CHAPTER VI

PROJECTIONS OF OUTDOOR RECREATION PARTICIPATION TO 2050

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INTRODUCTION

Outdoor recreation in various forms has been and continues to be an important component of Americans' lives. Chapter V focused on the present situation, based primarily on descriptive findings from the National Survey on Recreation and the Environment (NSRE) (Cordell, McDonald, Lewis, Miles, Martin, & Bason, 1996). In addition, where possible, long-term trends in recreation participation were assessed by comparing NSRE findings with those of national recreation surveys dating back to 1960.

The intent of this chapter is to project future outdoor recreation participation and consumption, in days and trips, well into the next century as mandated by the Renewable Resources Planning Act (RPA). The chapter begins with a brief description of the data and methods used. Next, we report indexed projections of future recreation participation (by millions of participants aged 16 and over) and consumption (by millions of days annually and by millions of primary purpose trips taken) across the four assessment regions (see Figure II.1 in Chapter II) at 10-year intervals beginning in 2000 and ending in 2050. For convenience, we place projections for specific activities in the following groups: winter, water, wildlife, dispersed land, and developed land. Finally, we discuss some important findings, implications, and limitations of the analysis.

METHODS AND DATA

For projections, we developed two types of regional cross-sectional models. The first is a logistic regression model similar to those frequently used in recreation, economics, political science, and various other fields where individuals provide yes or no responses to behavioral questions (Greene, 1995). In this application, we used the model to estimate the probability that an individual will participate in a given recreation activity based on the individual's characteristics and the recreation opportunities near the individual's primary resi-

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dence. We obtained a separate model for each activity across each of the four assessment regions. Model results were then combined with population information to obtain estimates of the total number of participants in an activity per region. These results were then indexed on the 1995 base year. A number of previous RPA studies have used logistic regression models to estimate activity participation including those by Hof & Kaiser (1983) and Walsh, Jon, McKean, and Hof (1992). In both of these studies, national rather than regional models were constructed.

The second type of model used in this analysis is a negative binomial form of a count data model. We used this model to measure consumption levels through reported days and reported primary purpose trips. This type of model is very popular in recreation and labor market research (Greene, 1995). It is designed to take into account the quantitative aspect of trip–taking behavior—i.e., the fact that people spend a countable number of days or trips per year participating in recreation activities. Here we used the model to estimate annual days an individual will spend in a given outdoor recreation activity and the number of annual trips an individual will take for the primary reason of participating in a selected activity. As with the logistic regression participation models, we combined the results of our models with population estimates to project the number of primary purpose trips for a given activity originating in each assessment region and the number of days participants from a given region would be involved in any given activity. We report these estimates in indexed form relative to the base year. A more detailed explanation of both logistic and negative binomial regression models is provided by Greene (1993).

To develop projections of future recreation activity, we created a structure based on today's behavior. We created models to explain today's behavior in terms of measurable factors. If the structure of today's behavior is a good indicator of future behavior, the models can be used to estimate future recreation participation, days, and trips by activity and region. While this assumption is not always accurate, it is a reasonable alternative when adequate cross-sectional time-series data are unavailable.

Recreation research shows that demographic factors such as age, age squared, race or ethnicity, sex, wealth or income, education, and previous experience influence recreation behavior (Hof & Kaiser, 1983; Walsh, Jon, McKean, & Hof, 1992; Cordell, Bergstrom, Hartman, & English, 1990). In Table VI.1, we provide indexed projections of demographic variables used in this analysis. These projections are based on U.S. Census estimates of population (Day, 1996) and macroeconomic estimates from the USDA Economic Research Service (Torgerson, 1996).

Table VI.1: Indexed Explanatory Variable Projections for Regional Model RPA Forecasts[1]

VARIABLE	YEAR						
	1995	2000	2010	2020	2030	2040	2050
Age	1	1.02	1.056	1.089	1.114	1.126	1.126
Age-squared	1	1.033	1.07	1.103	1.128	1.141	1.141
Real Income	1	1.067	1.209	1.357	1.515	1.691	1.888
Percent White	1	0.989	0.97	0.952	0.935	0.917	0.901
Percent Male	1	1.002	1.002	1.002	1.004	1.004	1.006
Population North	1	1.013	1.064	1.138	1.197	1.241	1.304
Population South	1	1.062	1.168	1.271	1.371	1.461	1.534
Population Rocky Mtn	1	1.064	1.17	1.272	1.369	1.457	1.53
Population Pacific	1	1.077	1.207	1.318	1.425	1.527	1.604
Population Nation	1	1.042	1.126	1.217	1.299	1.4	1.439

[1] Ref: Census publication p25-1130 (1996) and USDA-ERS mimeo (Torgerson, 1996).

The biggest changes expected to take place in factors influencing recreation behavior over the next half-century relate to increases in population and real income. Using the mid-level growth scenario from the U.S. Census, population increases in the continental United States through 2050 will range from a low of 30 percent in the North to a high of 60 percent along the Pacific Coast. Average income, after accounting for inflation, is expected to grow 88 percent over the same time period. This projection makes no attempt to identify changes in the distribution of income, which may have a profound influence on recreation behavior. Population, age, and sex ratio are expected to change relatively little, while percentage of whites in the population should decline somewhat as other racial groups grow at faster rates.

It has also been established that supply factors such as proximity and availability of recreation resources are important in determining whether and to what degree individuals recreate (Walsh, Jon, McKean, & Hof, 1992). Previous research has shown that the amount of outdoor recreation settings or opportunities available to an individual will affect the individual's choice and intensity of participation in given activities (Walsh, Jon, McKean, & Hof, 1992). For example, whether an individual skis and how often that individual skis can in part be explained by the proximity of skiing opportunities. Likewise, most dispersed outdoor recreation activities, such as viewing wildlife, require access to wildlife habitat on private and public forests, ranges, and wetlands. However, the supply of this habitat is finite. Thus, as population and participation in activities requiring its availability increase, relative scarcity of the habitat increases. Because there are no readily available and reliable measures of future land and water availability, we followed convention and assumed a fixed amount of habitat for the various outdoor recreation activities modeled herein.

Past efforts at predicting recreation participation have used fairly general resource availability measures (Cordell, Bergstrom, Hartmann, & English, 1990; Walsh, Jon, McKean, & Hof, 1992). The resource variables that are included in our availability measure are described briefly in Table VI.2. This set of resource variables covers the primary resource base for all of the recreation activities for which projections are made. For any given location, the availability measure for each of these variables equaled the sum of all acres within a 200-mile straight-line radius, divided by the total population within that area. The 200-mile limit has been observed to approximate the maximum market area for many types of recreation (Cordell, Bergstrom, Hartman, & English, 1990). By adjusting for population, we accounted for relative increases in the scarcity of recreation opportunities that occur with population increases from any combination of congestion, reduction in quality, loss of access, and physical conversion due to development.

Table VI.2: Resource Recreation Variables Used in Projection Models[2]

RUNWATER = acres of running water area including river, stream, or any running water.
FLATWATER = acres of standing water which includes lakes, ponds, and reservoirs.
BAYEST = acres of bay area and estuary area.
WILDALL = acres of federally designated wilderness area.
NONWILDAC = acres of federally-owned nonwilderness area including rangeland.
NRIFOR = acres of nonfederal land with forest cover.
NRIWETL = acres of nonfederal wetland area.
PVTAGAC = acres of nonfederal agricultural land including rangeland.
SPACRES = acres of State Park area.
DSKIACRE = acres of downhill ski slopes.
SNOWFOR = acres of forests covered with snow during winter season.
SNOWMTN = acres of mountains covered with snow during winter season.
SNOWAG = acres of agricultural land covered with snow during winter season.
BLYMTN = acres of mountains classified under Bailey's ecological classification.
CGSITES = number of developed camp-sites.
PUBFOR = WILDALL+ NONWILDAC + SPACRES.
SUMWATER = RUNWATER+FLATWATER.
SUMSNOW = DSKIACRE+SNOWAG+SNOWFOR.
FLATBAY = FLATWATER+BAYEST.
ALWATER = SUMWATER+FLATBAY
ALFRAGWT= PUBFOR + PVTAGAC+NRIFOR+NRIWETL

[2] All units are represented as the physical quantity within a 200-mile radius of the individual's origin divided by the population within the area defined by the same radius. Ref: Norsis Data Base (1997) USDA Forest Service, Athens, GA

RESULTS

Indexed values for recreation activity participation, annual days, and annual trips are presented in this section. The indexes represent changes from the 1995 baseline totals for millions of participants, millions of days, and millions of trips at 10-year intervals to the year 2050. Activity groupings include: winter, water, wildlife, dispersed land, and developed land. Indexed projections are reported by activity and assessment region as well as for the nation.

Model parameter estimates for all activities and regions and their asymptotic standard errors are available from the author.[3] Common to all models are the explanatory variables age (age in years of respondent), age squared, income (household annual pretax income), race (white or nonwhite), sex (male or female), and population density of the respondent's county. The latter variable serves as a continuous proxy for rural/nonrural variables commonly encountered in recreation demand models. In addition, each model contains up to two supply-type variables as listed in Table VI.2. Means by region for these explanatory variables are available from the author.

Projections for explanatory variables follow the indexes reported in Table VI.1. For example, mean income in any given region increases by 88 percent over the 55-year simulation time horizon, while the percent of whites decreases by about 10 percent over the same time frame. Population density increases in proportion to population growth, while relevant supply is discounted by population growth for any region. Projected changes in the explanatory variables are then combined at 10-year intervals with the static parameter estimates (available from the author) to arrive at the projections reported in this section.

Winter Activities

Three winter-based activities, cross-country skiing, downhill skiing, and snowmobiling were modeled by the methods described above. Model parameter estimates are available from the author.

Cross-Country Skiing

Nationally, participation in cross-country skiing is expected to increase by 95 percent by the year 2050 (Table VI.3). The Rocky Mountain region will have the biggest increase at approximately 144 percent. A considerable decrease in the number of participants in this activity is projected for the South, however this will have little effect on the national projection because of the small number of Southerners currently participating in this sport.

