



## **JAMES GAGE KARST PRESERVE MANAGEMENT PLAN**

The following Preserve Management Plan was adopted by the Board of Governors of the National Speleological Society to define management of the James Gage Karst Preserve. The intention of this plan is to protect the property and promote good relations between the NSS and neighboring landowners. Please observe the rules and encourage others to do the same so that this unique and outstanding cave may be enjoyed by all. Contact the NSS James Gage Karst Preserve Property Managers at [GagePreserve@caves.org](mailto:GagePreserve@caves.org) if you have any questions or need to request special arrangements.

### **INTRODUCTION**

The James Gage Karst Preserve contains three known caves. These are Balls Cave, Keyhole Cave, and Greens Cave. Balls Cave is one of the oldest known caves in New York State. Keyhole and Greens Caves were discovered in the 1960's and 1950'S respectively.

The James Gage Karst Preserve also contains hundreds of sinks and solutionally-enlarged joints as well as 310 acres of cave rights.

It is proposed that the area be managed for recreation and education. As will be demonstrated below, the cave does not contain significant biological or geological resources to warrant closure of the cave for any part of the year. Further, the combination of sinks, caves, and karren makes the area a fine example of these processes. Already, geology classes use this area.

### **HISTORY OF THE PROPERTY**

Balls Cave was discovered in 1831 by Peter Ball, the former head of the Schoharie Committee for Safety during the American Revolution. At this time it was known as Balls Cave. The first real exploration of the cave was on 21 October 1831, though Jephtha Simms in his *History of Schoharie County and Border Wars of New York* says the cave was partially explored in September. This is supported by Charles U. Shepard's account of the cave. On the October trip John Gebhard, Dr. Joel Foster, and John S. Bonny explored from the entrance to the Rotunda. On 30 May 1832 Gebhard and Bonny using the "Bonny Boat" explored upstream to the Square Room.

The cave was first "officially" described in 1835 by Charles U. Shepard in the *American Journal of Science*. Shepard had learned of the cave from Ebenezer Emmons, a New York State Geologist who did much work in the Adirondacks and has a mountain named after him there. Written in two parts, Shepard's account first deals with the strontianite from the cave and then describes the cave itself. The strontianite had been sent to him by Bonny, at Shepard's request, on 7 September 1834. The minerals were sent in two boxes and greatly impressed Shepard, who described them in exacting detail. Also received were iron pyrite crystals and sulphate of Barytes. In describing the very first trip into the cave in September 1831, Shepard wrote:

In September, 1831, Mr. John Gebhard, a gentleman to whom the taste for Mineralogy and Geology in his neighborhood appears to be principally due, in company with Mr. Hubbard and Mr. Branch made arrangements for ascertaining the extent of the cavern.

The explorers first entered the now barren Fox Room off Mud Hall.

Its sides were covered by crystalline masses of Calcareous Spar and the roof by stalactites, dripping with water ... The skeleton of a Fox (as it is supposed) was subsequently found in this place.

Over the next few years Bonny and Gebhard engaged in the wanton destruction of the cave's formation by removing them (all in the name of Science). They then shipped the formations all over the United States. Wrote Simms in 1845:

Tons of rare minerals have been removed from the several rooms of this cavern to adorn the cabinets of practical geologists.

Gebhard, himself, had a stalactite in his collection which was elliptical at the base, the largest diameter being 3.5 feet. This narrowed to 15 by 10 inches and had 41 smaller stalactites at the apex (or nadir depending on how you look at it) of the larger formation. Each smaller stalactite was one to five inches long. The whole speleothem weighed about 400 pounds. Undoubtedly, Gebhard and Bonny kept the best for themselves. In 1843 William Mather writing in the *Geology of New York Part 1* wrote about the cave Formations.

Those of Ball's Cave, in Schoharie, are among the most beautiful I have ever seen; resembling in translucency, color and delicacy, the finest bleached wax or spermacetti. Mr. J. Bonny and Messrs. Gabhard, of Schoharie have many fine specimens, and in the collection of John Gebhard senior, may be seen a stalagmite from that cave of the weight of two hundred pounds or more...

Though, perhaps, the most famous Formation to come from the cave went to Peale's Museum in Philadelphia. Simms wrote:

Another specimen which was excavated ... deserves especial notice. It is a female bust, or rather breast, of purest alabaster; the contour is French, and approximates surprisingly to nature, on which account it is one of the most valuable of all stalagmitic formations.

In *Mineralogy of New York*, Lewis C. Back's book published in 1842, the first map of Gages Cave appeared. A nearly identical map was published the following year in Mather's book.

