

# Seeking Park-based Science Information: Interpreters at the Gate



by the Park Service. Respondents to a survey by O'Herron (2009) had not heard of some information sources and most found it hard to get information, as it was scattered among various websites and local network drives. Science coordinators at Research Learning Centers make research briefs available to staff, though their use appears uneven according to emails exchanged in 2016 by NPS employees Tara Carolin, David Shelley, Paul Super, and Shannon Trimboli. Conducting internet searches yields article abstracts, but accessing full texts quickly becomes prohibitive. Clearinghouses charge fees, often \$50 or more per article.

Pursuing new information is in keeping with the Park Service's Interpretive Development Program (IDP) stance on professional development, which is explicitly in favor of on-



open-ended feedback forms interpreters submitted that described visitor learning occurring during programs. Of interest here are the survey responses from the 14 interpreters (100% return rate) who completed surveys online prior to the first day of training, and post-program surveys after they had at least ten weeks in which to implement iSWOOP visitor programs. Interpreters answered a mix of open-ended short-answer, multiple choice, and rating-scale items on the surveys (18 pre-program items; 22 post-program items). Several items were designed to capture the working knowledge and prior experience that interpreters might draw on to explicate science processes or to build science literacy with visitors. Quantitative survey data were analyzed using descriptive statistics and frequency distributions. Open-ended prose responses were coded for emergent themes (Charmaz 2006), and cross-checked

Interpreters mentioned a wide range of challenges, starting with simply knowing that scientific research is going on at all. Kate, a seasonal interpreter, said, “There is a massive dividing line between outside research and our interp divisions, at most parks. Simply knowing that research is happening is the toughest hurdle to overcome.” However, Nancy, a permanent staff member, felt that “maintaining regular communication between researchers and interpreters, so we have the most up-to-date research to interpret” is a challenge. While Nancy and Kate located the challenge outside themselves, Winston made it personal: “The biggest challenge for me is my ability to understand the science research so that I may incorporate it into programs. I find that science research now is very specialized and complicated.” Thus, interpreters stated a range of challenges, starting with simply knowing that scientific research is going on at all, to being kept up-to-date on it, and finally being confident in interpreting it.

In pre-program surveys, interpreters described their pressing needs for scientific information about park phenomena. The vast majority of interpreters reported frequent searches for scientific information. Half (7) indicated that they searched for information several times a week, while an additional five reported that they did so “almost weekly.”

Interpreters tended to rely most heavily on the Internet, followed by materials prepared by others for use in the park, and then, scientific journal articles related to science in the park (Figure 2).

Interpreters indicated that they were generally successful in finding the information they sought. Some reported having strong research skills. One interpreter (Jill) commented, “Sometimes it feels like a wild goose chase, but I usually find what I’m looking for.” Some interpreters mentioned their strategies, such as consulting co-workers, which significantly heightened their success.

For most interpreters, direct contact with scientists was rare. A large majority reported the frequency of contact as “a little” to “none” regarding public lectures by scientists at the park, participating in actual scientific data collection for park-based research, or regular ongoing exchanges (in person or by email) with scientists (Figure 2). Briefings by scientists about a particular species or habitat were also quite rare. In commenting on the dearth of

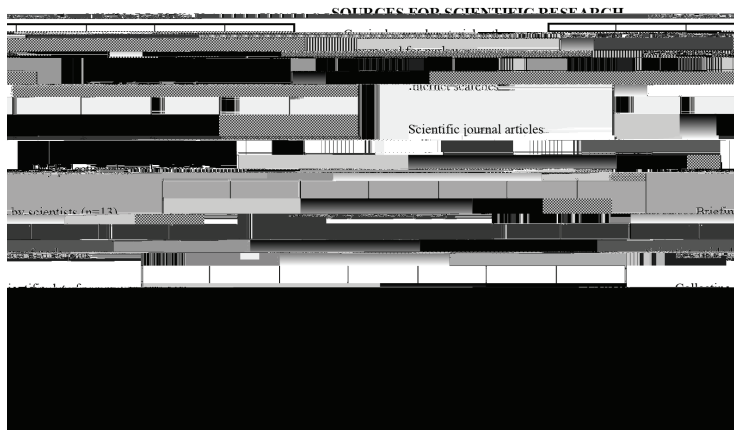


Figure 2.

information, one interpreter (Samuel) observed: “It seems that often research being done is being kept for the scientists while the interpreters are being left with the public domain information.” An interpreter (Rico) pointed out that in their initial training, there is lots of contact with researchers, but that future contact only seems to occur when he is seeking answers to questions. Such comments show that interpreters are aware that they are missing out.

