

Inspiring Visitors' Scientific Inquiry

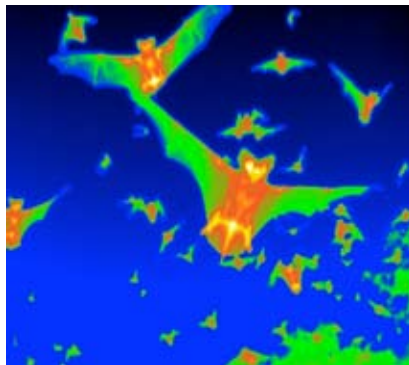
by Transforming an Interpreter's Science Communication

Science is wicked cool! So why has my enthusiasm for it dwindled significantly over six years in the role of National Park Service interpretation/ education ranger? Whether in Carlsbad Caverns or Rocky Mountain National Parks, why do I feel like a walking encyclopedia when I talk to visitors? Why am I struggling so when I seek to provoke visitors' scientific interest? Do I have the correct tools to provoke visitors to increase their scientific literacy?

In my experience, during the typical two- to four-week seasonal training, scientific research is usually presented in "sound bites," resulting in my superficial understanding of park science. Combined with assuming that visitors prefer quick answers rather than scientific details, I found myself didactically regurgitating



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Thermal camera shot of bats against a night sky.

simplified scientific results to visitors. Despite my best attempts to provoke visitors' wonderment, I increasingly felt like a walking encyclopedia and my scientific curiosity dwindled. I lacked the necessary tools to spark visitors' scientific inquiry and wonder.

However, a new model has enabled me to ignite visitors' scientific curiosity and understanding: Interpreters and Scientists Working on Our Parks (iSWOOP). iSWOOP empowers interpreters to communicate science in an engaging fashion that fosters visitors' scientific inquiry. Re-connecting with

my own curiosity has enabled me to adopt this new model successfully.

The iPhone with an attached thermal camera captivated me while I was attending iSWOOP training at Carlsbad Caverns National Park. "Cool! How much does this cost? I want one!" I asked out loud. The facilitator did not give me the answer, so I discovered the answer myself using my iPhone: \$250. We were learning how to use thermal camera technology to engage visitors and discuss how it enabled researchers to obtain an accurate bat population count. My excitement for science communication was being re-kindled.

In the table I compare iSWOOP's approach to the traditional style of communicating science:

To successfully develop an iSWOOP program, one needs a researcher, stories about the research process, intriguing visuals or props, and interactive techniques to start relevant conversations that raise visitors' awareness about National Park-based research. Where can interpreters get briefed on current park research if iSWOOP isn't scheduling scientists to come spend time with interpreters at your park? Most times, the shared drive is a rabbit hole, inefficient for accessing an overview of recent cutting edge studies. The internet is usually too broad, unless one has a researcher's name and access to repositories for science papers. If you're interested in integrating park research into your formal and nonformal programming, check out the vast store of research briefs available on the Inventory and Monitoring (I&M) Networks, Research and Learning Centers (RLCs), and the Integrated Resource Management Application (IRMA) websites.

Between jobs, I recently worked on the iSWOOP project, collecting and analyzing over 100 research briefs generated by RLCs and I&M. These are intended for interpreters' use, and so project director Martha Merson and I characterized the sample, paying attention to various attributes such as readability, type of visuals, subheads, story potential and more.

RLC and I&M briefs reveal the vast array of scientific research and extent

of inventory/monitoring efforts across national parks: wildlife, endangered plants, species relationships, and abiotic topics such as water quality. The brief two-page summaries lend themselves to interpreters quickly understanding the essence of the project.

Half of the briefs contained relevance to park management, but only a handful included relevance from the visitors' perspective. Most of the briefs contained a project introduction, methods, data findings, and discussion identified by subheads. Only a couple of briefs had a narrative layout. I particularly enjoyed the brief that narrated inventory efforts in Haleakalā National Park, a "true expedition into wilderness" to inventory at high-elevation streams. The description of the helicopter transport to a remote research hut where researchers would stay for five days helped me appreciate the extent of work that goes into the result-oriented science "sound bite" I share with visitors. I imagined sharing this story with visitors to help them appreciate the labors that go into scientists' research. This was the only brief of the 66 I&M briefs analyzed that told a story.

Briefs aren't one-stop shops; if an interpreter wants to share a research story with visitors, they first will need to contact the brief's researcher. Most briefs contain contact information to pursue this.

Intriguing visuals that enhance visitors' curiosity are a hallmark of a successful iSWOOP program and can be used to examine researchers' results, discover new information, or ask further questions about the research. When I was at Carlsbad Caverns, I showed visitors slow-motion videos and graphs showing emergence patterns to help elicit visitor questions. Images or a graph engage interpreters' and visitors' critical thinking skills while both parties decipher it. Out of 66 I&M briefs, 97 percent contained resource images, and about 35 percent contained graphs. Interpreters may consider pursuing the researcher for

iSWOOP is	iSWOOP is not
Personal and interactive: an approach to personal interpretation that makes science in parks an interactive and visible part of the public's park experience	Primarily using waysides, social media, exhibits, or print media to showcase park-based science
Audience-centered, two-way conversations that allow time for visitors to engage with each others' ideas	Information out
A way to talk about science as a process that starts from questions, involves revision, and has the potential to matter to all of us	A way to remind visitors that science is largely a collection of facts about how the world works
Based on the idea that science in parks is inherently interesting and full of good stories—both first person from interpreters' experiences and about the researchers and what they are studying	Facts strung together and offered in an engaging way
Technology and innovative methods key to understanding how we know what we know	Facts shared without attention to who figured it out and how
Sequenced images are to reveal something about the resource, but also as a starting point for inquiry and discussions of relevance	Images shown primarily to illustrate a place
Programs, formal and nonformal, that invite visitors to predict, observe, and speculate	A replacement for the strategies and know-how interpreters possess already
Comfortable with silence and reflection	Pre-scripted and pre-determined
Possible because interpreters and scientists spend time together in the field and in the classroom	Minimal or limited direct contact between interpreters and scientists, such as a one-hour bag-lunch or field work encounter without follow-up

high-resolution or additional visuals that enable interpreters and visitors to engage with the scientific results or ongoing efforts.

Working together, scientists and interpreters have the opportunity to raise park science awareness among visitors. Between iSWOOP's interactive strategies and this trove of research, I am eager to start new conversations with visitors about park science, to combine my reawakened enthusiasm for park research with the iSWOOP approach to transform my science communication with visitors. How will my techniques for science communication change as I learn researchers' stories and share

those with park visitors? How will park visitors' scientific literacy make itself felt and possibly grow in my presence once I let go of "knowing it all" and start to question and learn alongside visitors? I anticipate positive results during my summer season.

ABOUT THE AUTHOR

Alyssa Parker-Geisman graduated with a degree in Marine Geology from University of Miami, before beginning to work for the National Park Service. For further information on iSWOOP, please visit www.iswooparks.com or contact Martha Merson at martha_merson@terc.edu or Alyssa Parker-Geisman at alyssa_parker-geisman@nps.gov.