Table VI.3. Baseline Estimates in Millions and Projected Indexes of Change in Days, Trips, and Participants for Cross-Country Skiing, by Region and Decade 1995-2050

Unit	Region	Projection Index						
Cross Country Skiing		1995	2000	2010	2020	2030	2040	2050
Days	North	35.70	0.92	0.90	0.91	0.93	0.98	1.10
	South	1.40	0.89	0.66	0.49	0.39	0.34	0.32
	Rocky Mountain	4.20	1.08	1.44	1.89	2.42	2.92	3.42
	Pacific	7.80	0.99	0.96	0.93	0.89	0.85	0.81
	National	49.00	0.94	0.94	0.96	1.00	1.06	1.18
Trips	North	23.90	1.02	1.06	1.13	1.22	1.33	1.49
	South	0.70	1.08	0.66	0.55	0.46	0.48	0.29
	Rocky Mountain	3.30	1.09	1.45	1.93	2.48	2.64	3.57
	Pacific	5.90	1.03	1.00	0.97	0.96	1.02	0.97
	National	33.50	1.02	1.05	1.12	1.21	1.30	1.44

[3]Appendix tables and technical information are available upon request from the USDA Forest Service, Outdoor Recreation, 320 Green St., Athens, GA 30602-2044. Technical appendices herein shall be abbreviated to TAs.

Table VI.3 Cont.

Unit	Region	Projection Index 1995	2000	2010	2020	2030	2040	2050
Cross Country Skiing								
Participation	North	4.40	1.03	1.15	1.23	1.49	1.67	1.91
	South	0.40	0.91	0.77	0.66	0.59	0.54	0.52
	Rocky Mountain	0.70	1.07	1.31	1.41	1.88	2.16	2.44
	Pacific	1.10	1.06	1.23	1.33	1.57	1.74	1.90
	National	6.50	1.04	1.18	1.26	1.54	1.73	1.95

Activity days of cross-country skiing are estimated to increase by 18 percent over the next half century. Unlike participation, the estimated increase in days is less than the rate of growth of the population in general. However, the projected increase in the Rocky Mountain region is 242 percent, which is far greater than the 53 percent population growth projected for that region. Primary-purpose trips follow a pattern between participation and activity days. The national increase closely follows national population growth. Very large growth is projected in the Rocky Mountain region and growth greater than that of the population is projected in the North. The South and Pacific Coast regions will have sharp and moderate decreases, respectively, in primary-purpose trips for cross-country skiing. However, there are few significant parameter estimates for cross-country skiing models for these two regions. This result is not surprising given the small percentage of people in these regions partaking of this sport. Hence, the index projections for the South and Pacific Coast regions should be viewed cautiously.

Downhill Skiing

As reported in Chapter V, downhill skiing annually accounts for the most days (126.5 million) and primary-purpose trips (78.9 million) of all the major winter sports. Projections of days, trips, and participants are reported in Table VI.4. Following trends of recent years, participation in downhill skiing is expected to increase by 93 percent nationally over the next half century. Regional percentage increases in participants range from 82 percent in the North to 111 percent in the Pacific Coast region. Because the North currently accounts for as many skiers as all other regions combined, the North will continue to account for far and away the most participants in this sport.

Table VI.4: Baseline Estimates and Projected Indexes of Change in Days, Trips, and Participants for Downhill Skiing, by Region and Decade, 1995-2050

Unit	Region	Projection Index 1995	2000	2010	2020	2030	2040	2050
Downhill Skiing								
Days	North	67.20	1.00	1.09	1.21	1.36	1.55	1.86
	South	13.00	1.07	1.36	1.47	1.78	2.22	2.90
	Rocky Mountain	14.90	1.01	1.16	1.14	1.25	1.42	1.67
	Pacific	31.50	1.06	1.36	1.46	1.70	2.00	2.35
	National	126.50	1.03	1.22	1.31	1.51	1.75	2.10
Trips	North	40.90	1.03	1.12	1.28	1.48	1.53	2.15
	South	6.10	1.04	1.11	1.21	1.36	1.58	1.94
	Rocky Mountain	10.70	1.03	1.07	1.15	1.27	1.44	1.70
	Pacific	21.40	1.09	1.29	1.53	1.81	2.13	2.48
	National	78.90	1.06	1.18	1.36	1.58	1.85	2.22
Participation	North	8.40	1.00	1.09	1.16	1.36	1.54	1.82
	South	3.10	1.03	1.14	1.26	1.43	1.67	2.01
	Rocky Mountain	1.70	1.04	1.14	1.15	1.29	1.58	1.84
	Pacific	3.60	1.06	1.21	1.31	1.55	1.80	2.11
	National	16.80	1.03	1.13	1.22	1.43	1.63	1.93

Downhill skiing days for the nation, as well as for residents of each of the four assessment regions, are expected to increase much more than the general increase in population. The national increase in annual skiing days is expected to be about 110 percent, or an increase from 126.5 million in 1995 to over 265 million days annually by 2050. While the biggest proportional increase will come from the Rocky Mountain region, residents of the North will account for the most annual skiing days at about 125 million by the year 2050.

Trips by Americans for the primary-purpose of downhill skiing will also continue to increase faster than population growth. Nationally, an increase of 122 percent is expected by 2050. As with participation and days, each assessment region shows an increase, with the greatest increase expected in the Pacific Coast, 148 percent, followed by the North at 115 percent. A major factor accounting for the increase in downhill skiing appears to be the strong positive relationship to personal income and the rather large expected increase in real personal income over the next 55 years (see Table VI.1).

Snowmobiling

Snowmobiling is the last of the winter sports examined in this chapter. Snowmobiling is the second most popular major winter sport, accounting for approximately 65.8 million days and 38.6 million primary-purpose trips in 1995. Like the other winter sports, the North and Rocky Mountain regions are responsible for over 85 percent of the participants in this activity.

Indexed projections for snowmobiling are presented in Table VI.5. Nationally, forecasted increases in this activity equal or exceed the rate of population growth, but the increases in participants for the principal snowmobiling regions, the North and Rocky Mountain, are below projected population growth.

Table VI.5: Baseline Estimates and Projected Indexes of Change in Days, Trips, and Participants for Snowmobiling by Region and Decade, 1995-2050

			Projection Index					
Unit	Region	1995	2000	2010	2020	2030	2040	2050
Snowmobiling								
Days	North	51.10	1.00	1.18	1.42	1.68	1.92	2.21
	South	2.30	1.04	1.13	1.22	1.37	1.61	1.98
	Rocky Mountain	6.70	0.49	1.06	1.02	1.08	1.15	1.28
	Pacific	5.40	1.02	1.36	1.77	2.20	2.54	2.82
	National	65.80	1.00	1.14	1.32	1.53	1.74	1.99
Trips	North	28.10	1.00	1.15	1.34	1.54	1.75	2.06
	South	1.20	1.07	1.17	1.31	1.52	1.84	2.36
	Rocky Mountain	4.30	1.04	1.11	1.23	1.37	1.54	1.76
	Pacific	4.90	1.16	1.58	2.31	3.21	3.47	4.86
	National	38.60	1.02	1.16	1.35	1.56	1.77	2.10
Participation	North	4.90	0.98	1.00	1.05	1.08	1.13	1.22
	South	0.80	1.03	1.13	1.25	1.40	1.58	1.82
	Rocky Mountain	0.80	1.02	1.06	1.10	1.16	1.25	1.36
	Pacific	0.70	1.09	1.42	1.54	2.33	2.91	3.60
	National	7.10	1.00	1.04	1.09	1.18	1.27	1.40

Like downhill skiing, days and primary-purpose trips for snowmobiling are expected to increase in all regions by substantial amounts. As with the other major winter sports, however, results for the South and Pacific Coast regions should be viewed with some caution, because the statistical performance of the projection models for these regions is poor. Nevertheless, there appears to be strong evidence to support the notion that as long as real increases in household income continue, participation and intensity of participation will continue to make snowmobiling an increasingly popular winter recreation activity.

Overall, the three major outdoor winter recreation pursuits discussed in this section—cross-country skiing, downhill skiing, and snowmobiling—are projected to see increased participants and increased participation intensity over the next 52 years. In most cases, the rates of increase in participation, days, and primary-purpose trips will exceed those for population. Growth in income appears to be the factor most responsible for

the projected increases. It is expected to offset both reductions in per-capita supply of opportunities due to increased population, and increasing proportions of nonwhites in the general population who are currently less likely to participate in winter sports.

Water-based Activities

The water-based activities for which indexed projections of participants, days, and trips are reported include canoeing, motorboating, nonpool swimming, and rafting. With the exception of pool swimming, these are the most popular of the water-based outdoor recreation activities, accounting for about 2,093 million activity days and 1,429 million primary-purpose trips annually. In addition, we include the more generic activity of visiting a beach or waterside, which is paramount to participating in any of the more specific activities listed. This activity is currently undertaken by over 124 million people each year in 1,667 million primary-purpose trips and 3,188 million activity days. Indexed projections for the water-based activities are reported below.

Canoeing

Nationally, participation in canoeing is projected to increase slightly more than population growth over the next 55 years, with the largest percentage increase in the Pacific Coast region. However, the North and the South will continue to account for the majority of canoeing given the current large numbers of participants in those regions (Table VI.6).

Table VI.6: Baseline Estimates and Projected Indexes of Change in Days, Trips, and Participants for Canoeing by Region and Decade 1995-2050

Unit Canoeing	Region	Projection Index 1995	2000	2010	2020	2030	2040	2050
Days	North	44.70	1.00	1.14	1.33	1.51	1.64	1.78
	South	17.60	1.04	1.09	1.13	1.21	1.35	1.57
	Rocky Mountain	2.90	1.04	1.14	1.25	1.36	1.47	1.59
	Pacific	9.70	1.08	1.18	1.29	1.42	1.59	1.80
	National	74.60	1.02	1.14	1.28	1.43	1.57	1.73
Trips	North	25.50	0.98	0.93	0.90	0.89	0.89	0.90
	South	14.20	1.02	1.07	1.12	1.18	1.25	1.36
	Rocky Mountain	2.10	1.07	1.12	1.20	1.29	1.37	1.52
	Pacific	7.60	1.11	1.15	1.24	1.33	1.41	1.41
	National	49.30	1.02	1.07	1.14	1.22	1.29	1.29
Participation	North	8.00	1.00	1.06	1.13	1.24	1.33	1.48
	South	4.20	1.03	1.07	1.11	1.16	1.23	1.34
	Rocky Mountain	0.70	1.03	1.11	1.20	1.25	1.32	1.39
	Pacific	1.20	1.06	1.21	1.30	1.51	1.69	1.89
	National	14.10	1.02	1.08	1.15	1.24	1.33	1.46

The number of days spent canoeing is expected to increase about 30 percent more than the population growth through the year 2050. The biggest increases, on the order of 80 percent, will be in the North and Pacific Coast regions. Currently, over half of the canoeing days nationally originate in the North, and this proportion should continue if not increase over the next half century.

