasing), snowmobiling, picnicking/group picnicking, developed camping/group developed camping, motorized and non-motorized water travel, swimming/water play, nature center/nature study, and visiting historic/prehistoric sites (USDA Forest Service 2006a).

The Outdoor Foundation published a report on outdoor recreation participation in the United States (Outdoor Foundation 2008). Participation in outdoor activities increased, overall, in 2007 to about 50.0 percent of all Americans. Of the activities surveyed, the favorites (frequency of participation) were running/jogging/trail running, bicycling, fishing, wildlife viewing, and skateboarding. Participation declines with age; 68 percent of those age 6-12 participated, while only 26 percent participated who were 65 and older. Most participants (90 percent) are introduced to recreation in their youth (between ages 5 and 18). Indoor fitness activities were more popular with females than outdoor activities. Outdoor activities were more popular with males for ages 25 to 65.

The Outdoor Foundation reported that participation declined 11 percent for youth, ages 6 to 17, in 2007. The decline was larger for girls than boys, particularly for ages 6-12. Most youth are introduced to outdoor recreation by parents, friends, and other relatives. School programs are cited more often by African American youth (22 percent) and Asian/Pacific Islander youth (20 percent) and less often by Caucasian youth (11 percent) and Hispanic youth (13 percent). Few cite the media, mentors, or outdoor education programs as motivation to begin participation. Fun is the primary motivator for youth participation. Exercise was cited second by African Americans and Asians/Pacific Islanders. Discovery/exploration was cited second by Caucasians and Hispanics. Most youth of all ages who do not participate cite lack of interest as the primary reason. The favorite outdoor activities (frequency of participation) for those age 6-17 are bicycling; running/jogging/trail running; skateboarding; fishing; and camping (within ¼ mile of vehicle/home) (Outdoor Foundation 2008).

The Outdoor Foundation defines "gateway" activities as those that are popular and often lead to participation in other activities. Those activities are fishing, bicycling, running/jogging/trail running, camping, and hiking. Overall, participation in these activities remained relatively steady from 2006 to 2007. Running/jogging/trail running experienced the biggest increase, while camping experienced the largest decrease (Outdoor Foundation 2008).

Like most surveys, the Outdoor Foundation survey found that participation was highest for Caucasians in all age groups. Participation was lowest for African Americans. Although the participation rate was lower among Hispanics and African Americans than Caucasians, the participation frequency was higher (Outdoor Foundation 2008).

In 2009, Cordell (et al.) updated NSRE data, which, for the first time, included a National Kids Survey, and looked at other information driving outdoor recreation participation (Betz et al. 2009, Cordell and Betz 2009, Cordell et al. 2009a, 2009b, 2009c). Some recent publications have reported decreasing participation in outdoor recreation (generally), nature-based recreation, forest recreation, and visitation to public land. The researchers asked the question, "Is there a general and fundamental shift away from people's participation in nature-based recreation and interest in nature?" (Cordell 2008, Cordell et al. 2009b). Although technology has changed outdoor equipment and clothing over all the years that NSRE has been conducted, the activities that were popular in the 1950s, 1960s, and 1970s are still popular. Much more than technology, however, has changed; key aspects of society have also changed which dramatically influence recreation (Cordell et al. 2009b).

From 1969 up to 2008, key drivers of change nationwide have included dramatic increases in the number of vehicles, the number of drivers, the number of workers, the number of households, and the population. Urbanization has increased, as has racial and cultural diversity. The economy grew from the 1930s through 2005. Use of the internet has grown. Transportation changes have affected people's travel. Although people are not driving more miles, overall, the average time spent in transit increased from an average of 49 minutes in 1990 to 56 minutes in 1995 and 62 minutes in 2001, indicating an increase in congestion (Cordell et al. 2009b).

All of these factors have affected outdoor recreation participation. Through 2007, the number of people who participated in one or more activities grew by 4.4 percent nationwide. The total number of days also increased. In the 50 nature-based activities, through 2007, the total population participating grew by 3.1 percent nationwide, and the number of participation days increased about 32 percent. Per capita days of participation increased by more than 22 percent (Cordell et al. 2009b).

