

Outdoor Recreation Supply in the United States:
A Description of the Resources, Data, and Other Information Sources

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INTRODUCTION

More than any other trait, the supply of outdoor recreation resources in the United States is characterized by its diversity. About the only common characteristic that all recreation resources share is their dependence on land and water resources. Simply put, any land or water resource that has value to humans as an input for producing satisfying leisure experiences is a recreation resource. Such a broad definition encompasses a wide variety of resource types, settings, and attributes for outdoor recreation. It is common to think of outdoor recreation resources as occurring along a spectrum from the most wild and primitive environments to the most developed and human-influenced places. This range of resources corresponds roughly to its providers. The Federal government supplies the large majority of the most undeveloped land and water for recreation, state governments tend to specialize in what has been called “intermediate” recreation areas, and local governments and the private sector provide the bulk of highly developed recreation resources.

A primary objective of national assessments of outdoor recreation has been to describe and quantify the gamut of resources used for recreation. Typically, national assessments attempt to conduct an inventory of the physical supply situation as opposed to economic supply. Economic supply, which was coined “effective supply” by Marion Clawson (1984), takes into account the costs to consumers of using the resources. The best intuitive example is the vast amount of public land in Alaska that is not effective recreation supply to most people (in the lower 48 states) because of the prohibitive costs of using it. Though it is theoretically more appealing, measures of economic supply are not the subject of this report. The calculation of costs—the sum of travel, time, and congestion costs (Harrington 1987)—to derive economic supply

measures is both data-intensive and relatively complex to do accurately (English and Cordell 1993). Nonetheless, a reliable measure of physical supply is an essential component of economic supply. Thus, it is crucial for assessment purposes to have a reasonably accurate accounting of the amount of physical resources available for outdoor recreation.¹ Knowledge of the physical supply of resources is important information in its own right as well.

An assessment of the current situation, both the demand for and supply of recreation resources, is an essential ingredient in long-range planning and policy formulation. The first and still most comprehensive national assessment was the Outdoor Recreation Resources Review Commission (ORRRC), which was established in 1958 and issued its final report in 1962 (ORRRC 1962). The ORRRC and other assessments that followed sought to answer basic questions about outdoor recreation in the U.S.: What are the wants and needs now and in the future? What recreation resources are available to fill these needs? What policies and programs should be recommended to insure that present and future needs are met? The second of these questions relates directly to outdoor recreation supply. The crucial third question about policy-making depends on information from answers to the first two questions.

Because of the diverse nature of recreation demand and the great extent of recreation resources, it is never a trivial exercise to conduct a national assessment of outdoor recreation. Tradeoffs must be made between time and resources to do the job and the attempt to be as comprehensive as possible. The purpose of this report is to document and describe the sources of

¹Frequently, recreation demand models that include a physical supply measure as an explanatory variable implicitly convert these to an economic measure by considering only the resources located within the consumer's willingness-to-pay for recreation trips, e.g., campgrounds located within a radius of say, 200 miles.

data and information that comprised the study of outdoor recreation supply for the 1998 Renewable Resources Planning Act (RPA) Assessment of Outdoor Recreation and Wilderness. The 1998 RPA Assessment was conducted by scientists at the Southern Research Station of the USDA Forest Service and numerous cooperators.² It will be published in late 1998 as a book entitled, “Outdoor Recreation in American Life: A National Assessment of Demand and Supply Trends” (Cordell, in press-a). Further, another purpose of this report is to critically review both the limitations of the data and the process by which they were collected and analyzed. This is done with an eye toward improving future assessments—describing what worked well, what did not, and what might be done differently.

An important function of this report is the **documentation** of data and information sources used in the 1998 RPA Assessment.³ This is important not only to substantiate the results reported in the Assessment book, but also to help guide future assessments. A document which conveniently lists in an organized fashion the source of all Assessment supply data and other information should result in considerable time-savings for the future supply analyst. Having a printed list of the individual contact persons in the correct department or division of an agency or organization is especially important. Undoubtedly, many of those individuals will change jobs over the years, but the group responsible for managing the supply data is not likely to change. The act of deciding which data were relevant, searching for the appropriate agency and contact person, and actually acquiring the data accounted for a major portion of the preparation time for

²The RPA Assessment is discussed in detail in the next section.

³Detailed documentation of the data and information sources for the recreation supply chapter, “Outdoor Recreation Resources”, was originally intended to be included as a Technical Appendix in Cordell (in press-a) but was edited out due to space constraints.

the supply part of the Assessment. Data were received in a variety of formats as well, so adequate time for necessary formatting and programming were also part of the equation. This report should help give the future analyst a “head start” by eliminating unnecessary duplication of these efforts. The analyst will also be alerted to the different data formats and can plan accordingly for combining these into a single national supply database. The hopeful result of this foreknowledge is that the analyst’s time will be freed to concentrate more on the additional data or “holes” that need to be filled to tell a more complete story of outdoor recreation supply in the United States.

Most of the data described in this report might be called basic supply information, e.g., Federal land and water acreage. Any national assessment would certainly want to update this information. Other data sources described in this report, however, are relatively less important to the overall picture of recreation supply in the U.S., e.g., acreage transferred from Federal to state and local governments in the Federal Lands to Parks program. Given resources and priorities, the future analyst can decide which of the current databases are worth updating and which are not. The need for additional data should be more evident after taking stock of what has been collected in the past.

Besides documentation of source material for the 1998 RPA Assessment, this report should serve a useful purpose as a general **reference** for information about outdoor recreation supply in the U.S.⁴ In this manner, the report should assist planners and researchers studying

⁴Some additional sources of data and information about recreation resources were discovered after the RPA book (Cordell, in press-a) went to press and so are covered in this report but not in the book. Examples include data and information about Land Trusts in the United States and recreational access to private timber industry lands.

current or near-term recreation supply issues. Our critique of each data source will alert the researcher to possible problems or caveats and perhaps prompt them to search for more or better sources of data. An important point is that almost all of the data collection for the 1998 RPA Assessment was done without using the now ubiquitous World Wide Web or File Transfer Protocol of the Internet.⁵ The Southern Research Station's Forestry Sciences Laboratory was not connected to the Internet until mid-1998. Much of the data that were collected via telephone contacts and through the mail may now be available over the Internet. Still, much of it may not be available online and it may be necessary to acquire it through personal contact or to speak to a data manager if there are questions about the data.

Further, none of the 1998 RPA Assessment data collection involved Geographic Information Systems (GIS). Although GIS is the technologically superior way to process any sort of geographic data, including recreation resources, it was not an available option for this Assessment. The reader should keep in mind that the data and process of building a national database described in this report was judged to be the best methodology in the absence of GIS applications. Future assessments may decide to use a GIS approach, in which case these data may not be directly transferable. In any event, the concepts of a national recreation supply database as described in this report are still valid.

Organization of the Report—This report is organized as follows. The Introduction briefly introduced the concept of recreation supply and national recreation assessments and described the purposes of this report. The primary purpose is to provide detailed documentation for

⁵Since the completion of the 1998 RPA Assessment book, several important World Wide Web sites that are not mentioned in the book have been discovered and are highlighted in this report.

information in the supply chapter of the 1998 RPA Assessment and also to provide a general reference on outdoor recreation supply for interested planners and researchers. [Note: RPA section is moved to the Appendix 1]. The next section gives some background on the RPA Assessment of Outdoor Recreation and Wilderness as a whole in order to provide some context for our study of recreation supply. The recreation supply research is a major part of the RPA Assessment and would not exist apart from it.

The third section briefly describes the process followed to acquire and assemble the recreation supply data from a variety of sources. More than 40 separate data sets were constructed from information acquired across the spectrum of recreation resources. These “source” data sets were then summarized for each county in the United States and merged to create a single, national database of recreation resources. The programming and other technical information used to create the database are included in the Appendix. The final product was named the National Outdoor Recreation Supply Information System (NORSIS).⁶

The next five sections of this report give an in-depth description and critique of each of the source data sets. The report sections correspond to the main headings in the chapter, “Outdoor Recreation Resources”, of Cordell (in press-a). These chapter headings correspond to categories of ownership/management of recreation resources in the United States, with the source data sets described in the appropriate sections. The categories of chapter headings, in order are: Federal Land and Water Resources, Public/Private Partnership Resources, State Land and Water

⁶Not all of the source data sets were amenable to summarization at the county level. For example, units comprising the National Wilderness Preservation System were identifiable by their administrative units such as National Forest, but not broken down by the amount of wilderness resources per county. Therefore, a number of such data sets are not part of the county summary database but are considered part of the overall NORSIS.

Resources, Local Government Resources, and Private Sector Resources.

In addition to description and critique of the source data sets, a brief one to two page summary of the salient findings of the 1998 RPA Assessment is presented for each of the ownership/management categories. These concise narratives distill the essential points from all of the categories' databases and boil down the findings from the Outdoor Recreation Resources chapter in Cordell (in press-a) into a handful of pages. Each ownership/management section, therefore, can be treated as a stand-alone treatment and it is not necessary to read them in order, although as stated at the outset, the level of ownership does correspond roughly to the degree of resource development. A concluding section of the report considers outdoor recreation resources in general, and evaluates the adequacy and shortcomings of the data and information used to describe recreation supply in the 1998 RPA Assessment. Suggestions for improving future assessments are offered, including lessons learned, wish lists, and practical recommendations.

BUILDING A NATIONAL DATABASE

The task of developing a national database of outdoor recreation supply information was a process almost two years in the making. That is because the NORSIS database is composed of large parts of more than 40 "source" data sets, each a separate entity unto itself. Probably more than 95 percent of the time spent developing NORSIS was spent on these source data sets. Though certainly not trivial, it was a relatively simple matter to construct the national summary database of over 400 variables for every county in the United States once the source data sets were well in hand. It did require a rather lengthy, though not necessarily complicated, computer

program to sum the variables (which were primarily acreages or facility counts) at the county-scale, perform other miscellaneous data modifications, and finally merge all of the data together into a single database. As mentioned, however, not every source data set was capable of county-level summarization; those source data sets had to be kept separate as auxiliary databases to NORSIS. The final step of creating the single, nationwide NORSIS database is described at the end of this section. Most of the section is devoted to the process of procuring the source data sets, which enabled the construction of the national database.

The source data sets that provided the raw material for the RPA Assessment chapter on outdoor recreation supply in the United States were developed in a deliberate, painstaking manner. Each was a separate entity and involved a separate set of circumstances. However, each source data set shared the same ordered four-step process:

- 1) identification
- 2) acquisition
- 3) formatting
- 4) programming

The first two of these four steps, identification and acquisition, sort of go together as do the last two, formatting and programming. Still, they are each separate steps that depend on the previous steps. We had the benefit of having a list of supply variables that were identified for the 1989 RPA Assessment. In fact, a goal was to try and replicate the 1989 NORSIS so that trends in resource changes could be examined. Despite having that list, **identification** of the data and their sources to comprehensively cover the spectrum of recreation resources was the most difficult and time-consuming aspect. The 1989 NORSIS did not cover as many types of resources as desired and furthermore, there were no written records of agency and organization contact persons. Even

with only seven Federal land-managing agencies, identifying the keepers of the data needed was a chore. That is where the process crossed over from identification of the data needed to its acquisition.

The identification step sought to answer the basic question of what data are needed to adequately describe the outdoor recreation resource situation in the United States. Much of the identification step was based upon expert knowledge and judgment of recreation resources in general and the data needed for a reasonable accounting of these. The five resource ownership/management categories mentioned earlier provided the basic framework for adequate coverage. We understood that the availability and quality of data across these five categories would vary widely. For example, private-sector resource data have traditionally been difficult to come by, and for this Assessment that was no exception. In some cases, data identification was serendipitous; while searching for one database, we stumbled upon another one. In any event, it was straightforward that we should acquire as much data as possible about Federal and state-owned natural resources that are open for public recreation.

State resources, obviously, presented a much larger task since there are 50 state governments compared to the seven Federal agencies. This was exacerbated by the fact that every state has its own unique governmental structure with varying degrees of involvement in parks, recreation, and conservation. Nowhere was this more evident than with state wildlife and fish agencies, which are scarcely similar from state to state. And even though every state has a division of State Parks, they range widely in the amount and type of resources managed. These points demonstrate that making resource comparisons at the state level and compiling these data nationally can be tricky and somewhat deceptive. More comments will follow in the section that

gives detailed descriptions of the state data sets.

Concerns about data aggregation are increased manyfold for local governments. In the first place, there are thousands of municipal, county, and special district recreation and park agencies in the United States and just taking an accurate inventory of these departments is difficult enough. Then, the time it would take a researcher to investigate the outdoor recreation resources provided by these agencies the data would likely be out of date before he or she could finish. The result is that the most practical way to assess the local situation is to rely on a sample of local departments, anecdotal evidence, case studies, and expert opinion and observations. Based on these, the assessment analysts are able to draw conclusions about the overall picture of outdoor recreation as provided by local governments. Still, whatever data are available at the local level are highly significant since they help to tell this story. The local government section of this report describes the available data sources and other information sources used in the 1998 RPA Assessment and some that were not.

The same characteristics of local government data that make it hard to aggregate for national assessment purposes apply to data about the private sector, yet to an even greater degree. Just identifying the myriad types of recreation businesses is a challenge enough, but obtaining data about them is another matter altogether. Another factor is that data about the private sector belongs to the private sector, which means they are usually only available at a (premium) price. So, the assessment budget for data acquisition is more of a factor with private sector data than with any other kind. Unfortunately, an examination of some recreation business data from the U.S. Census Bureau's County Business Patterns revealed what we believed was a severe undercount of the businesses we observed. In our judgment, those public data were not reliable

enough to use for the 1998 RPA Assessment. The alternative was to purchase recreation business data from a private business information firm based on the Standard Industrial Classification (SIC) code. Details about this data source are provided in the private sector section. Data sources for the other major aspect of the private sector, private recreation land, are also covered in the section.

As the previous few paragraphs imply, identification of the data needed and finding their sources is really the meat of building a national recreation supply database. A major objective of this report is to present those data that have been identified as important to the national assessment in a logical and orderly fashion. This should prove very helpful to future assessment efforts, not only from the standpoint of what has been identified, but also from the perspective of what has not. Viewed within the framework of the five resource ownership/management categories, it becomes more apparent which resources were well covered in the 1998 RPA Assessment and which were not. Filling these “holes” in the data can only improve future assessments, but the reason they are holes is likely because the data were not readily available. Technological advances may make such data available in the future. It is possible, of course, that some recreation resource data may have simply been overlooked. If that is the case, the future analyst should be able to see just where it fits within the logical framework.

From the time-consuming point of data identification, the next step, **acquisition** of the data, was usually relatively straightforward. This usually involved just a telephone call to the data manager once he or she was identified, followed by delivery of the data through the mail or over

the Internet.⁷ The most common pitfall was identifying the proper division of an agency or organization and then finding the correct individual within that division. This report should help remedy that problem by clearly listing the managing groups of the various databases, although individual turnover is expected. In some cases, a formal request letter was necessary for some agencies to release their data. Others released it to the Forest Service on the condition that it would not be distributed to any other parties. Some of the data, especially from the private sector, had to be purchased so research budget is a factor in constructing the national database. Whatever the circumstances, data acquisition should be conducted with the highest ethical standards. In many cases, data collection and management requires years-long commitment and considerable expense, so showing the proper respect for other agencies' and organizations' data goes without saying.

The next two steps in the development of the recreation supply source data sets are **formatting** and **programming** of the data. These are closely related and represent what needs to be done once the data are in hand to get them in shape to construct the NORIS county-level database. Our objective was to get each of the 41 source data sets into a common format to facilitate their merger into the single national summary database. The data format we chose was the SAS Library (currently Version 6.12). The source data sets arrived at the Southern Research Station in a variety of formats: database files, spreadsheets, ascii fixed-field data sets, ascii free-field data sets, ascii comma-separated values, etc.. Formatting consisted of preparing each of

⁷As mentioned earlier, very little of the recreation supply data for the 1998 RPA Assessment was obtained via the Internet, but we suspect that almost all of it will be for the first Assessment of the 21st century.

these formats in such a way that the SAS software could read them as input.⁸

Each of the source data sets required a SAS program in order to convert them from their original format into a SAS data library. SAS libraries have the convenient feature of storing permanent variable names and variable labels. In this manner, variables that are common to more than one source data set can be assigned the same variable name. That was exactly the intent so that those data sets with location information could be merged by a common 5-digit county FIPS code.⁹ A brief SAS program had to be written for each source data set to assign the variable names and labels, create value formats for categorical variables, and perform other minor data modifications where necessary. For some of the original data sets received from agencies and organizations, it was necessary to select out the variables that were relevant to outdoor recreation resources.¹⁰ The final product was a SAS library data file for each of the 41 source data sets, which was obviously much easier to manage and work with than a variety of data formats. The most ambitious programming task involved combining the source data sets into the single, national summary database, NORsis.¹¹ This process is described briefly in the next section.

