



PARK SCIENCE

INTEGRATING RESEARCH AND RESOURCE MANAGEMENT

Volume 20 • Number 1 • Spring 2000

U.S. Department of the Interior • National Park Service

A socioeconomic atlas for park management

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The natural and cultural landscapes adjacent to national park system units are experiencing dramatic change. Many parks once considered remote and distant from cities are now surrounded by an expanding urban and suburban matrix; parks in rural areas often attract gateway community development. For example, the Seattle, Washington, metropolitan area has expanded eastward toward Mount Rainier National Park; Tucson, Arizona, abuts Saguaro National Park; roads through Manassas National Battlefield Park in Virginia have become key commuter routes to and from Washington, D.C.; and Jackson Hole, Wyoming is a growing gateway community adjacent to Grand Teton National Park.

Changing activities and socioeconomic conditions in regions adjacent to park units can affect resources and visitor use within these parks. For example, increased development can lead to habitat fragmentation, contribute to degraded air and water quality, and intrude on historic settings and scenic values. Approximately half of the 62 park units that requested new general management plans in FY1999 were "seriously concerned about changes in surrounding land use" (Associate Director 1998). Population changes related to growth, aging, immigration, and mobility can alter traditional visitor use patterns and shift impacts on resources and demands for interpretive and recreation services.

Hence, park managers need systematic information about contemporary conditions and trends in human activities—socioeconomic trends—in the regions that surround individual units. Such informa-

tion can be used to anticipate and help address complex park management challenges that originate outside park boundaries. Maps are powerful tools to help managers visualize spatial patterns related to these socioeconomic trends (Machlis and McKendry 1996). For example, a map that shows projected population change in a broad region surrounding a national park also reveals where development will likely occur, and where park managers might actively collaborate in land-use planning decisions. A *collection* of maps of regional socioeconomic trends (i.e., related to population, resource use, commerce, land use, and so forth) can be organized into an atlas. Such an atlas can contribute to a better understanding of the changing character of adjacent lands and potential impacts on national parks, and provide managers with a critical planning, management, and public participation tool.

Regional socioeconomic atlases for park management may be valuable and necessary. This article describes a project that was recently initiated by the NPS Social Science Program to develop such an atlas.

Objectives and criteria

The objectives of the atlas project are to: (1) develop a *prototype* atlas of regional socioeconomic trends; (2) test the atlas at four units of the national park system; and (3) evaluate the usefulness of the prototype atlas through a review by superin-

tendents, resource managers, and others.

Each atlas should: (1) provide usable knowledge to park managers; (2) be cost-effective and efficient, with limited impact

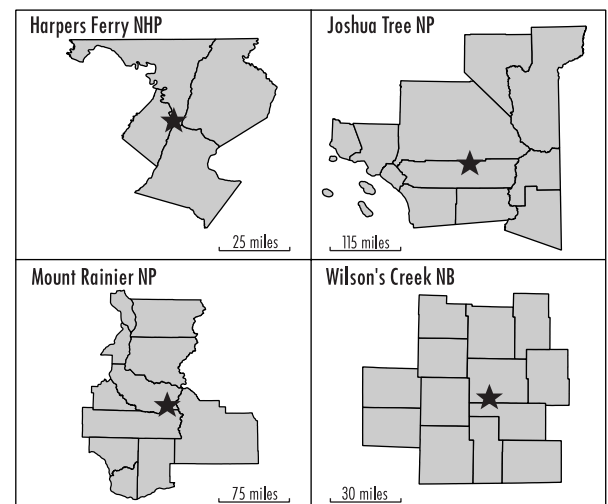


Figure 1. Regions of interest for the four pilot parks include aggregates of counties and were selected by park staff.

on park staff; (3) include the best available data sets from public and private sources that are easily updated in the future; and (4) include standard data sets that will allow comparisons among parks at the cluster, regional, and national levels. Using these criteria, a regional socioeconomic atlas for park management could potentially be developed for any unit.

Progress in developing the atlas

Four units were invited to serve as pilots for the project: Harpers Ferry National Historical Park (West Virginia), Joshua Tree National Park (California), Mount Rainier National Park (Washing-

See "Atlas" on page 13

ton), and Wilson's Creek National Battlefield (Missouri). These parks are diverse in size, geography, and type of unit. Superintendents at these parks expressed interest in the project and agreed to participate.

An inventory of socioeconomic indicators has been developed. Data for these indicators, available at the county level, have been collected from a variety of public sources, such as the U.S. Census Bureau. Data sets that include projections to the year 2020 have also been purchased from a private firm. Where possible, census tract-level data have also been collected.

The socioeconomic indicators are divided into two groups: a standard *core* set and *additional* indicators. The core indicators will be mapped for all four pilot parks. Staff at each park have selected additional indicators of interest from another list. The goal is to create a total of approximately 30 maps for each atlas.