Nationally, the number of primary-purpose canoeing trips is projected to increase by 29 percent over the same time period. Oddly, the number of trips by Northern residents is expected to decline by about 10 percent, while the number of days increases. These changes could mean that trips will be of longer duration or that canoeing will be done as a complementary or secondary activity within a multipurpose trip.

Motorboating

Motorboating currently is the most popular recreational boating activity with 47 million participants nationally, more than tripling its nearest competition. Projected changes in motorboating participation, days, and primary-purpose trips are reported in Table VI.7.

Table VI.7: Baseline Estimates and Projected Indexes of Change in Days, Trips, and Participants for Motorboating, by Region and Decade, 1995-2050

Unit Motorboating	Region	Projection Index 1995	2000	2010	2020	2030	2040	2050
Days	North	292.30	1.00	1.03	1.07	1.11	1.15	1.20
	South	294.00	0.99	1.00	1.02	1.05	1.10	1.16
	Rocky Mountain	31.10	1.06	1.19	1.34	1.50	1.68	1.90
	Pacific	82.20	1.11	1.38	1.69	2.06	2.52	3.09
	National	699.90	1.01	1.07	1.14	1.23	1.32	1.45
Trips	North	208.50	1.02	0.99	1.01	1.04	1.06	1.06
	South	190.10	1.04	1.07	1.15	1.23	1.31	1.42
	Rocky Mountain	24.20	1.08	1.21	1.37	1.55	1.64	2.02
	Pacific	58.90	1.14	1.35	1.63	1.98	2.40	2.94
	National	480.40	1.05	1.08	1.16	1.26	1.36	1.48
Participation	North	22.00	1.01	1.06	1.13	1.21	1.29	1.40
	South	15.50	1.04	1.13	1.24	1.33	1.45	1.59
	Rocky Mountain	3.20	1.06	1.17	1.26	1.40	1.54	1.70
	Pacific	6.30	1.07	1.22	1.32	1.52	1.69	1.88
	National	47.00	1.03	1.11	1.21	1.31	1.42	1.55

Nationally, participation, days, and trips are projected to increase slightly more than population growth up to 2050. The rate of increase in trips is expected to be greatest in the Pacific and Rocky Mountain regions at more than 194 percent and 102 percent, respectively. Likewise, these regions will account for the biggest rates of increase in activity days devoted to motorboating. However, because of the current popularity of the sport in the North and South, even a moderate increase like that reported in Table VI.7 will mean that the preponderance of motorboating activity will continue to be generated by people of the North and South.

Nonpool Swimming

Nonpool swimming is and will continue to be the single most popular water-based recreation activity taking place in natural settings, but the rate of growth in this activity will be more modest than motorboating. As reported in Table VI.8, participation and annual days of nonpool swimming should mostly keep pace with population growth, while primary-purpose trips for nonpool swimming should lag somewhat behind population growth, increasing only 25 percent out to 2050.

Examination of the model parameter estimates indicates that perhaps the biggest single factor slowing the growth of nonpool swimming is the importance of race in the model and the declining proportion of whites in the population expected over the next half century.

Table VI.8: Baseline Estimates and Projected Indexes of Change in Days, Trips, and Participants for Nonpool Swimming, by Region and Decade, 1995-2050

Unit	Region	Projection Index						
		1995	2000	2010	2020	2030	2040	2050
Nonpool Swimming								
Days	North	578.60	1.00	1.05	1.12	1.19	1.26	1.37
	South	410.90	0.96	1.02	1.08	1.15	1.24	1.35
	Rocky Mountain	56.10	1.04	1.12	1.20	1.29	1.41	1.57
	Pacific	196.60	1.06	1.15	1.23	1.31	1.43	1.56
	National	1241.40	1.00	1.05	1.12	1.20	1.28	1.40
Trips	North	385.40	1.00	1.01	1.06	1.11	1.15	1.22
	South	268.50	1.00	1.01	1.04	1.08	1.11	1.14
	Rocky Mountain	37.80	1.03	1.11	1.20	1.30	1.41	1.54
	Pacific	147.20	1.07	1.15	1.22	1.30	1.40	1.50
	National	837.90	1.01	1.04	1.09	1.14	1.19	1.25
Participation	North	38.40	1.01	1.08	1.16	1.28	1.37	1.51
	South	23.30	1.05	1.15	1.27	1.37	1.50	1.64
	Rocky Mountain	4.80	1.04	1.14	1.24	1.35	1.47	1.60
	Pacific	11.60	1.06	1.19	1.29	1.43	1.57	1.72
	National	78.10	1.03	1.12	1.21	1.33	1.45	1.58

Table VI.9: Baseline Estimates and Projected Indexes of Change in Days, Trips, and Participants for Rafting/Floating, by Region and Decade, 1995-2050

Unit	Region	Projection Index						
		1995	2000	2010	2020	2030	2040	2050
Rafting/Floating								
Days	North	35.00	0.99	1.02	1.08	1.16	1.26	1.43
	South	24.20	1.00	1.01	1.03	1.06	1.12	1.21
	Rocky Mountain	6.70	1.06	1.11	1.17	1.26	1.41	1.64
	Pacific	11.40	1.06	1.27	1.51	1.75	1.97	2.16
	National	77.30	1.01	1.08	1.17	1.27	1.39	1.55
Trips	North	27.50	0.97	0.90	0.88	0.86	0.86	0.80
	South	19.90	1.00	1.05	1.11	1.19	1.27	1.38
	Rocky Mountain	5.30	1.06	1.17	1.32	1.52	1.79	2.17
	Pacific	8.70	1.07	1.27	1.49	1.71	1.82	2.04
	National	61.50	1.01	1.03	1.10	1.17	1.23	1.30
Participation	North	6.90	0.97	0.94	1.01	0.93	0.94	1.00
	South	4.90	1.01	1.01	1.02	1.04	1.09	1.18
	Rocky Mountain	1.10	1.04	1.10	1.19	1.24	1.36	1.52
	Pacific	2.30	1.05	1.20	1.30	1.52	1.73	1.97

For decades recreationists have combed the beaches of Fire Island National Seashore, located along the New York City coastline. Of the coastline surrounding the city, only Fire Island remains relatively wild, roadless, and isolated. Photo courtesy of USDI National Park Service. Photo by Richard Frear.

Rafting

Rafting and floating projections are reported in Table VI.9. Nationally, the number of annual days spent rafting should increase about 10 percent faster than the population. The number of participants and primary-purpose trips, while increasing, will fall short of increases in population, indicating that fewer primary-purpose trips will be taken per capita and that the proportion of people rafting and floating will diminish somewhat.

These results are somewhat contrary to an apparent dramatic increase in this sport in recent years and may suggest a leveling after recent rapid growth. Nevertheless, fairly sizable increases are expected in the Rocky Mountain and Pacific Coast regions.

Visiting Beaches and Watersides

The final activity in the water-based section is visiting a beach or waterside. This activity is extremely popular and an essential ingredient for partaking of other activities in this section. Currently, an estimated 124.4 million people above the age of 16 report at least one visit annually to a beach or waterside. Moreover, this participation led to approximately 3,187.9 million days and 1,667.1 million primary-purpose trips in 1995. Not surprisingly, highest per-capita day and trip numbers are from the Pacific Coast region, but the North and South regions are fairly close behind and, because of greater populations, account for the majority of days and trips to a beach or waterside.

Indexed projections for beach and waterside participation, days, and trips are reported in Table VI.10. Nationally, participation is expected to outstrip population increases to 2050, and all regions will experience increases in participation at rates faster than population growth. Interestingly, by 2050 over 75 percent of the population 16 and over will make at least one visit per year to recreate at a beach or waterside.

Table VI.10: Baseline Estimates and Projected Indexes of Change in Days, Trips, and Participants for Visiting a Beach or Waterside, by Region and Decade, 1995-2050

Unit Visiting a Beach or Waterside	Region	Projection Index 1995	2000	2010	2020	2030	2040	2050
Days	North	1319.70	1.01	1.07	1.15	1.22	1.28	1.36
	South	1037.50	1.05	1.16	1.28	1.41	1.55	1.69
	Rocky Mountain	128.00	1.06	1.17	1.29	1.42	1.54	1.67
	Pacific	706.20	1.08	1.24	1.39	1.55	1.73	1.92
	National	3187.90	1.03	1.10	1.17	1.25	1.47	1.59
Trips	North	673.50	1.00	1.01	1.05	1.08	1.11	1.17
	South	536.80	1.05	1.11	1.18	1.27	1.33	1.44
	Rocky Mountain	80.00	1.06	1.23	1.40	1.58	1.68	1.96
	Pacific	382.10	1.08	1.22	1.35	1.49	1.59	1.80
	National	1667.10	1.03	1.10	1.17	1.25	1.31	1.42
Participation	North	57.70	1.01	1.09	1.17	1.28	1.35	1.45
	South	37.70	1.07	1.20	1.30	1.48	1.62	1.76
	Rocky Mountain	8.30	1.07	1.20	1.30	1.48	1.62	1.75
	Pacific	20.70	1.08	1.21	1.33	1.46	1.60	1.72
	National	124.40	1.05	1.15	1.24	1.38	1.49	1.61

Days and primary-purpose trips to beaches or watersides will also increase faster than population growth, with the exception of trips originating in the North. The biggest relative increase in days, 92 percent, will be in the Pacific Coast. The largest relative increase in primary-purpose trips will be 96 percent in the Rocky Mountain region.

Overall, the four major water recreation pursuits discussed in this section—canoeing, motorboating, nonpool swimming, and rafting—will experience an increase in the number of participants and an increase in participation intensity over the next 55 years. In most cases, the increase in participation, days, and primary-purpose trips will proceed at about the rate of population growth. Rafting will experience overall national growth but a slight decline in per capita participation in the populous North and South. Motorboating and nonpool swimming will remain the most popular water sports. The biggest relative increase in days of participation will occur in canoeing. Primary-purpose trips will, in general, lag population growth. Combined with increases in participation and days, this may indicate a trend to more multipurpose trips or a tendency toward longer trips.

Growth in income appears to be the factor most responsible for the projected increases in water recreation. Sex is also an important factor, but has little effect on projections because of the long-term stability of the sex ratio in the population. Growth is buffered by decreasing relative availability of water recreation venues and the increase of nonwhite members of the population who, in terms of current behavior, appear to prefer alternative outlets for recreation.

