The Interdisciplinary Journal of Place-Based Conservation | volume 36/3 | 2020

PSF
PARKS STEWARDSHIP FORUM

Humanizing the *Seas*

A Case for Integrating the Arts and Humanities into *Ocean Literacy and Stewardship*

CITATION
Jacobs, Lara A., Michael P. Blacketer, Brian A. Peterson, Elena Levithan, Zachary A. Russell, and Michael Brunson. 2020. Responding to COVID-19 and future times of uncertainty: Challenges and opportunities associated with visitor use, management, and research in parks and protected areas. *Parks Stewardship Forum* 36(3): 483–488.

A DOI for this citation is available at: https://escholarship.org/uc/psf

Plastic Catch · Susan Schultz
porcelain and wood sculpture

Responding to COVID-19 and future times of uncertainty: Challenges and opportunities associated with visitor use, management, and research in parks and protected areas

Lara A. Jacobs, *Oregon State University*
Michael P. Blacketer, *Clemson University*
Brian A. Peterson, *Kansas State University*
Elena Levithan, *North Carolina State University*
Zachary A. Russell, *University of Georgia*
Michael Brunson, *Kansas State University*

Corresponding author
Brian A. Peterson
Kansas State University
Applied Park Science Lab
Department of Horticulture and Natural Resources
2021 Throckmorton PSC
1712 Claflin Road
Manhattan, KS 66506
brianpeterson@ksu.edu

Papers from the 2020
George Wright Society Student Summit:
"Systemic threats to parks and protected areas"

Abstract

In March 2020, many United States-based parks and protected area (PPA) managers implemented disease control measures (e.g., park and facility closures) in response to the COVID-19 pandemic caused by SARS-CoV-2. This thought-piece considers expected transformations in PPAs during unprecedented circumstances. We employ a challenges and opportunities framework to explain pandemic-induced alterations in visitor accessibility, PPA management, and scientific research. We acknowledge the complex difficulties that visitors, managers, and researchers may experience during pandemics and provide a listing of opportunities that result from these challenges. We suggest that PPA managers explore alternative solutions that maintain recreation access during future times of uncertainty. Maintaining access allows PPAs to continue serving as places for healthy recreation and restoration for park visitors and may create new opportunities for visitors, managers, and researchers. We underline the necessity to include human disease impacts into adaptive management frameworks and the shifting needs for current and prospective research. These details can affect the availability and accessibility of PPAs, how managers approach and adapt to unusual circumstances, and the focus of future recreation research.

In March 2020, many park and protected area (PPA) managers in the US implemented disease control measures in response to the pandemic caused by SARS-CoV-2. Managers around the country closed park facilities and halted recreation access to slow the spread of coronavirus disease (COVID-19). The pandemic necessitated quick management decisions; however, PPA managers should explore alternative solutions that maintain recreation access during future pandemics and other times of uncertainty. Maintaining access to PPAs during uncertain times allows public lands to continue serving as places for healthy recreation and restoration for park visitors. Such access may also create unanticipated challenges—and opportunities—for visitors, managers, and researchers.

This thought-piece provides ruminations on how visitor accessibility, PPA management, and scientific research can transform during unprecedented circumstances, such as the pandemic that continues as of this writing. The challenges and opportunities framework employed below documents discourse from six students who attended the George Wright Society's Virtual Student Summit on April 25, 2020.

Visitor challenges and opportunities

The ongoing pandemic produced unprecedented issues that strained visitor access to PPAs. Many PPAs closed during the initial phases of the pandemic to support federal, state, and city stay-at-home orders. These closures created physical accessibility challenges for

visitors and potentially even altered their perceptions of accessibility. Although stay-at-home mandates proved necessary for physical and social health and well-being, research indicates that adverse psychological effects can develop from prolonged episodes of isolation. Some effects include increased feelings of loneliness, stress, anxiety, depression, irritability, and diminished perceptions of self-identity (Samuelsson et al. 2020: 2). These psychological effects can be reduced through contact with the natural settings found in PPAs. Therefore, it is essential to examine the accessibility challenges associated with times of uncertainty to identify opportunities for park visitors. Identifying these opportunities may prove advantageous during future pandemics and public health crises.