The core and additional indicators are organized into six broad categories: general population characteristics, social and cultural characteristics, economy and commerce, administration and government, land use, and recreation and tourism. Examples of core and additional indicators by category are provided in table 1.

The staff at each of the pilot parks have identified a "region of interest" around their park (i.e., the geographic area around the park that may influence or impact the park's management). Regions of interest include aggregates of one or more contiguous counties and represent the area for which the core and selected additional indicators will be mapped. The regions of interest for the pilot parks are presented in figure 1 (cover).

A draft version of the prototype atlas will be developed for each pilot park and reviewed by park staff and others. Figure 2 provides a preliminary example of what an atlas page might look like in one of the prototypes. The draft will be revised and 10-20 copies of a bound, color atlas of regional socioeconomic trends will be distributed to the pilot parks along with a brief technical report describing the project.

The staff at each of the pilot parks will provide a written evaluation of the atlas that describes: (1) its overall utility to the park, (2) the usefulness of the socioeconomic data presented and atlas format, (3) how the atlas could be improved, and (4) the potential benefits of such an atlas for other parks.

Table 1. Examples of core and additional indicators

(Core indicators will be mapped for all pilot parks, and park staff will select 15 additional indicators.)

Category	Core Indicators	Additional Indicators
General Population Characteristics	• total population • projected population change	• elderly population • rural population
Social and Cultural Characteristics	• ethnic diversity • educational attainment	• projected ethnic diversity • crime
Economy and Commerce	• employment by industry • poverty	• change in employment by industry • unemployment
Administration and Government	• congressional districts • federal expenditures	• local government revenues • local government expenditures
Land Use	• ecoregions • change in farmland	• domestic water use • growth
Recreation and Tourism	• recreation/tourism employment • recreation/tourism revenue	• recreation/tourism establishments • seasonal housing

Based on these evaluations, additional and improved atlases may be created for other units.

Conclusion

The prototype atlas of regional socioeconomic trends will benefit each park in tangible ways. Through the use of selected socioeconomic indicators, the atlas can provide systematic information about the spatial character of human activities and changing land use in the region of interest surrounding a park. There are several potential uses. The regional socioeconomic trends information and maps could be integrated into the general management planning process. The atlas could be used as a tool to educate new park staff (and central office staff) about the region surrounding the park, and share information about socioeconomic trends with the public, gateway communities, media, and Congress. The atlas could be an important public participation tool, helping park staff work with local communities on planning and management decisions that affect both the park and the adjacent region. Using the methods described above, an atlas of socioeconomic trends could be developed for any unit, leading to an atlas *series* for the entire national park system. **P_S**

References Cited

Associate Director, Professional Services to National Leadership Council, memorandum, 10 August 1998. National Park Service. Washington, D.C.

Machlis, G. E. and J. E. McKendry. 1996. Maps and models for natural resource management: powerful tools from the social sciences. Pages 195-226 in A.W. Ewert, editor. *Natural Resource Management: The Human Dimension*. Westview Press, Boulder, Colorado.

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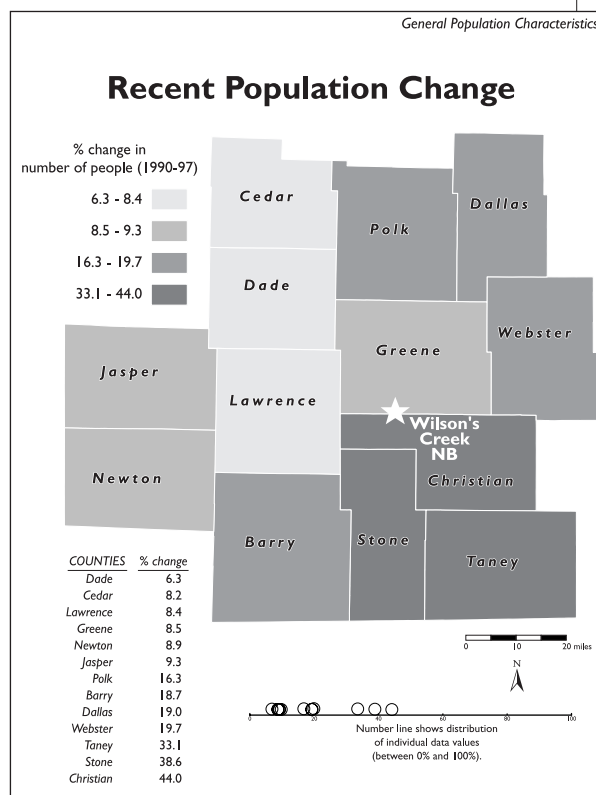


Figure 2. A preliminary example of an atlas page (showing population change for the region near Wilson's Creek National Battlefield).