M I N U T E S

Virginia Cave Board
Saturday, March 19, 2005
Endless Caverns, New Market, Virginia

Virginia Cave Board Members Present

Mr. Bob Barns, Treasurer
Dr. David C. Culver
Mr. Joe Davis
Ms Andrea Futrell
Mr. Drew Harrison
Dr. John R. Holsinger
Ms. Nikki Rovner
Ms. Claire Ward

Virginia Cave Board Members Not Present

Ms. Barbara L. Moss, Chairman
Dr. Kurt Buhlmann, Vice Chairman
Ms. Judy Molnar
Virginia Department of Historical Resources representative

Staff Present

Mr. Joey Fagan
Mr. Larry Smith
Mr. Tom Smith
Mr. Wil Orndorff

Others Present

Ms. Patti Barns
Ms. Martha Berdeaux
Mr. Wade Berdeaux
Mr. Tim Gette, Executive Director Virginia Museum of Natural History
Dr. Ernst H. Kastning
Ms. Karen M. Kastning

Call to Order

Mr. Barns called the meeting to order at 1:00 p.m. and declared a quorum present.

Introduction and Announcements

Mr. Barns welcomed members, staff, and guests.

Mr. Barns expressed thanks to Endless Caverns for hosting the Virginia Cave Board. Ms. Berdeaux and Mr. Wade Berdeaux of Endless Caverns presented a special cake celebrating the impending designation of the Virginia Big-eared Bat as the State Bate of Virginia.

All in attendance introduced themselves.

Approval of Minutes from December 4, 2004

MOTION:	Ms. Ward moved that the minutes of the December 4, 2004 meeting of the Virginia Cave Board be approved as corrected.
SECOND:	Mr. Davis Seconded
DISCUSSION:	None.
VOTE:	Motion carried unanimously.

Treasurers Report

Mr. Barns submitted the Treasurer's report to the Board.

Old Business

Education Committee

Ms. Ward discussed plans to produce, in conjunction with Cave Week 2005, a fact sheet/pamphlet on the Virginia Big-eared Bat, the newly designated state bat. Ms. Kastning offered to explore funding opportunities to pay for the pamphlet and future educational materials to be produced by the Cave Board. Plans to produce a poster with a groundwater theme for Cave Week 2005 will be postponed for a year to be available for the 2006 Cave Week.

Environmental Response Committee

Duke Energy's plans for the proposed Jewell Ridge Pipeline were discussed. The Jewell Ridge Pipeline preferred route would cross significant karst areas in Tazewell and Smyth Counties. The proposed project includes the installation of about 30 miles of 20-inch diameter pipeline that will connect Consol Energy's Cardinal Gathering system to the East Tennessee Natural Gas interstate pipeline system. Working closely with the DCR Karst Program, Schnabel Engineering will be performing a study of the route to

determine possible impacts including impacts to caves and karst. The Schnabel study will include a geophysical investigation of the proposed route.

A proposal from the LENOWISCO Planning District Commission to install rural public water lines in the Rye Cove area of Scott County was discussed. The plans do not include construction of a sanitary sewer system. Members of the Cave Board expressed concern that the project could lead to adverse impacts to the Rye Cove, one of the state's most biologically significant karst areas. Rye Cove contains nine significant caves and globally rare cave adapted invertebrate species, including:

Lirceus culveri – the Rye Cove Isopod (G1S1)
Pseudanophthalmus seclusus – A Cave Beetle (G1S1)
Nesticus holsingeri – Holsinger's Cave Spider (G2G3, S1S2)
Litocampa sp 4 – A Cave Dipluran. (G2, S1S2)

MOTION: Dr. Holsinger moved that the Virginia Cave Board write a letter to Ms. Lou Ann Johnson of LENOWISCO Planning District Commission expressing concerns about the proposed water line system in Rye Cove, Scott County, Virginia and pointing out potential environmental problems and health issues associated with building such a water system in Rye Cove.

SECOND: Dr. Culver

DISCUSSION: Dr. Culver pointed out that if a water line is built in an environmentally sensitive area such as the Rye Cove Karst, the plan should include concurrent installation of a sanitary sewer system to alleviate anticipated problems with groundwater contamination and associated habitat destruction.

VOTE: Motion carried unanimously.

