



## DAHM SPRINGS PRESERVE MANAGEMENT PLAN

1. A Preserve Management Team will administer this plan on behalf of the NSS, which can be contacted via email at [BHCNC@caves.org](mailto:BHCNC@caves.org) for initial inquiries concerning Preserve access. In all cases, access will require a dated permit plus execution of a liability release.
2. **Property Description & Objectives:** Boundary Gulch, (also known locally as Thompson Canyon), is a major tributary of Dark Canyon located about 2 miles West of the city of Rapid City in the Black Hills of South Dakota. This dry gulch is mostly contained within the 45-acre preserve boundary and contains 7 caves and numerous shelters and other unexplored holes high up in the cliff faces that line the canyon. The largest of these caves is Brooks Cave, which is well-known to Rapid City residents who frequented the cave before it was gated in the 1980's. Dahm Spring Cave is the next largest, and one of the more heavily decorated caves in the Black Hills area. The other five caves on the property (Brooks Jr., God Awful, Big Shelter, Doggone and Hungry) are less than a few hundred feet in length, but nonetheless still significant in their own right (see cave depths and lengths in Section (VI) below). These caves are all located in the Madison Limestone of Mississippian age. These caves have long been a destination for local cavers, and the previous landowner, Marilyn Dahm-Borgeson, has always been friendly towards cavers and interested in the caves. She expressed an interest in preserving the caves on her land for future generations, science and exploration, and the property was donated to the Black Hills Cave and Nature Conservancy (BHCNC) in 2020 to become a nature preserve (see property history in Appendix B). The preserve consists of a 1.44 acre parcel located along Dark Canyon Road referred to as "Lot 3," as well as the 45 acres that encompass the main portion of the preserve. This 45 acre portion is completely surrounded by private entities. Primary access to the preserve is by foot using section line easement from United States Forest Service Land (USFS). Secondary access is available with permission only, by parking on "Lot 3" and obtaining permission from adjacent landowners to cross their land. All entry to the preserve should follow the guidelines in section VIII of this document "Access Policy." The Dahm Springs Preserve of the BHCNC will be managed in a joint agreement with the National Speleological Society (NSS) and will be maintained as a natural area. The Preserve Management Committee, consisting of the executive officers of the BHCNC, will implement this Management Plan as approved by the NSS Board of Governors. This joint-management, as outlined in the NSS/BHCNC MOU, establishes the Dahm Springs Preserve as the 20th NSS Preserve. The primary objective of this plan is to establish procedures and guidelines that will allow the BHCNC and NSS to effectively manage the use of the preserve, and to monitor and gauge the effects of this use. It is the intention of the BHCNC that NSS members shall be ensured reasonable access and use of the caves and the

surface property for education, exploration, and science-based activities. This management plan may be modified or updated as warranted by the BHCNC or NSS board of directors with joint approval by both organizations, for the period of time that the joint-management MOU is in place.

3. **Biological Resources:** The little brown bat (*Myotis lucifugus*) has been found in all of the caves on the preserve, and some other identified *Myotis* species are occasional visitors. Townsend's big-eared bats (*Corynorhinus townsendii*) have also been spotted in Brooks Cave in the summer months. In the wintertime, there have been few bats noted in many of the caves, and the ones that are seen are usually hibernating individuals. There is no evidence of maternity colonies or other large groupings of bats in any of the known caves, but a full winter bat survey has never been conducted. This would be advantageous to determine if winter closures for some of the caves are necessary. A full biological inventory of the caves in the preserve has never been attempted. It would be prudent to conduct a survey in the next 5 years to identify any cave-dwelling organisms.
  
