
Geoheritage

Position Statement. The Geological Society of America (GSA) supports the conservation of geoheritage sites to meet present and future educational, scientific, aesthetic, cultural, and economic needs.

Purpose. This position statement (1) summarizes the consensus views of GSA on the conservation of geoheritage sites; (2) describes what geoheritage sites are and why they are important; (3) encourages U.S. participation in the UNESCO Global Geoparks Network; and (4) advocates development of partnerships and strategies for creating and conserving geoheritage sites.

RATIONALE

“Geoheritage” is a generic but descriptive term applied to sites or areas of geologic features with significant scientific, educational, cultural, and/or aesthetic value. *Scientifically and educationally significant geoheritage sites* include those with textbook geologic features and landscapes, distinctive rock or mineral types, unique or unusual fossils, or other geologic characteristics that are significant to education and research. *Culturally significant geoheritage sites* are places where geologic features or landscapes played a role in cultural or historical events. *Aesthetically significant geoheritage sites* include landscapes that are visually appealing because of their geologic features or processes. Many geoheritage sites are tourist destinations that provide local and regional economic benefits.

Geoheritage sites serve the public interest. Such sites are critical to advancing knowledge about natural hazards, groundwater supply, soil processes, climate and environmental changes, evolution of life, mineral and energy supplies, and other aspects of the nature and history of the Earth. Such sites have high potential for scientific studies, use as outdoor classrooms, enhancing public understanding of science, recreational use, and economic support to local communities.

Geoheritage sites can be small but scientifically significant sites, such as a road cut, or named and managed sites of a few acres, such as Boiling Springs (a groundwater site of two acres in Cumberland County, Pennsylvania, USA). Geoheritage sites can also be extensive areas with international recognition, such as the Grand Canyon and Yellowstone National Park. Geoheritage sites may be located on privately owned land, on land in public ownership ranging from municipalities to the federal government, or on land of mixed ownership. Large or small, and regardless of ownership, many are vulnerable to urbanization, infrastructure development, agriculture, over-use, or erosion. Conservation strategies appropriate to the type of site and nature of ownership are important to protect geoheritage sites and maintain them for the long-term public interest.

PUBLIC POLICY ASPECTS

Geoheritage sites in the United States include officially designated sites and areas with a high level of distinct conservation management, such as national parks, national monuments, World Heritage Sites, national historic landmarks, and national natural landmarks. Many of these areas were designated because of their special geologic features, geologic history, or a unique combination of both. Federal land-management agencies, such as the National Park Service (NPS), Bureau of Land Management (BLM), and U.S. Forest Service, manage these sites to conserve their special features and characteristics for future generations. Through the public land management planning process, federal land management agencies also designate and apply conservation management objectives to other significant sites that in many cases have values related to geology.

Some geoheritage sites, including those that may span different types of land ownership, are particularly significant based on unique and outstanding geologic characteristics and cultural history. Such sites may be suitable for designation as a UNESCO Global Geopark. “Geopark” is an international designation serving to integrate the preservation of significant examples of geologic heritage within a strategy for sustainable development at a regional scale. As of 2017, none of the 127 Global Geoparks designated in 35 countries are in the United States. Geoheritage sites with UNESCO Global Geopark designation provide opportunities for geotourism, interpretation, research, connecting people to the landscape, and sustaining local economies.¹

Partnerships among state agencies, counties, municipalities, non-profit organizations, businesses, and other private parties can lead to innovative approaches to conserving geoheritage sites on other types of publically owned lands and, in some cases, private lands. Such efforts will ensure that even small geoheritage sites can be preserved in perpetuity and managed for the use, enjoyment, and scientific advancement of future generations. Geoheritage conservation efforts can also result in a sustainable source of income for communities through tourism and related uses that incorporate principles of sustainable development.

¹ National Park Service and American Geosciences Institute. 2015. [America’s Geologic Heritage: An Invitation to Leadership](#). NPS 999/129325. National Park Service, Denver, Colorado.

RECOMMENDATIONS

- *Recognize and support designation and appropriate management of geoheritage sites.* By definition, all sites with some sort of geoheritage designation have scientific, educational, aesthetic, or cultural value based on geologic characteristics. All such sites are not only scientifically important, but also offer the potential for supporting local and regional economies through tourism and other businesses that embrace sustainable development. Governing bodies, particularly those at a local level, can play a key role in conserving geoheritage sites for the public benefit.
- *Encourage collaboration and partnerships to identify, designate, and manage geoheritage sites.* Collaboration among the geologic community, local and regional governments, and private interests can be most effective in promoting appropriate designations and management strategies for both existing geoheritage sites and areas in need of geoheritage designation and management. Partnerships will ensure that designation and management of geoheritage sites benefit both the broader community and a variety of interests and needs.
- *Support U.S. site designation as UNESCO Global Geoparks.* The U.S. Geoheritage and Geoparks Advisory Group formed in 2016. Development of advice for U.S. sites to apply to become UNESCO Global Geopark involving appropriate public and private interests will help streamline the application process and enhance the potential for U.S. designations. UNESCO Global Geopark status not only ensures conservation of significant geologic features but also gains worldwide recognition and provides scientific, educational, economic, and cultural benefits to local communities.
- *Respect and honor the needs and interests of private landowners with special geologic features on their land.* All or part of some geoheritage sites may be located on private land. GSA and its membership recognize and respect the autonomy of private land owners. All actions taken in response to this position statement must fully and respectfully accommodate the rights and desires of private land owners.