Although one paper has stated that public land visitation was in sharp decline, that report looked at per capita visitation, not total visitation. Agency data showed that state park, national park, and national wildlife refuge visitation has been stable or increasing since the 1990s (Cordell 2008). The Outdoor Foundation compared participation in 2006 and 2007 for a variety of activities, mostly physically challenging, and found that participation increased for Americans aged 18-64 (Cordell and Betz 2009, Cordell et al. 2009b, Outdoor Foundation 2008).

From 2000-2007 (Cordell et al. 2009b), the fastest growing nature-based activities were viewing or photographing flowers and trees, natural scenery, and birds and other wildlife; visiting water; visiting nature centers; sightseeing; visiting wilderness; and driving off-road. Many activities showed increases in both the number of participants and the number of days, while a few activities showed decreases in both numbers and days. Technical, risk-oriented, nature-based activities (kayaking, backpacking, snowboarding, rock climbing, and mountain climbing) showed some growth in dedication (the number of days), while, of those activities, only kayaking and snowboarding increased in the percentage of participants (the others decreased). The number of people visiting prehistoric sites increased, but visited for fewer days. The net effect is growth.

Forest recreation is part of nature-based recreation; nearly 60 percent of nature-based recreation occurs in forested settings. The top seven forest recreation activities were walking for pleasure; viewing/photographing natural scenery; viewing/photographing wildflowers, trees, other wild plant species; viewing/photographing birds; viewing/photographing other wildlife; day hiking on trails; and visiting a wilderness/primitive area (Cordell et al. 2009b).

The report (Cordell et al. 2009b) also looked at recent changes. Climate change is evident, as the number of frost-free days is increasing. The recession in the economy is a prime driver of what is currently occurring. Unemployment continues to increase, according to that 2009 report. Personal income is

down. Although the cost of gasoline has gone down significantly since 2008, the unprecedented high gas prices of 2008 drastically affected the way that people drove. Gasoline costs may have had negative or positive effects on national forest visitation; some people visited as a closer-to-home travel option than what they would normally have chosen, while others chose not to visit or visited less often. Gas prices also affect the activities that people choose.

The report (Cordell et al. 2009b) included 2008 NSRE participation data, when people would have been affected by these recent changes. A slightly higher percentage (44.5 percent) reported taking fewer trips versus the same number of trips (43.2 percent), because of the price of transportation. General trends, based on the number of activity days, were reported. For fishing and hunting activities, the general trend is steady. For backcountry activities (backpacking, horseback riding on trails, visiting a wilderness or primitive area, day hiking, mountain climbing), the results are mixed, but the trend is generally steady. For non-motorized boating activities, the results are also mixed, but with a slight decline. Snow skiing (cross-country and downhill) and snowboarding are going down. Motorized activities are up for off-highway vehicle driving and down for snowmobiling and in between for motorboating, waterskiing, and using personal watercraft. Viewing/photographing various aspects of nature are all up and have reached a new plateau.

The Outdoor Foundation survey did not ask about the time youth spent outdoors, just about their participation in one or more of the activities listed, which tended to be physically challenging activities, and/or required manufactured equipment (Cordell et al. 2009a, Outdoor Foundation 2008). Other publications have made the case that youth physical activity and connection to nature are on the decline. In 2007, the National Kids Survey was launched as part of NSRE, in order to establish a baseline of data about kids' time and activities outdoors. Although more research is needed, the results call into question the assumptions that kids' interest and time spent in the outdoors is decreasing (Betz et al. 2009, Cordell et al. 2009a).

The National Kids Survey (Betz et al. 2009, Cordell and Betz 2009, Cordell et al. 2009a) found that just under 65 percent of kids, ages 6-19, spent two or more hours outdoors on a typical weekday. On weekend days, the number of kids spending two or more hours outside increased to over 75 percent. A short-term (16 months) trend indicated that percentages of kids spending four or more hours outdoors for any activity rose significantly for both weekdays and weekends. The authors (Cordell et al. 2009a) pointed out that this occurred during the period when gas prices both rose sharply and then fell and during the increasingly worsening recession.

