

Grove of Ancient Cedars Mineral Withdrawal

Reports required by 43 CFR 2310.3

- Present Users Report
- Acquisition of Water Rights
- Cultural Resources Report
- Identification of Roadless Areas
- Assessment of Threatened and Endangered Species
- Economic Impact
- Public Participation
- Consultation with State and Local governments

Present Users Report
Big Ice Cave Mineral Withdrawal
Reference: 43 CFR 2310.3-2(b)(1)

Historical use of this area included livestock grazing, use by wildlife, mining activity, and recreational activity related to the Big Ice Cave. On February 5, 1982 Public Land Order (PLO) No. 6119; Bureau of Land Management (BLM) Serial Number M 29832; was published in Federal Register (47 F.R. 5423 (1982)). The PLO withdrew 170 acres of National Forest System land from location and entry under the mining laws for the Big Ice Cave.

Present uses revolve primarily around recreational activity. It is anticipated that this trend will continue and will likely increase as the populations in Billings and Red Lodge, Montana grow. Worldwide, ice caves in limestone are fairly unique occurrences. There are numerous limestone caves in the Pryor Mountains; however, none are as unique as the Big Ice Cave. Visitors frequent this area mainly because of the unique aesthetic and recreational value of the Big Ice Cave. This cave has the best and most unique ice development and is the most visited of any known ice caves in the Pryor Mountains. The entrance opens into an immense room of ballroom proportions of which the floor is heavily underlain with ice year round. The ice floor is 25-feet thick at the left rear of the cave where a vertical passageway provides access to other chambers below. There are ice stalagmites and an ice waterfall. It is because of these unique qualities that the area has been developed and attracts recreationists.

Developed improvements consist of a trail system leading to the Big Ice Cave entrance, and a wooden stairway and platform which provide opportunity for the public to view the Big Ice Cave.

Since the Big Ice Cave area was previously withdrawn this action would result in no change to visitor experience. People would continue to visit Big Ice Cave because it is a unique and attractive geologic and hydrologic feature, offering a spectrum of recreation opportunities. There are no current land uses that would be preempted (other than the filing of mining claims) or negatively impacted by the withdrawal of the proposed lands. Access into the area would not be altered or limited by the withdrawal of these lands. No quantifiable economic impacts are anticipated. There are no authorized improvements under existing permit, license, or lease that will be lawfully terminated or revoked if the proposed lands are withdrawn.

Allowing mineral entry would be a change in current area management. This could potentially result in future surface disturbance, including road construction, prospect pits, tailings piles, increased traffic etc. If mineral entry is allowed the visitor experience may be degraded because of potential effects related to the operation resulting in increased dust, vehicular traffic and sound. Although mining activity would not prohibit public use of the surrounding area, it could reduce visitation and the desire to visit the area for the recreation qualities for which it was established.

Threatened and Endangered Species Report
Big Ice Cave Mineral Withdrawal
Reference: 43 CFR 2310.3-2(b)(2)

There are no known threatened and endangered plant species within the proposed Big Ice Cave withdrawal. However, three small populations of Jove's Buttercup (*Ranunculus jovis*), Northern Region sensitive species, are found within the area. The proposed withdrawal benefits these populations. No impacts are expected.

Species or their habitats potentially present in the project area include the following:

Federally threatened and endangered species:

Canada lynx
Gray wolf

Forest Service sensitive species:

Northern goshawk
Townsend's big-eared bat
Spotted bat

Management Indicator Species:

Northern goshawk
Ruffed grouse
Elk

This withdrawal may affect, but will not adversely affect, Canada lynx. It will not jeopardize the continued existence of the gray wolf and may affect, but not adversely its critical habitat. Withdrawal from mineral entry is an administrative action that would prevent mineral activity in the project area. Thus, this withdrawal will have no short or long-term adverse impacts to species or habitats present.

Public Participation Statement
Big Ice Cave Mineral Withdrawal
Reference: 43 CFR 2310.3-2(3)

The Big Ice Cave was originally withdrawn from mineral location and entry under Public Land Order (PLO) 6119. It was given Bureau of Land Management (BLM) Serial Number M 29832 and published on February 5, 1982 in Federal Register Vol. 47, No. 25 page 5423. Prior to the publication of the PLO 6119, verbal discussions were held with the Billings Geological society, Montana Fish and Game Department personnel, local ranchers, and local agency employees. All individuals contacted felt Big Ice Cave and the neighboring land should receive the necessary legal protection a withdrawal from mineral entry provides.