⁸This step is academic now since the latest version of SAS, Verion 6.12, has an Import/Export Wizard feature that allows for easy retrieval of nearly any kind of data set into a SAS data set. The recreation supply data programming was done using Version 6.10 and 6.11.

⁹FIPS, or Federal Information Processing System, is a U.S. Department of Commerce standard for assigning codes to state, counties, and metropolitan areas in the United States.

¹⁰For example, the U.S. Army Corps of Engineer's Natural Resource Management System has hundreds of variables covering everything from dam operations and roads management to recreation visitation and facilities. Only those variables deemed relevant to recreation supply were included in the SAS libraries of the source data sets.

¹¹Again, not all of the 41 source data sets had county location information and thus could not be merged into the national database. Nonetheless, these source data sets were kept as they are and make up supplements to the NORsis county-level database. Examples include units

The NORISIS Database.—The primary objectives for creating the national NORISIS database were to 1) summarize the recreation supply data on a common scale of measurement--the county, 2) to facilitate the description of outdoor recreation resources in the United States for the 1998 RPA Assessment report, and 3) to create recreation resource measures that were compatible with measures of recreational trip demand for use in demand modeling and forecasting. Very few of the 41 source data sets were already county-scale measures, so almost all of these required some manipulation to convert to the common county metric. An example of the source data sets that are county-scale include acres of National Forests per county and acres of National Park Service units per county. The large majority of the source data sets, however, might be called “unit” databases, i.e., the unit of analysis is some resource or facility with a county location. But since this facility may not be the only one within the county, it was necessary to sum these to get a single county total for the NORISIS database.

NORISIS fulfilled the objective of creating summary measures of outdoor recreation supply by one of three possibilities: acres, miles, or number (i.e., count). Examples include state parks and private campgrounds. Most counties have only a single State Park, but there are some with more than one within their boundaries. So, acreage of State Parks within each county was summed to derive the summary variable of State Park acreage. Many counties, especially those located near public lands, have numerous private campgrounds. Summary measures were created to get the sum total of both campgrounds and campsites within each county. A single SAS

within the National Wilderness Preservation System, National Wild and Scenic Rivers, and National Forest Scenic Byways. None of these systems had readily available data disaggregated at the county level. This is an instance where a Geographic Information System would provide a significant technological improvement to the RPA Assessment methodology.

program was written to create county summary measures for each of the source data sets. Once that was accomplished, the same program merged all of the summary measures by county to create the NORISIS database and store it permanently as a SAS library.

The Appendix to this report includes both the annotated SAS program which created the NORISIS database and a data documentation codebook that describes each of the NORISIS county-level variables. Even though the NORISIS database is the “final product” so to speak, we decided that it was more important to document and evaluate the 41 source data sets in the main body of this report and provide details on the NORISIS database in the Appendix. Creating NORISIS was a relatively straightforward exercise. The quality of the data and adequacy of coverage of recreation resources depends on the source data sets and that is why they are the focus of this report.

Nonetheless, the NORISIS summary database was a very important part of two major objectives of the 1998 RPA Assessment. The first is the basic description of outdoor recreation resources in the United States, including their geographic distribution. Having all of the supply variables at the common county level of measurement made it a simple matter to sum the variable of interest to get state, regional, and national totals. Further, these data were used to produce useful and informative county-scale maps that gave an instant picture of the distribution of resources throughout the country. For example, a map of U.S. whitewater river segments made it clear that these resources are located almost exclusively in or near mountain ranges. The map clearly pointed out that the Great Plains region, for example, has virtually no whitewater.

The second reason for creating the NORISIS summary database was for use in national models of outdoor recreation demand for a variety of recreational activities. The supply of

recreation opportunities is an important determinant of both participation in outdoor recreation activities and the intensity of participation measured in annual days and trips (Bowker, English, and Cordell, in press). Data were available on the recreation behavior, demographic characteristics, and residence of more than 17,000 respondents to the 1994-1995 National Survey on Recreation and the Environment. By constructing the NORSIS county-level database, it was possible to match the recreation resources available to a recreationist in any U.S. county. Based on earlier empirical work, Bowker et al. (in press) used the amount of resources located within a 200-mile straight line radius for any county of residence or origin. They divided this resource quantity by the total population within that area to account for congestion and the effects of access and development. The assumption was that as population grows and competition for the resources increase, they become relatively less available for outdoor recreation. While description and modeling of the resources are important applications and form the heart of the RPA Assessment, they are not the focus of this report. The emphasis here is to document the inputs—the 41 source data sets—to the summary NORSIS database and to assess their quality and adequacy for covering the spectrum of outdoor recreation in the United States.

Description and Evaluation of the Source Data Sets—The next section of this report begins the documentation and critical review of the source data sets that comprised the building blocks of the national summary NORSIS database. The next five sections correspond to the five resource ownership/management categories that provided the logical framework for the 1998 RPA Assessment analysis of outdoor recreation supply. The following outline of data sets is the same as that used in the recreation supply chapter of the 1998 RPA Assessment:

Federal Land and Water Resources for Outdoor Recreation

The Federal Estate

The Recreation.Gov World Wide Web Resource

Multiple-Use Agencies

USDA Forest Service

Bureau of Land Management

Resource Protection and Public Use

National Park Service

U.S. Fish and Wildlife Service

Other Federal Land Resources

Indian Land

Department of Defense Land

The Federal Water Resource Agencies

Bureau of Reclamation

U.S. Army Corps of Engineers

Tennessee Valley Authority

National Oceanic and Atmospheric Administration

Federal Water Resources and Facilities

FERC Licensed Reservoirs

National Recreation Lakes Study

The National Recreational Fishery Resources Conservation Plan

Wetlands

Agency Resources and Facilities

Nationwide Rivers Inventory

Specially Designated Federal Systems

National Wilderness Preservation System

National Recreation Areas

National Trails System

National Wild and Scenic Rivers

Camping Facilities on Public Land

Public/Private Partnership Resources

Scenic Byways

Watchable Wildlife

State Land and Water Resources for Outdoor Recreation

State Park Systems in the United States

State Park Areas

State Park Facilities

Other State Resource Systems

State Forests

State Wilderness

State Fish and Wildlife Land

State Trust Lands

State Scenic Rivers

Local Government Resources for Outdoor Recreation

Recreation and Park Agencies

Municipal Recreation and Parks

County Recreation and Parks

Special Park Districts

Local Recreation Facilities and Sites

Outdoor Recreation in Urban Areas

Bicycle and Pedestrian Enhancement Efforts

Greenways

Rails-to-Trails

National Park Service Rivers, Trails and Conservation Assistance Projects

Land Trusts

Local Recreation and Tourism Development in the USDA-NRCS RC&D Program

Private Sector Resources for Outdoor Recreation

Private Recreation Land

National Private Landowners Study

National Private Forest Land Study

Nature Conservancy Land

Industrial Timber Lands

Private Recreation Businesses

Campgrounds

Downhill and Cross-Country Skiing

Outfitters and Guides

Farm/Ranch Vacations and Other Agro-Tourism Businesses

Amusements and Attractions

Golf and Tennis Facilities

Vacation Homes and Resorts

Other Recreation Businesses

Each section begins with a brief one to two-page summary of the findings as presented in the Assessment. These summaries are intended to be a convenient reference or abstract of the salient points uncovered in the Assessment. Next, we cover each of the source data sets within the respective resource ownership/management categories. We begin with the name that we assigned to the source data set in **bold** along with information about how the data were procured, including the agency and contact person. Third, a section labeled “Comments” is the forum for our critical

review of the data, especially noting any problems or shortcomings of the data and the way they were acquired. We offer suggestions for both how the data might be improved upon and the method of obtaining it. The comments are followed by the “Data Set Contents”, which lists the variable names and labels that make up each source data set.¹² Most of the source data sets have a relatively small number of variables, so we decided to include these lists in the text rather than in an appendix. This allows the reader to see the exact content of the source data sets so that he or she may evaluate the usefulness of the data set in case they should wish to obtain the data for their own research. This clearly-labeled format is used for each of the 41 source data sets organized into the five resource categories. The report finishes with some concluding remarks about the data and the overall process.

FEDERAL LAND AND WATER RESOURCES FOR OUTDOOR RECREATION

Summary

The role of the Federal government in outdoor recreation supply is primarily one of managing vast acreage of forests, parks, water resources and specially designated systems that offer extensive access to mostly remote natural areas and scenery. Development and services are largely there to facilitate access. The seven primary Federal land management agencies administer about 650 million acres, distributed as follows:

National Forest System	191.6 million
National Park Service Units	83.2 million

¹²We created the variable names in the programs to convert the source data sets from their various formats to SAS libraries. Of course, the researcher is not bound by these names, but we include them here because they efficiently capture in an 8-character name the essence of what is measured by the variable.

National Wildlife Refuges	90.4 million
BLM Lands	267.6 million
Army Corps of Engineers Projects	11.6 million
TVA Projects	1.0 million
Bureau of Reclamation Projects	6.5 million

The vast majority of Federal land and water are open to public recreational use. Accessibility varies widely, however, depending on the presence of roads and location with respect to population. In particular, the huge amount of Federal land in Alaska is not very accessible to most Americans. Unlike most Federal land, many National Wildlife Refuges (about 24 million acres, mostly in Alaska) are closed to public use. Other instances of unavailable Federal properties include dam and reservoir operations, Research Natural Areas, Fish Hatcheries, Experimental Areas, and the like. Such areas represent a very small percentage of total Federal property. However, some lands are inaccessible, especially in National Forests, because they are surrounded by private property or because private access roads have been closed.

About 93 percent of Federal land and water is in the states west of the Mississippi River. Yet, about three-fourths of the U.S. population lives east of the Mississippi. Still, many of the western Federal ownerships are very popular recreation destinations to people in all 50 states.

Specially designated Federal systems of land and water areas include 1) the National Wilderness Preservation System (nearly 104 million acres within National Forests, Parks, Wildlife Refuges, and BLM lands), 2) National Recreation Areas (about 7 million acres managed by the USDA-FS, NPS, and BLM), 3) National Trails (12 Historic, 8 Scenic, and approximately 820 Recreation Trails, some co-managed by state and local governments and the private sector), 4) National Wild and Scenic Rivers (almost 11,000 miles), 5) National Scenic Byways (on National Forests, Parks, Indian, and BLM lands), and 6) the National Marine Sanctuaries (12 sanctuaries).

In addition to land and water resources, which include these specially designated sites, the Federal government is also involved in outdoor recreation through the provision of limited financial and technical assistance to states and local governments, through partnerships to provide public recreation opportunities, and through research.

Trends in the Federal system have been mixed since the mid-to-late 1980s. There have been no appreciable gains or losses in Federal acreage but there have been some significant transfers in management, notably the California Desert Protection Act of 1994 which shifted nearly three million acres from the BLM to the NPS. Most agencies have experienced stable to only slightly increasing funding for management and assistance (in inflation adjusted dollars); severe reductions in staff working in outdoor recreation; and modest gains in sites and facilities.

Some of the gains are summarized below:

Type of Opportunity	Period	Trend
National Wilderness System	1987-95	+13.9 million acres
National Recreation Areas	1987-95	+682,000 acres
National Recreation Trails	1987-95	+1,229 miles
National Wild and Scenic Rivers	1987-96	+3,117 miles
Campgrounds	1977-96	-12 percent

The Data

1. U.S. Forest Service, Land Areas of the National Forest System

Source: www.fs.fed.us/database/lar/lartab6.htm . This is an annual publication of the Division of Lands in the National Forest System of the USDA Forest Service. The current printed version of the report is:

USDA Forest Service. 1998. Land Areas of the National Forest System. As of September 1997. Forest Service Publication FS-383. Washington, DC.

Contact: Eve Lewis, USDA-FS, Division of Lands, (202) 205-1161.

Comments: The particular Web page referenced above is Table 6 of the report: “Areas by State, Congressional Districts, and Counties.” Our interest for the 1998 RPA Assessment was in acquiring county-level data for all recreation resources. This table lists the acreage of every Forest Service unit—National Forests, National Grasslands, research facilities, purchase units, etc.—within every U.S. county. We included only the National Forest and National Grassland acreage in the source data set.¹³ The acreage figures are straightforward; they represent the land holdings of the agency and not the privately-owned inholdings that are located within National Forest or Grassland boundary areas.

The data are useful because they provide information about the location and amount of Forest Service public land distributed throughout the United States. The data are somewhat crude, however, in the sense that they give no other information about the resources other than the simple acreage figures. Unfortunately, this is the case with many data sets of this large scope that are needed for national assessments. A tradeoff for comprehensiveness of all resources is often the lack of detailed information about the resources. These data lack any information about the suitability of the resources for outdoor recreation. In fact, the “land areas” are not even broken down into land and water resources.

This situation is an ideal one for Geographic Information Systems (GIS) analysis. In addition to location and area, a GIS would store information about the elevation, watersheds,

¹³The other Forest Service properties are an extremely small part of the agency’s holdings (only about 0.3% of the 191.8 million acres) and are not considered recreation resources anyway. The 1998 RPA Assessment used the 1995 version of these data and did not obtain them from the World Wide Web, but from John Hof, Forest Service Research Scientist at the Rocky Mountain Research Station, Fort Collins, Colorado.

vegetation, precipitation, topography, or any of a number of other factors that might affect the resource's aptness for outdoor recreation. A good deal of Forest Service planning at the National Forest and District levels already utilizes GIS for recreation resource planning. A standardized national system of GIS software would be necessary to efficiently make use of GIS data for national assessments. The Forest Service has begun moving in that direction with the recent establishment of its "615" national computer system. It remains to be seen if the 615 has advanced to the point where it is practically used agency-wide, and whether the various resource descriptor data are completed and available in time for the next RPA Assessment around 2008.

Data Set Contents

<i>Variable Name</i>	<i>Label</i>
FSID	Forest Service ID
NFACRES	National Forest acres
FIPS	FIPS Code
NGACRES	National Grassland acres
NAME	County Name
UNIT	Natl. Forest/Grassland
SOCITY	Supervisor's Office City

2. National Forest Recreation Area and Site Reports

Source: Set of statistical reports produced by Recreation, Heritage, and Wilderness Resources (RHWR) Division of the USDA Forest Service, Washington Office, National Forest System.

Contact: Britta Morner, Computer Systems Analyst, USDA Forest Service, RHWR-WO, (202) 401-7789.

Comments: The USDA Forest Service has spent many years developing and implementing an integrated, relational national database called "Infrastructure". Its precursors were the Recreation Resource Information System (RRIS) and before that Recreation Information Management

(RIM). The Infrastructure software, first released in November 1994, expanded the national database to include not only recreation site and area information but all physical managed agency assets such as trails, buildings, dams, administrative sites, drinking water systems, waste water systems, power utilities, communication utilities, bridges, and roads. The task of compiling all of this information for 191 million acres of National Forests into an integrated database system has proven to be enormous. Infrastructure was not completed as of mid-1997 when we stopped our data collection for the 1998 RPA Assessment. When it is ready, it will have the latitude/longitude locations of every recreation resource managed by the agency along with other descriptive information. Individuals to contact for information about Infrastructure are Tah Yang, Washington Office, (202) 205-1409 or Ann Hough, Pacific Northwest Region, (541) 416-6657.

In lieu of using Infrastructure data, we relied upon Forest Service recreation area and site reports compiled by the Washington Office RHWR staff. It is not clear whether these data are currently a part of Infrastructure. If not, they will be. These data were not available at the county level, hence, they could not be added to the national summary NORSIS database. The data are simply a count of the number of selected facilities both by state and by the nine Forest Service regions. The data were not converted to a SAS library but were kept in table form in WordPerfect documents. Therefore, there is no data set contents and variable list for this information source. Instead, a brief description of the facility tables follows.