Visitor challenges. "Accessibility" is a complex construct that includes dimensions of physical accessibility and perceptions of accessibility. During episodes of social uncertainty, numerous problems related to PPA accessibility could occur. Below, we outline three challenges that may arise: a rapid shift in behavioral norms in public settings, increased visitation to local PPAs (a challenge and an opportunity), and the exacerbation of problems associated with social inequities. Documenting these challenges will assist managers during future episodes of social uncertainty by helping them address accessibility issues.

During episodes of social uncertainty, a rapid shift of norms may occur that could change visitor behaviors in PPAs. However, behavioral norm changes may take time because some visitors may not possess insights about the importance of community-oriented health approaches, and thus will require more information to understand and adopt new practices. Further complicating matters, some PPAs may not offer spatially conducive accommodations for behavioral recommendations (e.g., social distancing). In areas where this occurs, visitor perceptions of safety could compromise accessibility. As a result, visitors may choose to avoid popular and more iconic locations and choose instead to visit local PPAs.

If visitors begin to perceive local settings as safer than larger parks, then local areas may receive higher visitation rates. Increased visitation at local PPAs could prove problematic for a variety of reasons, including diminished visitor experiences due to crowding conditions. If the visitor experience becomes diminished, then this may compromise recreation-related health benefits. However, this scenario applies only to people who are fortunate enough to have access to local parks. A lack of equitable park accessibility could exacerbate other problems arising from social inequities. For example, access to local parks remains important for communities without ready access to conventional medical systems. Natural settings found in PPAs represent essential venues for healthy recreation activity. Unfortunately, park resources are not equitably distributed across communities, and economically marginalized communities typically suffer the most from this disparity (Sister, Wolch, and Wilson 2009: 229). Consequently, health benefits associated with natural settings may not be as attainable during episodes of social uncertainty. Because PPAs proffer important components of societal health, the drivers and barriers to equitable access need to be addressed.

Visitor opportunities. Despite these challenges, times of uncertainty may present opportunities and unexpected benefits, such as the cultivation of empathy and sensitivity for groups experiencing social inequities, assistance with economic production, and heightened awareness of the benefits of community health. Identifying these opportunities can boost societal morale and help future PPA managers who face similar circumstances.

In a pandemic, visitation may shift toward local PPAs due to reductions in travel. These changes could relieve some ecological stressors related to high visitation rates at popular and iconic PPAs. The resulting increase in visitation to local PPAs may provide opportunities for people to discover and connect more deeply with areas closer to home. These types of connections could strengthen local PPA stewardship and conservation efforts, which might counterbalance any negative impacts resulting from increased local visitation rates.

Additionally, the desire for health benefits may also cultivate a more profound community orientation as individuals increase their awareness of the importance of local PPAs. This newfound awareness may foster increased empathy for and sensitivity to communities experiencing inequitable access to PPAs. Furthermore, it could spur local governments to respond by creating new PPAs in underserved areas.

Another opportunity exists in the relationship between a healthy society and a productive economy. Previous research suggests that societal health can increase economic production (Bloom, Canning, and Sevilla 2004: 1). These findings reinforce how the construction of more PPAs could boost societal health while generating parallel economic gains. However, societal health

may decline during periods of uncertainty, which could result in negative impacts on the economy.

Pandemics and other times of uncertainty bring into focus the importance of community-oriented behaviors. By adopting these types of behaviors, community values become more prominent. Strong community values can result in a heightened awareness of the need for a healthy community, which in turn can lead to numerous opportunities. However, it remains essential to acknowledge that not all community members possess the same privilege of access to PPA resources. Everyone unconditionally deserves access to the health benefits associated with natural settings in PPAs.

Management challenges and opportunities

Times of uncertainty may also pose challenges and opportunities for managers of PPAs, including the need to manage human diseases, new safety implications, and alterations to the current direct and indirect management techniques. However, these challenges may also provide several opportunities for managers to explore.

Management challenges for the National Park Service. In the case of the National Park Service (NPS), managers follow a dual mandate to protect natural and cultural resources while maintaining national parks in an unimpaired condition for future generations (NPS 1916). NPS maintains an Office of Public Health that identifies, prevents, and reacts to environmental, human, and animal health-related issues. This office focuses primarily on disease risks and illnesses associated with nonhuman animals (including zoonotic disease transmission), along with the safety of drinking water and food provided in national parks. However, the spread of COVID-19 and the likelihood of future large-scale events related to human health necessitate a shift in managerial focus to human-to-human disease transmission. A new management framework may be required of NPS that considers the capability of visitors to carry disease as a carrying capacity issue. This type of framework could feature similar attributes as other carrying capacity protocols, such as (1) management objectives, indicators, and thresholds; (2) indicator monitoring; and (3) management actions (Manning 2013: 6). Carrying capacity management of human health issues may require restrictions on facility use and visitor numbers, visitor permitting systems, and social distancing protocols to minimize human-to-human disease transmission.