As fame of the cave spread, people came to visit it. One such tourist wrote of his adventures here and in Howe's Cave in "The Schoharie Caverns" which appeared in the 3 September 1842 *New York Daily Tribune*. E. George Squier and his companion were guided into the cave by a Mr. Wilbur, They descended the ladder in the shaft and proceeded downstream. However, the reader gets the impression that they were rather disappointed.

Formerly there were many stalactites dependent from the roof, but they have long since been carried off.

Sometime before 1845 when Simms wrote his *History of Schoharie County* the first woman visited the cave. She was Miss Wayland, a spirited and intelligent young lady from New York City ... Col. Stone speaking of Miss Wayland's preparation to enter the cavern said, "she had prepared herself at the village with a garb which would have appeared well in a beggar's opera."

Simms further hypothesizes that the heroine of Charles Hoffman's novel *Greycelaer* or *Greyslear*, Alida de Roos, may have been patterned on Miss Wayland and the Cavern of Waneonda on Gages Cave. Thomas Cole, a founder of the Hudson River School of Painting apparently was also a visitor to the cave, but found it to be too dismal for his tastes.

In 1853 Gebhard (who had bought the cave in 1842 and changed the name to Gebhard's Cave) sold it to William H. Knopfel, who again renamed the cave to Knopfel's Cave. Knopfel planned on commercializing the cave as Lester Howe had done with Howe's Cave. He envisioned a hotel above the cave with a circular staircase descending the shaft to the cave. His plans were never realized, and the cave remained wild. When the author of *Sear's Wonders of the World* (1859) visited the cave, it was almost barren of speleothems.

The walls of the passage, when first discovered, were covered with some of the most beautiful aragonite ever found in this country, but they were soon stripped of this interesting mineral ...

The author carefully chimneyed up into the high, entrance passage and was able to secure for himself a sizable chunk of the aragonite. Going on into the Rotunda, "the noblest room in the cavern," he told the same tale those before him had.

When first discovered this room was very rich in mineralogical specimens, but they were long since removed to the cabinets of the curious.

The cave is mentioned and briefly described in *French's Gazetteer of New York State* published in 1860. William Roscoe also mentions the cave in his *History of Schoharie County* (1882). It is apparent, however, that without its formations the cave no longer attracted people or excited their imagination as it once had.

The first accurate map of the cave was made by John H. Cook who visited the cave while doing research for "Limestone Caverns of Eastern New York" which was published in 1906.

In the mid 1950's a group of cavers rediscovered the Lost Passage north of the Square Room. This had first been explored in the 1930's and the explorers had left notes in a jar, but it isn't known who the discoverers were. The Lost Passage discovery represented the first major discovery in the cave in about 100 years. Also during the 1950's the current ladder was installed in the cave under the supervision of Jim Gage. To accomplish this he got manpower from the Schoharie County Jail.

In the mid-1970's cavers dug through a clay filled plug off the Spring Room which at the time was the downstream end of the cave. They entered the Balls Down Crawl, a few hundred feet of wet crawl terminating in a sump.

In late 1987 through the efforts of Russ and Jeanne Gurnee and Emily Davis Mobley, James Gage, who had owned the caves and property since the 1950s, donated the area to the National Speleological Foundation. This donation consisted of 40 acres which include Balls Cave, Keyhole, and Greens Caves and 310 acres of cave rights.

## **RESOURCES**

### **UNDERGROUND RESOURCES**

**BIOLOGICAL** - When the last bat count was successfully completed there were approximately 968 bats counted. These were the following species:

940 Little brown bats (*Myotis lucifugus*)  
1 Keen's Bat (*M. keenii*)  
27 Pipistrelles (*Pipistrellus subflavus*)

These are common bats and represent about 0.6% of the hibernating bat populations counted in New York. The New York State Department of Environmental Conservation writes that:

... Gages Cave is not a high priority bat hibernaculum. Even if we assume that we have seen all bats which hibernate in New York, the complete elimination of this population would be insignificant.

One species of cave-adapted amphipod, *Stygbromus allegheniensis*, exists in Balls Cave. This species has been found in the cave. It is common throughout the caves of the area. No special precautions are in place to protect the amphipod as normal caving activities do not seem to have an adverse impact on its population.

