THE CAVE CONSERVATIONIST

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The Cave Conservation and Management Section of the NSS

Site Management Plan For Cave River Valley Natural Area

Limited excerpts from Site Management Plan issued by Indiana State Parks and Reservoirs, and Spring Mill State Park, March 18, 2009:

INTRODUCTION

This master plan is intended to serve as a guide for the development of Cave River Valley Natural Area. It will define, in fairly broad strokes, the Division of State Parks and Reservoir's objectives and sideboards for start up and development of the property to be managed as a satellite of Spring Mill State Park. Long term funding for the property is currently being added to the budget request for Spring Mill State Park beginning with the 2009-2011 biennium. Input from project partners, project supporters and concerned citizens of Indiana will be requested and given full consideration in the implementation of this plan.

PURPOSE STATEMENT

The primary purpose of this project is to secure a parcel of important karst topography, representative of the Mitchell Plateau physiographic region in Indiana. This section of karst holds particular importance, as the property will protect a hibernaculum and surrounding summer habitat for the federally and state endangered Indiana bat (*Myotis sodalis*). Upland areas will be managed with limited development, and the goal of approximating pre-settlement conditions across the property.

PROPERTY DESCRIPTION

The Cave River Valley property consists of about 300 acres located to the north of Campbellsburg, Indiana on Cave River Valley Road. The property is divided into three parcels by county road. The primary (and, by far, the largest) parcel is currently gated and operated with an on-your-honor iron ranger. The primary parcel consists of a valley surrounded by bluffs and ridges.

The most noteworthy feature of the property is its caves. Endless Cave, also known as Dry Clifty Cave, has a surveyed length of 6903 feet. The first written description of the cave appeared in 1896 by Dr. W. S. Blachley. A key significance of Endless Cave is its status as a known hibernaculum for the endangered Indiana Bat (*Myotis sodalis*); it was the eighth largest hibernaculum for this species in the state of Indiana in 2007. * * *

River Cave, also known as Wet Clifty Cave, is the other large cave in the valley. It stretches for a surveyed length of 3853 feet and features one of the longest straight passages in the world (a single survey shot traveling for over 600 feet). The cave is home to both the state endangered northern blind cavefish and blind crayfish. Features include a small waterfall, chert lenses, and natural bridges, but, overall, there are few speleothems. Water from this cave is the initial source of the stream that runs through the valley. It was along this stream that John Hammersley opened his mill in the 1800s. * * *

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Cave Conservation and Management Section of the National Speleological Society

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Links

Please contribute to *The Cave Conservationist*. You can send articles, news, photos, ideas, etc. to caveconservationist@gmail.com

Full text of federal lands bill http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=111_cong_public_laws&docid=f:publ011.111.pdf

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INSIDE PAGE

Federal Lands Bill Establishes Fort Stanton-Snowy River Cave National Conservation Area

Excerpts from Omnibus Public Land Management Act of 2009, Public Law No. 111-11, signed into law by the President on Mar. 30, 2009. [Note: This law is not an appropriations act, and does not provide any money. Funding will depend upon appropriations by Congress.]

SEC. 2202. [16 U.S.C. Sec. 460yyy-1.] ESTABLISHMENT OF THE FORT STANTON-SNOWY RIVER CAVE NATIONAL CONSERVATION AREA.

(a) Establishment; Purposes.--There is established the Fort Stanton-Snowy River Cave National Conservation Area in Lincoln County, New Mexico, to protect, conserve, and enhance the unique and nationally important historic, cultural, scientific, archaeological, natural, and educational subterranean cave resources of the Fort Stanton-Snowy River cave system.

(b) Area Included.--The Conservation Area shall include the area within the boundaries depicted on the map entitled ``Fort Stanton-Snowy River Cave National Conservation Area'' and dated December 15, 2008.