The reports list facility counts for the following types of recreation sites: boating, swimming, camping, picnic grounds, ski areas, interpretive sites, and “all other developed sites”. These are summed across to report “Total Sites”. The regional and state reports are separate but the totals for each type of site and the grand total of sites match. In addition to facility counts

there are also regional and state reports on the “capacity” of each of the facility types. Capacity is defined: “People At One Time (PAOT) is the number of people that a recreation site can accommodate at one time taking into consideration the environmental and social constraints in effect.” That definition is somewhat vague and not very meaningful without more specific knowledge about those constraints. The capacity reports were not used in the RPA Assessment analysis of outdoor recreation supply. The Forest Service recreation facility counts were broken down into the following sub-categories:

1. Forest Service Operated
 - a. Number of Fee Sites
 - b. Number of Non Fee Sites
2. Concessionaire Operated
 - a. Number of Fee Sites
 - b. Number of Non Fee Sites

All told, throughout the National Forest System there were 12,730 recreation sites in the 1996 reporting year. Almost two-thirds (64 percent) of these were Forest Service operated non fee sites. Forest Service fee sites and Concessionaire fee sites both represented just under 16 percent of all sites, with the remainder (5 percent) being Concessionaire non fee sites. Results are not the focus of this report, but these numbers are presented to indicate the kind of data that the Forest Service keeps on developed recreation sites. Implementation of the Infrastructure database will allow for a county-level inventory of these sites. These recreation site reports are also somewhat inadequate in that they lack information about trails, a major recreation resource, and other descriptors of general forest areas where most of the dispersed recreation occurring on National Forests occurs.

3. National Park Service Acreage

Source: National Park Service, Master Deed Listing, State and County Report by State. As of 10/31/95.

Contact: Jerry Megenity, NPS Land Resources Division, South Florida, (941) 353-8442 ext. 22. A secondary contact is Mike Walsh, NPS Land Resources Division, Washington, DC, (202) 565-1091. Walsh was the original contact when we obtained these data in 1995 for the RPA Assessment. By the summer of 1998, management of the data changed to Megenity, who is located in an NPS satellite office in Florida. Contact Walsh or the Division in Washington if Megenity cannot be reached.

Comments: This data set is similar to the Forest Service Land Areas data in that it is a straightforward inventory of acreage managed by the National Park Service in every county in the United States. Each of the 370-plus units of the NPS are included. The data set does provide a bit more information about ownership, breaking properties down into fee and less-than-fee holdings. It also includes non-Federal lands within the National Park Service unit boundaries. The sum of all these sub-totals is the gross acreage in the unit. Although these data suffer the same problem of having no further resource information beyond acreage, there is an alphabetic code for each unit that allows these data to be merged with other NPS data sets that do have more detailed information. Of most interest is the type of unit, i.e., whether it is a National Park, National Monument, National Battlefield, etc. These NPS lands data are dynamic due to frequent land sales and swaps and other real estate actions. Therefore, the particular acreages represent a point-in-time measurement based on the report date. Net gains and losses are relatively minor, however, and do not significantly affect the total acreage that the NPS manages.

Data Set Contents

<i>Variable Name</i>	<i>Label</i>
FEDFEE	Federal fee

FEDLTF	Federal less-than-fee
FEDSUB	Federal sub-total
NFEDPUB	Non-federal other public
NFEDPRIV	Non-federal private
NFEDSUB	Non-federal sub-total
GROSS	Gross area
AREA	NPS unit
STCOUNTY	County name
FIPS	FIPS code
ALPHCODE	Alphabetic code

4. National Park Service Site and Attribute Information

Sources: 1995 National Park Service Map and Guide brochure.

National Park Service Socio-Economic Studies Unit spreadsheet on NPS Units.

Contact: The Map and Guide brochure is widely available. We obtained from the National Center for Recreation and Conservation, Merle Van Horne, (202) 565-1192. The NPS Unit spreadsheet was acquired from Ken Hornback of the NPS Socio-Economic Studies Unit, Denver (303) 969-2060. Hornback retired from the NPS in 1996 and we believe the spreadsheet was his personal database of a variety of information collected about NPS Units over the years in his role as Social Scientist. The contents of the spreadsheet are described in the next section. Another person to contact in Denver is Tom Wade at the same telephone number. Wade may have a copy of the spreadsheet or something similar. Wade also has Public Use Statistics for all NPS Units going back to 1979.

Comments: The amount and quality of data available for both the National Park Service and

USDA Forest Service was disappointing, especially when compared to those of the Bureau of Land Management and U.S. Army Corps of Engineers. Neither agency maintains an operational and accessible database of all the recreation areas they manage, or at least one that is capable of responding to inquiries. The NPS does have some general information about their 370-plus units, but no specific data about facilities and sites within those units, such as campgrounds. We did discover that the NPS Division of Park Facility Management (Tim Harvey in Washington, 202-565-1240) has a database of buildings, facilities, campgrounds, picnic sites, etc. in each unit for

maintenance purposes. That database, however, was not set up for query and extraction, although Harvey said it may be able to respond to requests for information in the near future.

In its place, we were limited to gathering recreation opportunities and access information from the NPS Map and Guide, which is available to the general public and updated periodically. All this provides is a simple binary, yes/no response that a Unit has a particular facility or attribute. In the variable list below, this is the case starting with FEES (presence of user fees) through the last variable DISVC (presence of a Visitor Center with disabled access). The Hornback spreadsheet data, starting with CAT (NPS Unit category) through WILDERN (wilderness acres) are mostly categorical variables that need explanation:

CAT– NPS Unit category, e.g., National Park, National Monument, National Battlefield, etc. There are a total of 28 different Unit categories.

THEM– Hornback’s assignment of a “theme” to each NPS Unit. Not an official designation. Themes include the following:

- Archaeological
- Architectural
- Civil War
- Indian War
- American Revolution
- Frontier
- Natural-aquatic
- Historical (other)
- Natural-not aquatic
- Other
- Political
- People-not politicians
- Recreation
- Science & arts
- Other-military
- Political/Civil War
- Natural/Recreation

SNR– Yes/No response to the question, “Is the Unit a Significant Natural Resource?”¹⁴

CLASI– Yes/No response to the question, “Is the Unit a Class I air quality resource?”¹⁵

LOC– A description of the Unit’s location: rural, suburban, outlying, urban, remote, or multiple locations.

WILDERN– Acres of designated wilderness, with a code of -99 assigned to Units with backcountry acreage, although not designated wilderness.

F4– Indicates whether the NPS Unit charges an entrance fee, other user fees, or both entrance and user fees.

Data Set Contents

<i>Variable Name</i>	<i>Label</i>
AA	Administrative unit
ALPHCODE	Alphabetic code
CAT	Category
EST	Year established
THEM	Unit theme
SNR	Significant Natural Resource
CLASI	Class I air quality resource
LOC	Location
STATE	State
GROSSAC	Gross acres
WILDERN	Wilderness acres
F4	User fees
FEES	Fees
VC	Visitor Center
TOURS	Programs/tours
SELFGUID	Self-guiding tour/trail
GUIDE	Guide for hire
PICNIC	Picnic area
CAMPGRND	Campground
GROUPEMP	Group camp site
BCPERMIT	Backcountry permits

¹⁴No definition was given for the label “significant”, but it is believed to be one of the criterion indicators used in international conservation assessments.

¹⁵Class I refers to the EPA emissions attainment area standards.

HIKING	Hiking
MTNCLIMB	Mountain climbing
HORSE	Horse trail
SWIMMING	Swimming
BATHHOUS	Bathhouse
BOATING	Boating
BOATRENT	Boat rental
BOATRAMP	Boat ramp
FISHING	Fishing
HUNTING	Hunting
BIKING	Bicycle trail
SNOWMOB	Snowmobile route
XCSKI	Crosscounty ski trail
CABIN	Cabin rental
LODGING	Hotel, motel, lodge
GROCERY	Groceries, ice
RESTAUR	Restaurant, snacks
DISCAMP	Campsites (disabled)
DISSERV	Services (disabled)
DISVC	Visitor Center (disabled)

5. Bureau of Land Management Recreation Management Areas

Source: 1994 BLM Recreation Management Information System (RMIS)

Contact: Anthony Bobo, BLM Washington Office Recreation Group, (202) 452-0333.

Comments: Compared to the Forest Service and National Park Service, the Bureau of Land Management and U.S. Army Corps of Engineers (described in a later section) maintain comprehensive, accessible databases of both their major land divisions and the hundreds of developed recreation areas they manage. These databases are far from perfect, however, primarily because of missing data, some errors, and the lack of precise geographic locator variables. The first BLM database, described in this section, is an inventory of agency land classifications with respect to outdoor recreation. BLM land is zoned into “Recreation Management Areas” (RMA), of which there are just two: Extensive and Special RMAs..

Extensive RMAs are similar to the Forest Service General Forest Areas where development is minimal and the emphasis is on dispersed recreation. They may contain designated recreation sites, but most typically are extensive backcountry areas, as the name implies. In Special RMAs a specific commitment (i.e., investment) has been made to provide recreation services or facilities. More than two-thirds of the BLM's 2,200-plus designated recreation sites are located in Special RMAs. A sizable portion of BLM land, about 45 million acres, were not classified as either Special or Extensive RMAs.

This inventory of RMAs includes the state, BLM District, and BLM Resource Area location, but does not break down the properties by county. An estimate of RMA acreage by county could be made by observing the county locations of the BLM Resource Areas, the agency's finest level of management. These Resource Areas frequently cross county boundaries, however, so we did not attempt it. Therefore, the RMA database was not capable of being merged into the national summary NORSIS database. This is another instance where GIS software could accurately and precisely determine locations of resources. Location would be particularly useful information for the RMA variables that describe the degree of public access, whether open, closed, or limited.

Data Set Contents

<i>Variable Name</i>	<i>Label</i>
RMAID	RMA Id
RMANAME	RMA Name
STATE	State
DISTRICT	District
RA	Resource Area
RMATYPE	Type of RMA
PDOPEN	Total public domain acres, open

PDLIM	Total public domain acres, limited
PDCLOSED	Total public domain acres, closed
PDUNDES	Public domain acres, undesignated

6. Bureau of Land Management Recreation Sites

Source: 1994 BLM Recreation Management Information System (RMIS)

Contact: Anthony Bobo, BLM Washington Office Recreation Group, (202) 452-0333.

Comments: This data set of BLM designated recreation sites comes from the same source, the 1994 RMIS, as the Recreation Management Area data. There are over 2,200 of these sites compared to about 500 RMAs. More than two-thirds of the sites are located in Special RMAs. The biggest problem with the RMIS is that most of the recreation sites (more than 80 percent) had missing latitude and longitude information, so that sites could only be located by their BLM Resource Area. We decided to pursue a brief survey of BLM State Directors, asking them to fill in the county location on a printed list of recreation sites that were missing the lat/longs. This was not too problematic since there are only 11 BLM State offices. We further asked the state officers to estimate the proportions of BLM Dispersed Areas that lie within the counties comprising those areas. This allowed us to derive an estimate of BLM Dispersed Areas by county.

Upon conducting the survey, we also discovered a number of errors that were pointed out by the survey respondents. Many of the recreation sites listed in each state were either in the wrong BLM District and Resource Area, were completely unknown to the state officers, and some legitimate sites were missing from the database. Version 2 of the RMIS was released in 1997, after data collection for the 1998 RPA Assessment stopped. Presumably, many of these

data errors were corrected. Anthony Bobo of the BLM commented in mid-1998 that work is proceeding on a third version which will be quite different from the first two versions, notably that it will be written for Windows instead of a DOS application as the first two versions were.

In the Data Set Contents below, the variable SITEACRE is the acreage for non-dispersed designated recreation sites. The variable DISPACRE is an estimate of the acreage for dispersed recreation areas where each county's portion is a new record. The variables pertaining to public domain acres do not refer to the recreation sites but to the RMA in which the site is located. These were used to estimate the number of dispersed acres per county. The data set includes demand information about the total number of annual site visitors (SITEVIS) and the average number of activities an individual participates in per visit (RATIO). Three nominal variables that need explanation of their coded values:

MGTTYPE– Describes management responsibility for the recreation site: BLM Site, Partnership Site, or Leased Site.

FEESTAT– Fee collection status of the recreation site with respect to the Land and Water Conservation Fund provisions: Fee Site, Meets criteria, Does not meet.

SITETYPE– Describes the type of recreation site as one and only one of the following: boat launch, cabin, campground, cave, Information Center, picnic area, resort, ski area, special sports, staging area, swimming area, toilet structure, trailhead, water access, Visitor Center, visitor contact, other, Environmental Education Center, Regional Visitor Center, dispersed use, intensive use, Watchable Wildlife, scenic overlook, historical, archeological, climbing area, shooting range.

Data Set Contents

<i>Variable Name</i>	<i>Label</i>
STATE	State
RMAID	RMA Id
SITE	Recreation Site name
SITEACRE	Recreation Site acreage
SITETYPE	Recreation Site type

MGTTYPE	Recreation Site management type
FEESTAT	LWCF fee collection status code
SITEVIS	Total number of visits at Site
RATIO	Average # activities per visitor
RMA	RMA Name
DISTRICT	District
RA	Resource Area
PCT	Percent of dispersed area in county
FIPS	FIPS code
RMATYPE	Type of RMA
PDOPEN	Total public domain acres, open
PDLIM	Total public domain acres, limited
PDCLOSED	Total public domain acres, closed
PDUNDES	Public domain acres, undesignated
DISPACRE	Dispersed recreation site acres

7. U.S. Fish and Wildlife Service, National Wildlife Refuge Acreage

Source: U.S. Fish and Wildlife Service. 1997. Annual Report of Lands Under Control of the U.S. Fish and Wildlife Service. As of September 30, 1997.

Contact: Ron Fowler, U.S. Fish and Wildlife Service, Division of Realty, (703) 358-1816.

Comments: This is an annual report of the property holdings of the U.S. Fish and Wildlife Service published by the agency's real estate division at the end of each fiscal year. The report listed above is the most current as of summer 1998. The 1998 RPA Assessment analyzed data from the September, 1995 lands report. The 1995 data were acquired in electronic ascii format from Fowler's predecessor at the FWS, Rebecca Boutz. However, Fowler commented in summer 1998 that the data are not available electronically. We believe that Boutz wrote a special program to extract the acreage data by county and it may take a special request with sufficient lead time to acquire those data in the future. The FWS Realty Division does have a lands database query screen on the World Wide Web, www.fws.gov/r9realty/nwrs.htm, however it only provides state and national summary acreage.

This small data set of just five variables simply disaggregates the acreage in the more than 500 National Wildlife Refuges by county. Thus, the data are part of the NORSIS database. The variable REC has a value of “yes” if the Refuge is open for public recreational use. This information came from the Fish and Wildlife Service’s “Visitor’s Guide” brochure; any Refuge not listed in the brochure is not open to public access. This situation may have changed since the Visitor’s Guide was published in the mid-1990s. The National Wildlife Refuge System Improvement Act, passed in October 1997, defined “compatible” wildlife-dependent recreational uses of the System. As Refuge management plans are revised, this may have some effect on the accessibility of some Refuges for certain kinds of recreational uses.

Data Set Contents

<i>Variable Name</i>	<i>Label</i>
FWSID	FWS ID Number
REFUGE	Refuge Name
FIPS	FIPS Code
ACRES	Acres
REC	Provides recreation opportunities (yes/no)

8. National Wildlife Refuge Site and Attribute Information

Source: U.S. Fish and Wildlife Service. “National Wildlife Refuges: A Visitor’s Guide” brochure.

Contact: Widely available to the general public. Agency contacts are Terry Villanueva or Craig Sheldon in the FWS Division of Refuges, (703) 358-2385.

Comments: The situation with FWS data is nearly identical to that of the National Park Service.

Both agencies have county-level acreage statistics of their real estate properties but neither has an accessible database of recreation sites and facilities within the units they manage. We had to resort to rather crude general information about the entire unit gleaned from the brochure, in this

case National Wildlife Refuges, rather than get detailed information about what each unit provides for recreational purposes. Not that the information provided in the brochures is not useful. It does tell whether certain kinds of facilities are present at the Refuge or whether certain uses, e.g., fishing and hunting, are allowed. In this data set there is just one record for each Refuge; they are not split by county. The county with the largest proportion of Refuge acreage is given in the variable FIPS. Further, this data set only lists those Refuges that allow public recreational and educational use. As of Fall 1995, more than one-third of the Refuges (about 175) were not open for public use. Of the Refuge acres closed to public use, almost 95 percent are in three Refuges in Alaska. All of the variables in the Data Set Contents that follows, from SPRING through FISHING, are simple yes/no binary responses indicating the presence or absence of the attribute from the Refuge.