Nearly 39 percent estimated spending more time outdoors in 2008 than 2007. Girls were more likely to spend less time outdoors, especially those aged 13-19. Boys were more likely to spend more time outdoors. Youth who spent less time outdoors most cited video/technological and other indoor interests as the reasons for not spending more time outdoors (Cordell et al. 2009a).

The National Kids Survey (Betz et al. 2009, Cordell and Betz 2009) asked kids what they do outside. The highest percentage (81.9 percent) was just hanging out (86.1 percent boys; 77.4 percent girls). This activity was most popular with younger kids. Biking/jogging/walking/skateboarding and similar activities were next most popular and were slightly more popular with boys than girls and somewhat more popular with younger kids. Listening to music or using screen devices was third most popular, was popular with both boys and girls, and was more popular with older kids. Activities with 30 percent-50 percent participation rates included reading/studying (more popular with girls); other sports; attending camps/outdoor classes (more popular with girls); and swimming/diving. Hiking, fishing, skiing, and boating had under 30 percent participation rates. Birding, wildlife watching, and related activities had close to 30 percent participation and were seen by the authors (Cordell and Betz 2009) as significant and promising for people concerned about youth interest in nature; participation rates were higher for younger kids (parental influence).

Just as people have a variety of reasons for visiting national forests, they also have numerous reasons for not visiting. A lack of information about recreation opportunities has often been cited as one of the reasons, more frequently by people of color. A recent telephone survey of residents of Los Angeles County attempted find out how African Americans,

Latinos, Asians, and Whites obtain information (Crano et al. n.d.). They were also asked about trusted sources of information, their forest visitation, and how they obtain information about outdoor recreation opportunities. Because so many visitors to the Sequoia National Forest and Giant Sequoia National Monument come from the L.A. basin, the information gleaned from the survey is likely to have some applicability for the Monument. In addition, the survey is intended to be replicated with central valley residents, in order to see how local residents compare with L.A. residents in answering these questions.

The L.A. phone survey (Crano et al. n.d.) found that family and friends and computers/the internet were most frequently reported as the most trusted information sources across all ethnic groups. Barriers to visitation were reported by ethnic group, with time constraints, lack of information, lack of interest, lack of transportation, health or physical limitations, no one to go with, distance, and lack of money frequently reported.

The phone survey (Crano et al. n.d.) showed significant differences between ethnic groups in the number of hours per week that they watched TV, listened to the radio, read newspapers or magazines, participated in community activities, and participated in church activities. African Americans spent the greatest number of hours watching TV, while Asians spent the least. Latino respondents listened to the radio most, followed by African Americans, with Asians listening to radio the least amount of time. The kind of radio station listened to also differed across ethnic groups. Latinos listened most to ethnic stations, those with R&B programming, or rock. African Americans listened to stations with R&B programming, jazz, or news/talk. Asian respondents listened to news/talk, adult contemporary, top 40, R&B, or rock. Whites most often listened to news/talk, adult contemporary, or rock. Time spent reading newspapers or magazines was not significantly different between ethnic groups, although the type of magazine was different; in particular, Latinos and African Americans read several magazines designed for an ethnically based audience. Latino respondents spent less time in community activities than other groups. African Americans spent at least twice as much time in church activities than other groups.

The L.A. phone survey (Crano et al. n.d.) asked about preferred sources of information for outdoor recreation. The results were generally consistent with those reported for media use and community involvement generally. Although not much difference was reported regarding the number of hours reading newspapers and magazines, when asked separately about them, White respondents seemed to rely more on newspapers for recreation information than members of other ethnic groups. Asian respondents relied more frequently on computers than other groups. The most frequently reported information source for both Latinos and African Americans was television.