Furthermore, as NPS managers extend their focus to human disease issues, it may require reinterpretations of the agency's mandate to make the parks accessible to visitors. Such reinterpretations may bring a cascade of problems, such as legal battles, increases in visitor–manager conflict, and significant adjustments to how managers interact with visitors. These issues could amplify the need for more robust safety protocols related to visitor encounters and conflict de-escalation training. Managers may also feel challenged by the need for a sharper focus on employee and volunteer health. For example, to protect employees and volunteers from airborne illnesses, park managers may need to secure and supply workers with personal protective equipment such as face masks, gloves, and hand sanitizer. To further protect employees, managers should also create social distancing and human health training modules, and potentially alter facilities and educational programs to maintain a safe environment for NPS staff, volunteers, and visitors.

Most of these challenges—which could be generalized to PPA-managing organizations beyond NPS—require alterations to current direct management practices (e.g., visitor use limitations and increasing the enforcement of park policies). However, indirect management techniques may also need to shift (e.g., more reliance on creative signage to limit employee–visitor and visitor-to-visitor contact and less on in-person educational programming), and managers may consider adopting new approaches to visitor messaging. These alterations may prove challenging, so we encourage PPA managers to focus on the opportunities associated with these issues.

Management opportunities. While the current pandemic brings new difficulties to PPAs, silver linings exist with new opportunities for innovation relating to visitor behavior, landscape management, and the evaluation of social relationships with landscapes.

We previously discussed how recreationists quickly adapted to PPA closures by taking advantage of parks closer to home (Rice et al. 2020: 9), and how societal changes associated with the pandemic provide an opportunity for managers to re-evaluate their priorities and potentially garner a greater appreciation for parks as a collective asset for human health. As visitors place increased attention on local PPAs, public land managers can assess the contemporary relevance of public lands in general as spaces for everyone to enjoy. Social assessments would be especially helpful in areas with underrepresented and minoritized peoples. Information from these communities could inform managers with essential data relating to the need for and development of more inclusive practices. An additional opportunity exists for local PPA managers to campaign

for more local resources, notably in areas that lack equitably distributed natural settings.

Garnering such data could help managers re-emphasize the purposes and importance of local PPAs. This is important because not everyone can make grand road trips to visit charismatic national parks such as Yosemite, Yellowstone, or Acadia. Local parks, trails, and greenways can provide much-needed emotional, physical, and spiritual rejuvenation and connect locals more deeply with their surrounding environments.

Future challenges for park managers are guaranteed. Yet, every problem provides an opportunity for managers to reconsider their understanding and appreciation for visitor use and PPA services. Therefore, in times of uncertainty, managers should seek out opportunities that allow them to re-evaluate their management practices and find opportunities to understand how society interacts with and benefits from PPAs. Additionally, managers should consider how to promote the essential human health values inherent to these areas. These considerations could positively influence the distribution of resources to local jurisdictions and increase recreation opportunities for underserved populations.

Recreational science research challenges and opportunities

In addition to visitor and management changes, PPA-related recreational science research may also transform in response to the impacts and implications of current and future pandemics and similar events. While some of these changes include direct responses, other changes follow the aforementioned shifts in PPA visitation and management. Researchers may require (1) increased reliance on multidisciplinary collaboration; (2) consideration of new methods and methodologies, including new data collection safety protocols; and (3) assessments that address new PPA-related baselines and normative behaviors (i.e., conditions resulting from behaviors that measure the degree to which certain conditions "ought" to exist; Manning 2011: 150). More generally, researchers will likely need to grapple with complexities and uncertainties related to social-ecological reciprocities. Each of these challenges represents an opportunity to make PPA research more robust and resilient.

Research challenges. Although PPA research draws from diverse areas of scholarship, discussions about shifting research methods related to pandemics have yet to enter the recreational science literature. We can expect that new additions to the literature will provide better insights into how researchers can produce and safely conduct meaningful research, information related to expected changes in visitor use, and necessary alterations in facility management for visitor and employee safety. These additions will require new tools for researchers who likely will not possess epidemiological backgrounds. To overcome this shortcoming, we recommend that PPA researchers collaborate with experts in public health and disease transmission and work together to understand new patterns of visitor use and behavior.