(**c) Map and Legal Description**.—

(1) In general.--As soon as practicable after the date of enactment of this Act, the Secretary shall submit to Congress a map and legal description of the Conservation Area.

(2) Effect.--The map and legal description of the Conservation Area shall have the same force and effect as if included in this subtitle, except that the Secretary may correct any minor errors in the map and legal description.

(3) Public availability.--The map and legal description of the Conservation Area shall be available for public inspection in the appropriate offices of the Bureau of Land Management.

SEC. 2203. [16 U.S.C. Sec. 460yyy-2.] MANAGEMENT OF THE CONSERVATION AREA.

(a) Management.--

(1) In general.--The Secretary shall manage the Conservation Area--

(A) in a manner that conserves, protects, and enhances the resources and values of the Conservation Area, including the resources and values described in section 2202(a); and

(B) in accordance with--

(i) this subtitle;

(ii) the Federal Land Policy and Management Act of 1976 [43 U.S.C. Secs. 1701 et seq.]; and

(iii) any other applicable laws.

(2) Uses.--The Secretary shall only allow uses of the Conservation Area that are consistent with the protection of the cave resources.

(3) Requirements.--In administering the Conservation Area, the Secretary shall provide for--

(A) the conservation and protection of the natural and unique features and environs for scientific, educational, and other appropriate public uses of the Conservation Area;

(B) public access, as appropriate, while providing for the protection of the cave resources and for public safety;

(C) the continuation of other existing uses or other new uses of the Conservation Area that do not impair the purposes for which the Conservation Area is established;

(D) management of the surface area of the Conservation Area in accordance with the Fort Stanton Area of Critical Environmental Concern Final Activity Plan dated March, 2001, or any amendments to the plan, consistent with this subtitle; and

(E) scientific investigation and research opportunities within the Conservation Area, including through partnerships with colleges, universities, schools, scientific institutions, researchers, and scientists to conduct research and provide educational and interpretive services within the Conservation Area.

Cave River Valley Site Management Plan
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A cement dam was built across the mouth of the cave around the beginning [of] the 20th century. Beginning in 1905, John Bronson began offering boat trips into River Cave for 10 cents a person. A boat is generally recognized as a necessity for the exploration of this cave as the water depth inside the entrance is above a person's head for the first 200 feet of passage.

"Bugs" Armstrong, now well known in the area caving community for his work with the Lost River system, used dynamite to open the entrance to Lake Cave in 1958. Located on the edge of an artificial lake in the valley (which is no longer present), Lake Cave is a low, wet crawl all the way through its 656 surveyed feet; standing is possible only in the room at the end of the passageway.

Crumbling Crevices refers to a series of small shelters, crevices, and other solution features in the limestone bluffs overlooking the valley. A 300-foot cave was once noted as part of these bluffs, but has not since been documented.

Bear Den Shelter is located in a sinkhole between Endless Cave and River Cave; the 37-foot passage has two entrances. Record was made of a petroglyph close by that resembled a bird whose wings had four feathers. * * *

Dorsey Cave is, depending on the source materials referenced, between 7,500 to 8.000 feet long. The entrance section is very wet and the cave is prone to flooding. Dorsey Cave may extend off the Cave River Valley property.

The next five caves are believed to be a part of the current Cave river Valley property, but there is some uncertainty. They may be located just outside the now-existing property boundaries, although they are listed in literature as being a part of Cave River Valley. Knight Cave, located on a bluff, is 39 feet in length. Cathy Cave, only 15 feet long, has two entrances and is also atop a bluff. Green's Crawl is a small spring; the interior is 35 feet long. Crystal Spring has 120 feet of passage. Frozen Waterfall Cave has been "discovered" so many times that it is perhaps the most named cave in Indiana. Its other names include Crabapple, Combs, Snake, Flowstone, Formation, and a personal favorite, Dead Sheep. The entrance is a 20-foot deep pit; although ropes are recommended for entry, they are not a necessity as the pit can be free-climbed. This cave contains about 350 feet of passages with significant flowstone formations, a natural bridge, and gorgeous (although heavily vandalized) speleothems.
* * *

NATURAL AREA EVALUATION AND RESTORATION

A floral inventory needs to be completed to assess the ecological significance of the property's plant life. Such an inventory is important to guide the placement of trails and other facilities so that they do not inadvertently destroy significant floral resources or unique communities. * * *

In the cave system, a survey has already been completed of both biota and speleothems. We are currently waiting for a copy of this survey from The Nature Conservancy in order to evaluate additional cave research needs.