The phone survey (Crano et al. n.d.) asked about the information source respondents most trusted for outdoor recreation information. In order, the source that Latinos trusted most were family and friends, computers/the internet, TV, and newspapers. African Americans most trusted computers/the internet, family and friends, newspapers, TV, and radio. Asians most trusted computers/the internet, family and friends, newspapers, TV, and magazines. White respondents most trusted computers/the internet, family and friends, newspapers, and TV.

The L.A. County survey (Crano et al. n.d.) asked people about the three recreation activities they participated in most often, which revealed some significant differences between groups. Latinos and Whites were more likely to participate in walking. Running was more popular with Latinos than other groups. Other significant differences between ethnic groups were found for freshwater fishing, hiking, camping, picnicking, and sightseeing. Latinos were the least likely to have gone fishing, but the most likely to have reported picnicking. Whites were more likely to have gone hiking. Whites and Latinos were more likely to have gone camping. Sightseeing was reported most by Latinos, followed by Whites, with Asians reporting sightseeing the least.

Respondents to the L.A. phone survey (Crano et al. n.d.) were also asked about national forest visitation. White respondents were most likely to have visited a national forest (77 percent), followed by Asians (59 percent), Latinos (48 percent), and African Americans (48 percent). They were also asked about frequency of visitation in the previous 12 months. Of those who had visited, African Americans visited least

frequently, followed by Latinos. Whites and Asians visited most frequently. In addition, they were asked about the activities they participated in during their national forest visits. African American and Asian respondents were more likely to have been hunting than Latinos and Whites. For walking, picnicking, and sightseeing, the participation patterns between ethnic groups were similar to those reported for recreation in any location.

The phone survey (Crano et al. n.d.) asked people about selected activities (camping, hiking, fishing, picnicking, biking, water sports, snow sports) at locations other than national forests. Asians were more likely to have been both camping and hiking in locations other than national forests. Although Whites were more likely to have visited national forests, Latinos were most likely to have participated in at least one activity at a location other than national forests; this result suggests that Latinos are not opposed to participating in outdoor activities, but that they are less likely to go to a national forest to engage in them, which possibly indicates.

The L.A. phone survey results (Crano et al. n.d.) were analyzed to determine what variables may be predictors of national forest visitation. Time spent reading and in community activities were both associated with a higher likelihood of prior national forest use. The degree of ethnic identification that respondents had was a predictor for visitation by Latinos; the more they identified themselves as being Latino, the less likely they had visited national forests. A significant relationship existed between the primary language spoken at home (and primary language of reading materials) and national forest visitation; if the primary language spoken at home (or reading materials) was Spanish, people were less likely to have visited a national forest. Respondents who had lived more years outside the United States were also less likely to have visited national forests.

People were asked about barriers to their participation in the L.A. County phone survey (Crano et al. n.d.). Time constraints were the top reason for all ethnic groups, although time was reported by over half of Latinos (52 percent) and only about a quarter of African Americans (26 percent). Lack of interest was most often reported by African Americans (26 percent). Lack of information was reported by all three groups of color. Lack of money was among the top five reasons for Whites and Latinos. Fear related reasons were only in the top five for African Americans (least reported, as number five).

Using the results of this L.A. County phone survey (Crano et al. n.d.) may allow the Forest Service to more carefully target its messages, using media that are more likely to be effective with particular groups and emphasizing activities that are more likely to be of interest to those groups.

Beginning in the fall of 2007, a group of people representing diverse recreation interests collaborated with Giant Sequoia National Monument and Sequoia National Forest staff, regarding recreation in the Monument. Participants were interested in the Monument plan and are interested in and engage in a wide variety of recreation activities. Participants were not selected through a scientific sampling process that would yield statistically valid results through analysis, and they are not representative of the population in the three-county area (Fresno, Kern, and Tulare), California, or the nation. Through this collaborative process, the group, known as the Sequoia Monument Recreation Council (SMRC), identified what is important to them for future recreation in the Monument that should be addressed in the Monument management plan, and the information is considered in this recreation demand analysis.

