8. U.S. OUTDOOR RECREATION PARTICIPATION PROJECTIONS TO 2060

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In this chapter, we develop and present national outdoor recreation participation projections for 17 recreation activities or activity composites through 2060. (The projections are for the population of Americans age 16 and older, referred to hereafter in this section as "adults.") This charge is consistent with the Forest and Rangeland Renewable Resources Planning Act (RPA) of 1974, which mandates periodic assessments of the condition and trends of the Nation's renewable resources. The RPA Assessment provides a snapshot of current U.S. forest and rangeland conditions and trends on all ownerships, identifies drivers of change, and projects 50 years into the future, including analyses of the status and trends for recreation, water, fish, wildlife, biodiversity, forest and range resources, as well as land use change, climate change, and urban forestry.

An individual is said to have participated in an outdoor recreation activity if he reported engaging in that activity at least once in the preceding 12 months. Participation is a general indicator of the size of a given market and also can be indicative of relative public interest. For example, if over 80 percent of the population visits day use developed sites, whereas only 4 percent participate in snowmobiling, public resource management agencies may be more concerned with providing developed recreation sites rather than snowmobiling opportunities. It is important, therefore, for managers and legislators to know how many people participate in a given recreation activity, and how this measure could change over time. Measures of participation, either per capita or absolute numbers of participants, provide the broadest measure of a recreation market.

Past outdoor recreation trends, as well as recent ones, are important indicators of what may happen with outdoor recreation in the near future (Hall and others 2009). However, simple descriptive statistics or trends do not formally explore underlying factors and associations which may be driving these trends. Thus a trend may be of limited value if the time horizon is long and factors driving the trend are expected to deviate substantially from their historic levels. Trend analysis can therefore be supplemented by development of projection models which attempt to relate recreation participation directly to factors known to influence this behavior. The projection models can then be used to simulate future participation by combining external projections of relevant factors, including population growth, with estimated model parameters. Such modeling allows changes in recreation participation over time to be assessed in light of previously unseen changes in factors driving this participation, e.g., large changes in social demographics.

Previous research (Bowker and others 1999, Bowker and others 2006, Cicchetti 1973, Hof and Kaiser 1983b, Leeworthy and others 2005) has established that factors including race, ethnicity, gender, age, income, and supply or proximity to settings affect outdoor recreation participation as well as participation intensity or consumption. Reliable information about these factors is often available from external sources, like the U.S. Census or parallel research efforts aimed at modeling and simulating exogenous variables into the future. Such information is thus available long before recreation survey results can be obtained.

A two-step approach was used to develop projections for individual participation in 17 outdoor recreation activities, or activity composites (table 8.1). The first step, or model estimation step, focused on the development of statistical models of per capita participation for each of the activities. The statistical models represent the probability that one participated in an activity. This information is important as it allows a better understanding of the factors that influence individual recreation choices or behavior. As well, it allows one to examine how, under the assumption of static tastes and preferences, average individual behavior changes over time as underlying factors change.

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The second step, or simulation step, combines the estimated models with external projections of relevant explanatory variables to generate estimated per capita participation probabilities for each activity at 10-year intervals to 2060. Per capita estimates are in turn combined with population projections to derive national estimates of adult participants for each activity. These estimates are then used to create indices by which 2008 baseline estimates of participants for the various activities found in table 8.1 are scaled. Indices of estimated adult participants for each of the 17 activities are presented across the three 2010 RPA Assessment Scenarios described below. For discussion, the activities are grouped into the broader categories as follows: visiting developed sites; viewing and photographing nature; backcountry activities; motorized activities; hunting and fishing; non-motorized winter activities; and non-motorized water activities (table 8.1).

The chapter proceeds as follows. First, we present a brief discussion of the statistical methods and previous research upon which our per capita participation models are based. Next we describe the data used in the estimation step including projections of covariates for the three assessment scenarios. We then present the results of our estimation and simulation steps with indexed participation projections by activity and assessment scenario to 2060. Finally, we discuss some of the key findings within and across categories as well as with respect to demographics.

Methods and Data

Modeling—Models used to assess recreation demand decisions can be grouped into three basic categories: site-specific user models, site-specific aggregate models, and population-level models (Cicchetti 1973). Available data necessitates population-level modeling for this study. Cicchetti (1973) pioneered the use of cross-sectional population-level models with the household-based 1965 National Survey of Recreation to estimate annual participation and use nationally for many outdoor recreation activities. Estimated models and U.S. Census Bureau projections were then used to estimate participation and use to 2000.

The cross-sectional population-level approach has subsequently been used to estimate and project participation and use for recreation activities at national and regional levels (Bowker 2001; Bowker and others 1999; Hof and Kaiser 1983a, 1983b; Leeworthy and others 2005; Walsh and others 1992). Alternative approaches, wherein population data were combined with individual site-level data to project participation or consumption have also been used (Bowker and others 2006; Cordell and Bergstrom 1991; Cordell and others 1990; Englin and Shonkwiler 1995; English and others 1993).

In this chapter, we employ national cross-sectional population-level logistic models to describe the probability of adult participation in activities as:

$$Pij = \frac{1}{[1 + exp(-XijB)]} \quad (4)$$

where

P_{ij} = probability that the jth individual claims to have participated in the ith recreation activity in the preceding year

X_{ij} = socio-demographic characteristics unique to activity i for individual j and relevant supply variables for activity i pertaining to individual j's location (table 8.2)

B = vector of parameters which are estimated using SAS Institute Inc. (2004)

The models for each activity, based on National Survey on Recreation and the Environment (NSRE) data from 1999 to 2009, were combined with baseline population-weighted sample means for the explanatory variables to create an initial predicted per capita participation rate for each activity. The per capita participation rates were recalculated at 10-year intervals using projected external data. Indices were then created for the participation rates by which the NSRE 2005-09 average population-weighted participation frequencies were scaled, leading to indexed per capita participation rates for each of the 17 activities with 2008 as a baseline. Indexing the 2005-09 averages by changes in model-predicted rates was judged to be superior in terms of mitigating potential non-linearity biases associated with complete reliance on logistic predicted values (Souter and Bowker 1996). The indexed participation rate estimates were then combined with projected changes in population, according to each of the three 2010 RPA Assessment scenarios, to yield indexed values for total adult participants across the 17 activities.

2010 RPA Assessment Scenarios—Future renewable resource conditions are influenced by common driving forces such as population change, economic growth, and land use change, while other drivers of change are unique to individual resources. The purpose of scenarios in the 2010 RPA Assessment is to characterize the common demographic, socioeconomic, and technological driving forces underlying changes in resource conditions in order to evaluate the sensitivity of resource trends to a feasible future range of these driving forces. The use of scenarios links underlying assumptions of the individual analyses and frames the future uncertainty in these driving forces within

Table 8.1—Base year 2008 number of participants used in outdoor recreation participation projection models, by activity category

