

MANAGEMENT PLAN FOR MERLINS CAVE PRESERVE

INTRODUCTION

The Northeastern Cave Conservancy, Inc. (NCC) owns and manages the Merlins Cave Preserve in the Town of Canaan, Columbia County, New York. The preserve consists of 35.69 acres, containing Merlins Cave, Dragon Bones Cave, Dome 12 Cave, and numerous sinks. The preserve also includes a 15-foot wide walking right-of-way across the adjacent Belknap/Burke-Hennessy property and a parking area off Tunnel Hill Road. The right-of-way starts from the parking lot and travels roughly north up the hill, before turning northeast to meet the preserve boundary at the Dragon Bones Cave entrance, a distance of 3,200 feet. The preserve has been placed under a conservation easement, which is held by the Columbia Land Conservancy.

PURPOSE OF A MANAGEMENT PLAN

A management plan is not only a good idea but one must be approved by the NCC Board early in the acquisition process for any new cave property. The purpose of a management plan is to describe what is on a property and how it should be managed. It is an operating manual for the preserve. A plan is not a static document that once written is placed on the shelf and forgotten. It is a document that is to be used and referenced on a regular basis. The property manager must follow the plan unless there is a compelling and overriding reason for doing otherwise. Unless there is an immediate need, nothing should be done at a property that is not in the plan. If something new is desired, the plan should be amended only after careful, complete, and thorough analysis of the proposed changes or additions. Then, the amendments must be approved by the NCC board. The NCC requires all of its preserve managers to conduct a thorough review of their preserve management plan every two years and submit a report with their recommendations to the Board. The NCC board will reaffirm the existing management plan or make necessary modifications to ensure the protection of the property and an enjoyable experience for cavers and for the general public. The NCC Secretary issues reminders and puts plan reviews on meeting agendas.

HISTORY OF THE PROPERTY

This wooded hillside has been in the Belknap family since 1971, and has been used for farming and forestry since the late 1700s. A circular trench marks the site of a possible charcoal circle near the entrance to Dragon Bones Cave, and other charcoal circles may exist on the property. Geologist Nicholas M. Ratcliffe plotted a major Taconic thrust fault crossing the property for his 1978 US Geological Survey publication (Interior Geologic Survey, Reston, VA. 1978). The caves are related to this fault.

The human history of the caves on the Merlins Cave Preserve is brief. Animal traps from the 19th century were noted in both caves during exploration, likely washed in by the streams or dragged in by animals, indicating the entrances may have been historically used for trapping. Mike Eaton entered the then-tiny Merlins Cave entrance in 2004 or 2005 and did limited rock removal. A group consisting of Larry Botto, Bob Dion, John Dunham, Clint Matter and Mike Telladira returned to this entrance in September 2006, began digging, and broke through into the entrance maze on 15 October. Continued efforts inside led to the breakthrough at the Beartrap on 19 February 2007. Another breakthrough occurred on 18 March when the Big Room was discovered. After the June 3 2007 survey and photography trip, exploration ceased for several years. Winter bat counts were conducted from 2008 through 2014, often with a New York Department of Environmental Conservation official. A full cartographic survey of Merlins Cave was completed in 2012 and a map was drafted by John Dunham. This map was revised in 2020 to include Dragon Bones Cave and Dome 12, as well as several surface features.

UNDERGROUND RESOURCES

Biological - No troglobites have been observed in either cave. However, known Northeast troglobitic species include: the Taconic cave amphipod (*Stygobromus borealis*) found in springs in western Massachusetts; the Piedmont groundwater amphipod, *Stygobromus tenuis tenuis*, (may be present too far east to be found in these caves.) An in-cave evaluation should be completed for these species. Other species likely to be present would be the cave cricket, *Ceuthophilus maculatus*, the cave moth, *Scoliopteryxlibatrix*, harvestmen, *Leiobunum* sp., and snails, *Mesomphix* spp.

Hundreds of bats have been noted in Merlins Cave, specifically the little brown bat (*Myotis lucifugus*), and the tricolored bat (*Perimyotis subflavus*). Counts are done periodically by NYS Department of Environmental Conservation officials and volunteers.

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Geological & Hydrological - The caves on the preserve are formed in the Stockbridge Marble. Numerous dolomitic boudins, gash veins, and insoluble remnants along the fault zone produce interesting passage geometries and photogenic areas.

Merlins Cave is currently surveyed to 2008.4 feet in length and 142 feet of depth. The entrance is a tight stream resurgence near the fault contact between overlying schists and phyllites and the underlying soluble Stockbridge Marble. Several hundred feet of low horizontal maze passage are separated from the main canyon section of the cave by the Beartrap, a tight crawlway. High canyons, large rooms, domes, waterfalls and plunge pools extend beyond the Beartrap. A bolted traverse currently connects the High Room to the canyon passage. The Big Room area, beyond the High Room, contains roughly 1300 feet of parallel passages and rooms of significant size, including excellent formations, and breakdown mazes.