4. **Geological Resources:** Boundary Gulch cuts a 400-foot deep north-south trending line through the Madison Limestone in which the caves are found. While there are 7 known caves on the preserve, there are countless holes visible high on the canyon walls that have never been explored, and the potential for future discoveries here are quite good. The BHCNC supports efforts to explore and document additional caves in this canyon. Most of the known caves are found along the canyon walls, with one exception. The Brooks Cave entrance is at nearly stream level, and the cave itself descends another 90 feet below the entrance. Most of the cave entrances are relatively small, but obvious even from the canyon bottom. All of the caves are similar to others in the Black Hills, with multiple levels, circuitous travel routes, and tight squeezes scattered throughout. Most of the caves have a calcite crystal coating on the walls of 1-6 inches, with obvious nailhead spar crystalline formation. While spar is the most common cave feature, there are occasional pockets of aragonite and gypsum, especially in Brooks Cave. Dripstone, a rarity in the Black Hills, is found in abundance in Dahm Spring Cave, and in several places in Brooks Cave. Dahm Spring Cave also contains some very interesting and delicate floor crusts, and some outstanding helictites that rise vertically from the floor in one place. Extremely rare bottle-brush stalactites (crystalline ends formed due to fluctuating pool levels) can also be found hanging over the Mushroom Pool in the back of the cave.  
**Hydrological:** Black Hills caves are commonly dry, dusty caves. This is true for many of the smaller caves on the property, and also for parts of the larger caves. However, both Brooks and Dahm Spring Caves are unique in the Black Hills for their hydrologic values. Brooks Cave is one of only three caves in the Black Hills (the others being Wind Cave and Jewel Cave) to intersect the Madison Aquifer, a primary drinking water source for residents in the western half of South Dakota. The Lake Room in the southeastern branch of Brooks Cave was also the site of an intensive USGS study to monitor aquifer levels throughout the late 1980s and early 1990s. A PVC staff gauge from this project is still in place in the largest lake. Fluctuations of up to 12 feet have been recorded in the past, and at the time, indications were that the lake levels were somewhat related to nearby Rapid Creek. However, in recent years, a correlation between the two water bodies has not been as distinct. This could be tied to recent nearby residential developments that have drilled neighborhood wells into the Madison Aquifer to

supply rural communities on the outskirts of Rapid City. No concrete study has yet been done to determine impacts of these developments. Dahm Spring Cave also has some very interesting hydrologic questions to be answered. The cave sits directly below Dahm Spring, which emerges from the contact between the Madison Limestone and Minnelusa Sandstone high on the west wall of Boundary Gulch. The spring pools, then sinks almost immediately, presumably into the cave below. The decorations and numerous pools in the cave are probably due to the abundance of mineral-rich water seeping from the spring above. On a routine resurvey trip in April of 2013, a team of cavers heard a roaring-rushing noise of water deep inside the cave. They determined the sound was coming from the ceiling of the passage at the back of the cave, but couldn't find a way to enter the passage above. Upon exiting, the cavers were informed that over an inch of rain had fallen at precisely the time they had heard the rushing water underground. The noise and passage remain a mystery.

5. Paleontological/Archaeological: The numerous rock shelters and holes found throughout the canyon walls could contain either paleontological or archaeological resources, but thus far, no in-depth study has been conducted. Dahm Spring Cave, while not thoroughly inventoried, contains a plethora of paleontological resources – some of which are quite unusual. In a room called the “Remains” to be Seen Grotto, a myriad of animal skeletons litter a flowstone slope leading to the edge of a deep pool of water. Most of these are undoubtedly of rodents that became trapped after falling into the water from a pit above. There are also bat skeletons, and perhaps other creatures. Most of these skeletons have been calcified in place on the flowstone. Since this formation is no longer active, the creatures’ deaths and subsequent calcification took place some time ago. The crowning jewel of Dahm Spring Cave and the “Remains” to be Seen Grotto is a calcified skeleton on the bottom of the pool. This was initially identified by Dr. Bjork, a paleontologist of South Dakota School of Mines, as a bobcat or lynx. It has since been re-identified as most likely a raccoon, by Dr. Jim Mead and Dr. Sharon Weaver, paleontologists from the Mammoth Site in Hot Springs, South Dakota. No sampling has been done on the remains due to its location underwater, and its calcification to the floor.
6. Surface Resources: This heavily wooded property is located in a steep rural canyon consisting primarily of small residential acreages. There are no visible surface streams with the exception of nearby Rapid Creek, and two short spring brooks on the side of the interior canyon. Boundary Gulch has been known to flood catastrophically on occasion, but the last known major occurrence was in the early 1990s. For some time prior to this date, an old narrow-gauge logging railroad bed existed along the canyon bottom (see Property History in Appendix B). Currently, only portions of this grade still exist. Another development on the property is Dahm Spring – a large pool of water that has been surrounded by rockwork and has been well maintained over the years. The maintenance of this pool and rockwork will continue under the ownership of the BHCNC. Forest resources on the property consist primarily of ponderosa pine, but also include several hardwood species including oak. The conifer stands are densest in the canyon bottom, with basal area becoming more widely spaced at higher elevations along the canyon rim. The majority of these stands are even-aged, greater than 75 years. Over 200 species of flora have been documented on the property by the South Dakota State Botanist, Dave Ode in the 1990s. This report can be found in state records. The wildlife using the preserve are common to most areas of the Black Hills, and

include deer, elk, porcupine, fox, skunk, turkey, and many other bird species. It would not be unusual for mountain lions to make their home in some of the steeper or more remote sections of the property.