Category and activity	Participants	Participation rate
	thousands	*percent*
Visiting Developed Sites		
Developed Site Use – family gatherings, picnicking, developed camping	192,739	81.9
Visiting Interpretive Sites – nature centers, zoos, historic sites, prehistoric sites	157,403	66.9
Viewing and Photographing Nature		
Birding	81,449	34.6
Viewing – viewing, photography, study, or nature gathering related to fauna, flora, or natural settings	189,418	80.5
Backcountry Activities		
Challenge Activities – caving, mountain biking, mountain climbing, rock climbing	25,134	10.7
Equestrian – horseback riding on trails	16,393	7.0
Hiking – day hiking	78,256	33.3
Visiting Primitive Areas – backpacking, primitive camping, wilderness	90,164	38.3
Motorized Activities		
Motorized off-road use – off-road driving	47,937	20.4
Motorized snow use – snowmobiling	9,440	4.0
Motorized water use – motorboating, waterskiing, or using personal watercraft	61,960	26.3
Hunting and Fishing		
Hunting – small game, big game, migratory bird, other	27,909	11.9
Fishing – anadromous, coldwater, saltwater, warmwater	72,714	30.9
Non-Motorized Winter Activities		
Downhill Skiing – downhill skiing, snowboarding	23,729	10.1
Winter Activities – cross-country skiing, snowshoeing	7,778	3.3
Non-Motorized Water Activities		
Swimming – swimming, snorkeling, surfing, diving, visiting beaches or watersides	143,204	60.9
Floating – canoeing, kayaking, rafting	39,800	16.9

Note: Activities are individual or activity composites derived from the NSRE. Participants are determined by the product of the average weighted frequency of participation by activity for NSRE data from 2005-2009 and the adult (>16) population in the United States during 2008 (235.4 million). The 2008 Census population estimate corresponds to the A1B scenario.

Source: USDA Forest Service (2009).

Table 8.2—Socioeconomic and supply variables used in outdoor recreation participation projection models

Variable	Description
Gender	1=male
American Indian	1=Am. Indian, non-Hispanic, 0=otherwise
Asian/Pacific Islander	1=Asian/Pac Islander, 0=otherwise
Hispanic	1=Hispanic, 0=otherwise
Black	1=Black, non-Hispanic, 0=otherwise
Bachelor's	1=Bachelor's degree, 0=otherwise
Below High School	1=Less than high school, 0=otherwise
Post Graduate	1=Post-graduate degree, 0=otherwise
Some College	1=Some college or technical school, 0=otherwise
Age	Respondent age in years
Age Squared	Respondent age squared
Income	Respondent household income (2007 dollars)
Population Density	County area divided by population. Base 1997.
Coastal	1=County on coast, 0 otherwise
for_ran_pcap	Sum of forest land acres and rangeland acres divided by population at county level and at 50, 100, 200-mile radii. Base 1997.
water_pcap	Water acres divided by population at county level and at 50, 100, 200-mile radii. Base 1997.
mtns_pcap	Acres in mountainous divided by population. Base 1997.
pct_mtns_pcap	Percentage of county acres in mountains divided by population (x100,000). Base 1997.
natpark_pcap	Number of nature parks and similar institutions divided by population (x100,000). Base 1997
fed_land	Sum USFS, NPS, USFWS, BLM, USBR, TVA, and USACE acreage. Base 1997.
fed_land_pcap	Sum USFS, NPS, USFWS, BLM, USBR, TVA, and USACE acreage divided by population. Base 1997.
days_snow	Mean number snow days depth >=1.0 inch (per station). Base 2000.
med_days_snow	Mean number snow days depth >=1.0 inch (per station). Base 2000.
nwps_pcap	National Wilderness Preservation System acres divided by population (x1,000). Base 2005.
avg_elev	Average elevation in meters at county level and 50, 100, 200-mile radii. Base 1997.

USFS=U.S. Forest Service; NPS=National Park Service; USFWS=U.S. Fish and Wildlife Service; BLM=Bureau of Land Management; USBR=U.S. Bureau of Reclamation; TVA=Tennessee Valley Authority; USACE=U.S. Army Corps of Engineers.

the integrated modeling and analysis framework of the 2010 RPA Assessment.

Three scenarios, considered equally likely, were chosen that are linked to globally consistent and well-documented scenarios used in the 4th Assessment by the Intergovernmental Panel on Climate Change (IPCC) (IPCC 2007). The scenarios include a range of future global and U.S. socioeconomic and climate conditions that are likely to have different effects on future U.S. resource conditions and trends. The IPCC scenario "names" have been maintained in the RPA Assessment documentation for continuity: A1B, A2, and B2. The IPCC global data were scaled to the U.S. national and subnational levels to facilitate the resource analyses for the 2010 RPA Assessment. U.S. gross domestic product and population projections used in IPCC analyses were updated, and the updated U.S. population and disposable personal income data were then downscaled to the U.S. county level (Zarnoch and others 2010). In addition, the associated climate scenario output from several global circulation models were downscaled to the county scale; however, these climate data are not used in this chapter.

As shown in figure 8.1 and figure 8.2, A1B corresponds to mid-range population growth and the highest average personal and household income level of the three IPCC scenarios. Under this scenario, the United States can expect to see about 447 million people (370 million adults), an average personal income of around $73,000, and an average household income of $137,000 by 2060. Scenario A2 projects the highest population growth, reaching more than 505 million people (418 million adults) by 2060, and the lowest projected average personal and household income, around $50,000 and $97,000, respectively. Scenario B2 projects the lowest population growth and mid-level personal income, predicting a population of 397 million people (329 million adults) with average personal income around $54,000 and household income around $108,000.

In accordance with the assessment scenarios A1B, A2, and B2, projected land use changes are incorporated from Wear (2011) to develop supply variables listed in table 8.2. In general, Wear's projections indicate an increase in urban area of 1 to 1.4 million acres per year nationally between 1997 and 2060; a decline in forest area of 24 to 37 million acres, and a decline in cropland of 19 to 28 million acres by 2060. Wear also projects that about 90 percent of forecasted forest land losses are found in the Eastern United States with more than half in the South. Federal lands, water areas, weather conditions (snow days), and county elevations are assumed static throughout the projection period.

Results

Estimation results for all models and simulation results for the three 2010 RPA Assessment scenarios are reported in electronic appendix A, retrievable in read-only format at Web site link for appendix A. Reported results include model estimates for each activity, values for explanatory variables by scenario and year, odds ratios which indicate the odds of participation occurring in one group to the odds of it occurring in another group, and graphics of overall participant growth by activity and assessment scenario. Throughout the remainder of this section, we present the

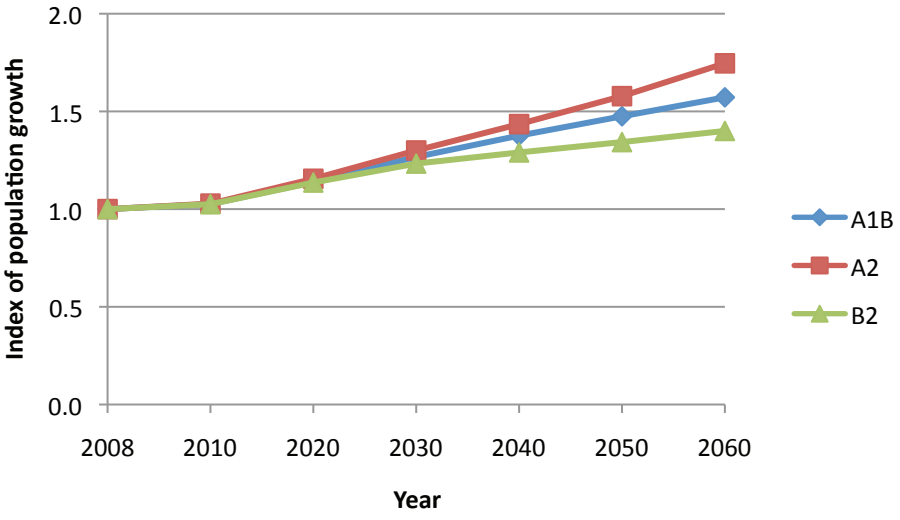

Figure 8.1—Adult population growth from 2008 to 2060 by RPA Assessment scenario.