Data Set Contents

<i>Variable Name</i>	<i>Label</i>
STATE	State
REFUGE	Refuge name
SPRING	Best wildlife viewing--spring
SUMMER	Best wildlife viewing--summer
FALL	Best wildlife viewing--fall
WINTER	Best wildlife viewing--winter
VISCNTR	Visitor Center
OPENWKND	Center open weekends
WALKIN	Walk-In only areas
DAYUSE	Day use only
FOODLODG	Food/lodging nearby
LITERAT	Refuge literature
EDUCPROG	Educational programs
AUTOTOUR	Auto tour route
HIKING	Hiking trails
WILDLIFE	Wildlife viewing sites
ARCHAEOL	Archaeological sites

WILDERN	Wilderness areas
NONMTH2O	Non-motorized watercraft
MTH2O	Motorized watercraft
HUNTING	Hunting
FISHING	Fishing
FWSID	FWS ID Number
FIPS	FIPS with most acreage
TOTACRES	Total acres in refuge

9. U.S. Fish and Wildlife Service, Wetland Management District Acreage

Source: U.S. Fish and Wildlife Service. 1997. Annual Report of Lands Under Control of the U.S. Fish and Wildlife Service. As of September 30, 1997.

Contact: Ron Fowler, U.S. Fish and Wildlife Service, Division of Realty, (703) 358-1816.

Comments: Source is the same as the National Wildlife Refuge acreage. Wetland Management Districts (WMD) are a relatively small part of the National Wildlife Refuge System, making up less than 3 percent of the agency's 93 million acres. WMDs are located in the upper Great Plains and Great Lakes States (plus Iowa and Montana).¹⁶ Many provide recreation opportunities similar to those found on National Wildlife Refuges. Only those WMDs that are open to public use and listed in the Visitor's Guide are included here.

Data Set Contents

<i>Variable Name</i>	<i>Label</i>
FIPS	FIPS Code
ACRES	Acreage
WMD	Wetland Management District

¹⁶Wetland Management Districts are jurisdictions whose primary responsibility is to manage Waterfowl Production Areas. Waterfowl Production Areas are any wetland or pothole dedicated to migratory bird conservation. The over 26,000 waterfowl production areas are aggregated into 198 waterfowl production counties which are administered by 37 wetland management districts.

10. Wetland Management District Site and Attribute Information

Source: U.S. Fish and Wildlife Service. “National Wildlife Refuges: A Visitor’s Guide” brochure.

Contact: Widely available. Agency contacts are Terry Villanueva or Craig Sheldon in the FWS Division of Refuges, (703) 358-2385.

Comments: Identical data set to the National Wildlife Refuge site and attribute information except there is no identification number variable (FWSID). All variables from SPRING through FISHING are yes/no binary responses indicating the presence/absence of the attribute on the Wetland Management District. These binary data sets leave a lot to be desired with respect to truly describing the resources. They are better than no information, however. As mentioned earlier in the section describing Forest Service data, a GIS analysis would improve the assessment considerably, both in terms of geographic precision and in the amount and types of resource descriptive data. GIS would also remove the necessity of using political boundaries—the county—as the method of describing resources at the finest possible resolution. Counties range greatly in size and characteristics, especially from the eastern United States to the west, and much information is lost by summarizing resources by this (geophysically) artificial standard.

Data Set Contents

<i>Variable Name</i>	<i>Label</i>
STATE	State
WMD	Wetland Mgmt. District
SPRING	Best wildlife viewing--spring
SUMMER	Best wildlife viewing--summer
FALL	Best wildlife viewing--fall
WINTER	Best wildlife viewing--winter
VISCNTR	Visitor Center
OPENWKND	Center open weekends
WALKIN	Walk-In only areas
DAYUSE	Day use only

FOODLODG	Food/lodging nearby
LITERAT	Refuge literature
EDUCPROG	Educational programs
AUTOTOUR	Auto tour route
HIKING	Hiking trails
WILDLIFE	Wildlife viewing sites
ARCHAEOL	Archaeological sites
WILDERN	Wilderness areas
NONMTH2O	Non-motorized watercraft
MTH2O	Motorized watercraft
HUNTING	Hunting
FISHING	Fishing
FIPS	FIPS with most acreage
TOTACRES	Total acres in WMD

11. U.S. Army Corps of Engineers Projects

Source: U.S. Army Corps of Engineers (COE), 1994 Natural Resources Management System Database.

Contact: Scott Jackson, Biologist, (601) 634-2105. U.S. Army COE Waterways Experiment Station. Environmental Laboratory. Vicksburg, Mississippi.

Comments: Along with the BLM, the COE has the most extensive and comprehensive database among the Federal land management agencies. The Natural Resources Management System (NRMS) covers both major land holdings (known as “Projects”, nearly all of which are reservoirs) and the more than 2,000 developed recreation areas at the Projects. Recreation areas are described in the next section. The NRMS includes a variety of both supply and demand-related data. Only a handful of demand variables—camping revenues (CAMPREV), day use revenues (DAYREV), total visitor hours (VISHOURS), dispersed use visitor hours (DISPERSE), total visits (VISITS), Visitor Center visitor hours (VCVISHR), and Visitor Center interpretive contacts (INTERP)—were included in this source data set for the RPA Assessment. The other variables describe the location of the reservoir project, characteristics about the land and water

resources, proximity to up to five Metropolitan Statistical Areas (the variables MSA1 through METPOP5), acreage devoted to intensive and low density uses, and details about visitor centers.

The metropolitan proximate data is very useful for determining the population within a certain market area and thus estimating the number of individuals served by the COE Projects. One limitation of the database is that only the location of the Project headquarters office is given, thereby limiting a precise geographical location of the resources. Some Projects even have headquarters offices located in a different county from the reservoir. These had to be visually inspected using maps and corrected. Further, most COE reservoirs are quite large and many reside in more than one county. This is an even greater limitation for the numerous recreation areas, as described in the next section. This lack of geographic precision is really the only drawback to the COE's NRMS database, one which a GIS would immediately correct. Otherwise, this database and the BLM's are by far the most useful among the Federal agency data, however, the BLM data appear to have relatively more errors and missing values. The only variable whose format needs explanation is the type of visitor center (VCTYPE). Visitor Centers were classified as a) undefined, b) staffed with exhibits, or c) small information area.

Data Set Contents

<i>Variable Name</i>	<i>Label</i>
KEYPROJ	Project ID
PROJNAME	Project Name
RECREAT	Recreation authorized project purpose?
PRIMSTAT	State primarily located (dam)
SECSTAT	State of secondary location (acreage)
TERTSTAT	State of tertiary location
SHORMILE	Total shoreline miles
TOTAREA	Total area--land and water (acres)
H2OAREA	Total water area (acres)

CAMPREV	Total camping revenues (\$)
DAYREV	Total day user fee revenues (\$)
MSA1	1. MSA code
CITY1	1. MSA city
STATE1	1. MSA State
MILES1	1. Distance from MSA to Project (miles)
METPOP1	1. MSA population (1990 Census)
MSA2	2. MSA code
CITY2	2. MSA city
STATE2	2. MSA State
MILES2	2. Distance from MSA to Project (miles)
METPOP2	2. MSA population (1990 Census)
MSA3	3. MSA code
CITY3	3. MSA city
STATE3	3. MSA State
MILES3	3. Distance from MSA to Project (miles)
METPOP3	3. MSA population (1990 Census)
MSA4	4. MSA code
CITY4	4. MSA city
STATE4	4. MSA State
MILES4	4. Distance from MSA to Project (miles)
METPOP4	4. MSA population (1990 Census)
MSA5	5. MSA code
CITY5	5. MSA city
STATE5	5. MSA State
MILES5	5. Distance from MSA to Project (miles)
METPOP5	5. MSA population (1990 Census)
VISHOURS	Visitor hours (total)
DISPERSE	Visitor hours of dispersed use
VISITS	Total number of visits
IUCORPS	Intensive use acres--COE
IUFED	Intensive use acres--other federal
IUSTS	Intensive use acres--state agencies
IULCL	Intensive use acres--local agencies
IUPRIV	Intensive use acres--private parties
LDCORPS	Low density acres--COE
LDGED	Low density acres--other federal
LDSTS	Low density acres--state agencies
LDLCL	Low density acres--local agencies
LDPRIV	Low density acres--private parties
MGRCITY	Manager's office: city
MGRSTATE	Manager's office: state
ZIPCODE	Manager's office: zip code

VCNAME	Visitor Center name
VCTYPE	Type of Visitor Center
VCVISHR	Visitor Center visitor hours
INTERP	Visitor Center interpretive contacts
FIPS	FIPS Code

12. U.S. Army Corps of Engineers Recreation Areas

Source: U.S. Army Corps of Engineers (COE), 1994 Natural Resources Management System Database.

Contact: Scott Jackson, Biologist, (601) 634-2105. U.S. Army COE Waterways Experiment Station. Environmental Laboratory. Vicksburg, Mississippi.

Comments:

Data Set Contents

<i>Variable Name</i>	<i>Label</i>
KEYPROJ	Project ID
KEYAREA	Recreation Area ID
AREANAME	Recreation Area name
AGENCY	Managing agency
TYPFAC	Type of facilities
OPEN	Open/closed status
ACREAGE	Total land and water acreage
ACREDEV	Acres developed for intensive rec. use
VISHOURS	Visitor hours
VISITS	Total visits
SWIMPOOL	Swimming pool available
BOATRENT	Boat rentals available
FISHDOCK	Fishing dock or pier
CAMPSITE	Number of individual campsites
PICNIC	Number of individual picnic sites
RAMPS	Number of boat launching ramps
SWIMAREA	Number of designated swim areas
TRAILNUM	Number of trails
TRAILHIK	Miles of hiking trails
TRAILINT	Miles of interpretive trails
TRAILBYC	Miles of bicycle trails

TRAILEQU	Miles of equestrian trails
TRAILORV	Miles of offroad vehicle trails
TRAILOTH	Miles of other trails
SWIMPOOC	Swimming pool available (concess.)
BOATRENC	Boat rentals available (concess.)
FISHDOCC	Fishing dock or pier (concess.)
CAMPSITC	Number of indiv. campsites (concess.)
PICNICC	Number of indiv. picnic sites (concess.)
RAMPSC	Number of boat launch ramps (concess.)
SWIMAREC	Number of swim areas (concess.)
TRAILNUC	Number of trails (concess.)
TRAILHIC	Miles of hiking trails (concess.)
TRAILINC	Miles of interpretive trails (concess.)
TRAIBYCC	Miles of bicycle trails (concess.)
TRAILEQC	Miles of equestrian trails (concess.)
TRAILORC	Miles of ORV trails (concess.)
TRAILOTC	Miles of other trails (concess.)
PROJNAME	Project Name
FIPS	FIPS Code

13. Bureau of Reclamation Recreation Areas

Source: "Bureau of Reclamation, Recreation Areas on Bureau Projects, 1992", unpublished BoR report. Bureau of Reclamation Recreation Areas brochure, 1992.

Contact: Darrell Welch, U.S. Department of the Interior, Bureau of Reclamation, Reclamation Service Center. Denver, CO. (303) 445-2711. Data were originally obtained from Richard Crysedale, Senior Outdoor Recreation Planner, who retired in 1996.

Comments:

Data Set Contents

<i>Variable Name</i>	<i>Label</i>
FIPS	FIPS Code
AREA	BuRec Recreation Area
LANDACRE	Land acres available
H2OACRE	Water acres available
AGENCY1	Administering agency
AGENCY2	Other administering agency
PICNIC	Picnicking

WATER	Drinking water
RESTROOM	Restrooms
SWIMMING	Swimming
BOATING	Boating
BOATRAMP	Boat Ramp
MARINA	Marina
PRIMCAMP	Primitive campsites
DEVCAMP	Developed campsites
FISHING	Fishing
HUNTING	Hunting
TRAIL1	Trail Type 1
TRAIL2	Trail Type 2
TRAIL3	Trail Type 3
INTERP1	Interpretive Site 1
INTERP2	Interpretive Site 2
INTERP3	Interpretive Site 3
WINTER	Winter sports
HOTEL	Hotel/motel nearby
GROCERY	Groceries/ice nearby
RESTAUR	Restaurant nearby
HANDICAP	Handicapped access

14. Tennessee Valley Authority Recreation Areas

Source: "Development of TVA Recreation Facilities Cumulative Through September 30, 1992," unpublished TVA report.

Contact: Robert A. Marker, Recreation Specialist, TVA Reservoir Land Management, (423) 632-1575.

Comments:

Data Set Contents

<i>Variable Name</i>	<i>Label</i>
FIPS	FIPS Code
RESERV	TVA Reservoir
RECSITE	TVA Recreation Area
ACRES	Acres
BOATRAMP	Number of boatramps
PICNIC	Number of picnic units

CAMPSITE	Number of camp units
BEACH	Number of improved beaches
TRAILS	Hiking trails available

15. Tennessee Valley Authority Undeveloped Recreation Land

Source: "Acreage of TVA Lands: Areas Below and Above Full Pool Level-By Counties, September 30, 1987," unpublished TVA report.

Contact: Robert A. Marker, Recreation Specialist, TVA Reservoir Land Management, (423) 632-1575.

Comments:

Data Set Contents

<i>Variable Name</i>	<i>Label</i>
RESERV	TVA Reservoir
FIPS	FIPS Code
UNDVACRE	Undeveloped acres

16. Nationwide Rivers Inventory

Source: Nationwide Rivers Inventory 1993

Contact: Merle Van Horne, National Park Service; National Center for Recreation and Conservation, (202) 565-1192. Another contact person is Jennifer Pitt, also of NPS, (202) 565-1185.

Comments:

Data Set Contents

<i>Variable Name</i>	<i>Label</i>
STATE	State
RIVER	River
SEGMENT	River segment number
OTHSTATE	Other states segment is in
LENGTH	Segment length (miles)

SCENIC	Outstanding scenic value
RECREATE	Outstanding recreational value
GEOLOGIC	Outstanding geologic value
FISH	Outstanding fish value
WILDLIFE	Outstanding wildlife value
HISTORIC	Outstanding historic value
CULTURAL	Outstanding cultural value
OTHER	Other outstanding value
PARKNAME	Managing unit
ELIGWILD	Eligibility classification: wild
ELIGSCEN	Eligibility classification: scenic
ELIGRECR	Eligibility classification: recreational
LISTING	Year segment added to NRI
UPDATE	Update to 1982 NRI
MANAGE	Managing agency (not in 1982 NRI)
DUPLICAT	Duplicate of same river in other state
MULTI	River is in >1 county
FIPS1	1st FIPS river passes through
FIPS2	2nd FIPS river passes through
FIPS3	3rd FIPS river passes through
FIPS4	4th FIPS river passes through
FIPS5	5th FIPS river passes through
FIPS6	6th FIPS river passes through
FIPS7	7th FIPS river passes through
FIPS8	8th FIPS river passes through
FIPS9	9th FIPS river passes through
FIPS10	10th FIPS river passes through
FIPS11	11th FIPS river passes through
FIPS12	12th FIPS river passes through
NUMCTY	# counties river passes through

17. National Wilderness Preservation System Statistics

Source: National Wilderness Preservation System Database. As of July 3, 1995.

Contact: Lenny Eubanks (leubanks@blm.gov), Bureau of Land Management Special Areas and Land Tenure Group, (202) 452-7787. The 1995 data were acquired from Rob Hellie, (202) 452-7703, of the same office in late 1995. Hellie told us this summer that the Forest Service's Aldo Leopold Wilderness Research Institute in Missoula, Montana has taken over national coordination of the NWPS Database. Lenny Eubanks is the BLM contact and was able to provide us with an updated data set. A contact at the Leopold Institute is Alan Watson, (406) 542-4197.

Comments:Data Set Contents

<i>Variable Name</i>	<i>Label</i>
WILDAREA	Wilderness area name
ADUNIT	Administrative unit name
FEDACRES	Acres (Federal only)
INHOLD	Acres inholding
PUBLAW	Public Law
YEARDES	Year designated
STATE	State
AGENCY	Agency

18. National Recreation Trails Database

Source: Register of National Recreation Trails. Washington D.C.: U.S. Department of the Interior. January 1993. Also, Update of National Recreation Trails Designated by the Secretary of the Interior. January 1, 1993 through October 1, 1995.