Sinkhole Protection Committee

Ms. Futrell reported that independent external reviews of the Virginia Transportation Research Council report entitled "Highway Runoff in Areas of Karst Topography" had been solicited, and that a review had been received from Tom Aley of the Ozark Underground Laboratory. Several other individuals had responded that either reviews were on the way or that they would not be able to review the document. Comments on the VTRC report from Cave Board members Dr. Buhlmann and Ms. Molnar have been received as well. Ms. Futrell will work with Karst Program staff to draft by June 1 an official, joint response to VDOT and VTRC from the Cave Board and DCR.

Ms. Rovner submitted two copies of the results of her keyword search of the Code of Virginia for cave and karst related terms. This document will assist the committee in determination of the existing legal status of sinkholes and karst in Virginia, and in the

identification of protection gaps that need filling either via new laws, regulations, or guidelines.

Open Caves Committee

Dr. Culver reported that the Open Caves Committee, formerly known as the Sacrifice Caves Committee, is continuing to work to compile a list of open caves that are devoid of sensitive resources and thus are appropriate places to conduct educational and recreational activities. Such caves receive high volumes of traffic and are kept by their owner(s) open to the public to varying degrees.

Cave Owners Newsletter

Ms. Futrell reported that due to unforeseen time commitments, she would be unable to serve as editor of the Cave Owners Newsletter. She announced that board member Ms. Molnar had expressed interest in the editorship, and that she (Ms. Futrell) would coordinate with Ms. Molnar and Mr. Orndorff to discuss the possible transition of editorship. Ms. Futrell and Mr. Orndorff reported that Ms. Eileen O'Malley of the VPI Cave Club, a professional desktop publisher, would likely assist in layout and production of the newsletter. The next Cave Owners Newsletter will feature a biodiversity theme. Alternate mailing options, including mailing of the newsletter directly by DCR are being explored. Work is ongoing to keep track of landowner address changes, especially as implementation of emergency 911 systems progress.

DCR Karst Program Report

Mr. Orndorff presented the January 1 through December 31, 2004 summary report for the DCR Karst Program:

In 2004, the Karst Program continued to address the special nonpoint source pollution issues associated with the karst topography of Virginia's western counties. Here, the dissolution over geologic time of limestone and dolostone has produced a karst landscape characterized by sinkholes, sinking streams, caves, and large springs. The interaction of surface and groundwater make such areas susceptible to water quality impairments, flooding, land surface collapse, and degradation of natural heritage resources. Land development, agricultural practices, on-site waste disposal, and highway operations all contribute to the NPS contamination of karst aquifers, especially when best management practices specific to such landscapes are not followed.

A major goal for 2004 was the further development of conservation sites for Virginia's significant caves and rare cave fauna. Defined as the land areas where disturbance could impact a group of related natural heritage resources, conservation sites have no legal status. Instead, they are screening tools used to prioritize conservation efforts and to alert state environmental review staff to potential impacts. Heritage staff works cooperatively with private citizens, developers, and other agencies to avoid or mitigate these impacts, protecting both water quality and habitat. For cave conservation sites, dye trace studies

are commonly required to determine the watershed of the cave. Because of funding reductions within both the karst program and the Cave Conservancy of the Virginias, the focus of conservation site work in 2004 was shifted from the delineation of new conservation sites to the prioritization and description of existing sites. The main results of this work were 1) the development of 381 polygons representing the locations of significant caves and other caves with significant biological resources, 2) the compilation of 200 surrogate conservation sites for project screening, 3) the prioritization of both the conservation sites and surrogate conservation sites through assignment of biodiversity rankings, and 4) the creation of six new conservation sites encompassing an additional 15 significant caves. The total number of conservation sites is now 72, encompassing 151 caves. The other 230 caves are covered by the surrogate sites, which will be replaced with conservation sites as they are developed.

Another data development goal of 2004 was to research the behavior of nutrients applied on croplands near sinkholes so that meaningful nutrient management BMPs could be developed. Karst program staff helped to form an interdisciplinary team consisting of geologists and soil scientists at Virginia Tech and from the USDA to investigate this problem, and helped develop a proposal to USDA to fund the research. Unfortunately, the proposal was not funded in 2004. Staff will continue to pursue funding sources for this project in 2005.