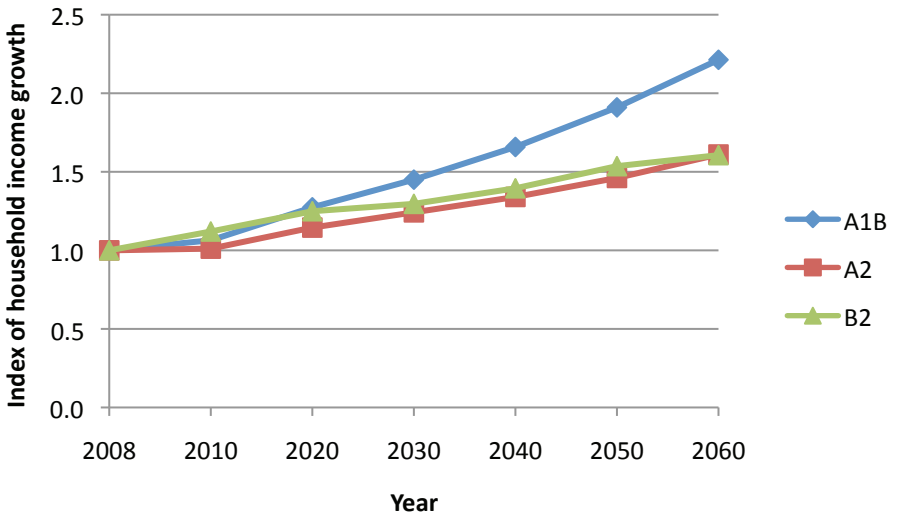

Figure 8.2—NSRE average household income growth from 2008 to 2060 by RPA Assessment scenario.

results for per capita and overall changes in participation by activity and assessment scenario at 10-year intervals from 2010 to 2060.

Visiting developed sites—This popular outdoor recreation activity category includes two composite activities. First is developed site use, which includes NSRE activities such as family gatherings, picnicking, and developed camping. Hence, anyone who reported engaging in any of these three activities in the previous 12 months was considered a participant in developed site use. On average between 2005 and 2009, this included about 82 percent of adults or more than 192 million people. Moreover, because our projections only relate to adults and many kids participate in these activities, participation including all age groups might be much higher. As table 8.3 indicates, per capita participation growth in this activity is expected to be static over the next 50 years across each of the assessment scenarios, with A1B showing the most change at less than a 3 percent change from 2008. However, as this composite activity is highly popular to begin with, the static participation rate means that overall participants in this activity grow by the rate at which the population increases for each scenario (table 8.3). Thus A2, which has the greatest expected population growth, demonstrated an increase in participants of nearly 77 percent to approximately 340 million adults per year.

Another popular activity composite is visiting interpretive sites which include NSRE activities such as visiting nature centers, zoos, historic sites, and prehistoric sites. More than 156 million adults, or about 67 percent, of all those over the age of 16 participated in at least one activity in this outdoor recreation category annually from 2005 to 2009. Visiting interpretive sites showed more expected 50-year growth in per capita participation than developed site use, with a range of from just over 5 percent in B2 and A2 to nearly 9 percent under A1B (table 8.4). The somewhat greater participation rate growth relative to developed site use may be due to the facts that developed site use is negatively correlated with population age which is expected to rise out to 2060, and that it is positively correlated with available federal land per capita which is expected to decline over the same period as the population grows but federal land holdings are assumed to be constant.

As per capita participation is expected to rise between 5 and 9 percent, the number of participants will exceed the rate of population growth, with A2 showing 84 percent growth to at least 295 million participants by 2060. Assessment scenario B2, having the lowest projected population growth, still showed an increase in visiting interpretive sites to over 230 million participants per year over the next 50 years.

Viewing and photographing nature—The category is comprised of birding, which includes viewing and/or photographing birds, and a more general activity aggregate called viewing. The latter consists of a number of NSRE activities including anything wherein viewing, photography, study, or gathering is involved related to fauna, flora, or natural settings. From 2005 to 2009, an average of 35 percent of all adults, or 82 million people, participated

Table 8.3—Projections of per capita participation rate and number of participants, 2010 to 2060: Developed site use—family gatherings, picnicking, or developed camping

Participation rate		Indexed per capita participation					
2008	Scenario	2010	2020	2030	2040	2050	2060
0.819	A1B	1.001	1.005	1.007	1.012	1.019	1.026
0.819	A2	1.000	1.002	1.002	1.004	1.008	1.012
0.819	B2	1.002	1.004	1.004	1.007	1.011	1.014
Annual participants		Indexed number of participants					
2008 (x1,000)	Scenario	2010	2020	2030	2040	2050	2060
192,739	A1B	1.027	1.145	1.276	1.393	1.502	1.613
196,067	A2	1.028	1.157	1.303	1.441	1.591	1.767
192,238	B2	1.028	1.141	1.238	1.298	1.358	1.419

Note: Base year participant numbers in 2008 vary according to projected population for 2008 under each of the 2010 RPA Assessment scenarios.

Source: National Survey on Recreation and the Environment 1999-2009.

Table 8.4—Projections of per capita participation rate and number of participants, 2010 to 2060: Visiting interpretive sites—nature centers, prehistoric sites, historic sites, etc.

Participation rate		Indexed per capita participation					
2008	Scenario	2010	2020	2030	2040	2050	2060
0.669	A1B	1.004	1.019	1.032	1.048	1.067	1.089
0.669	A2	1.000	1.011	1.018	1.028	1.040	1.054
0.669	B2	1.008	1.018	1.022	1.032	1.046	1.055
Annual participants		Indexed number of participants					
2008 (x1,000)	Scenario	2010	2020	2030	2040	2050	2060
157,403	A1B	1.030	1.161	1.307	1.442	1.574	1.711
160,121	A2	1.029	1.167	1.323	1.475	1.642	1.840
156,994	B2	1.033	1.157	1.260	1.331	1.405	1.477

Note: Base year participant numbers in 2008 vary according to projected population for 2008 under each of the 2010 RPA Assessment scenarios.

Source: National Survey on Recreation and the Environment 1999-2009.

annually in birding. In the more broadly defined viewing aggregate, which would include birding, nearly 81 percent of the adult population, or about 190 million people, participated annually during the same period.

Per capita growth in birding is expected to increase by between 4 and 7 percent over the next 50 years to more than 36 percent of adults or about 82 million people (table 8.5). Assessment scenario A1B indicated the greatest per capita participation rate growth. This is most likely due to income, a positive influence on birding, increasing more relative to the other scenarios. Combining the per capita growth rates with expected population changes led to an 81 percent increase in birders under the higher population growth scenario, A2, to over 150 million birding participants by 2060. The B2 and A1B scenarios resulted in participant increases from 46 to 69 percent, respectively over the next 5 decades.

The broader viewing category will remain essentially unchanged over the next 50 years in terms of the adult participation rate. Scenarios A2 and B2 will lead to around 1 percent increases, while A1B will affect just over a 3 percent increase in adult participation rate by 2060 (table 8.6). Despite the larger participation rate increase with A1B, overall viewing participants will increase the most under the A2 scenario because of the larger increase in population growth. By 2060, nearly 340 million adults will be participating in at least one form of nature viewing, an increase from the 190 million adults of today.