Wildlife-related Activities

In this section, we combine a number of smaller categories of wildlife-related recreation into three main groups—fishing, hunting, and nonconsumptive wildlife activity. Fishing and hunting are traditional consumptive forms of wildlife recreation, although an increasing number of people are participating in catch and release fishing. Nonconsumptive wildlife activity includes various forms of wildlife viewing such as birdwatching and wildlife photography.

Fishing

Fishing as a general category includes warm and cold freshwater species, saltwater and anadromous species, and catch-release fishing. Ice fishing, with about a two-percent participation rate nationally, was not included as day and trip data were unavailable in the NSRE. Nationally, participation in fishing is expected to increase 36 percent over the next 52 years, marginally less than projected population growth of 44 percent

(Table VI.11). The Rocky Mountain region will see the biggest relative increase in fishing, 57 percent, while the North will see the slowest growth in participation at 27 percent. The North and South will remain responsible for generating most of the fishing activity because of their large populations and high proportions of individuals participating in fishing (30 percent). Per-capita participation in fishing is projected to remain constant in all regions except the Pacific Coast, where a decline of 3.5 percent is forecast. Overall participation for those 16 and older is expected to grow from about 57.9 million today to about 79 million in 2050.

Table VI.11: Baseline Estimates and Projected Indexes of Change in Days, Trips, and Participants for Fishing, by Region and Decade, 1995-2050

Unit Fishing	Region	Projection Index 1995	2000	2010	2020	2030	2040	2050
Days	North	451.00	1.00	1.05	1.11	1.15	1.16	1.15
	South	491.50	1.02	1.11	1.19	1.26	1.29	1.29
	Rocky Mountain	76.00	1.05	1.16	1.28	1.40	1.50	1.59
	Pacific	119.10	1.05	1.16	1.25	1.33	1.40	1.44
	National	1135.40	1.02	1.09	1.17	1.23	1.26	1.27
Trips	North	367.50	0.99	0.99	1.01	1.01	0.97	0.95
	South	395.00	1.01	1.03	1.06	1.08	1.07	1.04
	Rocky Mountain	61.40	1.08	1.14	1.23	1.32	1.39	1.46
	Pacific	98.50	1.09	1.10	1.15	1.89	1.27	1.22
	National	919.50	1.03	1.05	1.10	1.12	1.14	1.13
Participation	North	25.60	1.00	1.05	1.12	1.17	1.21	1.27
	South	20.20	1.04	1.11	1.19	1.24	1.31	1.38
	Rocky Mountain	4.60	1.05	1.16	1.26	1.38	1.48	1.57
	Pacific	7.50	1.05	1.12	1.20	1.23	1.30	1.38
	National	57.90	1.03	1.09	1.17	1.23	1.29	1.36

Days of fishing should increase by about 27 percent nationally from an estimated current level of 1,135.4 million to about 1,442 million by the year 2050. The largest relative increase will be in the Rocky Mountain region at 59 percent, but the North and South will continue to account for upwards of 70 percent of all fishing days.

As with a number of other outdoor recreation pursuits, trips for the primary-purpose of fishing will not grow as fast as either participants or days. Nationally, the growth in fishing trips is estimated at about 13 percent over the next 52 years. In fact, in the North a decline of five percent over the same time period is forecast. Again, coupled with the increase in days, this could mean that fishing complements other activities on multipurpose trips or that trip lengths will be increasing.

Fishing model parameter estimates for participants, days, and trips indicate a strong negative relationship between fishing and population density, suggesting a decline in the activity as urbanization continues. Also, unlike winter and other water-based recreation, race does not affect participation very much, indicating the multiracial nature of this sport. Perhaps most important is the negative effect of income on many of the fishing models. The projected 88-percent increase in real income over the next 52 years has a strong negative influence on fishing activity.

Hunting

In this section, big game, small game, and migratory bird hunting are combined into a general hunting category. Hunting appears to be in a decline in popularity for those 16 and older. Nationally, it is projected that the next 52 years will see a reduction in the number of hunting participants by 11 percent, from today's level of nearly 19 million to about 16.5 million (Table VI.12). As a proportion of the general population, the decline is more apparent. The Rocky Mountain region will experience an increase in hunters of about 20 percent while the number of hunters in the North will remain constant. Participation will decline by about 35 percent in the Pacific Coast and South regions.

Table VI.12: Baseline Estimates and Projected Indexes of Change in Days, Trips, and Participants for Hunting, by Region and Decade, 1995-2050

Unit Hunting	Region	Projection Index 1995	2000	2010	2020	2030	2040	2050
Days	North	193.70	0.98	1.01	1.05	1.09	1.10	1.12
	South	150.90	0.92	0.89	0.86	0.82	0.76	0.70
	Rocky Mountain	34.50	1.00	1.05	1.10	1.15	1.18	1.22
	Pacific	36.00	0.94	0.95	0.96	0.95	0.88	0.81
	National	416.30	0.96	0.97	0.99	1.00	0.99	0.98
Trips	North	140.40	1.01	1.04	1.10	1.16	1.18	1.22
	South	112.40	1.02	0.92	0.91	0.88	0.83	0.78
	Rocky Mountain	26.60	1.09	1.06	1.12	1.19	1.26	1.35
	Pacific	26.00	1.05	0.86	0.82	0.77	0.69	0.62
	National	305.50	1.02	0.99	1.03	1.05	1.05	1.06
Participation	North	8.40	0.98	0.97	0.98	0.98	0.98	0.99
	South	6.50	0.93	0.82	0.74	0.68	0.65	0.64
	Rocky Mountain	2.00	1.01	1.05	1.12	1.22	1.16	1.20
	Pacific	1.70	0.94	0.85	0.79	0.73	0.67	0.64
	National	18.60	0.97	0.93	0.91	0.89	0.88	0.89

Hunting days should remain stable over the next half century in spite of the decline in participants. North and Rocky Mountain regions are projected to generate increases of 12 and 22 percent, while the South and Pacific Coast region will produce 30 and 19 percent fewer hunting days, respectively.

Primary-purpose trips for hunting are expected to increase slightly, 6 percent nationally, through 2050. As with days, the North and the Rocky Mountain region will generate increases in hunting trips of 22 and 35 percent, respectively. The increase in trips relative to days could signal that trip duration may shorten somewhat. The South will see a decline of 22 percent, while the Pacific Coast could see a reduction of 38 percent.

Hunting model parameter estimates suggest that the factors most closely related to hunting behavior are sex, race, and population density. While the percent of males in the population will remain stable, the increase in nonwhites will cause a decline in the sport. More importantly, the increase in population density will decrease the number of people living rural lifestyles and reduce available hunting venues. As a result, numbers of participants will decline in all regions except the Rocky Mountain region. Hunting days and hunting trips should increase for the North and Rocky Mountain regions, while decreasing in the South and Pacific Coast regions.

Nonconsumptive Wildlife Activities

This class of activities includes birdwatching, photography, and other forms of wildlife viewing. It claims upward of 116.7 million participants aged 16 and older across the country (Table VI.13). Participation in nonconsumptive wildlife activities is expected to increase 61 percent nationally over the next 52 years. In all regions, the number of participants should increase more rapidly than the population, with the largest relative increase coming in the South.

Table VI.13: Baseline Estimates and Projected Indexes of Change in Days, Trips, and Participants for Nonconsumptive Wildlife Activities, by Region and Decade, 1995-2050

Unit	Region	Projection Index 1995	2000	2010	2020	2030	2040	2050
Nonconsumptive Wildlife Activities								
Days	North	3319.30	1.04	1.22	1.44	1.63	1.72	1.76
	South	2322.10	1.09	1.32	1.59	1.85	2.06	2.20
	Rocky Mountain	578.90	1.09	1.28	1.49	1.68	1.84	1.94
	Pacific	838.50	1.10	1.33	1.58	1.82	2.01	2.14
	National	7057.10	1.07	1.27	1.51	1.73	1.88	1.97
Trips	North	1154.40	0.96	1.02	1.09	1.09	1.02	0.90
	South	746.30	1.04	1.08	1.14	1.18	1.17	1.11
	Rocky Mountain	180.60	1.08	1.11	1.16	1.21	1.26	1.30
	Pacific	212.80	1.03	1.23	1.39	1.53	1.61	1.62
	National	2277.10	1.00	1.07	1.15	1.18	1.15	1.08
Participation	North	56.00	1.01	1.10	1.21	1.30	1.35	1.40
	South	34.20	1.07	1.22	1.38	1.54	1.71	1.86
	Rocky Mountain	9.60	1.07	1.20	1.30	1.47	1.89	1.70
	Pacific	16.70	1.08	1.23	1.37	1.52	1.65	1.77
	National	116.70	1.04	1.16	1.29	1.41	1.51	1.61

Days of nonconsumptive wildlife activity are expected to increase by 97 percent nationally. The increases are similar across all regions but the biggest relative increases, 114 and 120 percent, are projected for the Pacific Coast and South, respectively.

Primary-purpose nonconsumptive wildlife trips are also projected to increase nationally, but at a rate well below population growth. In fact, in the North the number of trips is expected to decline by 10 percent over the next 52 years. The discrepancy between the tremendous increase in days and the relatively small increase in primary-purpose trips could be explained by the complementary or incidental nature of nonconsumptive wildlife activity in multipurpose recreation trips (U.S. Fish & Wildlife Service, 1997).

Race is not a strong predictor of nonconsumptive wildlife activity. Sex is a strong predictor, since women are more likely to be participants than men. The largest factor contributing to the increase in nonconsumptive wildlife recreation, however, appears to be the increasing age of the population.

Wildlife-related outdoor recreation will continue to be enjoyed by large numbers of Americans. Of the three general forms discussed above, nonconsumptive wildlife activity should experience the greatest relative growth in participation over the next 52 years. Fishing should provide about the same percentage increase in primary-purpose trips as nonconsumptive wildlife activity. Currently, fishing provides about twice as many primary-purpose trips as nonconsumptive wildlife activities and about three times as many trips as the various forms of hunting combined. The biggest relative increase in days for any of the wildlife-related activities will be in nonconsumptive wildlife activity. This growth is probably due to the complementary nature of this activity with other forms of outdoor recreation and to the year-round opportunities to observe wildlife.