As the expiration date for PLO 6119 approached the Custer National Forest applied for an extension. On August 22, 2002, a Notice of Proposed Withdrawal and Opportunity for Public Meeting, BLM Serial Number MTM 93636, was published in Vol. 67, No. 163 page 54462 of the Federal Register. This Notice proposed to withdrawal 170 acres covering the Big Ice Cave area. The comment period ended September 23, 2002; no comments or requests were received by the Forest Service or the Bureau of Land Management. The Crow Tribe was contacted, and their representative said the Tribe had no concerns about the proposal. Unfortunately time and budget restraints precluded the proposed extension from being finalized.

On May 9, 2008, a Notice of Availability to Review and Comment was again published in *The Billings Gazette*, *The Missoulian*, and *The Great Falls Tribune* newspapers. The comment period ended June 9, 2008. Additionally, the draft Environmental Assessment and Finding of No Significant Impact were posted on the Forest's website and a letter was sent May 6, 2008, to our planning partners inviting them to view the documents and comment. The proposed mineral withdrawal was also listed on the Custer National Forest quarterly Schedule of Proposed Actions notifying the public of this proposal. The Forest received five comments all in support of this proposed withdrawal, including one from the Stillwater County Commissioner's Office

Identification of Roadless Areas
Big Ice Cave Mineral Withdrawal
Reference: 43 CFR 2310.3-2(3)(ii)

The proposed Big Ice Cave withdrawal area is not comprised of any portion of a Forest Plan inventoried road-less area. In addition, the Big Ice Cave withdrawal area is not proposed for wilderness designation under the Forest Plan nor is it being considered before Congress as a wilderness area.

Approximately one (1) mile due east lies the Lost Water Canyon area which has been recommended for wilderness designation in the Forest Plan, pages 67-68. See the Forest Plan Management Area Map for Beartooth Ranger District (Management Area H).

Access to Big Ice Cave is provided via existing National Forest System Roads, specifically roads 2308 and 2308A. However, there is currently no legal access across the Crow Indian Reservation (Sage Creek Road). There is no new, or temporary road construction proposed.

Acquisition of Water Rights
Big Ice Cave Mineral Withdrawal
Reference: 43 CFR 2310.3-2(4)

The proposed Big Ice Cave mineral withdrawal does not occur within any floodplains or wetlands and thus there would be no effect to these types of areas. This action is in

compliance with Executive Order (E.O.)11988 and E.O. 11990 both issued May 24, 1977 (42 FR 26951;26961).

State and Local governments Consultation
Big Ice Cave Mineral Withdrawal
Reference: 43 CFR 2310.3-2(5)

Big Ice Cave has enjoyed wide support from its original withdrawal from mineral location and entry under Public Land Order (PLO) 6119 to the present day request for a new withdrawal. Prior to the publication of PLO 6119, verbal discussions were held with the Billings Geological society, Montana Fish and Game Department personnel, local ranchers and local agency employees. All individuals contacted felt Big Ice Cave and the neighboring land should receive the necessary legal protection a withdrawal from mineral entry provides.

On July 31, 2008, Mr. Steve Williams, Forest Supervisor Custer National Forest contacted the entire Montana Congressional delegation in writing notifying them of the proposed Big Ice Cave withdrawal. The letter requested the Senators and Congressman contact Mr. Williams if they had any questions or concerns regarding the withdrawal. To date, the Custer National Forest has not been contacted by any members of the Delegation.

During this process the Crow Tribe has been contacted. Their representative said the Tribe had no concerns about the proposal. According to forest Archaeologist, Ms. Halcyon LaPoint, “considering the non-ground disturbing management practice which will be a continuation of a previous withdrawal there is no need to again consult with tribal officials”. Ms. LaPoint feels the newspaper and federal Register notices are more than adequate.

Custer National Forest/Beartooth Ranger District
Mineral Report
Big Ice Cave Area
Proposed Mineral Withdrawal

Introduction

This report concerns the mineral potential on lands proposed for withdrawal from location and entry under the United States mining laws. The lands are located in Carbon County, Montana and are described as:

T. 8 S., R. 27 E., P.M.M.
Sec. 3, SE¼;
Sec. 10, N½N½NW¼NE¼.

This report is based on a search of the available geologic literature and geologic maps of the area. There was a field examination by the writer during the fall, 2007.

A search of the Bureau of Land Management records conducted on February 22, 2008 utilizing information contained within the BLM Geo-communicator data base, (data current as of January 25, 2008) indicates that no active mining claims exist in the area of concern or anywhere within T8S; R27E.