Backcountry activities—In this chapter, the general category backcountry activities encompasses a number of activities that are most often pursued in undeveloped but accessible lands. Four activities, or composites, are included: Challenge activities, equestrian activities, hiking, and visiting primitive areas. Challenge activities include the NSRE activities of caving, mountain climbing, and rock climbing. These activities are typically associated with youth. Presently, challenge activities are engaged in by just under 11 percent of adults. This rate is expected to increase under all of the assessment scenarios by at least 6 percent over the next 50 years, with the biggest participation rate increase, nearly 18 percent, coming under scenario A1B (table 8.7). The higher rate of participation under A1B is probably due to the higher projected income relative to A2 and B2, given the positive association of income with participation (see appendix A). Challenge activity participation is projected to grow from about 25 million people currently to about 47 million under both A1B and A2, while reaching around 37 million annual adult participants by 2060 under B2.

Equestrian activities, or horseback riding on trails, claimed 7 percent of the adult population annually as participants. This percentage is expected to increase to nearly 19 percent by 2060 under scenario A1B, while increasing by 3 percent or less for scenarios A2 and B2 (table 8.8). The difference can mostly be attributed to the higher income associated with A1B for the next 50 years, despite the fact that scenario B2 is less susceptible to forest and rangeland loss over the same

Table 8.5—Projections of per capita participation rate and number of participants, 2010 to 2060: Birding—viewing or photographing birds

Participation rate		Indexed per capita participation					
2008	Scenario	2010	2020	2030	2040	2050	2060
0.346	A1B	1.007	1.025	1.044	1.055	1.063	1.075
0.346	A2	1.004	1.018	1.032	1.036	1.037	1.039
0.346	B2	1.01	1.024	1.037	1.041	1.044	1.043
Annual Participants		Indexed number of participants					
2008 (x1,000)	Scenario	2010	2020	2030	2040	2050	2060
81,449	A1B	1.033	1.168	1.323	1.451	1.568	1.69
82,855	A2	1.033	1.175	1.342	1.487	1.637	1.814
81,237	B2	1.036	1.163	1.278	1.343	1.402	1.46

Note: Base year participant numbers in 2008 vary according to projected population for 2008 under each of the 2010 RPA Assessment scenarios.

Source: National Survey on Recreation and the Environment 1999-2009.

Table 8.6—Projections of per capita participation rate and number of participants, 2010 to 2060: Viewing nature—viewing or photographing birds, other wildlife, natural scenery, flowers, etc. or gathering mushrooms, berries, etc.

Participation rate			Indexed per capita participation				
2008	Scenario	2010	2020	2030	2040	2050	2060
0.805	A1B	1.002	1.008	1.012	1.017	1.025	1.035
0.805	A2	1	1.002	1.002	1.003	1.006	1.009
0.805	B2	1.005	1.007	1.006	1.008	1.012	1.012
Annual participants			Indexed number of participants				
2008 (x1,000)	Scenario	2010	2020	2030	2040	2050	2060
189,418	A1B	1.028	1.148	1.281	1.4	1.512	1.627
192,690	A2	1.028	1.157	1.303	1.44	1.587	1.762
188,927	B2	1.03	1.144	1.24	1.299	1.359	1.417

Note: Base year participant numbers in 2008 vary according to projected population for 2008 under each of the 2010 RPA Assessment scenarios.

Source: National Survey on Recreation and the Environment 1999-2009.

Table 8.7—Projections of per capita participation rate and number of participants, 2010 to 2060: Challenge activities—mountain climbing, rock climbing, or caving

Participation rate			Indexed per capita participation				
2008	Scenario	2010	2020	2030	2040	2050	2060
0.107	A1B	1.005	1.025	1.036	1.069	1.117	1.176
0.107	A2	0.996	1.004	1.001	1.014	1.038	1.066
0.107	B2	1.014	1.023	1.013	1.028	1.056	1.073
Annual participants			Indexed number of participants				
2008 (x1,000)	Scenario	2010	2020	2030	2040	2050	2060
25,134	A1B	1.031	1.168	1.313	1.471	1.647	1.848
25,568	A2	1.025	1.159	1.302	1.456	1.638	1.861
25,069	B2	1.04	1.162	1.249	1.326	1.419	1.502

Note: Base year participant numbers in 2008 vary according to projected population for 2008 under each of the 2010 RPA Assessment scenarios.

Source: National Survey on Recreation and the Environment 1999-2009.

time period (see appendix A). When population growth is included to derive the number of annual participants, A1B leads to an increase of nearly 87 percent, from just over 16 million per year to over 30 million annually in 2060. The high population growth under scenario A2 leads to about 77 percent more equestrian activity participants in 2060 than in 2008.

Hiking is perhaps the most popular single backcountry activity. In 2008, about 33 percent of adults nationally participated in hiking, totaling nearly 80 million people. Among the three assessment scenarios, hiking participation per capita is expected to increase by 7 to 10 percent by 2060, increasing the most under A1B (table 8.9). A notable model result for hiking is that it is the only activity for which Hispanic ethnicity is associated with a higher participation rate than Whites (see appendix A). As the participation rates are similar across scenarios, A2's higher population growth leads to the greatest increase in hiking participants over the time span, nearly 88 percent, resulting in about 150 million hikers by 2060. Scenarios B2 and A1B led to hiking participant increases from 2008 of about 50 percent and 72 percent, respectively.

The final backcountry activity is an aggregate called visiting primitive areas, which consists of participating in NSRE activities such as backpacking, primitive camping, and visiting a wilderness, both designated and undesignated. This composite accounted for 90 million participants in 2008, or about 38 percent of all adults. Annual per capita participation in this category is expected to decline by up to 5 percent over the next 50 years (table 8.10). Increased population density and declines in wilderness acres per capita, and forest and rangeland per capita, appear to be factors influencing the participation rate decline (see appendix A). However, overall participation is expected to increase by between 33 and 65 percent across scenarios by 2060 because population growth offsets the decline in participation rates.

Motorized activities—Three categories of non-roaded motorized activities are considered in this section, namely, motorized off-road driving, motorized water activities, and motorized snow activities. Per capita participation in off-road driving averaged about 20 percent annually for adults between 2005 and 2009. This participation amounted to around 48 million adult participants in 2008 (table 8.11). Future participation rates in off-road driving are expected to decline under two of three assessment scenarios, A2 (18 percent) and B2 (8 percent), while the percent of adult participants under A1B, while declining to 2040, will be about the same in 2060 as today. A2's relatively larger decline in participation rate can be attributed to smaller income growth than A1B, and a larger decline in federal and private forest and range land than either B2 or A1B (see appendix A). Despite the static or declining rate of growth in per capita participation, the number of participants in off-road driving will increase by 29 to 56 percent under the assessment scenarios to between almost 60 and 75 million because the rate of population growth will outstrip any decline in per capita participation through 2060.

Motorized water activities including the NSRE activities of motor boating, waterskiing, and personal watercraft use has the highest per capita participation rate of the motorized activities (26 percent) and thus the greatest number of annual adult participants at over 60 million (table 8.12). Under assessment scenario A1B, per capita participation is expected to grow by 15 percent over the next five decades to about 30 percent of all adults, while under scenarios A2 and B2 growth will essentially be static. Income growth under A1B is the biggest factor in causing the greater per capita growth. Overall, the number of adult participants in motorized water activities increases faster than the population under scenario A1B to about 112 million in 2060. With per capita participation constant under both A2 and B2, the number of motorized water activity participants mirrors population growth, yielding about 107 million and 87 million participants in 2060, respectively.