Dispersed Land Activities

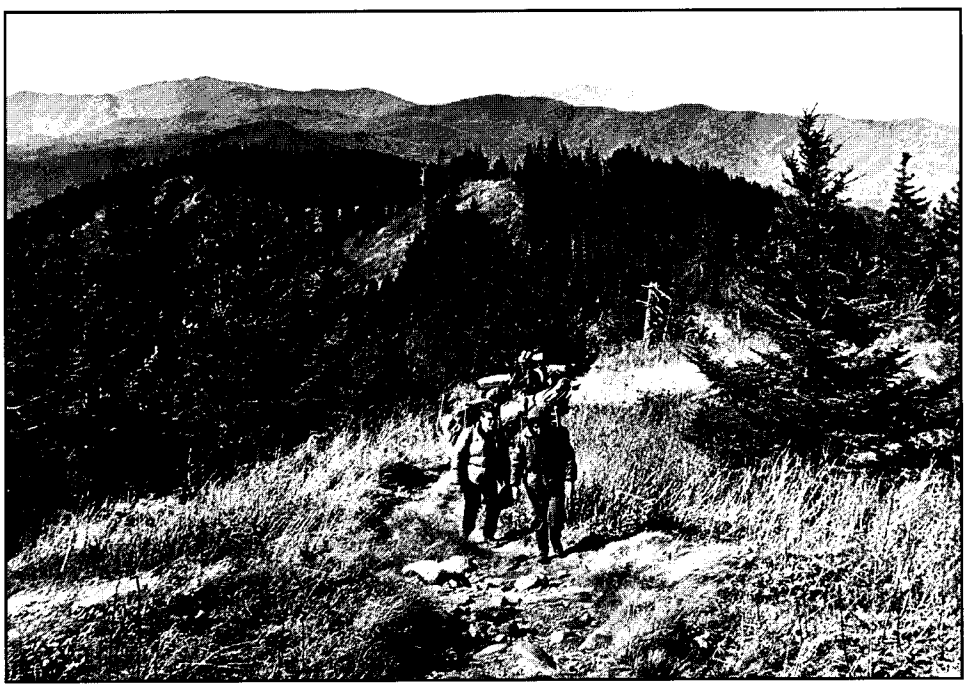
In this section, we report projections to 2050 for a number of dispersed land activities including backpacking, hiking, horseback riding, off-road driving, primitive camping, and rock climbing. In general, with the exception of horseback riding, these activities take place primarily in undeveloped or less developed outdoor environments. Except for primitive camping, these activities fall into the "Outdoor Adventure" category in Chapter V.

Backpacking

Backpacking is closely identified with undeveloped areas. Currently, an estimated 15 million outdoor enthusiasts across the country backpack. About 12 percent of the population over 16, living in the Rocky Mountain and Pacific Coast regions, enjoy this activity. Over the next half century, participation in backpacking is projected to increase by 26 percent (Table VI.14). The sport will grow at about the same rate as the population in the South, Rocky Mountain, and Pacific Coast regions, while decreasing about six percent in the North.

Table VI.14: Baseline Estimates and Projected Indexes of Change in Days, Trips, and Participants for Backpacking, by Region and Decade, 1995-2050

Unit Backpacking	Region	Projection Index 1995	2000	2010	2020	2030	2040	2050
Days	North	53.90	0.98	0.95	0.96	0.98	1.00	1.08
	South	25.20	1.01	1.23	1.48	1.76	2.03	2.31
	Rocky Mountain	14.50	1.00	1.03	1.07	1.11	1.17	1.24
	Pacific	36.40	1.03	1.11	1.17	1.22	1.25	1.26
	National	129.70	1.00	1.08	1.15	1.23	1.32	1.36
Trips	North	35.20	0.98	0.95	0.96	0.98	1.00	1.08
	South	15.60	1.06	1.30	1.66	2.08	2.21	2.87
	Rocky Mountain	8.70	1.03	1.07	1.13	1.21	1.25	1.38
	Pacific	19.70	1.09	1.08	1.11	1.14	1.22	1.22
	National	79.20	1.02	1.03	1.08	1.14	1.20	1.30
Participants	North	6.00	0.96	0.93	0.99	0.91	0.91	0.94
	South	3.60	1.01	1.08	1.15	1.23	1.31	1.42
	Rocky Mountain	1.80	1.03	1.11	1.18	1.28	1.38	1.51
	Pacific	3.80	1.05	1.12	1.23	1.24	1.34	1.46
	National	15.20	1.00	1.04	1.11	1.12	1.18	1.26



Backpackers hike along the Appalachian Trail through the Great Smoky Mountains in Tennessee. Photo courtesy of USDI National Park Service. Photo by Richard Frear.

Backpacking days are expected to increase faster than the rate of population growth in all regions. Primary-purpose backpacking trips, like days, are expected to increase nationally at a rate faster than population growth. With the exception of what appears to be a large increase in the South, growth in backpacking trips should be less than population growth in all other regions.

Race and income appear to be prime factors driving the backpacking forecasts. In general, an increase in nonwhites in the population will retard the growth of backpacking. Income, while insignificant in many models, appears to be the major factor leading to the large projected increases in days and trips in the South. Since income is not as statistically significant in the South models, the large projected increases in that region should be viewed with some suspicion.

Hiking

Like backpacking, hiking has long been a symbol of dispersed outdoor recreation. Of the "Outdoor Adventure" activities reported in Chapter V, it is the most popular, accounting for close to 50 million participants, 804.7 million days, and about 557.7 million primary-purpose trips in 1995 (Table VI.15). Nationally, hiking activity can be expected to increase marginally faster than population growth. Participation in hiking will increase from about 31 percent in the North to approximately 80 percent in the South and Pacific Coast regions.

Table VI.15: Baseline Estimates and Projected Indexes of Change in Days, Trips, and Participants for Hiking, by Region and Decade, 1995-2050

Unit Hiking	Region	Projection Index 1995	2000	2010	2020	2030	2040	2050
Days	North	330.30	0.99	1.04	1.11	1.17	1.19	1.23
	South	194.70	1.07	1.27	1.48	1.70	1.90	2.08
	Rocky Mountain	87.80	1.04	1.12	1.20	1.28	1.36	1.44
	Pacific	192.80	1.07	1.20	1.31	1.41	1.52	1.62
	National	804.70	1.03	1.14	1.24	1.34	1.43	1.51
Trips	North	240.60	0.98	0.97	1.01	1.02	1.01	1.00
	South	117.60	1.14	1.30	1.53	1.78	1.92	2.32
	Rocky Mountain	62.90	1.04	1.12	1.21	1.30	1.37	1.50
	Pacific	135.90	1.07	1.25	1.42	1.58	1.70	1.87
	National	557.70	1.04	1.12	1.23	1.33	1.39	1.52
Participation	North	20.60	0.99	1.04	1.11	1.19	1.24	1.31
	South	11.30	1.05	1.17	1.32	1.45	1.61	1.78
	Rocky Mountain	5.00	1.05	1.15	1.24	1.35	1.47	1.59
	Pacific	10.90	1.08	1.23	1.34	1.53	1.69	1.85
	National	47.80	1.03	1.13	1.23	1.34	1.45	1.57

Both days of hiking and primary-purpose trips will increase fastest in the South and Pacific Coast regions. The South will generate a 132-percent increase in trips by 2050, while the trips originating in the North will remain about constant over the next half century. In the South, hiking days will more than double. The large increases expected in the South should put the region on par with the North in terms of total days and total trips.

Interestingly, the supply variable for this activity is not significant for either the South or Pacific Coast regions, possibly suggesting that ample opportunities near population centers exist in both regions. The large increases projected for the South could change this relationship. Moreover, population density in many of the regional models is insignificant or significant and positive indicating that this sport is less associated with a rural lifestyle than activities like hunting, fishing, or motorboating.

Horseback Riding

Horseback riding may be considered a dispersed or developed land activity because it takes place in such diverse locations as suburban riding academies and stables, rural farms and ranches, and back country forest areas. While this activity currently has about the same number of enthusiasts as backpacking (about 15 million), it more than doubles backpacking in terms of primary-purpose trips and activity days. It is behind only hiking and off-road driving among dispersed land activities.

Based on the estimated models, participation in horseback riding is expected to increase faster than population growth in all regions, with the biggest relative increase coming in the South at 82 percent by the year 2050. Likewise, primary-purpose trips and activity days of horseback riding are expected to increase faster than the population in all regions (Table VI.16).

Table VI.16: Baseline Estimates and Projected Indexes of Change in Days, Trips, and Participants for Horseback Riding, by Region and Decade, 1995-2050

Unit Horseback Riding	Region	Projection Index 1995	2000	2010	2020	2030	2040	2050
Days	North	108.50	1.03	1.14	1.30	1.48	1.70	2.03
	South	104.10	0.97	1.06	1.15	1.23	1.26	1.27
	Rocky Mountain	48.20	1.00	1.06	1.14	1.22	1.34	1.51
	Pacific	76.70	1.00	1.10	1.21	1.34	1.49	1.70
	National	336.30	1.00	1.10	1.22	1.35	1.49	1.69
Trips	North	68.70	1.02	1.10	1.22	1.33	1.39	1.47
	South	55.00	1.02	1.20	1.43	1.67	1.78	1.97
	Rocky Mountain	23.00	1.01	1.05	1.11	1.21	1.38	1.66
	Pacific	38.00	1.00	1.18	1.37	1.59	1.82	2.09
	National	185.10	1.01	1.14	1.29	1.46	1.60	1.77
Participation	North	5.60	1.00	1.07	1.18	1.28	1.39	1.54
	South	4.70	1.04	1.15	1.28	1.42	1.60	1.82
	Rocky Mountain	1.70	1.04	1.13	1.23	1.34	1.46	1.60
	Pacific	2.40	1.05	1.18	1.29	1.46	1.61	1.77
	National	14.30	1.02	1.12	1.23	1.35	1.49	1.66

Forecast increases in this activity run somewhat contrary to trends reported in Chapter V. There is a strong positive relationship between income and riding. The forecast 88-percent increase over the 52-year period (Torgerson, 1996), suggests a large increase in horseback riding. A factor that may have led to the forecast of somewhat higher horseback riding than past trends would suggest is the lack of a buffering effect in the models from reduced availability of places to ride. In fact, for the populous North and South, no appropriate supply variable could be identified. Yet, horse riding groups make the point that trails for riding are increasingly scarce. Race influences the likelihood of horseback riding, but unlike many other outdoor recreation activities, sex is negative or insignificant in the majority of models. Horseback riding is not a male-dominated sport.