REFERENCES AND RESOURCES

[UNESCO Global Geoparks](#). This site provides a definition of “UNESCO Global Geoparks,” lists the current members of the Global Geopark Network, provides information about and photos of the 119 designated Global Geoparks in 33 countries worldwide, and offers news about UNESCO Global Geoparks.

[U.S. Geoheritage and Geoparks Advisory Group](#). The goal of the U.S. Geoheritage and Geoparks Advisory Group is to increase awareness of geoheritage and the UNESCO Global Geoparks program. This advisory group is a program development activity of the U.S. National Committee for the International Union of Geological Sciences, sponsored by the National Academy of Sciences. The advisory group promotes the conservation of geologically important sites in the U.S.; informs and educates local communities about geoheritage; and solicits, supports, and fosters Global Geopark applications.

[National Park Service Unofficial Register of Geosites](#). In the absence of a comprehensive national registry that includes all geoheritage sites in the United States, this site helps to strengthen the connections between geoheritage locales and encourages the sharing of best management practices nationwide.

[Global Geoparks Network](#). The network is developing models of best practice and setting high-quality standards for territories that integrate the preservation of geological heritage into strategies for regional sustainable economic development.

International Union for Conservation of Nature (IUCN), Resolutions and Recommendations, [World Conservation Congress, Barcelona, 2008](#). Resolution 4.040, Conservation of Geodiversity and Geological Heritage, recognizes the importance of conserving geodiversity and geological heritage and supports continued forums and sessions with wide involvement of government, independent-sector groups, and international organizations around the world.

[Geoheritage](#), Springer.com. This journal covers all aspects of geoheritage and site protection.

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ABOUT THE GEOLOGICAL SOCIETY OF AMERICA

The Geological Society of America, founded in 1888, is a scientific society with more than 25,000 members from academia, government, and industry in more than 100 countries. Through its meetings, publications, and programs, GSA enhances the professional growth of its members and promotes the geosciences in the service of humankind. GSA encourages cooperative research among earth, life, planetary, and social scientists, fosters public dialogue on geoscience issues, and supports all levels of earth science education. Inquiries about the GSA or this position statement should be directed to GSA's Director for Geoscience Policy, Kasey S. White, at +1-202-669-0466 or kwhite@geosociety.org.

OPPORTUNITIES FOR GSA AND ITS MEMBERS TO HELP IMPLEMENT RECOMMENDATIONS

To facilitate implementation of the goals of this position statement, The Geological Society of America recommends that its members take the following actions:

- *Seek opportunities to communicate the value of geoh heritage sites to decision makers and the public.* Legislative bodies, government agencies, private developers, economic development corporations, professional land-use planners, chambers of commerce, professional forums, town hall meetings, and community groups all provide avenues for expanding knowledge of the value of geoh heritage sites. Use examples of how management of a geoh heritage site has added value to land-use planning, advanced understanding of geologic processes and potential for hazards, or contributed to economic growth. Use examples of how overlooking geoh heritage has resulted in costly and damaging land use, devastating consequences of natural disasters, or loss of tourist and tax revenues. An informed public can be a powerful force in identifying and designating geoh heritage sites and collaborating on long-term management strategies.
- *Initiate designation of or management strategies for a site in need of preservation.* Identify other parties, such as NGOs and federal agencies, that may benefit from designation of a site or enhanced management of an existing designated site. Promote collaboration and partnerships for determining appropriate designation (e.g., from local park to UNESCO Global Geopark), developing management objectives, and sharing costs. Identify benefits for various interests, such as the educational value for local secondary schools, research value for the geologic community, aesthetic value for outdoor enthusiasts, and economic value through tourism and local users.
- *Utilize print, electronic, and broadcast media in promoting the value of geoh heritage designations.* When appropriately utilized, the media are effective and efficient communication tools for addressing critical issues associated with geoh heritage conservation. If you are uncertain about how to make contact and work with the media, seek assistance and advice from other GSA members or The U.S. Geoh heritage and Geoparks Advisory Group with that experience.
- *Be alert to local, state, and federal legislation and policy development relevant to geoh heritage or for designation of specific sites.* Get involved by offering expert assistance, commenting, contacting decision makers, sharing this position paper, or soliciting additional expertise. Seek advice from and share information about geoh heritage with GSA's Geology and Public Policy Committee (GPPC), GSA's Geology and Society Division, and GSA's Director for Geoscience Policy in Washington, D.C.
- *Propose symposia, technical sessions, and workshops on geoh heritage issues at GSA Annual and Sectional meetings.* Sharing experiences, successes, and challenges with geoh heritage designations and management will help others in the geoscience community be more effective in their efforts to preserve geoh heritage sites for future generations.
- *Develop educational materials about geoh heritage.* Designing descriptive and explanatory documents, including drawings and pictures, would be helpful to interested parties for handouts, signage, websites, and field trips, as well as communicating with decision and policy makers and site managers.