Motorized snow activity is limited to snowmobiling, an activity undertaken by 4 percent of the adult population, or between 9 and 10 million people in 2008. Per capita participation in snowmobiling is expected to decline under assessment scenarios A2 and B2 by just over 10 percent, or about one-half a percentage point over the next 50 years (table 8.13). Under scenario A1B, the adult snowmobiling participation rate will rise by almost 3 percent by 2060, the difference being mostly accounted for by A1B's income increase relative to the other two scenarios (see appendix A). Overall, by 2060, the number of snowmobiling enthusiasts will increase to nearly 12 million under scenario B2, and about 15 million under scenario A1B.

Hunting and fishing—Based on NSRE definitions, traditional consumptive wildlife pursuits like hunting and fishing remain popular outdoor activities, with about 28 million and 73 million adult participants annually in 2008. However, on a per capita basis, these pursuits are showing some decline from past decades. Here, hunting consists of participation in the pursuit of big game, small game, or migratory birds, as identified by a NSRE hunting screener question. The annual adult hunting participation rate, nearly 12 percent in 2008, is projected to decline by up to 30

Table 8.8—Projections of per capita participation rate and number of participants, 2010 to 2060: Equestrian activities—horseback riding on trails

Participation rate		Indexed per capita participation					
2008	Scenario	2010	2020	2030	2040	2050	2060
0.07	A1B	1.005	1.024	1.028	1.06	1.115	1.186
0.07	A2	0.992	0.99	0.973	0.976	0.992	1.015
0.07	B2	1.02	1.02	0.992	0.999	1.024	1.031
Annual participants		Indexed number of participants					
2008 (x1,000)	Scenario	2010	2020	2030	2040	2050	2060
16,393	A1B	1.031	1.166	1.302	1.459	1.644	1.865
16,676	A2	1.02	1.143	1.265	1.401	1.565	1.771
16,350	B2	1.046	1.158	1.223	1.288	1.376	1.444

Note: Base year participant numbers in 2008 vary according to projected population for 2008 under each of the 2010 RPA Assessment scenarios.

Source: National Survey on Recreation and the Environment 1999-2009.

Table 8.9—Projections of per capita participation rate and number of participants, 2010 to 2060: Day hiking

Participation rate		Indexed per capita participation					
2008	Scenario	2010	2020	2030	2040	2050	2060
0.333	A1B	1.003	1.017	1.031	1.049	1.072	1.097
0.333	A2	1.001	1.013	1.023	1.038	1.056	1.076
0.333	B2	1.006	1.017	1.025	1.039	1.057	1.073
Annual participants		Indexed number of participants					
2008 (x1,000)	Scenario	2010	2020	2030	2040	2050	2060
78,256	A1B	1.029	1.159	1.305	1.444	1.581	1.724
79,607	A2	1.03	1.169	1.33	1.49	1.667	1.879
78,053	B2	1.031	1.155	1.264	1.34	1.42	1.501

Note: Base year participant numbers in 2008 vary according to projected population for 2008 under each of the 2010 RPA Assessment scenarios.

Source: National Survey on Recreation and the Environment 1999-2009.

Table 8.10—Projections of per capita participation rate and number of participants, 2010 to 2060: Visiting primitive areas—visiting a wilderness, primitive camping, or backpacking

Participation rate			Indexed per capita participation				
2008	Scenario	2010	2020	2030	2040	2050	2060
0.383	A1B	0.999	0.992	0.979	0.978	0.985	0.995
0.383	A2	0.994	0.982	0.962	0.953	0.949	0.947
0.383	B2	1.003	0.991	0.969	0.961	0.96	0.954
Annual participants			Indexed number of participants				
2008 (x1,000)	Scenario	2010	2020	2030	2040	2050	2060
90,164	A1B	1.024	1.13	1.24	1.346	1.452	1.564
91,721	A2	1.023	1.133	1.251	1.367	1.498	1.653
89,930	B2	1.028	1.125	1.194	1.239	1.29	1.335

Note: Base year participant numbers in 2008 vary according to projected population for 2008 under each of the 2010 RPA Assessment scenarios.

Source: National Survey on Recreation and the Environment 1999-2009.

Table 8.11—Projections of per capita participation rate and number of participants, 2010 to 2060: Motorized off-road activities—off-road driving

Participation rate			Indexed per capita participation				
2008	Scenario	2010	2020	2030	2040	2050	2060
0.204	A1B	0.998	0.983	0.952	0.949	0.966	0.995
0.204	A2	0.985	0.949	0.898	0.866	0.845	0.824
0.204	B2	1.011	0.98	0.934	0.925	0.931	0.922
Annual participants			Indexed number of participants				
2008 (x1,000)	Scenario	2010	2020	2030	2040	2050	2060
47,937	A1B	1.024	1.119	1.206	1.306	1.424	1.563
48,764	A2	1.013	1.096	1.167	1.243	1.333	1.439
47,812	B2	1.036	1.113	1.151	1.193	1.251	1.291

Note: Base year participant numbers in 2008 vary according to projected population for 2008 under each of the 2010 RPA Assessment scenarios.

Source: National Survey on Recreation and the Environment 1999-2009.

Table 8.12—Projections of per capita participation rate and number of participants, 2010 to 2060: Motorized water use—motorboating, waterskiing, or using personal watercraft

Participation rate		Indexed per capita participation					
2008	Scenario	2010	2020	2030	2040	2050	2060
0.263	A1B	1.007	1.022	1.025	1.051	1.094	1.154
0.263	A2	0.992	0.986	0.966	0.96	0.965	0.976
0.263	B2	1.022	1.018	0.99	0.991	1.008	1.006
Annual participants		Indexed number of participants					
2008 (x1,000)	Scenario	2010	2020	2030	2040	2050	2060
61,960	A1B	1.032	1.165	1.299	1.446	1.614	1.814
63,030	A2	1.021	1.139	1.256	1.378	1.523	1.704
61,799	B2	1.048	1.156	1.221	1.278	1.354	1.408

Note: Base year participant numbers in 2008 vary according to projected population for 2008 under each of the 2010 RPA Assessment scenarios.

Source: National Survey on Recreation and the Environment 1999-2009.

Table 8.13—Projections of per capita participation rate and number of participants, 2010 to 2060: Motorized snow use—snowmobiling

Participation rate		Indexed per capita participation					
2008	Scenario	2010	2020	2030	2040	2050	2060
0.04	A1B	0.997	0.983	0.952	0.957	0.985	1.026
0.04	A2	0.984	0.951	0.902	0.881	0.876	0.876
0.04	B2	1.012	0.979	0.92	0.902	0.905	0.892
Annual participants		Indexed number of participants					
2008 (x1000)	Scenario	2010	2020	2030	2040	2050	2060
9,440	A1B	1.022	1.12	1.206	1.317	1.452	1.613
9,603	A2	1.012	1.098	1.173	1.265	1.383	1.53
9,415	B2	1.037	1.112	1.134	1.164	1.216	1.248

Note: Base year participant numbers in 2008 vary according to projected population for 2008 under each of the 2010 RPA Assessment scenarios.