7. Research: The only study of significance was conducted in the Lake Room in Brooks Cave in the late 1980s and early 1990s by the USGS, to monitor fluctuations in the Madison Aquifer. Additional microbial samples were collected in Brooks by researchers from the University of Akron and MIT in 2019. Other research projects and science-based programs utilizing the property will be encouraged. Research proposals will be evaluated and approved by the preserve managers based upon feasibility and benefit.
8. Education: Brooks Cave has been well-known in the Rapid City area since its discovery in the 1950s. Since then, the cave has seen numerous visits from both local cavers and non-cavers alike. A steep drop-off about 200 feet from the entrance at one time required vertical gear. This was regularly negotiated by non-cavers with the help of garden hose or anything else that could be tied and used to climb with. The cave was also heavily vandalized with graffiti until a bombproof gate was installed in the 1980s. Since that time, the cave has been mostly forgotten by the local non-cavers, but still remains an important caving location for members of the local caving community. Many local grotto members took their first trip into a Black Hills Cave here, and cavers are still intrigued by the tremendous airflow and the lake at the bottom of the cave. The BHCNC will continue to use Brooks as a resource to teach new and older cavers alike about caving and cave conservation. Education through hands on experiences will remain an important part of the preserve management philosophy. In the mid-2000s, the Paha Sapa Grotto installed a permanent series of ladders at the in-cave drop. The cave has been described as “sporty,” with a fair amount of climbing and negotiating of obstacles. There is also a size limitation – the entrance passage to the cave consists of about 200 feet of belly crawling with several constrictions along the way. The tightest constriction is slightly smaller than the gate opening, about 8 1/2 inches high and 18-20 inches wide. From the bottom of the drop, the Lake Room can be accessed without negotiating any further squeezes, but the southeastern branch of the cave and Compass Room require two additional squeezes that are slightly smaller than the tight spot in the entrance crawl. Novice trips in the smaller caves on the property will also be allowed, with the exception of Dahm Spring Cave. Entering this cave requires belly crawling beneath delicate soda straws and over flowstone, and changing from dirty to clean gear inside the cave. For protection of the cave’s sensitive resources, access will be limited, and permitted only for exploration, survey, research, or other activity deemed appropriate by the Preserve Management Committee.
9. Vulnerability: The local non-caving community has mostly forgotten the caves of Boundary Gulch. Because of this, and especially because of the delicate nature of some of the caves on the preserve, the management committee does not intend to advertise the location of the property. Prior to the gate installation in Brooks Cave in the 1980s, vandals covered the walls of the cave with graffiti and left garbage throughout. A dedicated group of cavers from the Paha Sapa Grotto made a concerted effort to clean up the majority of the garbage and graffiti from the cave, and today it remains improved from that effort. There are still portions of the cave that could be cleaned, however, and the lake itself has garbage that has settled to the

bottom that needs to be removed. Because Brooks Cave was the only cave known to exist on the property at the time, the other seven caves were not trafficked. Today, these caves remain un gated and vulnerable to discovery and vandalism from uneducated visitors. While the smaller caves on the property are no less significant, the primary concern is the protection of Dahm Spring Cave. It would take only one careless individual to destroy many of the formations in this cave, and for this reason a gate will be installed. The cave is not easily found or accessed, and several extremely tight constrictions just inside the entrance provide for somewhat of a natural gate. A man-made gate will be installed at or near one of these pinch points with minimal time or effort. Periodic inspection of the property by members of the BHCNC will be conducted to ensure both above and below-ground resources are maintained in a natural, unmarred state. Vandals caught destroying property will be prosecuted to the fullest extent of the law.

10. Depth and Length of Preserve Caves:

- Brooks Cave: Length - 3,454.6 feet. Depth – 142.1 feet.
- Dahm Spring Cave: Length – 1,171.3 feet. Depth – 64 feet.
- Doggone Cave: Length – 188 feet. Depth – 28 feet.
- Brooks Jr. Cave: Length – 176.6 feet. Depth – 16.2 feet.
- Big Shelter Cave: Length – 90 feet. Depth – 10 feet.
- God Awful Cave: Length – 62 feet.
- Hungry Cave: Length – 60 feet.