Contact: Merle Van Horne, National Park Service; National Center for Recreation and Conservation, (202) 565-1192. We actually entered data from the 1993 Register which is reprinted in Zinser (1995). The 1995 Update is available from Van Horne at the NPS.

Comments:Data Set Contents

<i>Variable Name</i>	<i>Label</i>
STATE	State
TRAILNO	Trail ID Number
YEAR	Year trail established
USE	Types of allowable uses
SURFACE	Trail surface
LENGTH	Trail length (miles)
AGENCY	Managing agency

19. National Recreation Areas Database

Source: Land Areas of the National Forest System. As of September 1995.
 National Park Service Statistical Abstract. 1995.
 Shands, William. 1990. Showcases of Excellence. In *National Recreation Areas: A Showcase For Excellence*. USDA Forest Service. Washington, DC: FS-442.

Contact: Data were entered based on information in the 3 reports listed above.

Comments:

Data Set Contents

<i>Variable Name</i>	<i>Label</i>
AREA	NPS unit
EST	Year established
NRAACRE	NRA acres
STATE	State
AGENCY	Managing agency
FIPS	FIPS code

20. National Wild and Scenic Rivers Database, November 1996

Source: "River Mileage Classifications For Components of the National Wild and Scenic Rivers System", unpublished National Park Service report, November 1996.

Contact: John Haubert, (202) 208-4290, National Park Service, Division of Park Planning and Special Studies.

Comments:

Data Set Contents

<i>Variable Name</i>	<i>Label</i>
RIVER	Wild & Scenic River
STATE	State located
STATE2	2nd state located
STATE3	3rd state located
DATE	Date designated
AGENCY	Managing agency
WILD	Miles classified Wild
SCENIC	Miles classified Scenic
REC	Miles classified Recreational

TOTMILES

Total W&S River miles

21. National Whitewater Inventory, 1997

Source: American Whitewater Affiliation, River Pages Project, www.awa.org/awa/river_project/states.html . This note appeared on the Web page in September, 1998: The AWA Inventory, consisting of dBase III database files will be available soon as a single downloadable file. The River Pages Project has data on individual rivers.

Contact: Rick Hudson (HUDSON@KAYAK.COM) for information about the River Pages Project. Or write to AWA, PO Box 636, 16 Bull Run Road, Margaret, NY 12455.

Comments:

Data Set Contents

<i>Variable Name</i>	<i>Label</i>
RIVER	River or stream
MILES	River segment length (miles)
CLASS	Whitewater difficulty class
FIPS	FIPS code
CLASSCAT	Whitewater class category

PUBLIC/PRIVATE PARTNERSHIP RESOURCES

Summary

* brief synopsis of Watchable Wildlife and Scenic Byways

The Data

22. Bureau of Land Management Back Country Byways

Source: 1994 BLM Recreation Management Information System (RMIS)

Contact: Anthony Bobo, BLM Washington Office Recreation Group, (202) 452-0333.

Comments:Data Set Contents

<i>Variable Name</i>	<i>Label</i>
BYWAYID	Byway ID
BCBMILES	Back Country Byway miles
SHMILES	Scenic Highway miles
BYNAME	Byway name

23. USDA Forest Service Scenic Byways

Source: “National Forest Scenic Byways”, unpublished report distributed by the National Scenic Byways Clearinghouse, Washington, DC.

Contact: Contact the Clearinghouse at (202) 628-7719 or 1-800-4BYWAYS. USDA Forest Service contact is Tom Lennon, Tourism Program Leader, Washington Office, (202) 205-1423.

Comments:Data Set Contents

<i>Variable Name</i>	<i>Label</i>
BYWAY	FS Scenic Byway
DATE	Date designated
REGION	Forest Service Region
FOREST1	National Forest
FOREST2	2nd National Forest
FOREST3	3rd National Forest
STATE	State
ZIP	Zip code of forest headquarters
MILES	Byway length (miles)

24. American Automobile Association (AAA) Designated Scenic Byways

Source: AAA Scenic Byways Database, 1996.

Contact: Melanie Fuller, Highway Information Coordinator, AAA, National Travel Department, Heathrow, Florida, (407) 444-8130.

Comments:Data Set Contents

<i>Variable Name</i>	<i>Label</i>
NAME	Byway name
TERMINAL	Terminals
ROUTE	Route
STATE	State
ID	ID Number
MILEAGE	Byway length
CLASS	Classification

25. State Scenic Byway Reports and Documents

- Sources:
1. "State Scenic Byways Contacts", June 1995.
 2. "State Scenic Byway Program Summaries 1996."
 3. "Scenic America Survey of State Legislation/Regulations for Scenic Byway Programs," April 1995.

Contacts: The first two documents are available from the National Scenic Byways Clearinghouse, Washington, DC, (202) 628-7719 or 1-800-4BYWAYS, www.byways.org . Final report is available from Scenic America, Washington, DC, (202) 833-4300, www.transact.org/sa/scenic.htm .

Comments: These three documents are not databases, rather they are information sources for Scenic Byway programs at the state government level. These state programs are closely tied to federal transportation funding and cooperation and assistance from the Federal Highway Administration (FHWA), not to mention partnerships with regional, local, and non-profit conservation and development groups. Therefore, they are more appropriately placed in this special "Partnerships" section of the report. The State Contacts and Legislation Survey have no doubt been updated since these documents were collected for the 1998 RPA Assessment. The State Contacts report lists contact persons for each state in three different categories: FHWA Division Office, State Department of Transportation, and State Department of Tourism Offices.

Scenic America, a national non-profit scenic preservation organization based in Washington, conducted a useful survey (actually a census since all states were included) of state Scenic Byways programs in 1995. The brief report summarizes the following: size/nature of the program, legislative authorization of program, administrative authorization of program, and comments. It is a convenient way to tell which state have programs and how and when they were created. State programs vary widely in scope, standards, and objectives so compiling data such as the number of designated byway miles is not very meaningful without deeper understanding of the programs themselves. That task is nicely accomplished in the State Program Summaries report (#2 above). This report was compiled by Dennis Adams and staff of the Minnesota Department of Transportation (612-779-5074) and is available through the National Scenic Byways Clearinghouse. It is important to note that it is not exhaustive—30 states are covered—but the information gives a concise description of the various state programs. Tannen (in press) contributed an excellent general overview of Scenic Byways to the 1998 RPA Assessment, covering history, policy, and descriptions of both federal and state programs.

26. Watchable Wildlife Reports and Publications

- Sources:
1. “Watchable Wildlife”, by Kimberly H. Anderson (in press).
 2. “Watchable Wildlife: A New Initiative”, by Sara Vickerman (1989), Defenders of Wildlife.
 3. Falcon Publishing series of Watchable Wildlife viewing guide books.
 4. “1996 National and State Economic Impacts of Wildlife Watching”, by James Caudill and Andrew Laughland (1998).

Contacts: 1. Anderson’s article will appear in the 1998 RPA Assessment book by Cordell (in press-a) to be published in late 1998 or early 1999 by Sagamore Press. Anderson is the National NatureWatch Coordinator for the USDA Forest Service and is stationed at the Forest Service’s Rocky Mountain Region in Golden, Colorado, (303) 275-5064.

2. Defenders of Wildlife is located in Portland, Oregon, (503) 293-1433. The report is available for a nominal fee.
3. Falcon Publishing, 48 North Last Chance Gulch, P.O. Box 1718, Helena, Montana 59624. Phone: 1-800-582-2665. www.falconguide.com/wildlife.htm .
4. Available through the Fish and Wildlife Reference Service, 1-800-582-3421. Or from www.fws.gov/r9nctc/pubs.html .

Comments: Much like Scenic Byways, Watchable Wildlife is an umbrella term that covers a variety of programs and efforts devoted to enhancing public opportunities to experience and appreciate recreation resources. Both are characterized by partnerships—between all levels of government, nongovernmental organizations, and citizen advocates—as a key factor in the provision of these opportunities. As such, quantitative information about the supply of wildlife viewing opportunities is not easily summarized in a few measures. Scenic Byways are more easily quantified as the number of designated byway miles, however, that simple statistic does not have any information about the quality or attractiveness of byways that make them a recreation resource. The same can be said about much of the quantitative data that attempts to “describe” outdoor recreation resources.

Watchable Wildlife opportunities could be summarized by counts or the acreage of designated sites featuring the familiar binoculars logo, but even then there is much more to the National Watchable Wildlife Program.¹⁷ As Anderson (in press) describes, the Program is a loose-knit coalition of efforts united under the purpose of improving access and opportunities for non-consumptive wildlife recreation. Any of the following may fall under the Watchable Wildlife

¹⁷To our knowledge, a count or database of designated Watchable Wildlife sites does not exist, probably because of the coalition nature of the Program which consists of a variety of partners. A database could be compiled fairly easily from the Falcon Publishing series of viewing guidebooks.

umbrella: observing fish, viewing flowers, general nature study, butterfly gardens, visitor center interpretive displays, aquariums, and fish hatcheries, among others. A network of nature (wildlife, fisheries, and wildflower) viewing sites with the distinct binoculars signing system and supporting guide books is a very important part of the effort. We did not have any quantitative information on this network for the 1998 RPA Assessment, so instead chose to give some background and an overview of the National Watchable Wildlife Program.

As the National NatureWatch Coordinator for the USDA Forest Service, Kimberly Anderson (in press) was highly qualified to share that story.¹⁸ Vickerman's (1989) paper, written in response to findings from the President's Commission on Americans Outdoors, was the impetus behind the original 1990 Memorandum of Understanding that created the National Watchable Wildlife Program. The MOU was updated in 1997 and still provides the framework for Federal, State and local government agencies and private conservation groups to unite their various efforts through partnerships to provide recreational, conservation, and educational wildlife opportunities. The Falcon Publishing viewing guidebook series has been very successful, having published 28 volumes as of fall 1998 with three more due out soon. The U.S. Fish and Wildlife Service report is included here because it is current and credible information about the extent and economic impact of wildlife viewing across the United States, nationally and by state.

STATE LAND AND WATER RESOURCES FOR OUTDOOR RECREATION

¹⁸NatureWatch is the Forest Service's program that is a key part of the National Watchable Wildlife Program. It actually includes three separate but related programs: Eyes on Wildlife (the original emphasis on wildlife), FishWatch (fish and aquatic ecosystems), and Celebrating Wildflowers

Summary

All states provide some form of outdoor recreation sites, facilities, and/or services, but their levels of involvement vary. The principal component of the state systems are State Parks, which are generally much closer to the population than federal lands. But states also manage recreation, natural, historical, environmental education, scientific, forest, and wildlife management areas (McLean forthcoming). The numbers and acreages of areas across all 50 states are summarized below:

Type	Areas	Acreages (000s)
State parks	1,851	7,826
Recreation areas	769	1,244
Natural areas	622	1,028
Historic areas	547	89
Scientific areas	89	11
Environmental education sites	51	99
State forests	274	770
Fish and wildlife management areas	469	410
Other types of areas	<u>871</u>	<u>335</u>
Totals	5,543	11,811

There are a total of 7.8 million acres of state parks across the United States; about 42 percent of which are in the Pacific Coast states; and another 31 percent of which are in the North Region.

Typically, state parks offer many more facilities than federal lands including camp sites, swimming pools, horse riding facilities, and in some, ski slopes.

Like the federal system, there have been mixed trends in state systems in the last few years but mostly there has been growth. Across all types of areas, there has been a gain in the 1990s in

number of areas totaling 1,267 new areas, a 32 percent increase. This has amounted to an 8 percent increase in total acreage -- 850,000 added acres. In state parks, high-amenity campsites increased, but year-round high-amenity sites decreased 3.5 percent. Additionally, primitive (low amenity) campsites decreased in the 1990s, losing 2,100 sites. Seasonal cabins in state parks decreased 5 percent, while year-round cabins increased 14 percent. A rapid growth component has been revenue producing lodges, increasing 31 percent in the 1990s to a total of 110 within the systems of 26 of the 50 states. A significant overall trend has been the transition of state park sites and facilities from seasonal to year-round operating sites and facilities that offer a broader range of services and opportunities and greater revenue producing potentials.

The Data

27. State Park System Information

Source: State Parks Database, compiled from State Department of Natural Resources brochures and other printed information.

Contact: Carter J. Betz, USDA Forest Service, Southern Research Station, Athens, Georgia, (706) 559-4267.

Comments:

Data Set Contents

<i>Variable Name</i>	<i>Label</i>
STATE	State
PARKNAME	Site Name
ZIP	Zip code
ACRES	Acres
CAMPSITE	Number of campsites
PRIMCAMP	Primitive camping
BOATING	Boating
MARINA	Marina

PICNIC	Picnicking
SWIMMING	Swimming
FISHING	Fishing
TRAILMI	Miles of hiking trails
SNOWMOB	Snowmobiling
XCSKI	Cross-country skiing
ICESKATE	Ice skating
FIPS	FIPS Code

28. The 1997 Annual Information Exchange

Source: Report of the same named sponsored by TheNational Association of State Park Directors (NASPD), Tucson, Arizona, (520) 298-4924.¹⁹

Contact: Copies of the report are available from The Eppley Institute, Department of Recreation and Park Administration, Indiana University, (812) 855-4712, or www.indiana.edu/~naspd .

Comments: The NASPD Annual Information Exchange (AIX) is the definitive source of information on State Park Systems throughout the United States. It consists of verified, credible data reported directly from the state agencies to the NASPD. The main drawback for RPA Assessment analyses is that the data are not available at the county level. State sub-totals are summed to give national totals for a variety of statistics. Nearly all of the state agencies have “State Parks” in their title, some exclusively. Others include “Outdoor Recreation”, “Conservation” or “Wildlife”. State Parks clearly dominate these systems, however, the state agencies manage a number of other resources in addition to State Parks. In addition to parks, “Table 1. Inventory” of the AIX lists the total number, the number operating, and the acreage for the following managed resources: Recreation Areas, Natural Areas, Historic Areas, Environmental Education Areas, Scientific Areas, Forests, Fish/Wildlife Areas, Other Areas, and

¹⁹The NASPD rotates its leadership on a periodic basis. The Director of Arizona State Parks was the Association as of December, 1997.

Miscellaneous Areas.²⁰ There is also a column of Total Areas in each state and a separate column for Trails, which are not added to the other agency areas.

The AIX consists of a total of seven tables each with constituent parts. Tables 2 through 7 are described below.

Table 2. Facilities (Number of Areas with the facility, number of year-round and seasonal facilities, and total number of facilities).

- Improved Campsites
- Primitive Campsites
- Cabins/Cottages
- Group Facilities
- Lodges
- Lodge Rooms
- Restaurants
- Golf Facilities (courses and holes)
- Marinas
- Swimming Pools
- Stables
- Ski Slopes

Table 3. Visitation and Use

A. Attendance

- Fee Areas (day, overnight, total)
- Non-fee Areas (day, overnight, total)
- Total of All Areas (day, overnight, total)

B. Overnight Visitation

- Overnight Visitors by Type of Accommodations
 - campers, cabins, lodges, group facilities, other, total

C. Overnight Facility Use

- Number of Campsites Rented
 - year round, seasonal, total, season length in days
- Number of Cabins/Cottages Rented
 - year round, seasonal, total, season length in days

²⁰Other Areas are significant enough in a particular state to warrant separate identification and treatment, i.e., they do not fall one of the other classifications that are common to most states. Miscellaneous Areas is a catch-all term for any unclassified area in a state that is considered not significant enough to warrant specification.

- Number of Lodge Rooms Rented
–year round, seasonal, total, season length in days

Table 4. Captial Outlay Progress

- Land Acquisition
–acreage (purchase), cost, other acreage, value, total acreage, new construction costs

Table 5. Financing²¹

- A. Operating Expenses
- B. Fixed Capital Outlay Expenditures
- C. Parks' Share of State Expenditures
- D. User Fees²²
- E. Revenue

Table 6. Personnel

- full information on jobs and other employment matters

Table 7. Park Support Groups

- includes information on endowment funds

29. State Forestry Statistics, 1996

Source: From a report of the same name published by the National Association of State Foresters, Washington, DC. 1996. Acting Chairman, James A. Beil, New York.

Contact: Bill Imbergamo at the NASF in Washington, DC, (202) 624-5258, or www.stateforesters.org .

Comments: The 1996 State Forestry Statistics is a published report featuring statistics from the State Forest agencies of almost all of the states (Arizona, California, and Hawaii did not participate). We extracted 11 variables from the report that were relevant to outdoor recreation and entered these into a database which was then saved as a SAS library. As with the

²¹There is a considerable amount of detail on State Park System financing that is not discussed here.