Source: National Survey on Recreation and the Environment 1999-2009.

percent across assessment scenarios by 2060 (table 8.14). The high population growth of scenario A2 shows the biggest decrease, leading to an annual participation rate of 8 percent. Factors like increased education levels, increased population density, diminishing availability of private and public land, and strong negative relationships between growing minority populations and hunting appear to be influencing the drop in participation rate (see appendix A). However, the decline in the rate of annual participation in hunting is offset by population growth to the extent that hunting participants should increase between 7 and 23 percent across the assessment scenarios over the next 50 years.

Fishing participation includes partaking of any of a number of NSRE fishing activities such as warm and cold water fishing, saltwater fishing, and anadromous fishing. Like hunting, the participation rate for fishing is expected to drop over the next 5 decades. For example, under scenario A2, the adult fishing participation rate is projected to fall by 10 percent from 31 percent in 2008 to around 28 percent by 2060. A similar rate decline is expected for scenario B2, while the drop associated with A1B is only 3 percent (table 8.15). Similar to hunting, the population growth under each scenario is enough to induce increases in adult fishing participants from 28 percent under B2 to over 50 percent via scenarios A1B and A2.

Non-motorized winter activities—Non-motorized winter activities include developed skiing and undeveloped skiing. Developed skiing, which includes the NSRE activities of downhill skiing and snowboarding, had an average adult participation rate of 10 percent from 2005 through 2009, or about 24 million participants annually in 2008 (table 8.16). Assuming constant climate conditions, the participation rate in developed skiing is expected to increase by 20 percent under assessment scenarios A2 and B2 and by almost 60 percent under scenario A1B. As with a number of other income dependent activities, the higher growth in household income associated with scenario A1B relative to A2 and B2 appears to be driving the difference in participation rates (see appendix A). The increases in per capita participation rates for all scenarios, combined with the respective population growth rates, suggest that developed skiing will grow as much or more than any activity reported in this chapter. For example, under assessment scenarios B2 and A2, the total number of adult participants is expected to increase from 24 million in 2008 to between 40 and 50 million in 2060. A bigger increase, from 24 million to nearly 60 million, of annual developed skiing participants is projected to occur under scenario A1B.

The second non-motorized winter activity is undeveloped skiing including NSRE activities of cross-country skiing and snow shoeing. Like developed skiing, this activity composite is expected to grow considerably from the slightly over 3 percent adult participation rate in 2008 and nearly 8 million participants. The expected growth rate in participation is close to 10 percent for scenarios A2 and B2, while it is nearly 31 percent for scenario A1B by 2060 (table 8.17). The differences in the participation growth rates seem

Table 8.14— Projections of per capita participation rate and number of participants, 2010 to 2060: Hunting—screener variable for all hunting activities

Participation rate		Indexed per capita participation					
2008	Scenario	2010	2020	2030	2040	2050	2060
0.119	A1B	0.992	0.942	0.885	0.841	0.808	0.781
0.119	A2	0.985	0.923	0.854	0.795	0.741	0.69
0.119	B2	0.999	0.942	0.881	0.841	0.809	0.77
Annual participants		Indexed number of participants					
2008 (x1,000)	Scenario	2010	2020	2030	2040	2050	2060
27,909	A1B	1.017	1.074	1.121	1.157	1.191	1.228
28,391	A2	1.013	1.066	1.11	1.14	1.17	1.205
27,836	B2	1.024	1.07	1.086	1.085	1.086	1.078

Note: Base year participant numbers in 2008 vary according to projected population for 2008 under each of the 2010 RPA Assessment scenarios.

Source: National Survey on Recreation and the Environment 1999-2009.

Table 8.15— Projections of per capita participation rate and number of participants, 2010 to 2060: Fishing—coldwater fishing, warmwater fishing, saltwater fishing, or anadromous fishing

Participation rate		Indexed per capita participation					
2008	Scenario	2010	2020	2030	2040	2050	2060
0.309	A1B	1	0.991	0.974	0.966	0.965	0.97
0.309	A2	0.994	0.975	0.948	0.927	0.91	0.896
0.309	B2	1.007	0.989	0.959	0.942	0.931	0.912
Annual participants		Indexed number of participants					
2008 (x1,000)	Scenario	2010	2020	2030	2040	2050	2060
72,714	A1B	1.026	1.128	1.234	1.329	1.423	1.525
73,969	A2	1.022	1.126	1.233	1.33	1.437	1.564
72,525	B2	1.032	1.123	1.183	1.214	1.25	1.277

Note: Base year participant numbers in 2008 vary according to projected population for 2008 under each of the 2010 RPA Assessment scenarios.

Source: National Survey on Recreation and the Environment 1999-2009.

Table 8.16—Projections of per capita participation rate and number of participants, 2010 to 2060: Developed skiing—downhill skiing or snowboarding

Participation rate		Indexed per capita participation					
2008	Scenario	2010	2020	2030	2040	2050	2060
0.101	A1B	1.012	1.071	1.103	1.204	1.361	1.57
0.101	A2	0.988	1.009	1.002	1.042	1.113	1.206
0.101	B2	1.04	1.062	1.031	1.071	1.153	1.202
Annual participants		Indexed number of participants					
2008 (x1,000)	Scenario	2010	2020	2030	2040	2050	2060
23,729	A1B	1.038	1.22	1.397	1.657	2.007	2.468
24,139	A2	1.016	1.165	1.303	1.496	1.757	2.105
23,667	B2	1.066	1.207	1.271	1.381	1.549	1.682

Note: Base year participant numbers in 2008 vary according to projected population for 2008 under each of the 2010 RPA Assessment scenarios.

Source: National Survey on Recreation and the Environment 1999-2009.

to be primarily induced by the higher income growth of A1B (see appendix A). Overall the participant number for undeveloped skiing is expected to increase during the next five decades by at least 50 percent under scenario B2, while more than doubling to about 16 million adults in 2060 under scenario A1B.

Non-motorized water activities—The final outdoor recreation category in this chapter is non-motorized water activities. This category consists of a swimming aggregate which includes participation in any of the NSRE activities defined by a swimming screener question (e.g., swimming, snorkeling, surfing, diving, visiting beaches or watersides) and floating, which is comprised of participation in the NSRE activities of canoeing, kayaking, or rafting. Swimming is the fourth most popular outdoor recreation pursuit examined in this chapter, with a 61 percent adult participation rate from 2005 to 2009, and approximately 143 million participants in 2008 (table 8.18). Like visiting developed sites and viewing activities, swimming is a popular family activity with high levels of youth participation, so the number of total participants in swimming from all age groups is expected to be much larger than adult participants.

Swimming is neither land nor income intensive, so the narrow band of participation rate increases across the assessment scenarios to 2060, from 5 percent under B2 to nearly 11 percent under A1B, is not likely to be an aberration (see appendix A). With these expected changes, the number of total adult participants in swimming will increase at slightly more than the rate of population growth for each scenario, with A2 showing the greatest increase to a total of nearly 270 million by 2060 (table 8.18). Scenario B2, with the least population growth indicates an increase in adult swimming participants to about 210 million annually by 2060.

Floating had an annual adult participation rate of nearly 17 percent from 2005 to 2009, which translated to about 39 million participants in 2008. Across the assessment scenarios, the participation rate is expected to increase slightly for A1B to over 17 percent annually by 2060 (table 8.19). For each of the lower income scenarios, the rate of participation for adults is expected to drop by between 7 and 11 percent over the next five decades, with scenario A2 dipping to 15 percent participation. With these changes in participation rates, floating participants under A1B are projected to increase 62 percent, or slightly more than the population, while scenarios A2 and B2 will grow slightly less than their respective population growth rates. By 2060, approximately 64 million adults will participate in floating under A1B, with scenario B2 accounting for about 51 million and A2 yielding nearly 63 million participants.