Off-Road Driving

Off-road driving is currently practiced by about 28 million Americans accounting for 522.6 million primary-purpose trips and 685.5 million activity days annually. Over 20 percent of Rocky Mountain region residents and close to 15 percent of Southern and Pacific Coast residents are involved in this activity.

Participation in this activity is expected to grow in all regions over the next half century. However, the national rate, at 16 percent, should be slower than that of population growth. The biggest increase, at 37 percent, will be in the Rocky Mountain region (Table VI.17).

Table VI.17: Baseline Estimates and Projected Indexes of Change in Days, Trips, and Participants for Off-Road Driving by Region and Decade 1995-2050

Unit Off-Road Driving	Region	Projection Index 1995	2000	2010	2020	2030	2040	2050
Days	North	308.30	0.94	0.87	0.82	0.76	0.70	0.66
	South	219.00	1.03	1.08	1.13	1.19	1.27	1.38
	Rocky Mountain	57.30	1.04	1.12	1.20	1.29	1.40	1.54
	Pacific	98.90	1.05	1.09	1.13	1.18	1.28	1.42
	National	685.50	0.99	0.99	0.99	1.00	1.03	1.07
Trips	North	211.40	0.92	0.79	0.69	0.60	0.52	0.45
	South	201.60	1.01	0.93	0.88	0.84	0.88	0.79
	Rocky Mountain	47.90	1.04	1.08	1.14	1.20	1.26	1.40
	Pacific	61.60	1.06	1.15	1.27	1.38	1.48	1.60
	National	522.60	0.98	0.91	0.86	0.82	0.82	0.78
Participation	North	11.20	0.99	0.99	1.06	1.03	1.04	1.09
	South	9.00	1.00	0.99	1.03	1.01	1.04	1.10
	Rocky Mountain	3.00	1.04	1.09	1.17	1.19	1.27	1.37
	Pacific	4.70	1.04	1.10	1.20	1.20	1.26	1.33
	National	27.90	1.00	1.02	1.05	1.06	1.10	1.16

Days of off-road driving should increase in all regions except the North, where a 34-percent decline is expected. The Rocky Mountain region will see the biggest increase in days at about 54 percent, followed by the Pacific Coast and South regions, at about 40 percent each. Nationally, the increase should be around seven percent.

Trips specifically for off-road driving are expected to increase in the Rocky Mountain and Pacific Coast regions, while decreasing by more than 50 percent in the North and by about 22 percent in the South. Overall, a 16-percent decrease is forecast nationally.

The two most apparent factors causing declining numbers of trips in the North and South appear to be age and income (TA VI.A). In the North, this sport appears to be more popular among lower income people. Hence, in a forecasting model, increasing income causes a drop in the number of trips. The activity also appears more popular with people who are younger than average. Thus as average age increases, the predicted number of trips decreases. The same is true for the South, but to a lesser extent.

Primitive Camping

Camping in primitive areas, while more popular than backpacking, lags behind many of the other dispersed land activities. It accounts for around 258.6 million days and 146.6 million primary-purpose trips annually. The number of participants in primitive camping should increase about 10 percent nationally through 2050. Increases will occur in the Rocky Mountain and Pacific Coast regions, while the North will experience a 16-percent decline from current levels (Table VI.18).

Table VI.18: Baseline Estimates and Projected Indexes of Change in Days, Trips, and Participants for Primitive Camping, by Region and Decade, 1995-2050

Unit	Region	Projection Index						
Primitive Camping		1995	2000	2010	2020	2030	2040	2050
Days	North	86.30	0.95	0.93	0.91	0.87	0.81	0.75
	South	80.70	0.97	0.97	0.99	1.00	0.99	0.97
	Rocky Mountain	34.60	1.01	1.09	1.15	1.22	1.26	1.29
	Pacific	57.50	1.07	1.26	1.46	1.67	1.88	2.08
	National	258.60	1.00	1.05	1.11	1.17	1.21	1.24
Trips	North	47.50	0.96	0.92	0.91	0.87	0.81	0.75
	South	50.90	1.02	1.00	1.02	1.02	1.07	0.94
	Rocky Mountain	21.30	1.04	1.06	1.11	1.15	1.21	1.20
	Pacific	27.60	1.06	1.11	1.18	1.24	1.28	1.29
	National	146.60	1.01	1.01	1.03	1.04	1.05	1.00
Participation	North	10.90	0.96	0.92	0.98	0.87	0.84	0.84
	South	8.00	0.98	0.98	1.01	0.98	0.99	1.02
	Rocky Mountain	3.60	1.03	1.12	1.20	1.29	1.37	1.44
	Pacific	5.60	1.05	1.13	1.23	1.27	1.35	1.44
	National	28.00	1.00	1.01	1.04	1.05	1.07	1.10

Nationally, days of primitive camping are projected to increase 24 percent over the forecast period. A doubling is projected for the Pacific Coast region, while a 25-percent decrease is expected in the North. The number of days of primitive camping for residents of the South should remain relatively stable.

Primary-purpose trips for primitive camping should also remain about constant nationally. As is the case for days, the North and South can be expected to see a decline from current levels, while the Rocky Mountain and Pacific Coast regions should see increases of 20 and 29 percent, respectively.

Factors affecting projections of primitive camping are similar to those for hunting and fishing. With the exception of the Pacific Coast, this activity decreases as income increases. Moreover, sex and race affect participation in that the activity is more often done by white males. It is also apparent that primitive campers are more likely to be from more rural, less-populated areas. Hence, with expected increases in income, urbanization, and non-whites in the population, primitive camping activities could decline somewhat from current levels.

Rock Climbing

Rock climbing is the least popular and most physically challenging of the dispersed land activities examined in this chapter. This activity has about the same number of participants as cross-country skiing. While the residents of the North take more rock climbing trips than those of any other region, the proportion of rock climbers in the population is highest in the Pacific Coast and Rocky Mountain regions.

Participation in rock climbing is expected to grow a little faster than the population over the next 52 years—about 50 percent nationally. This activity will grow the most rapidly (by 83 percent) in the South. The North could experience a decline of 13 percent (Table VI.19). The Rocky Mountain and the Pacific Coast regions should both see growth close to 30 percent.

Table VI.19: Baseline Estimates and Projected Indexes of Change in Days, Trips, and Participants for Rock Climbing, by Region and Decade, 1995-2050

Unit Rock Climbing	Region	Projection Index 1995	2000	2010	2020	2030	2040	2050
Days	North	13.50	0.98	1.00	1.06	1.12	1.20	1.34
	South	6.10	1.07	1.24	1.45	1.72	2.10	2.64
	Rocky Mountain	8.30	1.01	1.04	1.06	1.09	1.14	1.19
	Pacific	9.90	1.03	1.07	1.09	1.14	1.25	1.42
	National	37.70	1.01	1.07	1.15	1.24	1.39	1.60
Trips	North	10.90	0.96	0.87	0.83	0.79	0.77	0.78
	South	5.90	1.12	1.27	1.51	1.86	2.43	3.40
	Rocky Mountain	8.70	1.05	1.05	1.07	1.11	1.16	1.24
	Pacific	8.30	1.06	1.09	1.14	1.23	1.40	1.65
	National	34.00	1.02	1.00	1.03	1.09	1.19	1.38
Participation	North	3.00	0.96	0.91	0.97	0.86	0.85	0.87
	South	1.80	1.06	1.19	1.32	1.47	1.64	1.83
	Rocky Mountain	1.00	1.03	1.06	1.15	1.13	1.19	1.28
	Pacific	1.70	1.03	1.06	1.16	1.12	1.21	1.34
	National	7.50	1.03	1.10	1.21	1.26	1.36	1.50

Nationally, days and primary-purpose rock climbing trips should both increase about 60 percent and 38 percent, respectively, over the coming half century. Major increases for both trips and days are forecast for the South, while the North may see a decrease in the number of trips by around 20 percent. The Pacific Coast region will also see an increase in trips that exceeds population growth.

The statistical models project growth in the Pacific Coast and South because of positive relationship between income and involvement in this activity. These relationships do not appear to hold in the North or the Rocky Mountain region. As with a number of other outdoor–dispersed land activities, race is a strong explanatory variable.

Developed Land Activities

Participation projections are reported for seven land-based activities that occur in developed settings. These activities include developed camping, biking, family gathering, visiting historical places, picnicking, sightseeing, and walking. Four of these (family gathering, picnicking, sightseeing, and walking) are among the five most popular activities in the nation. Together, these seven developed land activities account for over 20 billion activity days.

Biking

Nationally, the number of biking participants is expected to grow by 70 percent by the middle of the next century. In the South, the percentage growth in participants is expected to be greatest, with the number of participants nearly doubling in the next 52 years (Table VI.20). Although percentage growth in the North will be the lowest among the regions (58 percent increase), the greatest increase in absolute number of participants will occur in that region.

Table VI.20: Baseline Estimates and Projected Indexes of Change in Days, Trips, and Participants for Biking, by Region and Decade, 1995-2050

Unit Biking	Region	Projection Index 1995	2000	2010	2020	2030	2040	2050
Days	North	1055.20	1.01	1.09	1.19	1.29	1.40	1.55
	South	599.60	1.08	1.21	1.36	1.53	1.74	1.98
	Rocky Mountain	180.30	1.04	1.13	1.21	1.29	1.36	1.42
	Pacific	400.90	1.06	1.16	1.24	1.33	1.43	1.55
	National	2237.00	1.04	1.14	1.25	1.36	1.49	1.66
Trips	North	656.20	1.03	1.17	1.35	1.52	1.67	1.85
	South	362.00	1.12	1.33	1.59	1.88	2.20	2.54
	Rocky Mountain	115.30	1.05	1.10	1.17	1.26	1.36	1.48
	Pacific	250.40	1.14	1.34	1.60	1.89	2.23	2.60
	National	1386.80	1.08	1.24	1.45	1.67	1.90	2.16
Participation	North	27.90	1.01	1.10	1.17	1.33	1.43	1.58
	South	15.20	1.07	1.22	1.38	1.55	1.74	1.95
	Rocky Mountain	4.50	1.05	1.17	1.26	1.40	1.53	1.65
	Pacific	9.80	1.06	1.19	1.29	1.41	1.53	1.65
	National	57.40	1.04	1.15	1.28	1.41	1.54	1.70

The national number of days of biking participation is expected to increase by nearly 70 percent between 1998 and 2050. Regionally, the percentage growth in days of participation will be slightly less than growth in participants for all regions except the South. In the South, since participation is possible year-round for the most part, participation days will increase slightly faster than participant growth. Nevertheless, residents of the North will continue to account for more days of participation than will residents of any other region.