11. Surface Management: In the bottom of the canyon, an old railroad bed follows the dry creek bed from the north to Brooks Cave. Shortly after passing the entrance to Brooks, the grade becomes unrecognizable due to previous flash flooding and lack of maintenance. This canyon bottom will be maintained to allow at least foot traffic up to the Brooks Cave entrance. Similarly, a route that connects the canyon bottom to the section line access (from the USFS land) will be maintained to allow for foot traffic. Once established, these routes will be the primary entrance and egress routes to and from the 45-acres of the preserve.

12. Access Policy: Access to Dahm Springs Preserve is controlled by the Preserve Management Committee. This Committee is responsible for enforcing this access policy. The preserve will be open to responsible caving all year as outlined below. The property will be available for use upon request. Permission must be granted by the Preserve Management Committee, and a Trip/Liability Card (see appendix A) must be completed by each group entering the preserve. Cave key(s) must be returned to the BHCNC within 1 week following the completion of the cave trip. The overall number of trips in a season will vary, and may be limited at any time if conservation concerns arise. For security purposes, if a combination lock is installed on any gate, the combination shall be changed at least once per year. A lock accessed by key will be changed as necessary at the discretion of the preserve managers. The Committee will inspect cave gate(s) annually, and maintain or replace them as required. Locks shall be inspected annually. The BHCNC, in conjunction with the National Cave Rescue Commission (NCRC) South Dakota and Wyoming State Coordinators, will develop an Emergency incident

Response Plan for the preserve. General policy rules for access to caves and for visitation on the preserve property are as follows:

- a. The preserve managers can be contacted via email at [BHCNC@caves.org](mailto:BHCNC@caves.org) with any questions concerning the preserve. If the preserve managers cannot be reached, then additional contact should be made with the individual members of the preserve management committee. (see section XI).
- b. Permission is required to visit the preserve. No charge is made for visitation.
- c. Permits may be obtained by emailing the preserve managers at [BHCNC@caves.org](mailto:BHCNC@caves.org).
- d. Membership in the NSS is not required but is suggested for those individuals requesting the permit along with the date and duration of the trip. All participants will be required to sign a liability release form attached hereto which releases all parties for any injuries of any type that may occur while on the premises at the express or implied invitation of either party.
- e. The permit will be issued in this person's name, and he or she will be responsible for the group, as well as ensuring that all members of the group abide by the terms of the permit and this management plan. The Management Executive Committee strongly recommends that all visitors be members of the National Speleological Society (NSS), but it is not required. The permit holder will be responsible for seeing that none of the trip participants enter any of the areas flagged off or barricaded off because of the sensitive nature of such areas.
- f. Visitors may be asked to show a permit from the preserve managers while on the preserve lands.
- g. To minimize impact, the parties prefer that groups visiting the cave be small. For reasons of both conservation and safety, the parties suggest that the number of people at the cave be limited to no more than eight (8), and no less than three (3). No more than two (2) groups will be given a permit for any one day.
- h. Park only in the designated areas and drive only on existing roads which are open and drivable; the preserve has no roads at this time. Do not enter the preserve by access to privately owned property without permission of the property owners (see item 18).
- i. Hunting is not allowed on the preserve. Fishing is allowed on Lot 3.
- j. With the ever-present danger of wildfires in the wildland-urban interface, open flames are not permitted on the preserve. Likewise, smoking is not permitted on or around the preserve, including while crossing neighboring land owners' property.
- k. Any plants or animals on the preserve are to be respected, and not removed or harassed.
- l. Plant life, cave formations, and cultural resources are to be undisturbed. Do not touch, break, or remove any formation or anything else from any of the preserve properties. Do not cut trees for firewood or for any other purpose. Anyone removing or damaging any cave formation on the preserve property will not only be banned from use of the property, but will be subject to prosecution under both state and federal laws. Any vandalism or abusive activities at the preserve should be reported immediately to the preserve managers with the identities, if known, of those individuals committing the act.