Key Findings

As displayed in the results section above, all 17 outdoor recreation activities or activity aggregates will grow in the number of participants over the next five decades. In

Table 8.17—Projections of per capita participation rate and number of participants, 2010 to 2060: Undeveloped skiing—cross-country skiing or snow shoeing

Participation rate		Indexed per capita participation					
2008	Scenario	2010	2020	2030	2040	2050	2060
0.033	A1B	1.012	1.054	1.083	1.135	1.21	1.309
0.033	A2	0.997	1.014	1.016	1.03	1.055	1.09
0.033	B2	1.03	1.049	1.038	1.056	1.092	1.106
Annual participants		Indexed number of participants					
2008 (x1,000)	Scenario	2010	2020	2030	2040	2050	2060
7,778	A1B	1.038	1.201	1.371	1.561	1.784	2.058
7,912	A2	1.025	1.171	1.321	1.478	1.666	1.903
7,758	B2	1.056	1.192	1.28	1.361	1.467	1.548

Note: Base year participant numbers in 2008 vary according to projected population for 2008 under each of the 2010 RPA Assessment scenarios.

Source: National Survey on Recreation and the Environment 1999-2009.

Table 8.18—Projections of per capita participation rate and number of participants, 2010 to 2060: Swimming activities—screener variable for swimming activities

Participation rate			Indexed per capita participation				
2008	Scenario	2010	2020	2030	2040	2050	2060
0.609	A1B	1.004	1.022	1.034	1.055	1.081	1.109
0.609	A2	0.999	1.009	1.013	1.024	1.04	1.058
0.609	B2	1.011	1.02	1.018	1.027	1.043	1.052
Annual participants			Indexed number of participants				
2008 (x1,000)	Scenario	2010	2020	2030	2040	2050	2060
143,204	A1B	1.03	1.164	1.309	1.451	1.594	1.744
145,677	A2	1.027	1.165	1.317	1.47	1.641	1.847
142,832	B2	1.036	1.159	1.255	1.324	1.401	1.472

Note: Base year participant numbers in 2008 vary according to projected population for 2008 under each of the 2010 RPA Assessment scenarios.

Source: National Survey on Recreation and the Environment 1999-2009.

Table 8.19—Projections of per capita participation rate and number of participants, 2010 to 2060: Floating activities—canoeing, kayaking, or rafting

Participation rate			Indexed per capita participation				
2008	Scenario	2010	2020	2030	2040	2050	2060
0.169	A1B	0.997	0.986	0.96	0.967	0.993	1.031
0.169	A2	0.986	0.957	0.914	0.896	0.891	0.89
0.169	B2	1.01	0.983	0.935	0.926	0.935	0.928
Annual participants			Indexed number of participants				
2008 (x1,000)	Scenario	2010	2020	2030	2040	2050	2060
39,800	A1B	1.023	1.123	1.216	1.33	1.464	1.621
40,487	A2	1.014	1.105	1.188	1.285	1.406	1.553
39,697	B2	1.035	1.116	1.153	1.194	1.255	1.3

Note: Base year participant numbers in 2008 vary according to projected population for 2008 under each of the 2010 RPA Assessment scenarios.

Source: National Survey on Recreation and the Environment 1999-2009.

some cases, the per capita participation growth rate will be near, or even less than one. However, population growth will be large enough under each assessment scenario to ensure that all activities will see growth in the number of adult participants.

Per capita participation—The five outdoor recreation activities projected to have the fastest growth in per capita participation across the three 2010 RPA Assessment scenarios over the next 50 years are developed skiing (20 to 50 percent), undeveloped skiing (9 to 31 percent), challenge activities (6 to 18 percent increase), equestrian activities (3 to 19 percent), and motorized water activities (-3 to 15 percent). Alternatively, a number of activities will experience a decline in adult participation rates. These include visiting primitive areas (0 to -5 percent), motorized off-road activities (0 to -18 percent), motorized snow activities (2 to -11 percent), hunting (-22 to -31 percent), fishing (-3 to -10 percent), and floating activities (3 to -11 percent). Growth of per capita participation rates for the remaining activities will hover around zero or grow minimally. It should also be noted that in general, activities with low per capita rates of participation such as developed skiing, undeveloped skiing, and equestrian activities have considerable room for growth, while activities with already high rates such as developed site use, viewing, and swimming have less room to grow their participation rates.

Participant numbers—By definition, the activities with the highest rates of growth in participant numbers are the same as those with the highest growth rates in per capita participation because all activities face the same population growth rates. The growth in participant numbers for the top five growth activities (fig. 8.3) are developed skiing (68 to 147 percent), undeveloped skiing (55 to 106 percent), challenge activities (50 to 86 percent), equestrian activities (44 to 87 percent), and motorized water activities (41 to 81 percent). Similarly, the lowest rates of participant numbers growth (fig. 8.4) are visiting primitive areas (33 to 65 percent), motorized off-road activities (29 to 56 percent), motorized snow activities (25 to 61 percent), hunting (8 to 23 percent), fishing (27 to 56 percent), and floating activities (30 to 62 percent). As stated above, it is unlikely that activities with already high participation rates can demonstrate large percentage increases in participant numbers. However, it is obvious that smaller percentage increases in already highly popular activities can mean quite large increases in the absolute number of adult participants.

Assessment scenarios—The assessment scenarios drive the activity projections through two avenues. First, as the number of participants is a product of estimated per capita participation and population, all estimates are population driven and in many cases, this means that A2, with the largest projected population growth, often correlates with the greatest projected increase in participant numbers. Similarly, B2, with the lowest rate of population growth, generally coincides with the least growth for any given activity. However, A2's population growth influences the per capita participation negatively as most participation models had negative signs on population density which increases with population growth. As well, supply variables such as

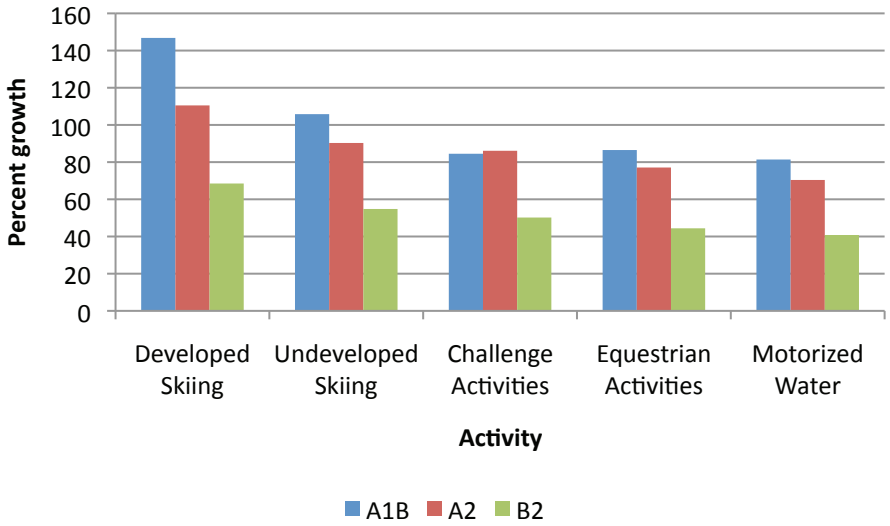

Figure 8.3—Top five activities by percent growth in projected number of participants and scenario, 2008 to 2060.

water area per capita and land per capita, with typically positive influences on per capita participation, saw declines as per capita land and water areas declined with population growth. In most cases, the difference was not enough to offset population growth's influence as a product.