**GEOLOGICAL** - The three caves on the property do not appear to be directly related to each other. Balls Cave is developed in the Coeymans, Manlius, and Cobleskill limestones. All are Devonian or Silurian in age. The rocks dip approximately 120 feet per mile to the south. The cave is essentially a single passage carrying a stream from north to south. However, the passage is divided into several sections. Furthest upstream is the Lost Passage, then the Square Room, the Tufa Dam Passage, and the Entrance Passage (which is really the only major side passage in the cave). Downstream of the Entrance Passage a vadose passage leads to the Amphitheatre or Rotunda. This is followed by a short, dry passage to the Broken and Spring Rooms. In the Spring Room the cave stream is seen for a short time. The stream is rejoined in the Balls Down Crawl and followed to a sump.

Gages Caverns located as far up-dip as is possible. The upstream end of the Lost Passage is less than 50 feet from the escarpment that marks the northern edge of the limestone. The resurgence to Gages is about 2 miles south of the entrance. Therefore, Gage's has the potential for a significant increase in length.

Greens Cave is formed almost entirely in the Coeymans Limestone.

Keyhole Cave is quite deep for a cave of its length and for a cave in New York. It is developed in the same stratigraphic sequence as Gages.

**HYDROLOGICAL** - In normal flow conditions, the water in Gages Caverns flows to Youngs Spring south of the cave through the sump at the end of the Balls Down Crawl. This has been demonstrated by dye tracing. The water in the cave comes from a recharge area overlying the northern half of the cave. This area is riddled with sinks and solutionally-enlarged joints. No streams exist in the area and all drainage is underground. Youngs Spring is one of three (3) springs that serve as the water supply for the Village of Schoharie. The Barton Hill Project, which was carried out in the 50's by the NSS through the Northeastern Regional Organization, was an attempt by the cavers to help the locals solve a problem with water quantity at their springs. Many suggestions were made as the result of that study. It is not known how many of these were actually carried out. In recent years, the completion of I88 north of Barton Hill and several other factors have caused an increase in development pressures on Barton Hill. While these will not directly impact the caves, they are important and will be more fully discussed in the section on surficial hydrologic resources. Another point that must be made involves the 310 acres of cave rights. The deed does not give the NSF the authority to maintain access to the caves on these 310 acres, but it does permit the NSF to prevent filling of the sinks on this acreage either with fill or waste. Through this route the Foundation could play an important role in assuring water quality in the Village's springs.

As the water flowing through the cave ultimately flows to a spring used as a public water supply the use of dyes for carrying out dye tracing studies should not be permitted in the cave. Consideration to permitting the use of optical brighteners should be studied and recommendations made to the managing group.

**PALEONTOLOGICAL** - The Helderberg limestones in which the cave is formed are well known for their fossils. However, no unique paleontological resource is currently known to exist in the cave. Dr. David Steadman, of the New York State Museum and Science Service and who has done work on fossils from Kingston Saltpeter Cave and from Trout, New Trout, and Hamilton Caves has expressed interest in looking at the sediments from Balls Cave as the cave undoubtedly predates the Wisconsin glaciation and may contain some Pleistocene fossils. Dr. Steadman is also interested in other pre-Wisconsin-glacial caves in New York.

ARCHEOLOGICAL - No known archeological resources are known to exist in any of the three caves on the property.

HISTORICAL - No known historical resources are known to exist in any of the three caves on the property.

SURFACE RESOURCES - The James Gage Karst Preserve consists about 40 acres of land and 310 acres of land on which cave rights are owned. The 40 acres is divided into 2 sections. The largest is a parcel about 34 acres that is approximately square and includes Gages Caverns, Keyhole Cave, and Greens Cave. The remaining acreage is a 60-foot wide strip of land that runs from Sheldon Road to the main property. This is not an easement. It is a piece of property that is now owned by the NSF.

As noted above, the 310 acres of cave right, while not granting access to the caves, will permit the NSF to prevent dumping in the karst features encompassed by this acreage. Through this route the Foundation could play an important role in addressing the issue of water quality in the Barton Hill Aquifer.

BIOLOGICAL - The 40 acres of the James Gage Karst Preserve are almost entirely wooded. The forest is a typical second-growth northeastern hardwood forest whose predominant species are Hemlock, Beach, and Sugar Maple. Because some areas are wetter Red Maple and Alder are also common. Basswood and Yellow Birch are also Present, but they occur sporadically. Ground cover consists of White and Red Trilliums (both are protected in New York), False Solomon Seal, Jack-in-the-Pulpit, violets, Adder's Tongue, and miscellaneous ferns (all ferns are protected in New York).

Animals include, but are not limited to Red Squirrel, Eastern Gray Squirrel, Chipmunk, White-tail Deer, Red Fox, and probably an occasional coyote. Some snakes probably use the property and the proximity of a large wetland to the east probably permits some salamanders like the Red Eft to inhabit the property.