Trips for biking are expected to more than double in the next 52 years for the nation as a whole. In both the South and Pacific Coast regions, the number of trips taken for biking in 2050 is expected to be more than 2.5 times the current level. By comparison, an increase in the number of trips of fewer than 50 percent is expected for Rocky Mountain region residents. Residents of the North and South will continue to account for over two-thirds of all biking trips.

Developed Camping

In 1995, about 41.5 million people participated in developed camping (see Chapter V). Over the next 52 years, this number is expected to increase by about 50 percent (Table VI.21). Participant growth will be very uneven across regions. The number of participants will nearly double in the South, while increasing less than 10 percent in the North. These regional differences in rates are directly tied to differences in the estimated relation between income and participation. For example, in the South and Pacific Coast, income has a strong and positive relationship on the likelihood of participation. As income rises, therefore, so does participation. In the North, however, income growth exerts a slightly downward influence on participation projections. Currently, there are more participants in the North than in any other region. By 2050, it is expected that more participants will live in the South than in any other region.

Table VI.21: Baseline Estimates and Projected Indexes of Change in Days, Trips, and Participants for Developed Camping, by Region and Decade, 1995-2050

Developed Camping Unit	Region	Projection Index						
		1995	2000	2010	2020	2030	2040	2050
Days	North	195.00	1.00	1.09	1.19	1.27	1.31	1.32
	South	115.50	1.10	1.37	1.68	2.03	2.41	2.82
	Rocky Mountain	39.30	1.04	1.14	1.25	1.35	1.43	1.50
	Pacific	92.90	1.07	1.23	1.39	1.56	1.73	1.88
	National	442.40	1.04	1.19	1.36	1.53	1.68	1.83
Trips	North	88.50	0.99	1.06	1.16	1.24	1.28	1.34
	South	56.70	1.09	1.38	1.74	2.16	2.66	3.28
	Rocky Mountain	19.10	1.04	1.14	1.25	1.35	1.44	1.51
	Pacific	45.30	1.03	1.11	1.19	1.26	1.33	1.41
	National	209.60	1.03	1.15	1.30	1.46	1.62	1.80
Participation	North	18.00	0.98	1.11	1.04	1.06	1.07	1.09
	South	10.70	1.06	1.22	1.34	1.58	1.77	1.97
	Rocky Mountain	4.00	1.03	1.16	1.17	1.23	1.29	1.34
	Pacific	8.80	1.06	1.19	1.32	1.45	1.59	1.73
	National	41.50	1.02	1.12	1.19	1.30	1.39	1.49

Days of participation in developed camping are expected to increase by over 80 percent from 1995 to 2050. This rise is led by an increase of over 2.8 times current levels in the South. In all regions, activity days will increase more rapidly than numbers of participants. This growth is especially true in the eastern regions. In the North, percentage growth in activity days is more than three times the rate of participant growth. In the South, activity days are expected to grow twice as fast as participants. This comparison indicates that people who camp in developed campgrounds will do so more often in the future than they do now.

The number of trips for developed camping is expected to increase 80 percent from 1995 to 2050. In the South, the number of trips is expected to triple in the next 52 years. In all other regions, trips will grow between 34 and 51 percent during the same time period. Since the number of trips grows at the same rate as the number of days, we expect the average length of a camping trip will remain stable in the future.

Family Gathering

Family gathering in the outdoors ranks among the four most popular outdoor recreation activities in the country. Between now and 2050, about a 60-percent increase is expected in the number of people who participate in this activity (Table VI.22). In each region, the percentage increase in participation outpaces population growth, indicating that the proportion of the population that participates in this activity will increase in the future. There is expected to be a 41-percent increase in the number of participants who live in the North, a 65-percent increase in both western regions, and a 76-percent increase in participants from the South. Even though percentage growth will be slowest in the North, in 2050 that region will still be the home for over 40 percent of all participants in this activity.

Table VI.22: Baseline Estimates and Projected Indexes of Change in Days, Trips, and Participants for Family Gathering, by Region and Decade, 1995-2050

Family Gathering Unit	Region	Projection Index 1995	2000	2010	2020	2030	2040	2050
Days	North	500.80	1.01	1.07	1.15	1.21	1.27	1.34
	South	311.20	1.06	1.18	1.30	1.43	1.58	1.75
	Rocky Mountain	92.30	1.06	1.18	1.30	1.42	1.54	1.65
	Pacific	180.40	1.07	1.19	1.29	1.40	1.54	1.71
	National	1084.50	1.04	1.13	1.23	1.32	1.42	1.54
Trips	North	400.70	0.92	0.76	0.65	0.55	0.46	0.40
	South	240.40	1.01	0.92	0.85	0.81	0.86	0.77
	Rocky Mountain	70.40	1.04	1.08	1.14	1.20	1.26	1.40
	Pacific	144.20	1.07	1.17	1.30	1.43	1.53	1.66
	National	855.60	0.98	0.89	0.83	0.79	0.79	0.75
Participation	North	58.10	1.02	1.09	1.16	1.26	1.33	1.41
	South	37.00	1.07	1.20	1.34	1.48	1.62	1.76
	Rocky Mountain	9.40	1.07	1.19	1.29	1.43	1.54	1.65
	Pacific	19.30	1.07	1.20	1.30	1.42	1.54	1.65
	National	123.80	1.04	1.14	1.24	1.36	1.46	1.57

Activity days for family gathering are projected to increase at about the same rate, both nationally and regionally, as participant growth. Nationally, activity days are expected to grow by 54 percent over the next 52 years. Growth in activity days is expected to be about 75 percent in the South, 71 percent in the Pacific Coast, 65 percent in the Rocky Mountain region, and 34 percent in the North.

Despite projected growth in participation and activity days, the models indicate a steady decline in the national number of trips for this activity. Curiously, there are dramatic differences between projections for western and eastern regions. In the Pacific Coast and Rocky Mountain regions, trips for the primary purpose of a family gathering are projected to increase by 66 and 40 percent, respectively. In the North and South, trips for the primary purpose of a family gathering are expected to decline by 60 and 23 percent, respectively. This difference may indicate that in the eastern regions, family gathering activities will increasingly be incidental parts of longer or multipurpose recreation trips.

Picnicking

Picnicking is enjoyed by more than half of the population over the age of 16 in the United States. Over the next 52 years, that percentage will continue to increase. The projected 54-percent increase in number of participants exceeds population growth in that age category (Table VI.23). As is the case with most developed land activities, percentage growth in participants will be the greatest in the South (80 percent), and the least in the North (35 percent).

Table VI.23: Baseline Estimates and Projected Indexes of Change in Days, Trips, and Participants for Picnicking, by Region and Decade, 1995-2050

Unit Picnicking	Region	Projection Index 1995	2000	2010	2020	2030	2040	2050
Days	North	500.80	1.00	1.07	1.16	1.22	1.24	1.23
	South	311.20	1.07	1.19	1.32	1.47	1.64	1.83
	Rocky Mountain	92.30	1.05	1.17	1.29	1.40	1.48	1.54
	Pacific	180.40	1.06	1.21	1.35	1.48	1.57	1.62
	National	1084.50	1.03	1.14	1.26	1.35	1.42	1.49
Trips	North	400.70	0.91	0.72	0.58	0.48	0.40	0.30
	South	240.40	0.94	0.76	0.65	0.57	0.52	0.49
	Rocky Mountain	70.40	1.01	0.99	1.00	1.03	1.08	1.16
	Pacific	144.20	1.06	1.15	1.26	1.38	1.47	1.57
	National	855.60	0.94	0.79	0.70	0.63	0.59	0.55
Participation	North	47.00	1.01	1.08	1.15	1.25	1.29	1.35
	South	27.40	1.06	1.21	1.38	1.52	1.67	1.80
	Rocky Mountain	8.10	1.06	1.18	1.28	1.42	1.53	1.62
	Pacific	15.80	1.07	1.20	1.31	1.44	1.54	1.63
	National	98.30	1.04	1.14	1.25	1.37	1.45	1.54

Growth in activity days for picnicking is projected to be about the same as participant growth. Nationally, a 49-percent growth in activity days is projected by 2050. In the South, the growth rate is expected to be about 83 percent during that time period. By comparison, growth in activity days for western residents is expected to be about 60 percent, and only about 23 percent for the North.

Like family gatherings, a sharp decline in the number of primary-purpose trips for picnicking is predicted for both of the eastern regions. For both of these regions, the number of primary purpose trips for picnics in 2050 will be less than half of the current levels, despite increases in both participants and activity days. In contrast, both western regions are projected to have increases in the number of trips taken by residents for the primary purpose of picnicking, including a 16-percent increase by residents of the Rocky Mountain region, and nearly a 60-percent increase by residents of the Pacific Coast region.

Picnicking remains one of the most popular outdoor activities. Photo courtesy of the USDA Forest Service.

Sightseeing

For the nation and for each region, the growth in number of sightseers is expected to be between 50 and 96 percent (Table VI.24). Overall, a 71-percent increase in the number of participants is expected between now and 2050. Percentage growth is expected to be nearly twice as high in the South as in the North.

Table VI.24: Baseline Estimates and Projected Indexes of Change in Days, Trips, and Participants for Sightseeing, by Region and Decade, 1995-2050

Unit Sightseeing	Region	Projection Index 1995	2000	2010	2020	2030	2040	2050
Days	North	904.80	1.04	1.27	1.38	1.55	1.68	1.80
	South	605.40	1.07	1.23	1.40	1.58	1.78	1.99
	Rocky Mountain	163.30	1.08	1.24	1.41	1.58	1.73	1.85
	Pacific	363.50	1.12	1.38	1.67	1.98	2.29	2.59
	National	2036.30	1.06	1.27	1.43	1.63	1.81	1.98
Trips	North	511.20	1.03	1.14	1.29	1.43	1.48	1.62
	South	379.50	1.08	1.19	1.53	1.79	1.90	2.31
	Rocky Mountain	95.00	1.07	1.23	1.40	1.57	1.66	1.90
	Pacific	225.20	1.11	1.36	1.62	1.89	2.03	2.38
	National	1209.50	1.06	1.20	1.43	1.63	1.72	1.98
Participation	North	52.30	1.02	1.11	1.23	1.33	1.41	1.50
	South	33.90	1.08	1.25	1.43	1.61	1.79	1.96
	Rocky Mountain	8.70	1.07	1.21	1.32	1.49	1.63	1.74
	Pacific	18.50	1.09	1.26	1.42	1.58	1.74	1.87
	National	113.40	1.05	1.18	1.32	1.47	1.59	1.71

The number of activity days for sightseeing is expected to double in the U.S. by 2050. Activity days by residents of the Pacific Coast region will increase 260 percent. However, the relatively small number of participants in that region means that the national average will be closer to the growth rate in the North and South. Even in the slower-growing North, however, activity days are expected to increase by about 80 percent.

