Identifying community values to inform park management: an application of PPGIS.

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Protected areas provide a wide range of ecological, socio-cultural and economic values. While much work has been dedicated to ecological and economic valuation, there has been little systematic research to assess the social and cultural values attributable to protected areas. These less tangible values of protected areas are considered to be undervalued despite suggestions they are likely very important to the general public (Harmon & Putney, 2003). While it can be difficult, developing an understanding of community values of protected areas can be useful in guiding park management planning and decision-making. This study was undertaken to provide public input to assist the local management agency, Parks Victoria, in better understanding the landscape values and management preferences of the community in relation to protected areas. Landscape values are perceptions about places that determine land use aspirations and conflict. When landscape values are scientifically identified and mapped, they provide for a wide range of land use suitability and social impact analyses.

This study used an online public participation GIS survey (PPGIS) to evaluate the values people attributed to the protected areas and other public lands in the state of Victoria, in southeastern Australia. Victoria is the most densely populated state in Australia and the second most populous overall. It covers an area of 227,416 square kilometers, of which 31.8% comprise public lands – predominately parks and reserves (34.3%) and forest reserves (35.9%). In order to explore the community values and management preferences for protected areas, a Google Maps application was used to collect data from December 2013 through January 2014. The application allowed for navigation across the entire state and instructed participants to place markers identifying the location of specific public land values such as recreation, aesthetic, and biological value, as well as preferences for future land management (e.g. increased tourism development, increased conservation protection, additional recreation access and improved fire protection). The online method employed a number of navigational short cuts for mapping the location of values and preferences. The study also included a 14-question survey that followed the mapping activity and addressed participant and visit characteristics. Participants were recruited on-site at different national park locations and through a mix of other sources including distribution to national park advocacy groups, radio talk shows, and the use of social media. A variety of incentives were offered for participation in the study.

The study recruitment approach was very successful with over 1,905 respondents participating in the study. Responses identified as from various recreational groups and environmental advocacy groups made up for 20% of the total respectively. Over 35,347 point locations were identified within an 8-week period, making this study one of the largest scale PPGIS studies to date. The mapping effort of respondents was good, with an average of 18.8 mapped markers per participant. The largest number of locations mapped was 426.

The most frequently mapped values were recreation (n=5,939/20% of all markers), scenic/aesthetic (4,904/16%), biological (3,397/11%), life sustaining (2,051/7%), and wilderness (2,030/7%). The least frequently mapped values were economic (644/2%), spiritual (845/3%), and therapeutic (1197/4%). The mapping of management preferences totalled 4,446 markers or about 15% of all markers mapped. The most frequently mapped preferences were to prohibit future development and/or land use change (1439/32%), to increase conservation and protection (1277/29%), and to improve vehicle access (415/9%). The least frequently mapped preferences were to increase extractive activities (e.g., mining, logging) (57/1%), to increase resource use (e.g., grazing) 105 (2%), and to increase tourism development (118/3%). Other management preferences mapped were to improve bushfire protection (390/9%), add recreation facilities (308/7%), and decrease or limit vehicle access (234/5%).

Social landscape metrics were calculated for all parks and reserves containing 30 or more mapped values (n=93). Social landscape metrics give a better understanding of the structure and distribution of common and unique values across the park/reserve system (Brown and Reed 2012) and identify distinctive or unusual value distributions that can provide a focal point for managerial attention. The two metrics that measure the frequency of mapped values indicate that four national parks in particular—Alpine, Wilsons Promontory, Grampians, and Great Otway—are most important to residents of Victoria. These four national parks were mapped more than twice as often as any other park/reserve in Victoria. In terms of visitor numbers, these parks are among the most popular of Victoria's National Parks and appear deserving of the title of the "People's Choice Award" for Victoria's most valuable national parks.

Overall this study found that the protected area estate in Victoria provides the full spectrum of social and cultural ecosystem values with recreation, scenic/aesthetic, and biological values being most recognized by study participants. The larger, most highly visited national parks appear disproportionately important in providing these values, but the social landscape metrics also reveal that on a per hectare basis, metro and regional parks provide higher intensities of values centred on recreation. Despite the uneven spatial distribution of protected areas within Victoria, these lands comprise a complementary and representative system of social and cultural values that are abundant, rich, and diverse. National and wilderness parks provide relatively pristine natural settings that are differentially important for wilderness and intrinsic/extrinsic values, state forests provide biological and life sustaining values combined with nature-based recreation, and metropolitan and regional parks provide important recreation opportunities proximate to urban and suburban populations. The Victorian coast further augments the system by providing exceptional scenic values in combination with abundant marine life.

References

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