

A method of correcting over-reporting and under-reporting bias in monitoring state park visitation among the general population

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What proportion of the general population visits state parks and related areas? To what extent are people aware of the jurisdiction and management of areas they use for outdoor recreation? These are the questions leading to this study of Pennsylvania (USA) state park users. While measuring visitation of specific parks can be effectively accomplished through a variety of mechanical and on-site survey methods, it is more difficult to determine visitation rates for park systems among the general public. For example, the National Park Service Comprehensive Survey of the American Public (2008–2009) reported that 61% of sampled US residents said they had visited a US National Park System unit within the previous two years. This was considered an “un-validated self-report” measure of the rate of National Park visitation among the US population. To adjust for possible overstated actual visitation, only those who subsequently correctly named an official NPS site were considered “validated” recent visitors, resulting in an adjusted NPS visitation rate estimate of 46% of the American public.

This study examines such measurement issues in the context of the Pennsylvania State Park system. Respondents in two statewide resident surveys were asked if they had visited a Pennsylvania State Park within the previous year, and if so, to identify the park visited. As in the national study, a telephone survey was utilized to obtain data from non-users (or infrequent and past users) as well as recent users of Pennsylvania State Parks. Our surveys corrected for overstated visitation using a protocol similar to the national survey, but also examined under-reported visitation by asking respondents reporting no State Park visits to name other outdoor recreation areas they had visited and detecting official State Parks within their responses.

The first study used a statewide random sample of Pennsylvania residents. The majority of respondents (55%) said yes to the initial question, “have you visited a Pennsylvania state park in the last 12 months?” About three-fourths of those respondents then named an actual Pennsylvania state park they had visited, thus validating their initial response. About 5% said they did not know which park they had visited, leaving 20% naming other types of areas that were not Pennsylvania state parks. The most common other types of areas mentioned included national parks (e.g. Valley Forge, Gettysburg), national forests (e.g. Allegheny), other federal areas such as US Army Corps of Engineers reservoirs, other state lands such as state forests or Game Commission/Fish and Boat Commission areas, county or municipal parks, state parks in neighboring states, and private areas including amusement parks. Respondents listing such areas instead of a Pennsylvania State Park in the follow-up questions were converted to non-state park users.

Further questions probing previous state park visitation (e.g., “have you ever visited a state park in Pennsylvania”) showed that non-users of the state parks included those who had formerly visited a state park and those who had never visited a state park. Over two-thirds of the non-users (78%) were in the former user category. Those who reported never visiting a Pennsylvania state park were asked if they visited any other types of public parks within the state during the past 12 months. Most of these individuals stated they had not visited any public parks. However, some of these “non-users” named Pennsylvania state parks they had visited, thus contradicting their earlier answers indicating no visits to state parks. This question revealed a source of under-reporting of state park visitation, counteracting the adjustments for over-reporting discussed earlier. Extrapolating the data to the overall state population, we concluded that about 43% of Pennsylvania residents visited a state park during the previous year, 44% did not visit within the last year but had visited a state park at some time, and just 13% had never visited a Pennsylvania state park.

The second study used the same questioning protocol with a sample of Pennsylvania residents identified as having an interest in outdoor recreation. The purpose of this telephone survey was to assess public use of and preferences for state park concessions as well as strategies to expand outdoor recreation services and opportunities within Pennsylvania state parks. Thus, the sampling design focused on gaining access to state park users and outdoor enthusiasts, rather than representing the general public. A targeted random sample of Pennsylvanians with an interest in outdoor recreation was purchased from ICOM Solutions, a survey database supplier.

As expected, the proportion of the sample identified as being current state park users (66%) was higher than in the earlier study of the general population. The sources of over- and under-reporting state park visitation, however, were consistent with those in the earlier study. Similar proportions of respondents named other types of areas when questioned about what state parks they had visited. In this study, 6% of those who reported that they had never visited a Pennsylvania state park subsequently listed a Pennsylvania state park as a place they had visited within the previous 12 months.

Results from both surveys confirm the notion, generally held among park professionals and researchers alike, that many recreation visitors are unaware of the jurisdiction and management authority of the outdoor recreation areas they are using. Implications for management are discussed, and a revised protocol for estimating visitation rates among various types of populations is presented.