Another important difference emerging in the per capita participation modeling was the effect of income on certain activities such as developed skiing, challenge activities, equestrian activities, hunting, and motorized activities. In virtually all these cases, the growth in income under scenario A1B was enough to offset the difference in population growth difference between A2 and A1B, leading to higher rates of growth in participants for A1B. This effect seemed consistent across activities that typically require more capital to effectively participate.

Factors—An examination of model results and odds ratio estimates in appendix A reveals stories similar to previous research into outdoor recreation participation behavior. First, males are more apt to participate in backcountry activities, hunting and fishing, motorized activities, non-motorized winter activities, and floating than are females, while the latter are more likely to participate in the viewing activities, swimming, equestrian, and visiting developed sites.

Ethnicity is still an important influence on participation. Minorities including Blacks, Hispanics, and Asians, were almost always less likely than Whites to participate in the various activities examined in this chapter. A notable exception occurred with hiking, as Hispanics were more likely than Whites to have participated, assuming all other factors constant. Respondents claiming American Indian, non-Hispanic identity were often more likely than Whites to participate in the remote activities like hunting and fishing, motorized off-road, motorized snow, hiking, equestrian, and viewing.

Education beyond high school resulted in higher participation probability for most activities. However, the level of education varied somewhat. For example, the greater the education level, the more likely one would participate in birding, non-motorized winter activities, backcountry activities, and viewing activities. However, for fishing and hunting, motorized off-road, and motorized snow activities, more than a high school education lowered the probability of participation.

Income was positively associated with participation across all activities. However, for some activities such as birding, hiking, and hunting, the effect was small, while for others such as developed skiing and motorized water use, the effect was large. As discussed above, the higher growth rate of income under assessment scenario A1B was noticeable across a number of activities.

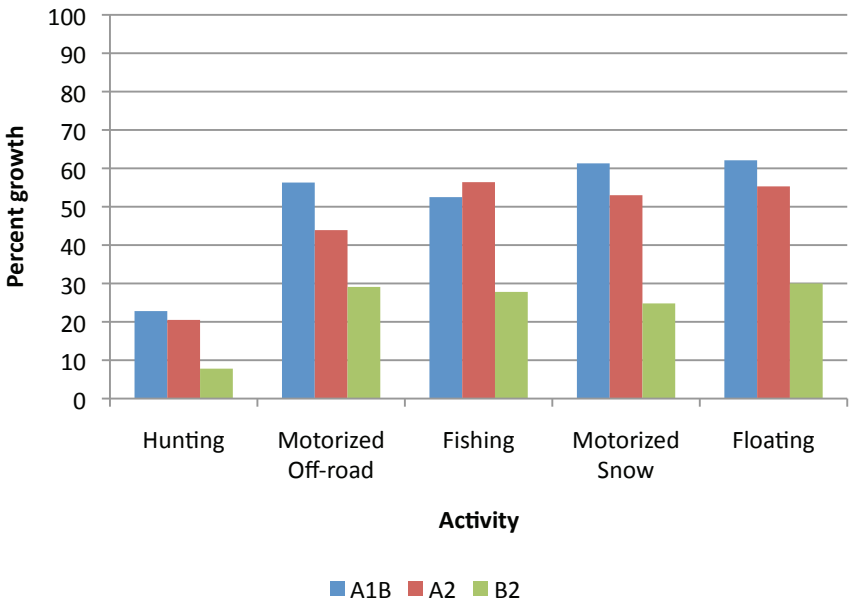

Figure 8.4—Bottom five activities by percent growth in projected number of participants and scenario, 2008 to 2060.

Relevant land and water availability per capita generally correlated positively with activity participation. Hence, declines in overall forest and rangeland per capita, federal land per capita, and/or in National Wilderness Preservation System lands per capita induced declines in spatially intensive activities such as equestrian, hunting, motorized off-road driving, visiting primitive areas, and viewing. Similarly, participation in water-based activities such as swimming, motorized boating, and non-motorized boating were all positively correlated with the per capita availability of water area. Fishing was positively correlated with both water area and forest and rangeland availability. A seemingly counterintuitive result occurred with the variable indicating whether the respondent lived in a coastal community. Here, participation in fishing, hunting, and viewing were negatively correlated with residence in a coastal county. Such a result could be driven by the fact that coastal population in the country is dominated by highly urban areas.

Finally, it should be noted that the model results and projections in this chapter do not account for factors outside the range of available data such as climate change, new technology, changes in costs, and changes in tastes and preferences.

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9. SUMMARY

This assessment has attempted to describe the status and trends in outdoor recreation across the United States. These trends are important to understand because of the large role outdoor recreation plays in the lifestyle of Americans. They are also important because of the large investments and management responsibilities of both the public and private sectors as providers of recreation opportunities.

Three Sources of Outdoor Recreation Participation Trends

National Recreation Survey—Historical context was provided earlier by looking back at previous surveys and studies. The primary historical source of data was the National Recreation Survey, which eventually became the National Survey on Recreation and the Environment (NSRE) which is managed by the Forest Service, U.S. Department of Agriculture. The former National Recreation Survey showed that what people did for outdoor recreation had been very noticeably changing over the years in earlier decades. However, in 1960 and since that year, one activity—the simple activity of walking for pleasure outdoors—remained at the top in popularity. At the same time, other activities also were growing. These activities included viewing or photographing wild birds, attending outdoor sports events, day hiking, attending outdoor concerts/plays/other events, and visiting outdoor nature centers. Also growing in terms of number of participants were swimming in natural waters, sightseeing, bicycling, running or jogging and picnicking. Some of the activities lesser in popularity involved use of motors, e.g., motor boating, driving for pleasure, and off-highway vehicle driving.

Across the years since the National Recreation Survey began, one general, overriding trend has been evident. The mix of outdoor activities and their relative popularity has been evolving. This evolution included addition of some activities that were not recognized as significant, or even as existing in 1960. Examples of added activities are mountain biking, snowboarding, and geocaching. In the last period of data examined from NSRE (2005-2009), it was estimated that over 223 million people ages 16 and older participated in some form of outdoor recreation. Whereas the first National Recreation Survey covered only a few recognized activities, the NSRE now includes 77 activities, including those that are sport and wildlife related.

The National Fishing, Hunting, and Wildlife-Associated Recreation Survey—The National Fishing, Hunting, and Wildlife-Associated Recreation Survey is devoted specifically to fish and wildlife-based outdoor recreation. The National Fishing, Hunting, and Wildlife-Associated Recreation Survey focuses on outings where hunting, fishing, or wildlife watching was the primary reason for an outing. This survey is managed by the U.S. Fish and Wildlife Service and has tracked trends since 1955. It is the oldest ongoing national recreation survey in the United States From the most recent round of surveying done in 2006, it was reported that more than 87 million people 16 years of age and older participated in some form of fish- or wildlife-related recreation as the primary reason for an outdoor occasion. This is about 4 out of 10 people in the United States of that age. Like outdoor recreation generally, wildlife- and fish-based recreation has been changing. The overall number of hunters in the United States has declined, except for big game hunting, which has remained relatively stable. Fishing participation has also declined. The total number of anglers fell 15 percent from