²²This is an extensive section covering all variety of entrance fees, lodging and campsite rental fees, and details about campsite reservations.

State Park report, these are state summary statistics and no county-level data about State Forests were available. The report does give a convenient breakdown of forest ownerships by state (which is also available in the USDA's National Resources Inventory), but more important is the information—although limited—about State Forestry agencies' involvement in forest recreation programs. Whether or not a state has such a program (RECPROG) within its Division of State Forests is important information in itself. Many states do not support outdoor recreation objectives at all in the management of their State Forests. However, some states that indicated they have a forest recreation program show zero dollars in costs or expenditures (FORREC). Exactly half of U.S. states (25) responded that their State Forest agency supports a forest recreation program, but only 15 states reported any forest recreation expenditures. It would be interesting to investigate that discrepancy. The amount of annual expenditures spent on forest recreation as a percentage of total agency budget (PCTREC) may be the best indicator of the degree of involvement in outdoor recreation by State Forest agencies. Of the 15 states reporting expenditures, three—Rhode Island, Maryland, and Michigan—spent more than 10 percent of their budgets on recreation. Seven of the 15 states spent less than 2 percent, with the remainder between 2 and 10 percent.

A wilderness management program (WILDERN) is another indicator of State Forest involvement in the provision of recreation resources. Only eight states have such a program. Wilderness expenditures were not included in the survey. The NASF statistics also report an expenditure item for "Urban and Community Forestry" which we did not extract for our database but that may also have important implications for outdoor recreation. Urban forest enhancement in parks and neighborhoods is an important factor in creating attractive open space for close-to-

home recreation. Without further information about each state's urban and community programs, however, we decided to exclude it from the database we constructed for the RPA Assessment.

Data Set Contents

<i>Variable Name</i>	<i>Label</i>
STATE	State
FORFEDL	Federal forest land (acres)
FORSTATE	State forest land (acres)
FOROTHER	Other government forest land (acres)
FORIND	Private industrial forest land (acres)
FORNONIN	Private nonindustrial forest land (acres)
FORREC	Forest recreation costs/ expenditures
RECPROG	Forest recreation program (yes/no)
WILDERN	Wilderness management program (yes/no)
TOTBUDG	Total department expenditures (1000s)
PCTREC	Percent of expend.: forest recreation

30. State Fish and Wildlife Agency Reports

- Sources:
1. "Organization, Authority, and Programs of State Fish and Wildlife Agencies, 1997."
 2. "1996 Survey of State Wildlife Agency Revenue."
 3. "State Wildlife Diversity Program Funding: a 1992 Survey."

- Contacts:
1. Wildlife Management Institute, Washington, DC, (202) 371-1808, www.wildlifemgt.org/wmi.
 2. The Wildlife Conservation Fund of America, Columbus, Ohio, (614) 888-4868.
 3. International Association of Fish and Wildlife Agencies, Washington, DC, (202) 624-7890.

Comments: The second and third reports listed above are only indirectly related to the supply of wildlife recreation opportunities, but are included here because they are convenient references that examine all of the states within a single report. The 1992 Wildlife Diversity report focuses on

funding for non-game wildlife programs, among them watchable wildlife, endangered species, biodiversity, wildlife diversity, and natural heritage inventories. The 1996 Survey looks at revenue sources for all fish and wildlife agency management and operations. The relative size of state budgets is a good indicator of the extent to which state fish and wildlife agencies provide fishing, hunting, and nongame wildlife opportunities. This is especially true of license revenues. State fish and wildlife agencies frequently do not own the land where much wildlife-associated recreation occurs, but they do regulate and manage it and are highly involved with issues of access to wildlife recreation opportunities.

The Wildlife Management Institute's 1997 report is a comprehensive survey of the 50 state agencies and includes a wide array of information on the programs, their organization within state governments, regulatory authority, and agency administration. Unfortunately, the 1998 RPA Assessment was already completed by the time this report was released or else it would have been extensively referenced in the outdoor recreation supply chapter, especially the table describing agency lands and waters. The WMI released a previous edition of the report in 1987, but the information was a bit too dated to be useful. Information on state fish and wildlife agencies was difficult to find for the 1998 Assessment short of conducting our own survey of state agencies. We did not have the benefit of using the World Wide Web, however, and that will make a tremendous difference for the next Assessment team in gaining access to current information.

State fish and wildlife agencies tend to differ more across states than their counterparts in state forests and state parks. Just over half (27) of the state fish and wildlife agencies operate as independent agencies or commissions while the remainder are traditional agency divisions within State Departments of Natural Resources. Following is a brief description of the tables that appear

in the WMI report, with special emphasis on those pertaining to recreational use:

1. Agency Organization
2. Regulatory Authority
 - primarily hunting and fishing rules and regulations
3. Agency Administration
4. Personnel
5. Finances
6. Planning and Policy
7. Information and Education
 - numbers of jobs and availability of programs in nongame, aquatic, archery, boating, waterfowl, hunter, and environmental education
8. Research
 - includes availability of research programs in human dimensions and marketing
9. Management and Operations
 - availability of: public areas and access to private lands for wildlife-associated recreation, fee hunting preserves, technical assistance to private landowners, private hunting clubs, programs that promote public access to private lands
10. Cooperative Programs and Environment Impact Statement Review
11. Agency Lands and Waters
 - total acres of agency land
 - total acres of agency lakes
 - total miles of agency rivers/streams
 - cooperative agreements with other public and private landowners (both land and water)

31. **State-Designated Wilderness and State-Designated Scenic Rivers**

- Source:
1. Peterson, Mark R. 1996. Wilderness by state mandate: a survey of state-designated wilderness areas. Natural Areas Journal, 16(3), 192-197.
 2. Palmer, Tim. 1993. The Wild and Scenic Rivers of America. Washington, DC: Island Press.

Contact: Peterson is a former graduate student in the Department of Recreation Resources and Landscape Architecture at Colorado State University, Fort Collins, Colorado. Palmer may be contacted through Island Press, Washington, D.C., (202) 232-7933, www.islandpress.com.

Comments: Peterson's work is the best and most recent information about designated wilderness programs managed by state governments. Eight States--six in the East and two in the West--had such programs in 1995, all established during the 1970s. Though relatively small in number and

size, state-designated wilderness provide opportunities for primitive and dispersed recreation, especially in the East. George Stankey of the USDA Forest Service conducted the first overview of State wilderness programs in 1984. Peterson's research showed that one state eliminated its program in the late 1980s, but that the protected acreage in the remaining eight State programs almost doubled to more than 3 million acres. Three states—Alaska, New York, and California—make up almost 95 percent of State wilderness systems acreage. Excluding Alaska, the Eastern States make up three-fourths of the State Wilderness acres. These data are important indicators of public wildland that is not managed by the Federal government, especially in the East where backcountry resources are much scarcer.

Palmer has written extensively about rivers and waterways in the United States. His research presents information about 32 state government river protection programs covering approximately 300 rivers and 13,500 river miles. Thirteen of the 32 States have completed inventories of their rivers, and three have not protected any river miles despite having an established program. Although neither state wilderness nor state scenic river systems are anywhere as near as extensive as their federal counterparts, they still represent important commitments at the state level of government to preserve wild areas which are highly attractive for primitive recreation experiences. We did not create a data set based on the data from either source. Further, wilderness acreage and river miles were not broken down by county so these data were not added to the NORSIS summary database.

32. 1992 National Resources Inventory

Source: USDA Natural Resources Conservation Service, 1992 National Resources Inventory. Four CD-ROMs corresponding to the West, South, Midwest, and Northeast Regions of the

United States. Alaska is not included.

Contact: USDA-NRCS National Cartography and GIS Center, Fort Worth, Texas, (817) 334-5559, ext. 3135.

Comments:

Data Set Contents

<i>Variable Name</i>	<i>Label</i>
FIPS	FIPS code
** Land Ownership **	
TOTAL	Total county acres
PRIV	Private acres
MUNIC	Municipal acres
COUNTY	County-owned acres
STATE	State acres
FEDL	Federal acres
INDIAN	Indian/tribal acres
WATER	Water acres
** Conservation Reserve Program Acres **	
NONE	No CRP acres
GRASSES	Grasses/legumes CRP cover
TREES	Trees CRP cover
WILDLIFE	Wildlife CRP cover
** Land Cover/Use **	
CROP	Cropland acres
PASTURE	Pastureland acres
RANGE	Rangeland acres
FOREST	Forest land acres
MISCELL	Miscellaneous/minor land use acres
URBAN	Urban & built-up acres
TRANSP	Rural roads & railroad acres
SMALLH2O	Streams < 660 ft. & lakes < 40 ac.
LARGEH2O	Streams > 660 ft. & lakes > 40 ac.
LARGEURB	Large urban & built-up acres

SMALLURB Small urban & built-up acres

** Water **

WATER1	Water body 2-40 acres
WATER2	Water body < 2 acres
WATER3	Perennial stream < 66 ft. wide
WATER4	Perennial stream 66-660 ft. wide
WATER5	Perennial stream >= 1/8 mile wide
WATER6	Water body >= 40 ac. -lake
WATER7	Water body >= 40 ac. -reservoir
WATER8	Water body >= 40 ac. -bay or gulf
WATER9	Water body >= 40 ac. -estuary

** Primary and Secondary Land Uses **

AGRIC	Primary use: agriculture
BUSINESS	Primary use: business, commercial
RECLAND	Primary use: recreation -land based
RECH2O	Primary use: recreation -water based
RESID	Primary use: residential
OTHRES	Primary use: other reserved lands
WILDRES	Primary use: reserved -wildlife
TR	Primary use: transportation
WASTE	Primary use: waste management
AGRIC2	Secondary use: agriculture
BUSINES2	Secondary use: business, commercial
RECLAND2	Secondary use: recreation -land based
RECH2O2	Secondary use: recreation -water based
RESID2	Secondary use: residential
OTHRES2	Secondary use: other reserved lands
WILDRES2	Secondary use: reserved -wildlife
TR2	Secondary use: transportation
WASTE2	Secondary use: waste management

** Wetlands **

ARTWET	Artificial wetlands
CONWET	Converted wetlands
FARMWET	Farmed wetlands
PRIORWET	Prior converted wetlands
WET	Wetlands

2nd Edition. USDA Forest Service. Washington, DC. Miscellaneous Publication Number 1391 (revised).

Contact: USDA Forest Service, Office of Communication, Publications Distribution, (202) 205-0819. We obtained the Bailey data in electronic form from John Hof, Research Scientist, Rocky Mountain Research Station, (970) 498-1859.

Data Set Contents

<i>Variable Name</i>	<i>Label</i>
FIPS	FIPS Code
BAILEY	Bailey's ecoregion code
PCTAREA	Percent of county area
SQKM	Square kilometers
MOUNTAIN	Presence of mountains (1 if yes)
SQMI	Square miles
ELV	Mean elevation (feet)

LOCAL GOVERNMENT RESOURCES FOR OUTDOOR RECREATION

Summary

Municipal, county, and regional authorities, more than any other provider, supply outdoor recreation sites, facilities and programs near to and within the communities where Americans Live. Description of the broad array of local sports fields, trails, greenways, parks, and other outdoor facilities and sites is difficult, however, because systematic accumulation of statistics does not occur. A recent study, however, provides some insight into the supply of local government resources (Beeler 1993).

Approximately 4,528 local government departments offer outdoor services and facilities.

These departments are managed within the following governmental jurisdictions:

Municipal -- 3,289 departments
 County -- 880 departments

Special Districts -- 316 departments
Others -- 43 departments

Percentages of local government departments offering different types of outdoor opportunities are shown below by size of population served:

Opportunity type	Serving < 50,000	Serving > 50,000
Beaches	24.8	35.5
Lakes	38.0	57.7
Jogging/bicycle trails	54.2	69.8
Hiking/horse trails	22.6	51.0
Snow use trails	7.8	20.8
Mini parks	63.3	63.1
Neighborhood parks	72.5	69.8
Community parks	82.7	82.6
Metro/regional parks	27.2	68.5

Source: PKF Consulting (1995), Local Park and Recreation Facilities and Sites, Arlington, VA.

Departments range in size from small, one-person operations in small towns and rural counties to departments with several hundred employees in large cities. Smaller departments often rely heavily on volunteers to run programs and events while large departments will have numerous full-time professional park and recreation employees. Only about one-third of county governments have park and recreation programs and most of those are in the eastern states. Most of the operating funding for local park and recreation departments comes from property taxes, fees and charges. Large projects requiring substantial investments may additionally be financed through bonds, grants (federal and state) and special tax assessments. Operating budgets range typically from under \$35 thousand for small departments to over \$70 million for large ones.

Trends in local government offerings as shown in the PKF Consulting Study (1995)

indicate that sports fields, ball courts, parks and passive recreation areas (trails, open space, etc.) have been the supply emphasis of the last 5 years. Recreation facilities, such as archery ranges or picnic shelters, and water-oriented recreation sites have received less emphasis.

The Data

34. Local Government Agencies and Parks

Source: American Business Information, Inc. Marketing Research Division. Omaha, Nebraska. (In 1998, ABI was renamed InfoUSA and is still located in Omaha.)

Contact: InfoUSA, Inc. Marketing Research Division, Megan Anderson, (402) 593-4532.

Comments:

Data Set Contents

<i>Variable Name</i>	<i>Label</i>
ID	ID number
NAME	Park/agency name
CITY	City
STATEC	State
ZIP	Zip code
STATE	State FIPS
COUNTY	County FIPS
POPCODE	Population code
YEARAD	Year of first ad appearance
EMPLOY	Employee size
SALES	Sales volume
SICPRIM	Primary SIC code
SICSEC1	1st secondary SIC code
SICSEC2	2nd secondary SIC code
SICSEC3	3rd secondary SIC code
SICSEC4	4th secondary SIC code
FIPS	FIPS code
TYPE	Park category

35. Rails-to-Trails Conservancy Rail-Trails

Source: Rails-to-Trails Conservancy Rail-Trails Database. As of August 1996. Rails-to-Trails Conservancy (RTC), Washington, DC.

Contact: Hugh Morris, Research Coordinator, RTC, Washington, DC, (202) 797-5400.

Comments:

Data Set Contents

<i>Variable Name</i>	<i>Label</i>
TRAIL	Trail name
STATEC	State
STATUS	Trail status
TYPETR	Type of rail-trail
ENDPT	Trail endpoint
RRLENG	Trail length (miles) on RR R-O-W
TOTLENG	Total trail length (miles)
COMPLENG	Trail length on RR R-O-W when complete
URBAN	Trail passes thru urban environment
SUBURB	Trail passes thru suburban environment
RURAL	Trail passes through rural environment
USFS	Trail is located on a National Forest
ASPHALT	Asphalt surface
CRUSHED	Crushed stone surface
GRAVEL	Gravel surface
BALLAST	Ballast surface
GRASS	Grass surface
WOODCHIP	Wood chips surface
DIRT	Dirt surface
CONCRETE	Concrete surface
CINDER	Cinder surface
SAND	Sand surface
WALK	Trail use: walking
HORSE	Trail use: horseback riding
BIKE	Trail use: bicycling
SNOWMOB	Trail use: snowmobiling
XCSKI	Trail use: cross-country skiing
SKATE	Trail use: skating
MTBIKE	Trail use: mountain biking
FISH	Trail use: fishing
OTHUSE	Trail use: other
WHCHAIR	Trail use: wheelchairs

USERPRYR	Current level of annual use
USERYEAR	Year use level calculated
CRIMEMIN	Minor crime occurring
CRIMEMAJ	Major crime occurring
COUNTIES	Counties trail passes through
CONGDIST	Congressional district
LASTNAME	Last name of contact person
FRSTNAME	First name of contact person
TITLE	Title of contact person
ORG	Coordinating organization
ADDR1	Address
ADDR2	Address
CITY	City
ZIP	Zip
PHONE	Telephone number
STATE	State
COUNTY1	County trail passes through
COUNTY2	County trail passes through
COUNTY3	County trail passes through
COUNTY4	County trail passes through
COUNTY5	County trail passes through
COUNTY6	County trail passes through
COUNTY7	County trail passes through
COUNTY8	County trail passes through
COUNTY9	County trail passes through
COUNTY10	County trail passes through
COUNTY11	County trail passes through
COUNTY12	County trail passes through
FIPS1	County FIPS trail passes through
FIPS2	County FIPS trail passes through
FIPS3	County FIPS trail passes through
FIPS4	County FIPS trail passes through
FIPS5	County FIPS trail passes through
FIPS6	County FIPS trail passes through
FIPS7	County FIPS trail passes through
FIPS8	County FIPS trail passes through
FIPS9	County FIPS trail passes through
FIPS10	County FIPS trail passes through
FIPS11	County FIPS trail passes through
FIPS12	County FIPS trail passes through

36. Intermodal Surface Transportation Efficiency Act (ISTEA) Enhancement Funding

Source: ISTEA Enhancements Database, National Transportation Enhancements Clearinghouse (NTEC), c/o Rails-to-Trails Conservancy, Washington, DC.