Dragon Bones Cave is currently surveyed to 100 feet in length and 28 in depth. The entrance is a vertical slot beside a marble outcropping. It opens into a low, wide room sloping down some 20 feet to a crawlway leading to a second room with many formations. There is significant airflow in this cave from an unknown source.

Dome 12 is currently surveyed to 211 feet in length and 65 in depth. The cave is accessed through a culvert that was placed in the Dome 12 sinkhole to protect the entrance from filling in. The culvert ends at a small crawl that goes to a 14 drop with a small stream. Down this drop there is continuing walking passage, that goes to a crawl that ends in fill. The passage also continues under the wall where they stream sinks into the current dig.

Paleontological - No significant or unique resources are known to exist.

Archeological – No significant or unique resources are known to exist.

Historical - No significant or unique resources are known to exist.

SURFACE RESOURCES

Biological - The area was logged around 1970. The predominant tree species are black and red oak (*Quercus* sp.) and sugar maple (*Acer saccharinum*). In addition, there is a significant amount of large-toothed poplar (*Populus grandidentata*). Trees in lesser numbers include, but are not limited to hemlock (*Tsuga canadensis*), beech (*Fagus grandifolia*), hop hornbeam (*Ostrya virginiana*), shagbark hickory (*Hicoria laciniosa*), striped maple (*Acer pennsylvanicum*), eastern white pine (*Pinus strobus*) and cherry (*Prunus* sp.). It is currently recommended that the property not be logged at any point in the future due to the steepness of the terrain and the fragility of the karst (see the appendix for details). If logging is warranted in the future, some trees could be girdled to create wildlife habitat, specifically creating roost trees for bats.

There is a significant mid-story of witch hazel (*Hamamelis virginiana*) on much of the property.

There is a limited ground cover. Ferns include maiden-hair fern (*Adiantum pedatum*), interrupted fern (*Osmunda claytoniana*), Christmas fern (*Polystichum macrostichoides*), and walking fern (*Asplenium rhizophyllum*). In order to preserve these species, new walking trails will be planned with conservation in mind, and ideally with help of the botanists from the Hawthorne Valley Farmscape Program.

Geological & Hydrological - Some bedrock is exposed at the surface on the top and on the down slope edge of the bench containing the caves. Some bedrock is also visible where exposed by stream erosion. Besides the three caves, there are at least ten large sinkholes on the property. Undoubtedly, all of these transmit water into the marble and may connect with Merlins Cave. As is typical in karst terrain, the few surface streams are short and quickly sink underground.

Paleontological - No significant or unique resources are known to exist.

Archeological - No significant or unique resources are known to exist.

Historical - No significant or unique resources are known to exist. A circular trench 40 feet in diameter near Dragon Bones Cave, and another near the western property boundary, may mark the site of a former charcoal circle. Charcoal circles were used during the 1800s to produce charcoal for the smelting of bog iron. Hardwoods, usually oak, would be cut, piled onto a massive fire, and covered in leaves and dirt. This pile would smolder for several days, after which the charcoal could be removed and transported to kilns. Other former charcoal circles may be present on the property.

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ASSUMPTION OF RISK STATEMENT

Cave exploration and hiking on karst terrain may involve risk or injury, even death from various hazards, both obvious and obscure, including, but not limited to, slippery and uneven ground, open pits, injury by acts of other people, falling, being struck by falling objects, becoming lost, the presence or sudden appearance of water, and hypothermia. All cave visitors will abide by the normally accepted rules of safe and conservation minded caving as outlined by the National Speleological Society, 6001 Pulaski Pike, Huntsville, Alabama 35810-1122.

ACCESS POLICY

Surface

The Merlins Preserve is currently open to visitors who wish to explore the surface year-round. Visitors should stay on trails marked with the official NCC trail markers. The trail from the parking area to the caves will be maintained such that emergency ATV use will be possible. Other walking trails should be single track (roughly three feet wide), marked with official NCC trail markers, and will be maintained as the preserve manager sees fit. Ideally, before new trails are cleared, a botanist from the Hawthorne Valley Farmscape Program should be consulted so that fragile plants are not disturbed. If necessary, small foot bridges may be added so that pedestrians can cross streams and muddy areas, thus reducing erosion.

The Merlins Preserve is currently closed to motorized vehicles (except in case of emergency) and camping. Fires are only allowed with Preserve Manager permission.