When information flowed, interpreters noticed and appreciated this. Abe said: “At [one park] there was a great deal of informal contact between resource management and other park employees and I would credit those individuals with keeping people informed of projects and offering opportunities ... to assist.”. Interpreters made suggestions for increasing their contact with scientists. A seasonal employee (Yvonne) wrote that “I would love it if short talks and briefings with park staff would be built into research permits....”

When commenting on engaging the public, some interpreters highlighted the challenge of offering effective translation, while others focused on the challenge of encouraging visitors to listen and engage. Comments about effective translation were grounded in awareness of the audience, their prior knowledge, and their background. “Interpretive programming must effectively translate scientific research in a limited time frame to an audience with possibly little to no background in a topic or even the processes of research,” Yvonne commented. Her colleague Jill wrote: “The biggest challenge is avoiding the trap of jargon! Science research can sound like a foreign language to many people, and I have to remind myself that while I may be familiar with certain concepts and vocabulary now, it is the visitor’s first time hearing it.”

Most of the interpreters acknowledged the challenge in actively engaging visitors by encouraging them to share their thoughts and questions. Provocation is a part of the interpretive tradition (Larsen 2003) and iSWOOP encouraged interpreters to elicit visitors’ reactions. Two comments spoke to the tension that can surround the invitation to visitors to participate actively. Lena’s comment highlighted the expectations or norms that govern the interpreter–visitor interaction: “I think visitors are used to being talked to and not involved in the scientific process. Children were more willing to answer questions but adults have a few more inhibitions.” Patricia’s comment suggests that the unpredictability of park audiences was an obstacle: “As a presenter we need to tailor our talk to our audience, but the audience can be inquisitive or not and you don’t want to expect them to do the lifting if they don’t want to.”

Rico summarized the progression of challenges in the following way: “The biggest challenge is presenting research that can capture an audience’s attention to begin with, to present it in a way that keeps the information in lay terms, and allows the visitor to understand the ‘so what?’ factor—why it’s meaningful to [the] place and to themselves.” This comment shows that there is not just one challenge to surmount, but rather a series of challenges that require attention and on-the-spot adjustment.

iSWOOP professional development offered approximately 20 hours of direct contact with researchers and access to the researchers’ scientific visualizations, as well as strategies and techniques to promote visitor interaction. When asked to reflect on how iSWOOP had benefited them, most interpreters cited access to scientific research being conducted at the park. All but one indicated an increase in their understanding of the kinds and extent of on-site research being conducted at the park, and of the scientific techniques and technological





noted in the literature, interpreters' apparent knowledge is tied to credibility and influences visitor satisfaction and outcomes. Finding and assessing knowledge on park resources is an ongoing part of interpreters' work. Yet interpreters at Carlsbad Caverns faced challenges in finding, accessing, and understanding park-based scientific research. They saw advantages to having contact with scientists and resource managers, and envisioned how such contact could translate into communication of science with the public. Survey responses contained implied and explicit requests, naming actions from resource managers and scientists that would be helpful in their work.

*Challenges to finding out and using park-specific research.* To be effective interpreters, rangers need appropriate techniques and knowledge of the resource. To those who say that everything is online nowadays, this over-simplification of access obscures several challenges. First, the available content is daunting. There is so much to wade through. Even those with stellar research skills have limited time to sift through and make sense of search results.



research to the public with more credibility and confidence. Their messages about preserving public lands can include the importance of having sites that host cutting-edge science research as well as providing recreation, enjoyment, and habitat protection.

Challenges abound for park interpreters who seek information on park-based scientific studies. Peer-reviewed articles are costly to access and require time to vet for relevance. Like annual reports and permit applications, they tend to assume that the reader has the necessary technical background, which can leave interpreters unsure if they have fully grasped the findings. Contact with scientists and resource managers can help bypass these obstacles, creating a pathway for interpreters to inquire about research questions, methods, findings, and relevance.

Resource managers and park leaders tempted to ignore or defer professional development needs of interpretive staff do a disservice to their colleagues and the public. If the time is taken to build a robust understanding of park-based research among interpreters, they can maximize opportunities in their interactions with the public to convey that understanding of the park's resources and their significance. Interactions between interpreters and visitors can add to the public's awareness of foundational research as well as predicted impacts of climate change. In the long term, these formal and informal interactions have the potential to increase engagement in strategic decisions.

Resource managers can be gate-openers, using various ways to bring scientists and interpreters together. They can facilitate more opportunities for contact between these groups and elevate their communicators as conduits for research stories in parks. iSWOOP interpreters at Carlsbad Caverns National Park now have a model for bringing content and strategies together to increase visitors' awareness and curiosity about scientific research on public lands.

## Acknowledgments

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