Contact: Robert Patten, NTEC Director, (888) 388-6832 or (202) 463-0641, www.transact.org/ntec.htm .

Comments:

Data Set Contents

<i>Variable Name</i>	<i>Label</i>
STATE	State
ENHCAT	Enhancements category
NUMPROJ	Number of projects
FEDDOLL	Federal awards
MATCHDOL	Match funding
TOTDOL	Total funding

37. Intermodal Surface Transportation Efficiency Act (ISTEA) Enhancement Projects

Source: ISTEA Enhancements Database, National Transportation Enhancements Clearinghouse (NTEC), c/o Rails-to-Trails Conservancy, Washington, DC.

Contact: Robert Patten, NTEC Director, (888) 388-6832 or (202) 463-0641, www.transact.org/ntec.htm .

Comments:

Data Set Contents

<i>Variable Name</i>	<i>Label</i>
STATE	State
DOTDIST	State DOT district
YEAR	Funding cycle (year)
PROJECT	Project name
PROJCAT	Enhancement category
CITY	City
COUNTY	County
BIKEPEDT	Type of bike/ped facility
ACTTYPE	Type of activity

FEDDOL	Federal \$
MATCHDOL	Matching \$
TOTDOL	Total \$
MILEAGE	Trail mileage
FIPS	FIPS Code

38. National Park Service, Federal Lands to Parks (Surplus) Properties

Source: NPS Federal Lands to Parks Program Database. As of September 1996.

Contact: Wendy Ormont, National Park Service, National Center for Recreation and Conservation, (202) 343-3759.

Data Set Contents

<i>Variable Name</i>	<i>Label</i>
PROPCD	Property ID Number
ACRES	Property acreage
PNAME	Property name
ACTIVE	NPS respons. for compliance
EXPDT	Date 20 year deed expired
REVDT	Date property reverted to fedl. govt.
PERPDEED	Perpetuity deed for P&R
RECIP	Recipient of property
TYPE	Type of recipient agency
LWCF	Property received LWCF assistance
FIPS	FIPS Code
STATUS	Land transfer status
YRDEED	Year property deeded

39. Local Government Parks and Recreation Reports

- Sources:
1. Beeler, Cheryl S. In press. Recreation and Park Agencies. In H. Ken Cordell, ed. Outdoor Recreation in American Life: A National Assessment of Demand and Supply Trends. Champaign, IL: Sagamore Press.
 2. PKF Consulting. 1995. *Local Park and Recreation Facilities and Sites*. Arlington, VA: National Recreation and Park Association.

3. Godbey, Geoffrey, Alan Graefe, and Stephen W. James. (1992). *The Benefits of Local Recreation and Park Services: A Nationwide Study of the Perceptions of the American Public*. Arlington, VA: National Recreation and Park Association.

Contacts: The Beeler article is available in the forthcoming 1998 RPA Assessment book to be published by Sagamore Press, Champaign, Illinois. The PKF Consulting and Godbey et al. reports are available from the National Recreation and Park Association, Ashburn, VA, (703) 858-0784, www.nrpa.org.

Comments:

40. **National Park Service Rivers, Trails and Conservation Assistance (RTCA) Projects**

Source: RTCA Projects Database, Fiscal Year 1998, National Park Service, National Center for Recreation and Conservation.

Contact: Merle Van Horne, NPS, National Center for Recreation and Conservation (202) 565-1192.

Comments:

PRIVATE SECTOR RESOURCES FOR OUTDOOR RECREATION

Summary

The private sector has the most varied and wide reaching range of outdoor opportunities, services, facilities, and equipment of the four categories of outdoor providers in the U.S. It is not possible to fully describe this range in a few pages, thus selected supply elements are briefly described -- land, campgrounds, ski slopes, and servicing businesses.

There are approximately 1.3 billion acres of private rural land in the contiguous 48 states. Of these acres, approximately 180 million acres are open to public recreation under various conditions -- for example, for fee, with permission, through leasing. This represents a decrease of about 35 percent from the acreage open in 1985, which then stood at 278 million acres. Much of

this decrease was in the Rocky Mountain region where access rights are changing dramatically because of rising population and settlement.

Campgrounds are among the more widely thought of type of recreation site to most people. However, the traditional view of camping in a quiet forest setting does not fully describe camping in the 1990s. An examination of Woodall's campground directory (McEwen forthcoming) indicates a wide array of private campgrounds ranging from rustic and nature-oriented sites with modest amenities to high-service, luxury sites for RVs and motor homes. In 1996, Woodall's listed around 6,900 private campgrounds that met their standards for listing. This represented a 15 percent decrease in number over the preceding 20 years. Most of this decrease occurred between 1987 (8,062) and 1996 (6,900). From the 1987 level of 948,000, the number of individual campsites fell to 812,000 in 1996. By level of amenity, numbers of campsites are summarized below:

Full hookup	480,783
Water and electricity	220,521
Electricity only	17,689
No hookups	94,667

A growth area in the private sector is downhill ski slopes and cross-country areas:

	<u>1987</u>	<u>1996</u>
Number of downhill areas	384	449
Lift capacity/hour (000s)	2,221	3,078
Cross-country areas	421	636

Most of this growth has been in the Northern region of the country with lesser, but substantial growth in the Rocky Mountain and Pacific Coast states. Trends for other privately provided

recreation services and sites have been mixed, some growing, other declining (American Business Information Inc. 1997). Selected private supply elements are summarized below by year:

	<u>1985</u>	<u>1996</u>
Marinas	5,008	5,771
Boat rental	4,835	4,802
Bicycle rentals/tours	554	938
Organized camps	8,630	6,725
Golf courses for the public	6,161	8,898
Membership golf courses	2,387	3,001
Archery ranges	226	440
Outfitters/Guides	898	1,330
Rifle/pistol ranges	351	557

The Data

41. 1995 National Private Landowner Survey

Source: Survey conducted by the USDA Forest Service, Southern Research Station, Athens, Georgia; the University of Georgia, Department of Agricultural and Applied Economics, Athens, Georgia; and the USDA Natural Resources Conservation Service, Washington, DC.

Contact: Jeff Teasley, Research Coordinator, University of Georgia, Department of Agricultural and Applied Economics, Athens, Georgia, (706) 542-0752.

Comments:

Data Set Contents

<i>Variable Name</i>	<i>Label</i>
FIPS	FIPS Code
ONLYHHM	Acres reserved: family & friends
ACRLEAS	Acres leased to individuals. or groups
OPENAC	Acres open to general public
CLOSDACR	Acres closed to public access
NOTDES	Acres not designated

42. 1994 Private Forest Lands Data

Source: Birch, Thomas W. 1996. Private Forest-Land Owners of the United States, 1994. USDA Forest Service. Radnor, PA: Northeastern Forest Experiment Station. Resource Bulletin NE-134. Also, we acquired the data set that this report is based on from Birch.

Contact: Thomas W. Birch, USDA Forest Service, Northeastern Forest Experiment Station, Radnor, Pennsylvania, (610) 975-4075.

Comments:

Data Set Contents

<i>Variable Name</i>	<i>Label</i>
FIPS	FIPS Code
ACRES	Acres of private forest land
OWNERS	Number of private ownership units
ACRES1	Acres private forest: individual owner
OWN1	Private ownership units: individuals
ACRES2	Acres private forest: partnership owner
OWN2	Private ownership units: partnerships
ACRES3	Acres private forest: corporation owner
OWN3	Private ownership units: corporations
ACRES4	Acres private forest: other owner
OWN4	Private ownership units: other
CLUBS	Acres of sport or recreation clubs
RECPURP	Acres of woodland used for recreation
POSTED	Acres of woodland that are posted
ACCESS	Acres posted to control/prohibit access
OWNREC	Acres where recreation a major reason for owning
PASTBEN	Acres where recreation a top benefit
FUTBEN	Acres where recreation an expected top benefit

43. The Nature Conservancy Tract Data

Source: The Nature Conservancy. Managed Area Basic Record (MABR) Database and Tracts Database. As of January 1997.

Contact: Christen Comstock, The Nature Conservancy, Science/Conservation Information Management, Arlington, Virginia, (703) 841-4241. Another contact is Adrienne Burk in the same division, (703) 841-5300.

Comments:Data Set Contents

<i>Variable Name</i>	<i>Label</i>
STATENAM	State
MACODE	Managed Area code
MANAME	Managed Area name
PROTSTAT	Protection status
PUBACCES	Public access
FIPS	FIPS Code
TRACTCOD	Tract code number
TRACTACR	Acres in tract
ACCESSTE	Legal access to tract
INSTTYPE	Type of managing instit.
MANGINST	Managing institution
UNITTYPE	Managed Area unit type

44. Land Trusts

Source: Wiebe, Keith, Abebayehu Tegene, and Betsy Kuhn. 1996. Partial Interests in Land: Policy Tools for Resource Use and Conservation. USDA Economic Research Service. Washington, DC. Agricultural Economic Report No. 744.

Contact: Available via the USDA Economic Research Service World Wide Web page, www.econ.ag.gov/epubs/htmlsum/partial.htm .

Comments:**45. Campgrounds (ABI)**

Source: American Business Information, Inc. Marketing Research Division. Omaha, Nebraska. (In 1998, ABI was renamed InfoUSA and is still located in Omaha.)

Contact: InfoUSA, Inc. Marketing Research Division, Megan Anderson, (402) 593-4532.

Comments:Data Set Contents

<i>Variable Name</i>	<i>Label</i>
ID	ID number
NAME	Campground name
CITY	City
STATEC	State
ZIP	Zip code
STATE	State FIPS
COUNTY	County FIPS
POPCODE	Population code
YEARAD	Year of first ad appearance
EMPLOY	Employee size
SALES	Sales volume
SICPRIM	Primary SIC code
SICSEC1	1st secondary SIC code
SICSEC2	2nd secondary SIC code
SICSEC3	3rd secondary SIC code
SICSEC4	4th secondary SIC code
FIPS	FIPS code
CG	SIC classification
OWNER	Ownership
RV	Is campground an RV Park?

46. Private Campgrounds, Woodall Publications Corporation

Source: Woodall's 1996 Campground Directory. Woodall Publications Corporation. Lake Forest, Illinois.

Contact: Doug McEwen, Professor, Department of Health Education and Recreation, Southern Illinois University, (618) 453-4331. Woodall's Publication Corporation can be reached at (800) 323-9076 or (847) 362-6700, www.woodalls.com. Their World Wide Web page has a searchable database of campgrounds and the database is also available on Microsoft's Expedia Trip Planner98 CD-ROM.

Comments: Woodall's will not sell or distribute their data because of its proprietary nature.

However, McEwen has worked closely with Woodall's since 1987 conducting trend analyses of their campground information. McEwen shared the information he received from Woodall's for both the 1989 and 1998 RPA Assessments. This consisted of a hard-copy printout of all public

and private campgrounds in the Woodall's directory with their zip codes and number of campsites (not specified as tent or trailer). We entered these into a Dbase IV file and converted to a SAS library.

Data Set Contents

<i>Variable Name</i>	<i>Label</i>
SITES	Number of campsites
ZIP	Zipcode of campground
FIPS	FIPS code of campground

47. **Tourist Attractions**

Source: American Business Information, Inc. Marketing Research Division. Omaha, Nebraska. (In 1998, ABI was renamed InfoUSA and is still located in Omaha.)

Contact: InfoUSA, Inc. Marketing Research Division, Megan Anderson, (402) 593-4532.

Comments:

Data Set Contents

<i>Variable Name</i>	<i>Label</i>
ID	ID number
NAME	Attraction name
CITY	City
STATEC	State
ZIP	Zip code
STATE	State FIPS
COUNTY	County FIPS
POPCODE	Population code
YEARAD	Year of first ad appearance
EMPLOY	Employee size
SALES	Sales volume
SICPRIM	Primary SIC code
SICSEC1	1st secondary SIC code
SICSEC2	2nd secondary SIC code
SICSEC3	3rd secondary SIC code

SICSEC4	4th secondary SIC code
FIPS	FIPS code
MUSEUM	Attraction is a museum
CATEGORY	Attraction category

48. **Cross Country Ski Areas**

49. **Downhill Ski Areas**

50. **Recreation Businesses**

hunting & fishing preserves
 marinas with <5 employees
 marinas with 5-9 employees
 marinas with 10+ employees
 travel agents offering cruises
 tour operators with <5 employees
 tour operators with 5-9 employees
 tour operators with 10+ employees
 skiing tour operators
 expedition outfitters
 bicycle tour operators
 skiing centers /resorts
 fish camps
 dude ranches
 organized camps
 public golf courses
 private golf courses
 amusement places
 misc. recreation centers
 private tennis courts
 private swimming pools
 private fishing lakes
 hunt and fish clubs
 archery ranges
 baseball batting ranges
 bicycle rental firms
 boat rental firms
 boating instruction firms
 canoe trip outfitters
 canoe rental firms
 fairgrounds

diving instruction programs
fishing piers
public fishing lakes
fishing parties
miniature golf firms
golf practice ranges
guides services
historical places
picnic grounds
playgrounds
riding academies
rifle and pistol ranges
sail instruction firms
sightseeing tours
ski equipment rental firms
stables
public swimming pools
public tennis courts
trap and skeet ranges
water equipment rental firms
fishing lakes and ponds
raft trip firms
scuba diving tours
hunting trip guides

51. Private Timber Industry Lands

** move before recreation businesses near private lands

** include sources and contact and brief description of the findings from my research this summer

CONCLUSIONS

** need conclusions section**

APPENDIX 1

The RPA Assessment of Outdoor Recreation And Wilderness²³

Although the purpose of this report is limited to documenting and describing outdoor recreation resources in the United States and the data and information sources that were the basis of the recreation supply chapter of Cordell (in press-a), it is useful to provide some context for this study in the scheme of the entire national recreation assessment. The Forest and Rangeland Renewable Resources Planning Act (RPA) of 1974 directed the Secretary of Agriculture to assess the demand, supply and condition of all forest and range resources in the United States. After an initial report submitted to Congress at the end of 1975 followed by an update in 1979, the Act required that a decennial assessment be conducted in an on-going process to keep resource information up-to-date. The intent of the RPA Assessment was to provide information for long-range planning and policy purposes by describing recent trends, current conditions and likely futures for those renewable resources in the United States that fall under the USDA Forest Service's philosophy of multiple-use management: timber, water, wildlife and fish, range, minerals, and outdoor recreation and wilderness. The 1998 RPA Assessment of Outdoor Recreation and Wilderness (Cordell, in press-a) is the fourth such study done to meet the mandates of the 1974 RPA Act. Assessments of the other renewable resources are published separately, with key findings from all of the Assessments typically published in a single summary document.

The scale of outdoor recreation and wilderness assessments prior to this one was primarily national. Regional differences were described and interpreted as possible, given data limitations.

²³This section is based in large part on Cordell (in press-b).

The scale of concern has become progressively finer, as the assessment and technology have evolved since the first study in 1975. The overall national picture is still the major focus of this assessment, but increased emphasis has been placed on identifying regional differences and on examining geographic patterns of the relevant variables at county scale.

An important part of past RPA Assessments has been the comparison of demand and supply trends through a constructed “gap” analysis. This examined the difference between demand for outdoor recreation and wilderness opportunities and the supply of these opportunities. The gap analysis approach helps to identify imbalances between supply and demand such that differences may be viewed as problems, or opportunities, for setting policies and programs to better match future demand and supply. This type of information to support long-range planning and policy-making is the primary reason for conducting the national assessment.