Geography and Topography

The Big Ice Cave is located approximately 25 miles southeast of Bridger Montana. Access to the area is provided via Forest Service Roads #2308 (Sage Creek Road) and #22308a Big Ice Cave Road loop. The Forest Service has no legal access on this same road where it traverses the Crow Reservation.

The Big Ice Cave is located on a plateau, dissected by moderately deep drainages. The plateau is composed of Madison limestone (Mississippian age). Areas adjacent to the Big Ice Cave and the majority of the lands contained in the Pryor Mountain land unit displays Karst topography features such as sinks and caves.

Geology

The Big Ice Cave consists of a solution formed cave. However, the Big Ice Cave and has little or no dripstone, flowstone or rimstone in the form of stalactites, stalagmites and other cave deposits. This cave as well as most of the others in the Pryor Mountains is located stratigraphically in the upper Madison limestone. Elliot (1963) gives a rather complete discussion on the probable origin and genesis of the Pryor Mountain caves. Summary; it is Elliot's contention they represent occurrences of "patch" coral and algae reefs incorporated in the rock mass during deposition. Subsequent solution and removal of the coral and algae inclusions left cavities which then became collection areas for clay and silt sediments.

Late in the Pliocene, the Pryor Mountains were finally uplifted to their present position. Subsequent erosion removed all but a few remnants of the younger beds overlying the Madison limestone and removed the silt and clay from the preexisting cavities.

The cave contains many specimen of dogtooth spar which has been formed since re-excavation of the cave.

Mining History

The Pryor Mountains have been actively explored for many years with only minor success in finding some uranium, semi-precious gem stones and calcite.

Tyuyamunite $\text{Ca}(\text{UO}_2)_2(\text{VO}_4)_2 \cdot 5-8.5 \text{H}_2\text{O}$ occurs in soft clayey material and silicified breccia that fills caves and solution cavities in the Madison limestone (Jarrard, 1957).

The largest productive mines were in Wyoming, but a number of deposits have been found in Montana. Although the individual ore bodies are small, the grade of the ore is relatively high. No claims were noted on the ground in the area of concern. No evidence of yellow cake or accumulated clay cave filling material which would have contained tyuyamunite was noted during site visits. This material would have been eroded from the Big Ice Cave during re-excavation of the cave. This is not to say that the entire fill has been removed but no anomalous scintillometer readings were noted in the Ice Cave or immediate vicinity.

There previously were several claims to the northwest of the area that are located for semi-precious gem stones of the cryocrystalline quartz varieties. These claims are associated with placer deposits of stream gravels along the creeks and would not be present in the area of concern.

East of Warren, Montana on the western edge of the Pryor Mountains, the Big Horn Limestone Company is quarrying the Madison limestone for use in sugar beet refining, pollution abatement and scrubbing material in coal fired generators, and as a calcium supplement for domestic livestock feed.

Basin Electric/Dakota Coal also holds about 410 acres of unpatented lode mining claims immediately adjacent to the existing Big Horn Limestone quarry, where high calcium limestone is currently being mined. Basin Electric/Dakota Coal has been conducting exploration activities on those claims, most of which are on National Forest System lands. This has consisted of core drilling within the claim block in order to test the grade of the limestone (its calcium content). Basin Electric/Dakota Coal operates a number of coal-fired generators in the Dakotas.

In summary, there are three types of known mineral deposits in the vicinity of the Big Ice Cave. Historically, the area has been prospected for high grade uranium deposits and there may be low to moderate potential for those types of deposits in the vicinity of the Cave. There has also been recreational collecting of low grade agate and jasper in the area. However, the most significant deposit is the high calcium limestone around Big Ice Cave that may be of high enough quality to be claimed under the 1872 Mining Law.

As demonstrated by the activity near Warren, Montana, future demand for high calcium limestone may create a moderate potential for mineral activity and claim staking for high calcium limestone elsewhere in the Pryor Mountains. Therefore, a moderate risk exists that claims could be staked and mineral activity proposed in the vicinity of Big Ice Cave should the area be opened to mineral entry.

/s/ M. Patrick Pierson
M. PATRICK PIERSON
Forest Geologist

Date

References

Elliot, Jerald K. 1963; Cave occurrences in the Mississippian Madison limestone, Pryor Mountains: Billings Geological Society 12th Annual Geologic Conference.

Jarrard, L.D., 1957, Some occurrences of uranium and thorium in Montana: Montana Bureau of Mines and Geology, Contr. 15.