Within such new research partnerships, future PPA research needs to include a focus on human-to-human disease transmission. Researchers should consider how to conduct fieldwork during and after pandemics. While the maintenance of research participant safety has long been considered by Institutional Review Boards (oversight entities who review research ethics), pandemic conditions necessitate additional precautions. For example, during data collection, researchers may need to employ low-contact methods to reduce pathogen transmission. Additionally, participants may feel uncomfortable handling commonly touched surfaces (e.g., survey materials, binders, pens, clipboards, etc.). Researchers could require new methods for survey distribution, including a greater reliance on using participant-owned digital devices (i.e., employing electronic surveys delivered via QR code). However, such methods may prove difficult in remote PPAs and areas with unreliable cellular service. Additionally, relying on participants to supply equipment may increase barriers to survey participation.

Participants may also show less desire to participate in surveys or come into close contact with researchers. Additional problems may occur if researchers are not on location to retrieve research materials from participants. The lack of researcher presence may increase the occurrence of non-responses and incomplete surveys by participants. To overcome these challenges, researchers should develop protocols for cleaning and sterilization of commonly touched equipment and do so in a transparent manner in front of participants. Additionally, researchers should consider participant comfort levels relating to social distancing and wear personal protective equipment, such as face masks or gloves, when necessary. Other challenges relate to unpredictability in research schedules. This challenge requires thoughtful contingency plans to overcome interruptions, stay-at-home orders, travel restrictions, and other cancellations.

Regardless of data collection concerns, future PPA recreational science research may look different than in

previous years. Current research focuses may require re-evaluation to determine the pertinence of findings in a post-pandemic world. For example, many past and current baseline measures (e.g., visitation numbers, activities, areas of crowding, and group type) could experience dramatic changes. Future research can determine whether such shifts will continue through time. New research should also examine visitor activity changes. For example, visitors may choose activities that provide better isolation, fewer risks, and less contact with others and with commonly used equipment (e.g., reductions in equipment rentals). Researchers can provide insights on how shifting activities may result in economic declines, changes in visitor spatial behaviors, the need for new interpretation strategies, and potential changes in program implementation.

The final—and perhaps most systemic—challenge concerns a necessary evolution in the ideological underpinnings of PPA recreational science research. Previous conceptualizations tend to simplify PPAs through objective-based management. However, in doing so, these conceptualizations fail to acknowledge the wide range of social and ecological complexities inherent to PPAs. Failing to understand systemic and reciprocal social–ecological processes precludes understandings of the full impact of phenomena that create widespread uncertainty, such as the COVID-19 pandemic.

SARS-CoV-2 represents a substantial perturbation of global social–ecological systems (SESs). Such systems represent "bio-geo-physical units" with associated social actors and institutions, including complex, adaptive interactions delimited by spatial or functional boundaries of ecosystems and their contextual problems (Glaser et al. 2008: 193). Large-scale holistic thinking and application of SES science provides challenges to many facets of PPA management (McCool et al. 2015: 296–297). The magnitude of highly contagious diseases (e.g., COVID-19) suggests that the challenges of complex thinking need better incorporation into PPA research.

Research opportunities. Many pandemic-related challenges may offer opportunities to increase the robustness and applicability of PPA research. Foremost, the challenge of engaging in multi- and transdisciplinary research with colleagues from diverse disciplines represents an immense opportunity to rethink PPA scholarship to include knowledge about infectious diseases and associated impacts. Tapping into existing knowledge of virology and infectious diseases will help inform policy responses and focus future research on PPA-use resilience, including pandemic changes in visitation and management. Furthermore, multidisciplinary research provides researchers with more opportunities to publish in diverse journals, and thus to disseminate PPA knowledge to a more varied audience, including the general public. The challenge of increased costs and time for multidisciplinary research may be mitigated via common-source funding and distributed workloads across research teams. On the other hand, if multi- and transdisciplinary research proceeds more slowly, it may result in more robust and resilient products and create protocols to use in future times of uncertainty.

Changes in normative behavior and various baselines attributed to pandemics also present new research opportunities. For example, changes in visitor numbers, behavior, and visitor carrying capacity may render certain accepted metrics inaccurate. Thus, the current pandemic provides researchers with opportunities to document new baselines and create novel baseline-seeking methods. Opportunities also exist for theory development concerning the comparison of pre- and post-pandemic baseline measurements and possible latent variables that contribute to certain normative behaviors.