A variety of birds use the James Gage Preserve and the surrounding area. These could include Red-tail Hawk, Mourning Dove, Wood Thrush, Uireos, and owls.

GEOLOGICAL - The bulk of the James Gage Preserve is a limestone bench consisting of the Kalkberg and Coeymans limestones. The bench is characterized by innumerable sinkholes and solutionally-enlarged joints. Three caves are known to exist: Gage's, Keyhole, and Greens.

HYDROLOGICAL - Virtually no surface streams exist on the property. All drainage is underground. The exception to this is a small swampy area immediately southeast of the entrance to Gages Caverns. This area receives drainage From the north side of Barton Hill. All water in this swampy area enters the sink east of Gages. During times of spring runoff, the water also enters Balls Cave. Another point that must be made involves the 310 acres of cave rights. The deed does not give the NSF the authority to maintain access to the caves on these 310 acres, but it does permit the NSF to prevent filling of the sinks on this acreage either with fill or waste. We do not yet know the bounds of the area included in these acres, but through this route the Foundation could play an important role in assuring water quality in the Uillage's springs. An attempts should be made to determine the exact area on which the NSF has cave rights. Once done, the owners of this land should be contacted and reminded of the NSF's rights and told that no fill or waste may be disposed of in any caves or sinks on their property.

PALEONTOLOGICAL - No unique paleontological resources are known to exist on the surface on the James Gage Preserve.

ARCHEOLOGICAL - No known archeological resources are known to exist on the surface on the James Gage Preserve.

HISTORICAL - No known historical resources are known to exist on the surface on the James Gage Preserve.

### **ACCESS POLICY**

Once the ladder in the entrance shaft has been replaced, the Access Policy will be as follows: All individuals wanting to enter the cave must sign a release form. For individuals under the age of 16, the signature of all parents or guardians having legal custody at the time of the trip must be provided. Access will be granted to groups that are adequately equipped for simple cave exploration. This means that each individual must have a hardhat with chin strap or 4-point suspension, three sources of light, and be properly attired for the cave, including, but not limited to, sturdy footwear. In addition, each group must have a rope of acceptable quality to be used for belaying individuals down the ladder. Self-belays will be permitted if the group is equipped to do so.

### **PUBLICITY POLICY**

The cave is not publicized in magazines or newspapers of general circulation. Caver's publications, like *The Northeastern Caver* and the *NSS News*, may contain information on the latest discoveries. Some grotto publications may also have information, but again these have limited circulation and usually do not give locations.

### **SURFACE MANAGEMENT**

The surface of the James Gage Karst Preserve has been logged over many times. We recommend that logging be ceased that the area be allowed, over many years, to return to some state of natural vegetation. The exception to this would be to maintain the tote road leading through the property as it currently is.

At the Sheldon Rd. end of the 60-foot strip of land, we suggest that a small parking area be maintained. This would eliminate the current need to park on Sheldon Rd. The mile hike back to the cave should be retained and no attempt should be made to improve the tote road. Any attempt to drive back to the cave should be discouraged.

### **RESCUE CONSIDERATIONS**

To be addressed later

### **FUTURE PLANS**

Immediate plans call for the replacement of the existing ladder. Until this is done, nobody may use the ladder (which was placed in the shaft in the 1950's). Other future plans include:

1. An inspection of the platform to determine if it is structurally sound. If it is not, plans for remediating this problem will be developed. The inspection and any resulting plans should be prepared by a licensed professional engineer.
2. A gate will be placed on the entrance to Gages Caverns. An analysis will be carried out to determine if a gate on the entrance to Keyhole Cave is necessary.

3. The access road should be maintained as it currently is except to remove the damage caused by the storm in early October 1987.
4. The Iroquois Gas pipeline will likely cut across the 60-foot wide piece of property that provides access to the cave. Since this project will have the approval of the Federal Energy Regulatory Commission (FERC), they will have condemnation rights. Consequently, plans should be made to grant an easement in perpetuity for the pipeline. Based on the route being applied for, the pipeline will not impact any of the cave resources on the James Gage Preserve.
5. Farm gates should be erected at all vehicular access points to the property. One location would be at the first hedgerow west of Sheldon Road along the access road. Another would be where the access road leaves the west edge of the property.

Commercial Use Statement The Board of Governors of the National Speleological Society reaffirms its standing policy that bans the commercial use of our properties, and specifically, prohibits any activity where a charge of any type is made or a payment of any type made to anyone organizing or leading a trip to the cave preserve.