Although these demand and supply comparisons were highly informative, the complexity and assumptions underlying the gap analyses made communication of findings difficult. Therefore, a formal gap analysis was not attempted for the 1998 Assessment. Instead of using such a statistics-based approach, assessment specialists relied on expert judgment to examine supply trends across the spectrum of opportunities provided by the public and private sectors in light of demand trends and projections. From this process and basic knowledge of outdoor recreation and wilderness issues, Assessment scientists attempted to identify policy, management and research implications for the country. A *framework* was necessary to provide a logical structure for the 1998 national assessment of outdoor recreation and wilderness. It included the following activities, the first of which pertains to the focus of this report, outdoor recreation

resources²⁴:

- Inventory and describe trends in the availability of the land and water *resources* of this country for outdoor recreation uses, both publicly and privately owned.
- Examine in depth the availability of *private rural lands* for outdoor recreation and the conditions under which access is permitted.
- Describe recent trends and current *participation* in outdoor recreation by region of the country and across social groups.
- Forecast *future participation* trends under widely accepted assumptions about future population growth, changes in population makeup and shifts in the availability of recreation opportunities.
- Describe recent trends, the current situation and likely future *Wilderness System* designations, uses, and values.
- Describe the public's *perceptions* and evaluations of recreation opportunities in the United States.
- Interpret the *implications* of resource availability, demand, and other trends for future resource management, policy and research.

It is important to note that the national recreation assessment covers all sources of outdoor recreation opportunities, not just those that occur on Forest Service lands. This is true for each of the renewable resource assessments conducted by Forest Service Research staff. Sources of outdoor recreation opportunities include federal agencies, state governments, local governments, and private lands and businesses. The Assessment's primary emphasis is on natural resource-based recreational opportunities, but some attention is also given to facilities for outdoor sports and other activities that are found mostly in urban settings (but which occur in rural areas as well). Despite the relative difficulty in acquiring good data, private-sector recreation opportunities are

²⁴The reader is referred to Cordell (in press-a) for a full treatment of each of these Assessment activities. Only the supply of recreation resources is covered in this report.

viewed with equal importance as those in the public-sector. In fact, public and private opportunities are largely complementary of one another.

A key concept in the assessment of outdoor recreation resources is “availability”. Not all land, water and snow/ice resources are available, or are available in the same way, for outdoor recreation. Measuring this availability concept, however, is not a simple matter. In many cases, it requires a depth of resource analysis and investigation that is not possible in a large-scale national assessment. A good example is the land and water managed by Federal government agencies. Some of those resources are easily classified as “unavailable”, e.g., certain National Wildlife Refuges that are closed to public use. Or, the large portions of most military bases that are closed to the public for security reasons. Many Federal resources, however, may officially be open to public use but are not suitable for recreational use because of timber harvesting, mining operations, and the like. Or there may be water quality problems that preclude desired recreational uses. A serious problem that has received a good deal of attention is the lack of access to many Federal lands, largely due to road closures or envelopment by privately-owned lands (U. S. Government Accounting Office 1992). Peterson and Williams (in press) covered this issue in the 1998 RPA Assessment. So, while some notions of availability are relatively easy to quantify, others are either not straightforward, lack the necessary data, or require extensive analyses that are not a part of the national assessment process.

Given those conditions, our intention was to identify the land, water, snow/ice and developed resources which are available for outdoor recreation use and which thus represent opportunities for the public. The concept of availability was limited to places (where data existed) that were open to public use. For the 1998 RPA Assessment, we attempted to describe recreation

opportunities as they currently existed at a point-in-time. Another important objective was to identify and describe trends in the area, number and location of these opportunities. In this report, these findings are briefly summarized in the short write-ups that appear at the beginning of the five resource ownership/management categories: Federal Land and Water Resources, Public/Private Partnership Resources, State Land and Water Resources, Local Government Resources, and Private Sector Resources. The primary focus of this particular report is to document the data and information sources upon which the RPA Assessment chapter on recreation supply was based. It is intended to serve as a reference both for those conducting future assessments and for other interested recreation researchers and planners. More specifically, our examination of outdoor recreational opportunities across the five resource categories includes:

- Federal properties across the seven major land management agencies, plus coverage of military, Indian and Marine Sanctuary properties.
- Specially designated federal systems including wilderness, national recreation areas, national trails, and national rivers.
- Campgrounds and other camping facilities, both public and private.
- Public/private partnership resources, specifically two umbrella programs that have grown substantially in the 1990s: Scenic Byways and Watchable Wildlife.
- State recreation lands including state parks, forests, wilderness, fish and game lands, state trails, and scenic rivers.
- Local government recreation and park agencies, local facilities and sites, park districts, outdoor recreation resources in urban areas, and greenways.
- Recreational access to private lands, industrial and nonindustrial; Nature Conservancy preserves; and private recreation businesses, both the providers of facilities and the providers of services.

The above categories of recreation resources and opportunities were compiled into a national

database of county-scale data called the 1997 National Outdoor Recreation Supply Information System (NORSIS). NORSIS contains over 400 separate measures of a wide variety of recreation opportunities. Many resources were not measurable at county-scale and thus are not a part of the county-level database. However, those source data sets still make up part of the overall NORSIS. The process of collecting recreation supply data and the development of NORSIS are the subject of the next section.

APPENDIX 2

**** Reprint the NORISIS Codebook, about 75 pages ****

Purpose is to have everything related to NORISIS and the recreation supply source data sets conveniently together in a single document.

APPENDIX 3

Annotated SAS Program to Create National NORSIS Database

[Note—only a sample is printed now; program is 67 pages; needs more detailed annotations]

*** 3/18/97 file-- norsis97.prg

description-- creates the 1997 NORSIS database by creating summary variables of all pertinent resource variables for RPA Assessment stored in more than 30 source datasets. All files merged together by FIPS to create NORSIS97, a county-level dataset describing outdoor recreation resources in the U.S. ;

options nofmterr;

*** libname statements for resource dataset SAS libraries;

```
libname fs 'c:\rpa\supply\data\usdafs';
libname nps 'c:\rpa\supply\data\nps';
libname rivers 'c:\rpa\supply\data\rivers\nri';
libname blm 'c:\rpa\supply\data\blm';
libname blmsite 'c:\rpa\supply\data\blm\sitelist';
libname coe 'c:\rpa\supply\data\coe';
libname burec 'c:\rpa\supply\data\burec';
libname tva 'c:\rpa\supply\data\tva';
libname fws 'c:\rpa\supply\data\fws';
libname sp 'c:\rpa\supply\data\stateprk';
libname nri 'c:\rpa\supply\data\nri';
libname bailey 'c:\rpa\supply\data\bailey';
libname crp 'c:\rpa\supply\data\crp';
libname abi 'c:\rpa\supply\data\abi';
libname rtc 'c:\rpa\supply\data\rtc';
libname flp 'c:\rpa\supply\data\nps\flp';
libname ski 'c:\rpa\supply\data\ski';
libname birch 'c:\rpa\supply\data\birch';
libname ws 'c:\rpa\supply\data\rivers\w&s';
libname tnc 'c:\rpa\supply\data\tnc';
libname awa 'c:\rpa\supply\data\rivers\awa';
libname ers 'c:\rpa\demog\data';
libname implan 'c:\rpa\supply\data\implan';
libname norsis87 'c:\rpa\norsis87';
libname census 'c:\rpa\demog\data';
libname woodall 'c:\rpa\supply\data\woodall';
libname nplos95 'c:\rpa\supply\data\nplos';
```

** Bailey's ecocodes and ecoregions. Includes presence of mountains in county;

```
data bly212 bly221 bly222 bly231 bly232 bly234 bly242 bly251 bly255
      bly261 bly262 bly263 bly311 bly313 bly315 bly321 bly322 bly331
      bly332 bly333 bly334 bly341 bly342 bly411;
```

```
set bailey.bailey;
```

```
* eliminating the letter which represents Section;
```

```
b= substr(bailey,2,3);
```

```
if b='212' then output bly212;
```

```
if b='221' then output bly221;
```

```
if b='222' then output bly222;
```

```
if b='231' then output bly231;
```

```
if b='232' then output bly232;
```

```
if b='234' then output bly234;
```

```
if b='242' then output bly242;
```

```
if b='251' then output bly251;
```

```
if b='255' then output bly255;
```

```
if b='261' then output bly261;
```

```
if b='262' then output bly262;
```

```
if b='263' then output bly263;
```

```
if b='311' then output bly311;
```

```
if b='313' then output bly313;
```

```
if b='315' then output bly315;
```

```
if b='321' then output bly321;
```

```
if b='322' then output bly322;
```

```
if b='331' then output bly331;
```

```
if b='332' then output bly332;
```

```
if b='333' then output bly333;
```

```
if b='334' then output bly334;
```

```
if b='341' then output bly341;
```

```
if b='342' then output bly342;
```

```
if b='411' then output bly411;
```

```
proc summary data=bly212 nway;
```

```
  class fips; var sqmi; output out=bly212 sum=bly212; run;
```

```
proc summary data=bly221 nway;
```

```
  class fips; var sqmi; output out=bly221 sum=bly221; run;
```

```
proc summary data=bly222 nway;
```

```
  class fips; var sqmi; output out=bly222 sum=bly222; run;
```

```
proc summary data=bly231 nway;
```

```
  class fips; var sqmi; output out=bly231 sum=bly231; run;
```

```
proc summary data=bly232 nway;
```

```

class fips; var sqmi; output out=bly232 sum=bly232; run;
proc summary data=bly234 nway;
  class fips; var sqmi; output out=bly234 sum=bly234; run;
proc summary data=bly242 nway;
  class fips; var sqmi; output out=bly242 sum=bly242; run;
proc summary data=bly251 nway;
  class fips; var sqmi; output out=bly251 sum=bly251; run;
proc summary data=bly255 nway;
  class fips; var sqmi; output out=bly255 sum=bly255; run;
proc summary data=bly261 nway;
  class fips; var sqmi; output out=bly261 sum=bly261; run;
proc summary data=bly262 nway;
  class fips; var sqmi; output out=bly262 sum=bly262; run;
proc summary data=bly263 nway;
  class fips; var sqmi; output out=bly263 sum=bly263; run;
proc summary data=bly311 nway;
  class fips; var sqmi; output out=bly311 sum=bly311; run;
proc summary data=bly313 nway;
  class fips; var sqmi; output out=bly313 sum=bly313; run;
proc summary data=bly315 nway;
  class fips; var sqmi; output out=bly315 sum=bly315; run;
proc summary data=bly321 nway;
  class fips; var sqmi; output out=bly321 sum=bly321; run;
proc summary data=bly322 nway;
  class fips; var sqmi; output out=bly322 sum=bly322; run;
proc summary data=bly331 nway;
  class fips; var sqmi; output out=bly331 sum=bly331; run;
proc summary data=bly332 nway;
  class fips; var sqmi; output out=bly332 sum=bly332; run;
proc summary data=bly333 nway;
  class fips; var sqmi; output out=bly333 sum=bly333; run;
proc summary data=bly334 nway;
  class fips; var sqmi; output out=bly334 sum=bly334; run;
proc summary data=bly341 nway;
  class fips; var sqmi; output out=bly341 sum=bly341; run;
proc summary data=bly342 nway;
  class fips; var sqmi; output out=bly342 sum=bly342; run;
proc summary data=bly411 nway;
  class fips; var sqmi; output out=bly411 sum=bly411; run;

data all;
drop _type_ _freq_ xx;
merge bly212 bly221 bly222 bly231 bly232 bly234 bly242 bly251 bly255

```

```

    bly261 bly262 bly263 bly311 bly313 bly315 bly321 bly322 bly331
    bly332 bly333 bly334 bly341 bly342 bly411;
by fips;
array a(24)
    bly212 bly221 bly222 bly231 bly232 bly234 bly242 bly251 bly255
    bly261 bly262 bly263 bly311 bly313 bly315 bly321 bly322 bly331
    bly332 bly333 bly334 bly341 bly342 bly411;
do xx=1 to 24;
    a(xx)=a(xx)*640;      /* converting square miles to acres */
    if a(xx)=. then a(xx)=0;
end;

*** summing across provinces to create variables for ecoregions;
blyd210= bly212;
blyd220= bly221+bly222;
blyd230= bly231+bly232+bly234;
blyd240= bly242;
blyd250= bly251+bly255;
blyd260= bly262+bly263;
blyd310= bly311+bly313+bly315;
blyd320= bly321+bly322;
blyd330= bly331+bly332+bly333+bly334;
blyd340= bly341+bly342;
blyd410= bly411;

*** summing acreage in counties with mountains;
data mtn; set bailey.bailey (keep=fips mountain sqmi);
    if mountain=1;
proc summary nway; class fips; var sqmi; output out=mtn sum=blymtns; run;

data bailey; merge all mtn (drop= _type_ _freq_); by fips;
    if blymtns=. then blymtns=0;
    blymtns= blymtns*640;
run;

*** USDA Forest Service: National Forest and National Grassland acreage;

proc summary nway data=fs.fs;
    class fips;
    var nfacres ngacres;
    output out=fs1 sum=fsnfacre fsngacre;

```

```

* FS variables from 1987 NORISIS;
data fs2;
set norsis87.norsmisc (keep=fips fsramp--fsroad fscgs fstents fstrlrs fscgac);

* Wilderness acreage from 1993 RPA Update;
data wild;
set norsis87.wild93 (keep= fips wildfs wildnps wildfws wildblml wildall);

* Wild & Scenic River miles from 1993 RPA Update;
data wrs;
set norsis87.wild93 (keep= fips wrsfs wrsnps wrsblml wrsall);

* public and private campgrounds from Woodalls Directory;
proc summary nway data=woodall.cgpub;
  class fips;
  var sites;
  output out=wood1 sum=cgpubsit n=cgpubnum;

proc summary nway data=woodall.cgpriv;
  class fips;
  var sites;
  output out=wood2 sum=cgprivsit n=cgprivnum;

*** National Park Service: unit acreage and presence of site attributes;

/* merging NPS acreage and attribute data. Assume that all counties
with NPS property have all of the attributes since we do not know
which particular county a facility or attribute is in, e.g. boat
ramps */

data npsacre; set nps.nps (keep= alphcode area fips fedsub nfedsub gross);
  proc sort; by alphcode; run;
data npsattr; set nps.npsinfo
  (keep= alphcode biking boating boatramp campgrnd cat fishing hiking
  horse hunting mtnclimb picnic snowmob swimming xscki);
  proc sort; by alphcode; run;

data nps; merge npsacre(in=xx) npsattr; by alphcode;
  if xx;
run;

** NPS public, private and gross acreage;

```

```

proc summary data=nps nway;
  class fips;
  var fedsub nfedsub gross;
  output out=nps1 sum=npsfed npsnfed npsgross;

** NPS acreage by category;
proc summary data=nps nway;
  class fips;
  var gross;
  where cat='NRA' or cat='RA' or cat='NRRRA';
  output out=nps2 sum=npsnraac;

proc summary data=nps nway;
  class fips;
  var gross;
  where cat='NB' or cat='NBP' or cat='NHP' or cat='NHS' or cat='NBS' or
    cat='NMP' or cat='IHS';
  output out=nps3 sum=npshisac;

proc summary data=nps nway;
  class fips;
  var gross;
  where cat='NL' or cat='NS';
  output out=nps4 sum=npsnsac;

proc summary data=nps nway;
  class fips;
  var gross;
  where cat='NM';
  output out=nps5 sum=npsnmac;

proc summary data=nps nway;
  class fips;
  var gross;
  where cat='NP';
  output out=nps6 sum=npsnpac;

proc summary data=nps nway;
  class fips;
  var gross;
  where cat='WR' or cat='NWSR' or cat='NR' or cat='NSRW';
  output out=nps7 sum=npsnrac;

```

```

proc summary data=nps nway;
  class fips;
  var gross;
  where cat='NPWY';
  output out=nps8 sum=npspyac;

** NPS presence of site attributes;
data nps9a; set nps;
* deleting affiliated sites with no attribute information. One missing
  value indicates no data. Use 3 variables at random.;
  if picnic=. and hiking=. and horse=. then delete;
rename
  biking=npsbike
  boating=npsboat
  boatramp=npsramp
  campgrnd=npscamp
  fishing=npsfish
  hiking=npshike
  horse=npshorse
  hunting=npshunt
  mtnclimb=npsmtnc1
  picnic=npspic
  snowmob=npssnowm
  swimming=npsswim
  xcski=npsxcski ;
keep fips biking boating boatramp campgrnd fishing hiking
  horse hunting mtnclimb picnic snowmob swimming xcski;

proc summary nway data=nps9a;
  class fips;
  var npspic--npsxcski;
  output out=nps9 sum=;

data nps9; set nps9 (drop= _type_ _freq_);
run;

```

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