Increasing enjoyment of the Monument is an overarching goal. The plan needs to balance diverse users, a wide variety of uses, accommodate uses through the variety of seasons, and minimize conflicts. The plan needs to provide for access; people cannot play if they cannot get to their destination, and for some, use of those access routes is their desired form of recreation. Road access, trail access, good signage, and permission to use the roads/trails are needed for people to enjoy the Monument. The plan needs to address connections: connection of people to place, peoples to peoples, developing stewardship to foster that connection to the land, and education. The plan needs to provide for protection of people. The plan needs to be practical, in providing for opportunities that are easy to maintain and can be funded. The plan needs to provide for protection of resources, through

consistency with protecting the objects of interest, restoration, and developing stewardship, so that people care about the land and its resources.

In order to satisfy the requirements of the proclamation (Clinton 2000) and to create a healthy balance for both the Monument ecosystems and recreationists, SMRC believes the following considerations (submitted during scoping) are important in developing the Monument management plan.

Tourism: Provide and maintain good front country roads with pull-outs for sightseeing. Provide information and educational opportunities, such as information kiosks, brochures, visitor centers, museums, and self-guided nature and history trails. Provide adequate parking and comfort stations at major attractions. Partner with local and statewide organizations to promote tourism.

Day Use: Provide picnic facilities in areas that create minimal effect on surrounding ecosystems. Place facilities where a range of recreation opportunities exist (such as near rivers, ponds, climbing rocks, views, giant sequoias). Provide and maintain adequate restroom facilities. Create informational and educational kiosks on the specific area's natural and social history, objects of interest, and need for respect and care of these areas.

Camping: Provide and maintain campgrounds that create a sense of space, safety, privacy, and immersion in the forest experience with minimal effect on the surrounding ecosystem. Design camping spaces for small individual use, large family gatherings, and larger organizational groups. Monitor ecosystem and human effects and the safety of the recreation users and wild animals. Situate the campground facilities where recreation activities can be enjoyed close at hand. Provide and maintain adequate water, restroom, food storage, and garbage disposal facilities. Provide interpretive programs that impart historic and environmental information. Develop kiosks and bulletin boards that provide information regarding regulations, appropriate user practices, and maps of the surrounding area. In addition, provide and maintain backcountry camping areas with toilet facilities and food storage for use in popular wilderness areas.

Roads: Designate and maintain existing roads that are appropriate for ATV, four-wheel drive vehicles, and snowmobiles, providing for user safety and minimum effect on the environment. Post maps, regulations, and safety considerations, regarding front country usage, wood gathering, etc., on bulletin boards at the roadheads. Partner with state and local agencies to maintain roads for four season use.

Parking and Toilets: Provide for appropriate toilet and parking facilities.

Trails: Design and maintain all trails and trail systems for user safety and minimum effect on the environment. Design trail systems for specific uses, such as biking, foot traffic, and pack and riding stock or other non-vehicular uses. Emphasize loop trails and other trail systems, so that users move from one place to another, as opposed to "out and back." Plan trail systems for four season use.

Signage: Provide and maintain dependable and accurate signage at roadheads, trailheads, road and trail junctions, lakes, and other points of interest. Provide food storage at roadheads, trailheads, and stock staging areas. Provide and maintain bulletin boards and/or kiosks that provide information on backpacking, hiking, biking, boating, fishing, hunting, and horseback riding; trail and permit regulations; safety rules; trail etiquette; historic information; and maps of the area.

Concessionaires and Private Resorts: Provide for, regulate, and cooperate with concessions, resorts, and private organizations that enhance the recreation experience. These opportunity providers may include summer and winter backcountry guides, stock packing outfits, commercial tours, lodges, campgrounds, restaurants, health spas, and other commercial recreation providers.

Permittees, Organizational Camps, and Private Communities in and Adjacent to the Monument: Develop cooperative programs that enhance the Monument experience, while protecting its objects, history, and health. Address the current needs of private and public interests through understanding of past and future concerns. Create cooperative management structures to encourage dialogue, transparency, and trust. Educate private interests to the needs of ecological balance and stewardship.

