

# THE NATIONAL SIGNIFICANCE AND MANAGEMENT OF OREGON CAVES

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## Abstract

Only comprehensive comparisons of cave management techniques and methods with various government and non-governmental organizations can limit the anecdotal bias of single comparisons. While the Federal Caves Resources Protection Act can help provide the basis for determining significance, Oregon Caves is largely dependent on input from scientists, cultural historians, and the public both to demonstrate the Monument's national significance and to improve the effectiveness and accuracy of its programs.

The National Park Service is keenly interested in how best to manage caves and so is often the government agency best represented at venues like seminars and workshops. Part of such management assesses the effectiveness of its education by comparing techniques used by government and non-government organizations in multiple countries. No single educational method or evaluation is best, in part because what each of us needs from caves differs and because different organizations have different educational goals. This is largely what the National Park Service calls its approach interpretation, because it doesn't point to a single Truth or Method, but is an interpretation of a park's significance and other values using communication methods that make visits to park memorable.

One of the main focuses of National Park interpretation is to allow visitors the opportunity to understand the significance of each of its 385 units. As highlighted in the symposium presentation of

Ron Kerbo that immediately followed the Oregon Caves presentation (Halliday), Oregon Caves National Monument contains most, if not all of the criteria defined to establish significance under 43 CFR 37.11 subsection (c), to wit:

- (c) Criteria for significant caves. A significant cave on Federal lands shall possess one or more of the following features, characteristics, or values.
  - (1) Biota. The cave provides seasonal or year-long habitat for organisms or animals, or contains species or subspecies of flora or fauna that are native to caves, or are sensitive to disturbance, or are found on State or Federal sensitive, threatened, or endangered species lists.
  - (2) Cultural. The cave contains historic properties or archaeological resources (as described in 36 CFR 60.4 and 43 CFR 7.3)

or other features that are included in or eligible for inclusion in the National Register of Historic Places because of their research importance for history or prehistory, historical associations, or other historical or traditional significance.

- (3) Geologic/Mineralogic/Paleontologic. The cave possesses one or more of the following features:
  - (i) Geologic or mineralogic features that are fragile, or that exhibit interesting formation processes, or that are otherwise useful for study.
  - (ii) Deposits of sediments or features useful for evaluating past events.
  - (iii) Paleontologic resources with potential to contribute useful educational and scientific information.
- (4) Hydrologic. The cave is a part of a hydrologic system or contains water that is important to humans, biota, or development of cave resources.
- (5) Recreational. The cave provides or could provide recreational opportunities or scenic values.
- (6) Educational or Scientific. The cave offers opportunities for educational or scientific use; or, the cave is virtually in a pristine state, lacking evidence of contemporary human disturbance or impact; or, the length, volume, total depth, pit depth, height, or similar measurements are notable.

The national significance of Oregon Caves National Monument changes as we learn more about the Monument, especially from scientists and cultural historians who can adequately compare the Monument with other areas. We also use input from others to find out what is nationally significant to a majority of the public. The Monument is emblematic of its bioregion, where geologic diversity favored speciation and migration while slowing extinction. Therefore we have many “living fossils” (relicts), disjuncts (isolated from main range), hybrids, polyploids (speciation by adding chromosomes), extralimitals (here once but now gone), narrow endemics, and species at their geographical limits. The only sites for a millipede family (Drs Hoffman & Shelley) and a snail species (Dr Frest) and the only known Oregon and North America site for a moss (Dr Christy) and two lichens (Dr

Mikulin), respectively, are from the Monument’s 484 acres. The only other American cave that comes close to Oregon Caves’ nine known endemics restricted to a single cave and its more than 260 known species overall is Mammoth (Roth). Other caves with many such endemics include Samuel (7) and Clough (6) in California, Malheur (7) in Oregon, Cave Spring (7) in Alabama, Ezells (5) in Texas, Gilley (5) in Virginia, and Carlsbad (6).

Our national significance also includes one of the most complicated and longest forming geologic terranes in the world (Dr Donato *et al.*; Furtney). Our nationally significant fossils (Dr McDonald) include the most northerly, westerly, oldest dated (38,600 years), and one of the most complete fossil jaguars (Dr Seymour), one of the richest Cenozoic amphibian sites in the country (Dr Mead, *et al.*), and the oldest or second oldest (both greater than 50,000 years) known American grizzly (Santucci, *et al.*), a valid species for that time (Dr Toomey). The Monument has a National Historic Landmark (McMurray) and Historic District (Mark; USDI), the best and longest researched bat population in the Northwest (Albright; Dr Cross and Waldien), and one of the best researched paleoclimate (Drs. Clark, Turgeon, and Lundberg; M.S. Ersek and Vacco) and complex hydrologies (Salinas) of any cave (Salinas). By contrast, Halliday’s belief that Oregon Caves is only regionally significant because “there are many other marble caves in the area” is not a useful comparison.