- m. Please remove not only trash that you might bring on the preserve but also any trash you see that has been left by others. Please help the preserve managers keep the cave and preserve property clean and vandalism free. Spray painting and other types of graffiti are not permitted and are considered acts of vandalism which may be prosecuted.
- n. Modifications of any of the cave properties or preserve including, but not limited to, placement of bolts or artificial anchors, marking or constructing trails, cutting trees or brush and other similar activities requires specific written permission from the preserve managers.
- o. Alterations to the natural morphology of the cave and surrounding landscape, such as digging new entrances or excavating passages can have dramatic effects on the cave microclimate by changing temperature, humidity and water flow. Accordingly, no such activity is allowed. Digging, excavation, or blasting on the property or any of the caves is allowed only with written permission from the preserve managers.
- p. No collection of specimens, artifacts, or any type of natural or cultural resource from the preserve is permitted without specific written permission from the preserve managers.
- q. Some areas of the caves have very sensitive formations, and in those areas cavers should remove their boots and use aqua socks or similar footwear. Some especially sensitive areas of the cave(s) may be may flagged off and have restricted or no access allowed. Some extremely sensitive cave(s) may have highly restricted access with at most two trips per year allowed.
- r. The preserve manager(s) shall adopt and implement any other measures for protection of the preserve property and safety of any cavers as they see fit subject to pertinent approval by the parties in this agreement.
- s. Possession of and use of any illicit drugs, drug paraphernalia or is prohibited.
- t. Driving and parking in the preserve are not allowed. Parking is allowed just inside the fence of Lot 3, but there is only enough room for 2 or 3 vehicles. Under no circumstances should vehicles proceed beyond the railroad cut. Explicit per trip permission must be obtained from the owners of the meadow (Jelkin's) prior to walking across their field to access the property. The BHCNC and NSS do not have an access easement to cross the meadow (Jelkin's land), so permission must be granted. Please be respectful of other people's property and decisions to allow/deny access. The cave property may be accessed from the USFS land following the section line between sections 13 and 24. This is the only legal access to the property at this time, and it is hike-in only as there is not a USFS road leading directly to the section line.
- u. Cave diving is only permissible with the express written consent of the BHCNC board of directors. (See Brooks cave diving guidelines below.)
- v. Cave Gates: All gates will be inspected for functionality on all trips into the cave(s), an maintenance concerns will be quickly corrected by the preserve managers. Access through these gates can only be obtained by the aforementioned permitting process.
- w. No one is allowed on the property between the hours of 10:00pm and 6:00am, except for members of the Preserve Management Committee performing maintenance or security activities. Exceptions may be authorized by advance permission of the

Committee on a case-by-case basis. No camping is allowed on the property or in any of the caves at any time.

- x. To protect surface flora and to reduce erosion, off-trail activities or use are to be minimized, including climbing and rappelling.
  - y. There are no sanitation facilities on the property or in any of the caves. Waste and trash should be carried away.
13. Cave Diving/Digging Policy Guidelines: The Black Hills Cave and Nature Conservancy may allow access to qualified cave divers/diggers to do work in the caves of the preserve when they adhere to these policies. These policies are as follows:
- a. A letter of intent specifying the objectives, planned date, group size, experience, and participant credentials must be received by the preserve managers, and given to the BHCNC board for review.
  - b. For diving, each diver must be certified NSS/CDS Full Cave or equivalent and should have sump diving experience. As part of the submitted dive plan, an appropriately trained and willing rescue dive team contact must be provided. Availability will be confirmed.
  - c. Approval or denial will be given to the person submitting the special request by the preserve managers.
  - d. Copies of photos, dive trip reports, accident reports, scientific study or survey data and any other documentation resultant from the dive must be provided to the BHCNC. Non-compliance will result in denial of all future privileges.
14. Management Committee: The Dahm Springs Preserve Management Committee will consist of the executive committee of the Black Hills Cave and Nature Conservancy, as designated by the BHCNC board of directors. This will consist of the President, Vice-President, and Secretary/Treasurer, forming a 3-person team of preserve managers. This document will be updated if/when the BHCNC determines an internal leadership change is needed. The BHCNC board of directors may at a future time determine that it will appoint a preserve manager or director to carry out the actions of the Preserve Management Committee, to accomplish maintenance or day to day tasks.
15. Future Plans: Maintenance of trails, mowing of Lot 3, and fence maintenance will be the responsibility of the Management Committee. Survey, exploration, science-based activities and education will continue. Cleanup trips to Brooks Cave will also be a continuing effort. The condition of cave and surface resources will be monitored. A gate will be added to Dahm Spring Cave. Once installed, regular maintenance and repair of all cave gates will continue as needed. An applicable, individual, access and management policy for each cave will be developed to address the unique nature and special requirements of some of the caves of the preserve.