Sightseeing trips are also expected to double nationally over the next 52 years. Trips taken by residents of the North and Rocky Mountain regions will not quite double in that period. However, in the South and Pacific Coast regions, the number of trips taken by residents for sightseeing will increase by more than 130 percent of current levels.

Visiting Historic Places

The number of people who visit historical places is expected to increase steadily by 13 to 17 percent of the 1995 total during each 10-year period from the turn of the century to 2050 (Table VI.25). By 2050, the total number of participants will be more than 75 percent above 1995 levels. Both the South and Rocky Mountain regions will show growth above the national average. Even in the North and Pacific Coast regions, which will have the lowest levels of growth, rates of increase in numbers of participants will be greater than population growth.

Table VI.25: Baseline Estimates and Projected Indexes of Change in Days, Trips, and Participants for Visiting Historic Places, by Region and Decade, 1995-2050

Visiting Historic Places Unit	Region	Projection Index 1995	2000	2010	2020	2030	2040	2050
Days	North	203.20	1.03	1.20	1.42	1.60	1.71	1.79
	South	172.90	1.11	1.35	1.63	1.97	2.36	2.83
	Rocky Mountain	38.70	1.07	1.23	1.40	1.57	1.72	1.84
	Pacific	68.40	1.09	1.23	1.37	1.52	1.70	1.89
	National	482.40	1.07	1.26	1.48	1.71	1.93	2.16
Participation	North	40.80	1.02	1.13	1.20	1.38	1.47	1.59
	South	26.90	1.08	1.28	1.48	1.70	1.90	2.09
	Rocky Mountain	6.90	1.08	1.23	1.34	1.54	1.69	1.83
	Pacific	13.80	1.08	1.22	1.33	1.46	1.58	1.68
	National	88.40	1.06	1.19	1.32	1.49	1.63	1.76

Across the country, activity days spent visiting historic places will increase at a steady rate. In the South, growth in days of activity for visiting historic places will be much greater than for the other three regions, doubling in a little more than 35 years. Growth in the other three regions will be roughly equal—about 80 percent over the next 52 years.

Walking

Walking is also among the four most popular activities in the United States, with over 140 million participants. Over the next 52 years, growth in the number of participants will be at roughly the same level as population growth (Table VI.26). However, participant growth rates will not be even across regions. Participant growth will be about 64 percent in the Rocky Mountain region and about 73 percent in the Pacific Coast. These levels are about 10 percent higher than projected population growth. In the North, the increase in the number of participants will be about equal to the increase in the total population. In contrast, in the South the number of participants is expected to grow by about 34 percent in 52 years, while the population grows 53 percent.

Table VI.26: Baseline Estimates and Projected Indexes of Change in Days, Trips, and Participants for Walking, by Region and Decade, 1995-2050

Unit Walking	Region	Projection Index 1995	2000	2010	2020	2030	2040	2050
Days	North	6568.70	1.04	1.14	1.27	1.37	1.44	1.52
	South	4395.40	1.07	1.20	1.33	1.47	1.60	1.72
	Rocky	1077.70	1.06	1.15	1.24	1.32	1.37	1.40
	Pacific	2340.60	1.09	1.22	1.34	1.46	1.58	1.68
	National	14381.40	1.06	1.17	1.29	1.40	1.50	1.58
Participation								
	North	62.60	1.01	1.07	1.15	1.22	1.27	1.33
	South	40.00	1.03	1.07	1.11	1.16	1.23	1.34
	Rocky Mountain	10.00	1.06	1.18	1.28	1.41	1.53	1.64
	Pacific	21.10	1.08	1.23	1.34	1.49	1.62	1.73
	National	133.70	1.03	1.12	1.21	1.30	1.39	1.46

Activity days of walking are expected to grow by about 30 percent over the next 25 years, and by an equal amount in the subsequent 30 years. Percentage growth in activity days is expected to be above the rate of participant growth for both the North (52 percent) and South (72 percent). In the western regions, the percentage growth in activity days will be less than the growth in participants.

In general, the number of participants in developed land activities will increase at least as fast as population growth rates for the next half century. Thus, we can expect an increasing proportion of the U.S. population to engage in this type of recreation activity. In the South the proportion will grow the fastest for most of these activities. Fewer primary-purpose trips for several activities combined with increases in activity days indicate that these activities increasingly will be parts of multipurpose recreation trips. Projections for developed camping indicate a continuation of the trend of the last 30 years: a departure from multiple-week vacation trips and toward weekend and long-weekend trips for many Americans.

KEY FINDINGS

National

The five fastest growing outdoor recreation activities through the year 2050 measured in activity days are expected to be: visiting historic places (116 percent growth), downhill skiing (110 percent growth), snowmobiling (99 percent growth), sightseeing (98 percent growth), and nonconsumptive wildlife activity (97 percent growth). The five slowest growing outdoor recreation activities through the year 2050 as measured in activity days are expected to be: fishing (27 percent growth), primitive camping (24 percent growth), cross-country skiing (18 percent growth), off-road vehicle driving (seven percent growth), and hunting (minus-two percent growth).

In terms of annual primary-purpose trips, the five fastest growing outdoor recreation activities through the year 2050 are expected to be: downhill skiing (122 percent growth), biking (116 percent growth), snowmobiling (110 percent growth), sightseeing (98 percent growth), and developed camping (80 percent growth). The five slowest growing outdoor recreation activities as measured by primary-purpose trips are expected to be: hunting (six percent growth), primitive camping (zero percent growth), off-road vehicle driving (minus 22 percent growth), family gatherings (minus 25 percent growth), and picnicking (minus 45 percent growth).

The five fastest growing outdoor recreation activities through the year 2050 as measured by number of participants are projected to be: cross-country skiing (95 percent growth), downhill skiing (93 percent growth), visiting historic places (76 percent growth), sightseeing (71 percent growth), and biking (70 percent growth). The five slowest growing outdoor recreation activities as measured by the number of participants are projected to be: rafting (26 percent growth), backpacking (26 percent growth), off-road vehicle driving (16 percent growth), primitive camping (10 percent growth), and hunting (minus 11 percent growth).

Regional

Growth in activity days should be fairly consistent across regions—faster than population growth in every region for about 60 percent of the activities. The Pacific Coast will see the greatest number of activities for which primary-purpose trips grow faster than the population, about 13 out of 22. The North will see the fewest, about seven out of 22. Participants should increase in all regions faster than the population growth for at least 60 percent of the activities. The Pacific Coast will have the most activities (75 percent), growing at a rate faster than the population.

Activities

Days spent and numbers of participants in winter, water-based, and developed land activities will, in general, grow faster than the population. Hunting and fishing, along with other dispersed land activities, are not expected to increase in activity days or participation numbers as fast as the population is growing. Nonconsumptive wildlife activity is an exception to this trend; however, it is not limited to dispersed settings. With the exception of winter sports, there appears to be a general shift toward fewer primary-purpose trips per capita while at the same time more days and participants per capita.

Factors

Race and sex are important predictors of behavior for a number of outdoor activities. White males are, in general, more likely to engage in winter, water-based, hunting, and dispersed land activities, females are more likely to engage in horseback riding, picnicking, and nonconsumptive wildlife activity. Race is not an important factor in describing fishing, walking, picnicking, and nonconsumptive wildlife activity.

Population density has a strong negative effect on more rural activities like fishing, horseback riding, hunting, motorboating, off-road vehicle driving, and primitive camping. Income has a strong positive effect on activities generally considered expensive to participate in, such as downhill skiing, snowmobiling, horseback riding, motorboating, and sightseeing. Projected reductions in indexes of available supply have noticeable negative effects on the growth of land-intensive activities like hunting, hiking, off-road vehicle driving, and primitive camping.

REFERENCES

Cordell, H. K., Bergstrom, J. C., Hartmann, L. A., & English, D. B. K. (1990). *An analysis of the outdoor recreation and wilderness situation in the United States: 1989-2040.* General Technical Report RM-189. Fort Collins, CO: USDA Forest Service, Rocky Mountain Forest and Range Experiment Station.

Cordell, H. K., McDonald, B. L., Lewis, B., Miles, M., Martin, J., & Bason, J. (1996). United States of America. In G. Cushman, A. J. Veal, & J. Zuzanek (Eds.), *World leisure participation: Free time in the global village*. Oxford, England: CAB International.

Day, J. C. (1996). *Population projections of the United States by age, sex, race, and Hispanic origin: 1995 to 2050.* U.S. Bureau of the Census, Current Population Reports, P25-1130. Washington, D.C.: U.S. Government Printing Office.

Greene, W. H. (1993). *Econometric analysis* (2nd ed.). Englewood Cliffs, NJ: Prentice Hall.

Greene, W. H. (1995). *LIMDEP version 7.0 user's manual.* Bellport, NY: Econometric Software, Inc.

Hof, J. G., & Kaiser, H. F. (1983). Long-term outdoor recreation participation projections for public land management agencies. *Journal of Leisure Research, 15*(1), 1-14.

Torgerson, D. (1996, May). [Macroeconomic projections]. Unpublished memo. USDA Economic Research Service, Macroeconomics Team, Commercial Agriculture Division 1996.

U.S. Fish & Wildlife Service. (1997). *1996 national survey of fishing, hunting, and wildlife-associated recreation: National overview.* Washington, D.C.: U.S. Government Printing Office.

Walsh, R. G., Johnson, D. M., & McKean, J. R. (1992). Benefit transfer of outdoor recreation demand studies, 1968-1988. *Water Resources Research, 28*(3), 707-713.

Walsh, R. G., Jon, K. H., McKean, J. R., & Hof, J. (1992). Effect of price on forecasts of participation in fish and wildlife recreation: An aggregate demand model. *Journal of Leisure Research, 21,* 140-156.