Underground

Merlins Cave currently exists in nearly pristine condition. Therefore, the cave is only open to small, led trips from May 1 to September 30. All trips will require qualified Cave Stewards who are thoroughly familiar with the cave. Cave Stewards must demonstrate to the Preserve Manager that they are qualified to accompany others through the cave without damaging the cave environment. Cave Steward training will be offered when there is interest, and the Preserve Manager will maintain a list of qualified Cave Stewards. Cave Stewards must receive permission from the Preserve Manager before any trips into Merlins Cave.

Dragon Bones Cave is open to general caving from May 1 to September 30.

Dome 12 is currently only open for visitation with permission from the Preserve Manager.

For all caves, standard caving gear will be required. This includes a helmet with chinstrap; three (3) sources of light, one of which is mounted to the helmet; and at least three (3) people in the party. In addition, cavers visiting Merlins Cave are required to use a seat harness and cows tail to clip into the traverse line leading up to the High Room.

USE CONFLICTS

Currently the only use conflict is with the US Fish and Wildlife Service's listing under the Endangered Species Act of the Northern Long-eared bat, *Myotis septentrionalis*, as threatened. This creates a conflict between bat hibernation and cave visitation from October 1 through April 30. Federal and state law require that Merlins Cave be closed during this period. Should a conflict arise between recreational caving and digging, the recreational caving shall take precedence.

RESEARCH RULES

All research carried out on the NCC preserve must meet the following criteria:

- 1) Researchers must initially contact the NCC science coordinator.
- 2) The goals and objectives of the research must be clearly defined.
- 3) There must be a clear beginning and end to each project, with the exception of long-term monitoring studies.
- 4) The work must not cause permanent damage to any caves, natural features, native biota, or historical resources nor interfere with natural hydrologic or chemical processes.
- 5) The research plan must assure the maximum safety of all concerned.
- 6) The work must not interfere with the "experience" of other property visitors.
- 7) Unless specifically authorized by the NCC Board, researchers must operate within the confines of the established management plans for each property.

EXPLORATION RULES

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The main possibilities for exploration on the Merlins Cave Preserve are cave digging. Any digging projects must be approved by the preserve manager. Persons proposing a dig project shall submit a plan to the manager detailing where they plan to dig, how long they plan to dig, and where they plan to dispose of the spoils. Plans should also include how the diggers plan to remediate the dig should it be abandoned. Projects that include potential passage modification require specific approval from the preserve manager. Any dig that is not worked on for more than one (1) year, excluding cave closures for bat hibernation, shall be considered abandoned and any subsequent work in the same area will require manager approval.

PUBLICITY POLICY

The caves are not to be publicized in books, magazines, or newspapers of general circulation. Cavers' publications like *The Northeastern Caver* and the *NSS News* may contain information on the latest discoveries. Some grotto publications may also include information, but again these have limited circulation and usually do not give precise locations.

SURFACE MANAGEMENT

A trail is marked from the parking area past the Dragon Bones Cave entrance to the Merlins Cave entrance. In 2015 a loop hiking trail was created, and the property is open for the public to visit. A kiosk/changing area exists near the parking lot off of Tunnel Hill Road.

The property has been posted in accordance with the NYS Penal Law and the NYS Environmental Conservation Law. This will provide the NCC with the ability to better control access to the property. Without this, individuals could hunt, trap, or ride motorized vehicles on the property without permission.

RESCUE CONSIDERATIONS

Merlins Cave - A rescue from beyond the Beartrap could present serious potential problems. There are low, wet crawls, some drops, loose rocks, and some tight passages. There are no significant vertical pitches, however there are places with significant vertical exposure. A rescue would likely occur due to a fall at one of the drops, or entrapment at one of the constrictions. A SKED stretcher would be needed along with a way to keep the patient dry and warm. Dome Two should be located on the surface; this would allow a second entrance to be dug in an emergency to bypass the tight main entrance section. Dome Two already allows porcupines and snow into the cave and potentially could be easily opened.

Dragon Bone Cave - At this time no serious rescue problems are likely with Dragon Bones Cave.

Dome 12- A rescue from Dome 12 could also present serious potential problems, and would likely occur due to a fall at the drop. A SKED stretcher would be needed to remove the patient from the cave.

FUTURE PLANS & RECOMMENDATIONS

1. Interpretive signs highlighting the charcoal circles and karst features should be added to the loop trail.
2. It may be desirable to gate Merlins Cave in the future. Possible locations include the entrance crawl and the Beartrap.
3. If surveys indicate that any of the caves extends beyond NCC property, "NO Trespassing" signs must be placed in the cave at such points.
4. Dome Two should be precisely located on the surface to help facilitate a rescue in the event of an emergency.
5. Additional signage will be added to the parking area to inform visitors who wish to visit the property.
6. A surface specific brochure will be printed as an additional resource to preserve visitors.

APPENDIX

The *Merlins Forest Management Plan* is an Appendix to this management plan.

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