Public Outreach Programs: Provide for public and permittee input throughout the development and implementation of the Monument management plan. Create memoranda of understanding with outside agencies, organizations, and inholders. Develop cooperative interpretation and stewardship programs involving communities within and adjacent to the Monument. Develop partnerships with Monument advocacy groups to acquire marketing, financial, and public resources. Involve gateway communities in decision making forums and marketing of Monument opportunities.

Education Programs: Develop programs in schools, communities, and in the Monument to promote a strong sense of public and personal ownership and responsibility for the Monument. Promote responsible usage; conservation practices for environmental and human resources; fire safety; and social and environmental safety. Create awareness through the media and Monument publications of the importance of wildland systems; the importance of human actions to wildland health and welfare; and the importance of historic perspectives to help guide us to a balanced future.

California periodically publishes a statewide comprehensive outdoor recreation plan which provides a status report on the social, economic, environmental, and political conditions that affect outdoor recreation opportunities statewide. The *California Outdoor Recreation Plan 2008* (CORP) (California State Parks 2009) is the most recent plan. The CORP established a recreation strategy to guide all recreation providers in meeting the state's outdoor recreation needs.

The 2008 CORP (California State Parks 2009) includes California's recreation policy, which was updated in 2005. The following text is excerpted from California policy, which states:

> Parklands and trails should be promoted for the broad-scale economic and non-economic benefits they provide, whether through opportunities for physical activity, increased jobs, attracting tourists, supporting local communities, drawing in new businesses to park-friendly communities, providing vital concession operations or increasing property values.
>
> A comprehensive environmental ethic should be fostered among all Californians, particularly its children and youth, to encourage wise use of the state's finite natural and cultural resources.
>
> Californians should be made aware of California's unique and important environmental, ecological, scenic, historical and educational resources and opportunities contained within parks, recreation areas, open space and resource lands.

The CORP (California State Parks 2009) incorporated preliminary results from the 2007 survey of Public Opinions and Attitudes on Outdoor Recreation in California. The survey found that 98 percent of respondents indicated that viewing scenic beauty is important to their enjoyment of their favorite activities. In addition, 93 percent said that feeling in harmony with nature was important to their enjoyment of the outdoors. More than 87 percent agreed that recreation helps improve people's health. Over 78 percent agreed that recreation programs help reduce crime and juvenile delinquency, and almost 75 percent agreed that recreation agencies create jobs and help the economy.

The number of people at the lower end of the income scale is increasing disproportionately as the state's population grows. People with lower income rely more on public recreation facilities (CORP). Californians tend to participate in activities that are less expensive, require less equipment, and need fewer technical skills. According to the 2007 California survey (California State Parks 2009), the 15 most popular activities (percent participation) were:

- Walking for fitness or pleasure (74.2 percent)
- Driving for pleasure, sightseeing, driving through natural scenery (59.8 percent)
- Beach activities (59.2 percent)
- Swimming in a pool (50.9 percent)
- Day hiking on trails (46.9 percent)
- Wildlife viewing, bird watching, viewing natural scenery (45.9 percent)
- Jogging and running for exercise (39.8 percent)
- Bicycling on paved surfaces (36.3 percent)
- Outdoor photography (33.3 percent)

- Using open turf areas (33.3 percent)
- Using play equipment, play structures, tot-lots (32.8 percent)
- Organized team sports, such as soccer, football, baseball, softball, basketball (25.6 percent)
- Freshwater fishing (21.4 percent)
- Bicycling on unpaved surfaces and trails (15.9 percent)
- Surfing or boogie boarding, windsurfing (14.1 percent)

When asked which activities people would like to participate in more often, the most frequent responses (ranging from 44 percent to 47 percent) were walking for fitness or pleasure, camping in developed sites with facilities such as toilets and tables, bicycling on paved surfaces, and day hiking on trails. Youth would like to participate more in horseback riding, sledding/ice skating/snow play, snowboarding, swimming in a pool, and jet skis or wave runners (California State Parks 2009).