Visitation changes may also offer new opportunities for researchers to re-evaluate current thinking on recreation group size and consistency, and behavior and activity types. For example, these changes may provide opportunities for researchers to develop more family-centered programming or new ways to educate smaller groups of people. Family and other smaller groups may benefit from guidance from dedicated (or perhaps virtual) personnel who provide content and answers to visitor questions. Conversely, research should also probe the impact of social distancing on resource interpretation for non-family visitor groups. Doing so could create backup options for future pandemics that stimulate demand for PPA recreation experiences while addressing rapid shifts in visitor behavior.

Finally, the pandemic may fundamentally change the general role of the researcher. However, we frame this as an opportunity. While research typically evolves to fit the changing needs of management goals and priorities, we suspect that drawing from multi- and transdisciplinary research—including diverse practitioners, disciplines, and agencies—will entail deeper considerations of SES. For example, researchers can employ the Human Ecosystem Model (Burch, Machlis, and Force 2017: 4) to identify social–ecological cascades among actors, agencies, and resources for scenario planning and envisioning gaps in research.

The current pandemic will almost certainly alter PPA-related research. However, PPA scholarship boasts a rich repository of past studies from which researchers and managers can draw inferences and inspiration about methods capable of addressing social and ecological disruptions to outdoor recreation. PPA researchers' foresight and creativity will be necessary for addressing future perturbations. When such events occur, PPA managers will be better prepared to support the physical, mental, and emotional health of society.

Conclusion

Many PPA managers implemented quick closures in response to the rapid global spread of COVID-19 and the global human health crisis. In the future, we suggest that PPA managers consider different and more proactive responses. We believe that PPAs should stay open during future pandemics and similar times of uncertainty as long as managers, visitors, and researchers focus on park-specific solutions that overcome the associated challenges. Managerial decisions should strongly consider the promotion of essential health benefits associated with PPAs, as well as opportunities to increase research collaborations and capacities across fields. Careful considerations of expected challenges and opportunities might also redirect the future focus of PPA management, allow parks to remain as public health outlets for social respite, and provide better accessibility for underserved communities.

Acknowledgments

The lead author of this paper offers gratitude to the Achievement Rewards for College Scientists Foundation for funding support.

References

Bloom, David E., David Canning, and Jaypee Sevilla. 2004. The effect of health on economic growth: A production function approach. *World Development* 32(1): 1–13.

Burch, William R., Gary E. Machlis, and Jo Ellen Force. 2017. *The Structure and Dynamics of Human Ecosystems: Toward a Model for Understanding and Action*. New Haven, CT: Yale University Press.

Glaser, Marion, Gesche Krause, Beate Ratter, and Martin Welp. 2008. Human/nature interaction in the Anthropocene: Potentials of social–ecological systems analysis. *Gaia: Ecological Perspectives for Science and Society* 17(1): 77–80.

Manning, Robert E. 2011. *Studies in Outdoor Recreation: Search and Research for Satisfaction*. Corvallis: Oregon State University Press.

Manning, Robert E. 2013. *Parks and Carrying Capacity: Commons without Tragedy*. Washington, DC: Island Press.

McCool, Stephen F., Wayne A. Freimund, Charles Breen, Julia Gorricho, Jon Kohl, and Harry Biggs. 2015. Benefiting from complexity thinking. In *Protected Area Governance and Management,* Graeme L. Worboys, Michael Lockwood, Ashish Kothari, Sue Feary, and Ian Pulsford, eds. Canberra: Australia National University Press, 291–326.

National Park Service. 1916. The National Park Service [Organic] Act. 16 USC 1–4, ch. 408; 39 Stat. 53511.

Rice, William L., Tim Mateer, B. Derrick Taff, Ben Lawhon, Nathan Reigner, and Peter Newman. 2020. Longitudinal changes in the outdoor recreation community's reaction to the COVID-19 pandemic: Final report on a three-phase national survey of outdoor enthusiasts. Preprint.

Samuelsson, Karl, Stephan Barthel, Johan Colding, Gloria Macassa, and Matteo Giusti. 2020. Urban nature as a source of resilience during social distancing amidst the coronavirus pandemic. Preprint.

Sister, Chona, Jennifer Wolch, and John Wilson. 2010. Got green? Addressing environmental justice in park provision. *GeoJournal* 75(3): 229–248.