On the other hand, the history of past delistings of national park areas can make for useful comparisons. Shoshone Cavern National Monument in Wyoming Lewis and Clark Caverns National Monument in Montana were deauthorized from the National Park System at least in part because of the lack of cave formations, lack of national significance, and/or difficulty of access. Both former monuments together have only one known cave endemic (Roth), few if any surface regional endemics or other significant species, and, compared to Oregon Caves, a low diversity and/or significance of its water flow, bats, bedrock, sediments, minerals, cultures, fossils, cave formations, and cultural history. Other delistings resulted from an area being too small for development, low visitation, the loss of nationally significant features, a need to reduce joint administration with the USDA Forest Service, and recognition at one site that it wasn’t

historically significant because the explorer in question likely never reached it. (Hogennauer 1991).

Like understanding national significance and delistings, increasing educational effectiveness is also best done through comprehensive comparisons, not single anecdotal incidents such as comparing a single guided tour at Oregon Caves to one at Blanchard Springs. More helpful comparisons that evaluate our effectiveness include educational research, standardized audit forms (Roth), comments from visitors, and contracted surveys (Hoger *et al.*; Rolloff *et al.*). Our own science-validated surveys show that visitor satisfaction and understanding the significance of the Monument rose from the low nineties percentile and 5–10% in the late 1990s to 99% and 70% in 2005, respectively. The vast majority of nearly 1,000 letters responding to Oregon Cave's proposed general management plan in 1998 approved of all of our cave management directions. Since changing to ranger-guided tours, hundreds more have commented in writing on the better quality of the tours when compared to those given previously. We are also looking forward to comments on the draft of our subsurface management plan and its environmental assessment which is now up for review at [www.nps.gov/orca/pphtml/documents.html](http://www.nps.gov/orca/pphtml/documents.html). We especially value comments by cavers, scientists, and historians who have first hand experience of Monument resources and values. Although they are less than 1% of those visiting the Monument, their comments by way of their experience and comparisons can be highly substantive and insightful.

Halliday, for example, did point out that the word "amphibian" should be changed to "salamander" in the park brochure to make a sentence more accurate. Such corrections are minor and can be handled by the normal revision cycle rather than revising the brochure immediately with funds that could be better spent protecting the Monument in other ways.

There are less impacting educational methods to make a cave trip memorable than Halliday's suggestion that Oregon Caves be deauthorized as a National Park Service unit and be made into a place where visitors can touch all the cave formations they want. We need more caves better protected, not fewer. However, the National Park Service does not have to manage every nationally significant cave. It is likely that, like education, a diversity

of management styles, methods, and partnerships will best protect our diverse caves. "We don't need any more land," as Director of the National Park Service recently said. We do need to better manage what we already have.

As with any resource subject to competing values and pressure, there are ongoing issues and challenges at Oregon Caves, but not of the kind argued by Halliday. Among the most important issues are our ignorance of how global climate is impacting the Caves and the lack of long-term, longitudinal studies that evaluate educational effectiveness. Each year between 3,000 and 5,000 students at Oregon Caves and nearby schools learn about the importance of caves and karst and how they can help to preserve and protect them. Perhaps the best and only way we can adequately evaluate this program will be if or when most of the adults in our county have participated in programs similar to our successful curriculum-based education partnership with area schools. If policy and decision makers were to follow this example, perhaps they would be more likely to understand and appreciate the national significance of Oregon Caves and why the Monument needs to be better protected, as appears to have been the case for the longer-running educational program at Everglades National Park.

## References

- Albright, Ray. "Bat Banding at Oregon Caves." *The Murrelet* 40 (1959):3
- Christy, John A. 1998. Final Report: Bryophytes of Oregon Caves National Monument. Typescript. 28 pp.
- Clark, Peter. Paleotemperatures in Oregon Caves, Investigator's Annual Report. 2002.
- Crawford, Rodney L. 1994. Cave Invertebrates of Oregon Caves National Monument, Josephine County, Oregon.: Initial Species List and Progress Report. Typescript. Burke Museum, Washington.
- Cross, Stephen P., and David L. Waldien. 2002. Estimation of bat community size at Oregon Caves in late-summer and early fall 2002, Oregon Caves National Monument.
- Donato, M.M., C.B. Barnes and S.L. Tomlinson. 1996. The enigmatic Applegate Group of