Between 1987 and 2002, participation in viewing activities (wildlife, birds, scenery) has steadily increased (Cordell 1999, 2004, 2008, Cordell et al. 2009b). According to the 2007 California survey, however, participation in these activities dropped by almost 30 percent since 2002 (California State Parks 2009). Time and other surveys will tell if this statistic is an anomaly or a reversal in trend.

People have a continuing interest in adventure activities, such as mountain biking, backpacking, rock climbing, and hang gliding. High-tech activities, such as geocaching, are continuing, and technological advances continue to be made in recreation equipment for various activities, such as skiing, snow shoeing, and mountain biking (CORP) (California State Parks 2009).

When asked about the amount of time people currently spend on outdoor recreation in the 2007 California survey, only 31 percent reported spending less time participating in outdoor activities. Most (88 percent) had visited a park in the previous six months. When asked about the types of facilities most commonly used during respondents' last visit, community/facility buildings were most commonly used (64 percent), followed by open spaces used for play (59 percent), picnic tables/pavilions (58 percent), unpaved multipurpose trails (53 percent), and paved trails (50 percent). Respondents primarily visited parks with family (56 percent) or both family and friends (31 percent) (California State Parks 2009).

The 2007 California survey asked people how important providing various types of facilities and services was to them. Those facilities/services ranked as most important were play activity areas for tots and young children; wilderness type areas where no vehicles or development are allowed; areas and facilities for environmental and outdoor education programs; multi-use turf areas; picnic sites for large groups; trails for multiple, non-motorized activities, such as hiking, mountain biking, or horseback riding; and hard surface trails for biking, jogging, and fitness walking (California State Parks 2009).

The majority of respondents felt that maintaining or caring for park and recreation areas, protecting natural resources, protecting historic resources, and remodeling and improving existing facilities should receive more emphasis from government (California State Parks 2009).

CORP states that recreation facilities and services need to be made more relevant for the state's rapidly changing population segments, including the elderly, youth, single parent families, ethnic groups, new immigrants, and persons with disabilities. To meet these needs, more group picnic areas and camping opportunities are needed. In addition, camping alternatives, such as cabins, tent cabins, yurts, and other affordable lodging should be provided (California State Parks 2009).

In 2009, Cordell (et al.) looked at long-term recreation activity trends, comparing National Recreation Survey data from 1982-1983 with NSRE data from 1994-1995, 1999-2001, and 2005-2009. When 1982-1983 is compared with 2005-2009, almost all activities have experienced an increase in the percentage of the population participating in them, with two activities experiencing over 200 percent growth (viewing/photographing birds, 287.0 percent; day hiking, 209.9 percent), and four activities experiencing over 100 percent growth (walking for pleasure, 111.3 percent; driving off-road, 141.9 percent; canoeing or kayaking, 105.8 percent; backpacking, 160.9 percent). Only four activities (cross-country skiing, ice skating outdoors,

sailing, tennis outdoors) decreased in participation rates during that time (Cordell et al. 2009c).

Looking at shorter term trends reveals some differences from the long-term trends. Although some activities, like walking for pleasure and viewing/photographing birds, increased in popularity (percentage of the population participating), through each of the four survey periods, many others experienced their peak in either 1994-1995 or 1999-2001, with participation trending downward, at varying rates, since that peak. Examples of activities that had their peak participation rate in 1994-1995 are sightseeing, picnicking, swimming in lakes and streams, fishing, and boating. Examples of activities that had their peak participation rate in 1999-2001 are visiting nature centers, bicycling, developed camping, primitive camping, backpacking, and snowmobiling. A few other activities, like driving off-road and swimming in outdoor pools, have vacillated by going up, then down in the next survey period, and then up again. Because many factors in society affect recreation participation, causing participation in particular activities to swing up or down at any point in time, caution should be used when looking at short-term trends, as they are not necessarily indicative of what will occur in the long run (Cordell et al. 2009c).