As the endangered Indiana bat (*Myotis sodalis*) is already known to use Endless Cave as a hibernaculum, we expect to gate the entrance to this cave and will allow access only during the non-hibernation season (currently considered May 1 - August 14). We

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will request permission from the current landowner to allow IDNR Division of Fish and Wildlife/ U.S. Fish and Wildlife Service access prior to purchase by IDNR to observe bat exit patterns from the cave, which may assist in gate design. * * *

Both River Cave and Endless Cave have artificial concrete dams outside their entrances. The dam at Endless Cave appears to have little to no impact on water flow as the top of the dam is virtually level with the bottom of the creek bed just outside the cave entrance. At River Cave, though, the dam does have an impact on water level and, in addition, breaks up the natural look of the entrance . . ..

We propose removing the dam at River Cave to restore natural stream flow. This would be done in stages to allow sediment collected behind the dam to continue on downstream. We also recommend removing the dam at Endless Cave to restore natural entrance conditions. This proposal would be implemented only after determination of the historical significance of the dams and evaluation of the potential environmental impact on biota and speleothems. There is old piping affiliated with the supply of water from River Cave that will also need to be removed. * * *

HABITAT MANAGEMENT OBJECTIVES

Hibernacula for the Indiana Bat

Hibernation counts show that th[e] population [of the Indiana bat] within [Endless Cave] has increased from a single bat in 1987 to over 1600 in 2007. As the size and complexity of Endless Cave are considered quite favorable for this species, we expect that closure of the cave during the hibernation season, and restoration of natural conditions outside the cave entrance will promote further population growth.

We plan to fabricate a gate for Endless Cave but the timing of that construction is based upon [several] considerations [including]: Bat behavior/observations. Indiana's Division of Fish and Wildlife's experience in gating other caves indicates a need to start at least six months in advance with site evaluations and observations of flight behavior and patterns during spring emergence and fall swarming. Appropriate site selection and gate design (full angle iron, open top, etc.) are critical decisions that deserve careful consideration and allowing time for both spring and late summer observations by Division of Fish & Wildlife and/or USFWS staff will help us make a wise decision regarding the gate design and placement. * * *

We recognize that the entire property will be used by Indiana bats, requiring management practices to be sensitive to the needs of the bats. An example would be snag management. We know that snags are important to roosting Indiana bats. Management will strive to retain large snags when possible and, if snags do need to be cut (such as for human safety) we will consider the bats when doing that . . .. Manipulation of live trees of certain species and size classes along with use of prescribed fire will also need to be evaluated on a regular basis in regard to the Indiana bat. * * *

If future research/findings relating to protection of the Indiana bat result in a recommendation for significant changes in public access to the caves or to the site, IDNR will review and evaluate whether State Parks and Reservoirs remains the most appropriate management entity for Cave River Valley.

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Read the full report at
http://www.in.gov/dnr/parklake/files/sp-CRVNAManagementPlan_Mar09.pdf

Short Scoops . . .