- southwestern Oregon: age correlation and tectonic affinity. *Oregon Geology* 58(4): 79–91
- Ersek, Lica. 2005. Personal Communication. September 15.
- Freest, Terry. 1995. Mollusks of Oregon Caves National Monument. Typescript. 22 pp.
- Furtney, Jason. 2002. Geological mapping in Oregon's Klamath Mountains. Senior Thesis. University of Edinburgh, Scotland.
- Hoffman, R.L. 1961. A new genus and subfamily of the diplopod family Nemasomatidae from the Pacific Northwest. *Proceedings of the Entomological Society of Washington* 63: 58–64.
- Hogennauer, Alen K. 1991. Gone but not forgotten: The delisted units of the National Park Service. *George Wright Forum* 7(4): 2–19.
- Hoger, J.L., M.A. Littlejohn and S.J. Hollenhorst 2003. Oregon Caves National Monument Visitor Study. Boise, Idaho: Social Science Program, National Park Service.
- Mark, Steve. 2005. Oregon Caves Historic Resources Study. Typescript.
- McDonald, Greg. 2001. Personal Communication.
- McMurry, Alex. 1999. Oregon Caves National Monument Historic Structure Report. [http://www.cr.nps.gov/history/online\\_books/orca-hsr/hsrb.htm](http://www.cr.nps.gov/history/online_books/orca-hsr/hsrb.htm).
- Mead, Jim I., Marci Hollenshead, and Sandra L. Swift. 2005. Late Quaternary vertebrates from Oregon Caves National Monument, Oregon. Typescript submitted to *Northwest Science*. 25 pp.
- Mikulin, Alexander. 2002. Lichens of rocky habitats, Oregon Caves National Monument. Typescript. 26 pp.
- Rolloff, David, Rebecca Johnson, and Bo Shelby. 1996. Oregon Caves National Monument 1995 Visitor Study. Department of Forest Resources, Technical Report NPS/CCSOSU/NRTR-96-03. Oregon State Univ., Corvallis, Oregon and National Park Service, Pacific Northwest Region, Seattle, Washington.
- Roth, John. 1993. Oregon Cave Tour Standards, 1989–1991. In 1991 *National Cave Management Symposium Proceedings, Bowling Green, Kentucky, October 23–26, 1991*. Eds. Debra Foster, et al. Horse Cave, Kentucky: American Cave Conservation Association, p. 209–15.
- Roth, John. 2005. Groundwater and Cave Species of the United States Known From <5 Sites Globally. Typescript. 202 pp.
- Salinas, John. 2004. An Oregon Caves water inventory. CAS-0403. Grants Pass, Oregon: The Cascade Research Group, 2004.
- Santucci, Vincent L., Jaon Kenworthy, Jason, and Ron Kerbo. 2001. An Inventory of paleontological resources associated with National Park Service caves. NPS/NRGRD/GRDTR\_01/02, NPS D\_2231, Lakewood, CO, Geological Resources Division, National Park Service, September 2001. 50 pages.
- Seymour, Kevin. 2003. "The Oregon Caves fossil jaguar." *Park Paleontology* 7 (2003):2 3–4 <http://www2.nature.nps.gov/grd/geology/paleo/news/newsletter.htm>.
- Seymour, Kevin. 2005. The Oregon Caves jaguar and the paucity of fossil jaguars from western U.S.A. Typescript. 15 p.
- Shelley, Rowland. 1994. Revision of the millipede family Paeromopodidae, and elevation of the Aprophylosomatinae to family status (Julida: Paeromopodoidea). *Entomologica Scandinavica* 25:169–214.
- Toomey, Richard. 2005. Personal communication. November 4.
- Turgeon, Steve Charles. 2001. Petrography and discontinuities, growth rates and stable isotopes of speleothems as indicators of paleoclimates from Oregon Caves National Monument, southwestern Oregon, USA. PhD Dissertation. Carleton Univ., Ottawa, Canada.
- Turgeon, S. and Lundberg, J. 2004. Establishing a speleothem chronology for southwestern Oregon: climatic controls and growth modeling. In *Studies of Cave Sediments*, Eds. I.D. Sadowsky and J. Mylroie, Kluwer Academic, New York, 273–302.
- USDI National Park Service. 1992 *Cultural Land-*



*scape Inventory of Oregon Caves National Monument*, Cultural Resources Division, Columbia Cascades System Support Office, Seattle, Washington.

Vacco, David A. 2003. Developing climate records from speleothems, Oregon Caves National Monument, Oregon. M.S. Thesis. Corvallis: Oregon State University.