The report (Cordell et al. 2009c) also compared the number of days that people participated in activities in 1982-1983 and 2005-2009. The number of days that people participated in developed camping, birding, motor boating, and pool swimming remained fairly consistent from the early 1980s until 2009. Some activities (day hiking, backpacking, driving off-road, horseback riding on trails, sailing, primitive camping, cross-country skiing) experienced an increase in the percentage of people spending more days participating. For snowmobiling, the number of people spending 3-10 days participating increased, with decreases in the other categories (1-2 days, 11-25 days, more than 25 days). Viewing/photographing birds had the highest percentage participating for more than 25 days (both survey periods) than any other activity.

Demand Analysis Conclusions

Even if outdoor recreation participation rates are static or decline, the sheer numbers of people participating will increase, due to the increase in population (Sheffield 2005).

The need exists for more picnicking and developed camping opportunities, and, in particular, more group picnicking and group developed camping opportunities (California State Parks 1998, 2003, 2009, USDA Forest Service 2006a).

The diversity of recreationists will continue to increase, as the American population becomes more diverse, and international visitors will increase (Cordell 1999). The greatest growth is projected to be in Hispanic and Asian populations (California State Parks 2009, Sheffield 2005), and their use is projected to increase dramatically in the next 25 years. Interpretation methods designed to reach these culturally diverse users need to communicate important resource issues, solicit commitment to conservation, and encourage appropriate behaviors; multilingual materials are needed (APPL 2004, California State Parks 2009, USDA Forest Service 2008a).

New methods of interpretation, including multilingual materials, and efforts to outreach to underrepresented groups need to be developed with careful attention to their special needs. In many cases, developing products and services to reach out into the communities where underrepresented groups live, in order to raise their awareness of opportunities available (Crano et al. n.d.) or to bring the resource to them, may be needed. In other cases, for those who do visit, services need to be developed that meet their needs (USDA Forest Service 2008a).

Many of the younger user groups get information or communicate in new, more innovative ways, such as the internet, text messaging, and other technology. In order to reach them effectively, information on outdoor recreation opportunities and interpretive products and services should also be provided through use of technology (APPL 2004, Cordell 1999, Sheffield 2005, USDA Forest Service 2008a).

Another phenomenon to keep in mind is the aging of the population. The Sequoia attracts a greater number of visitors over the age of 61 than most forests in the region, and this trend is expected to increase with the aging of the baby boom generation. Demand for services that are accessible for individuals with disabilities, as well as the demands of a more active and physically fit senior population, will affect the types of recreation opportunities, including interpretive products and services, that need to be provided (California State Parks 2009, Cordell 1999, Sheffield 2005, USDA Forest Service 2006a, 2008a).

The various surveys referenced in this analysis (listed in the literature cited section) found similar participation in many activities, although the Sequoia market data (USDA Forest Service 2006a) indicate a continuing demand for hunting, while many studies covering broader geographic areas show a decrease in hunting (California State Parks 1998, 2002, Cordell 1999). Surveys (Cordell 1999, 2004, 2008, Cordell et al. 2009b) seem to indicate a growing interest in viewing/learning activities (except for the 2007 California survey [California State Parks 2009]).

The variety of activities is expected to continue to grow. Some will be determined to be appropriate for national forest land, and some will not. As more recreation uses occur, they must compete with existing uses for a limited land base (Cordell 1999, NARRP 2009, Sheffield 2005).

In the next 25 years, the population in the Sequoia's market area is projected to increase 38 percent, and this increase will place more demands on the Sequoia's resources. Conservation and resource stewardship will be increasingly important, especially for more environmentally sensitive areas. Unmanaged recreation has the potential to damage forest resources when careless or uninformed visitors do not follow regulations for responsible use. Effective interpretive techniques and public information services, including multilingual materials, can help to inform and motivate the public, both visitors and non-visitors, into becoming stewards of the forest (California State Parks 2002, NARRP 2009, USDA Forest Service 2006a, 2008a, 2008c).

Participation in many activities that currently occur in the Monument is expected to grow in the future, so that the need will exist to create additional opportunities for them. Whatever additional opportunities are provided, they must be provided in such a way that lifestyle and demographic trends are taken into account, in facility design and recreation management, in order to truly serve the needs of the recreating public.

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