Researchers in Arkansas have found that the way caves "breathe" can offer insight into climate history. *Science Daily* reported on March 16, 2009 that researchers from the University of Arkansas (including its "Stable Isotope Laboratory") have been examining carbon cycling in an Ozark cave. Their work has shown that carbon dioxide pressures in caves vary with external temperatures and ground cover. This indicates a possible link between the carbon found in rock formations in caves and seasonal changes. The layers in a stalagmite, stalactite, or soda straw resemble the rings found in trees, except that the cave formations can hold information dating back millions of years. One issue with this approach is how to correlate cave formation layers with the conditions that would have produced them. By looking at certain isotope ratios, the researchers hope to improve the worth of cave formations as proxies for historical climate.

According to the April 27, 2009 *Chicago Tribune*, scientists studying submerged sinkholes in the Great Lakes have discovered life-forms similar to those found in some of the most extreme environments on Earth. Groundwater that leaks upward into Lake Huron off the coast of northern Michigan redissolves an ancient seabed, and creates a salty underwater environment that now contains mats of purple microbes. The microbes are cousins to bacteria that live in hydrothermal vents in the deep sea and in ice-locked lakes in the Antarctic. The researchers found that the single-celled microbes from Lake Huron banded together to form filaments that in turn combined to form mats. When debris fell on the mats, the bacteria were able to crawl toward the light and get on top of the debris. In a laboratory, the bacteria could climb a pebble or crawl up the side of a beaker. The bacteria also could eat sulfur, whereas most other bacteria for billions of years have used oxygen for photosynthesis. The closest DNA match for the Lake Huron bacteria was *Phormidium autumnale*, a bacterium found on an Antarctic lake floor.

Mammoth Cave National Park is set to receive more than $9 million in federal stimulus funds, said the *Lexington Herald-Leader* on April 25, 2009. Park officials said the money would pay for the second phase of construction on the park's 45-year-old visitor center. The stimulus funding will allow the visitor center to be completed three years ahead of schedule. The first phase, including a new information lobby and ticket- sales area, is expected to be done in the summer. The second phase will tell the story of Mammoth Cave geologically, historically, and biologically. It will include prehistoric artifacts, 19th century tour guides, and equipment used for exploration in the 1970s.

A team of U.K. researchers claims to have discovered the two largest caves in the world. According to the April 28, 2009 *Thanh Nien News* (Vietnam), a team that included Howard Limbert of the British Cave Research Association discovered Son Doong Cave, 200 meters high and 150 meters wide at its largest, and nearly double the size of the then-current leader, the Deer Cave in Malaysia. The discoveries stemmed from an expedition in mid-April at the UNESCO-recognized world heritage site Phong Nha Ke Bang National Park. The expedition also found En Cave, measuring 150 meters high and 130 meters wide. The team said it had managed its way through only 6.5 kilometers of Son Doong Cave because of dangerous water currents.

On May 3, 2009, the Belfast Hills Partnership (Northern Ireland) announced on its website (www.belfasthills.org) a novel campaign against an invasive plant found in the Belfast Hills. Called the "Exterminate All Aliens" volunteering day, the objective was to help control the spread of Himalayan Balsam, which threatened to displace native plants vital for wildlife. One of the Belfast Hills north of Belfast, the Cave Hill contains (according to other sources) five human-made caves cut from the basalt.

The Cave Conservationist

Membership in the Conservation and Management Section

The Conservation and Management Section is open to all members of the National Speleological Society as well as those interested in cave conservation and management. Members receive the newsletter *The Cave Conservationist* and are entitled to vote at the annual meeting. Annual membership dues: $5.00/ year to receive *The Cave Conservationist* electronically and $10.00/year to receive *The Cave Conservationist* by regular mail. A section membership application can be found in select issues or on our website http://www.caves.org/section/ccms Membership dues may be sent to the *Treasurer, Sandy Cowan* sacowan@frontiernet.net Newsletter printing or postal distribution information may be obtained from *Robert Hoke* bob@rhoke.net The Section presents two annual awards to an NSS Grotto and an NSS Group that have made significant contributions towards conservation or management of cave or karst resources. For more information concerning The Cave Conservation and Management Section of the NSS please visit our website. http://www.caves.org/section/ccms

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