Another goal of 2004 was the better integration of karst-specific BMPs into the stormwater management program. Karst program staff worked during with localities, including Pearisburg, Wytheville, Pulaski, and Warren County, on stormwater management issues in karst. In October, a public meeting was held in cooperation with Warren County and the Lord Fairfax Soil and Water Conservation District to present the results of a four-year study of the Cedarville Enterprise Zone, which focused on the fate of stormwater discharged into the karst aquifer. Because 2004 was a year of transition for the regulation of stormwater discharge in Virginia, with permitting responsibilities being passed from DEQ to DCR as the result of the Governor's environmental summit, there was no opportunity for modification of the stormwater regulations. Instead, karst program staff worked closely with the Virginia Cave Board to analyze existing regulations and identify where guidance, and, in some cases, further regulation are needed.

The restoration of the Batie Creek Watershed continued during 2004, as accumulations of sawdust that had generated toxic leachate were removed and applied with lime and fertilizer as a beneficial soil amendment on nearby coal mine reclamation projects. This multi-year project has been the result of the combined efforts of DCR, DMME, the US Fish and Wildlife Service, the Tennessee Valley Authority, Curtis Russell Lumber Company, and the Cave Conservancy of the Virginias. Dissolved oxygen levels, for which Batie Creek has been listed on the 303d list of impaired streams, have returned to normal from near zero values in the mid-1990s, and the Lee County Isopod (*Lirceus usdagalun)*, listed as Endangered due to its extirpation from the cave in the late 1980's, has returned, though not yet to pre-impairment population levels.

In other project related to streams on the 303d list, karst program staff continues to work with DEQ staff and private contractors on a case-by-case basis to ensure that karst issues are considered during TMDL development. Karst program staff visited Beaver Creek Spring in Rockingham County during 2004, and will be assisting DEQ in determining the watershed for the spring.

The Karst Program continues to screen up to several hundred projects proposed for karst terrain each year for potential environmental impacts. During 2004, projects included utility corridors, residential subdivisions, industrial developments, and numerous Virginia Department of Transportation projects.

A particularly important project begun in 2004 is the compilation of the Virginia Karst Hydrology Atlas, a web-based GIS resource through which the majority of data on karst hydrology in Virginia will be available to citizens, local governments, agency staff, and consultants. Although such documents are typically published in hard copy, the digital only Virginia Karst Hydrology Atlas will be updated continuously as new findings are made and new areas are studied, dramatically increasing its value.

Education and outreach efforts during 2004 helped thousands of Virginians learn how to better protect their karst water resources. Eleven Project Underground workshops, attended by a total of 158 teachers, where held in 2004. These teachers will reach over 4,700 students with karst education information. The Karst Education Coordinator participated in 5 additional events that reached a more varied audience, and continued to serve in a leadership role on the Virginia Resource Use Education Committee. Staff led a session on “Karst Education” at the eastern regional meeting of the National Association of Science Teachers, held in Richmond in December. Staff is working on the development of a new lesson on karst features and topographic maps that would teach students about karst hydrology while addressing the Virginia Standards of Learning.

Other activities of the Karst Program during 2004 included participation in the Great Valley Water Forum, which addresses both water quality and supply problems associated with the rapidly developing northern Shenandoah Valley; partnership with the USGS in the identification of springs in western Virginia for age dating; and the karst biota inventory of the Rye Cove area of Scott County, where expansion of the Kingsport, TN metropolitan area threatens to impact a karst system that hosts a wide range of globally rare fauna, including the endemic Rye Cove Cave Isopod (*Lirceus culveri).*

During 2005, the Karst Program will continue to pursue the several long-term projects outline in this report, while responding to citizen requests and to potential impacts to karst aquifers that are identified through the environmental project review office in DCR’s Natural Heritage Program. Major goals for 2005 include the better integration of karst protection into stormwater management BMPs, the launching of the Virginia Karst Hydrology Atlas website, continued delivery of Project Underground Workshops, development of new Project Underground lessons, and an increase in the number of karst watershed and conservation site delineations through dye tracing. This last, very

important item is largely dependent upon the level of funding available through our program and through conservation partners.

Karst Education Report

The Karst Education Report is included as part of the DCR Karst Program Report. Mr. Orndorff also announced that the karst education coordinator was taking the lead role in the planning the Chesapeake Bay Headwaters Institute, a summer graduate program for teachers, to take place in August 2005 in Lexington. The curriculum of the institute will emphasize the role that the geology of the Valley and Ridge Province, especially the karst landscape, plays in influencing water quantity and quality.

Cave Week

Ms. Ward noted that 2005 Cave Week will be held October 9 - 15, 2005 in conjunction with Earth Science Week. The 2004 Cave Week educational poster, "The World Beneath Our Feet: Subterranean Life and the Domain Below the Earth," designed by Dr. Culver, will also be featured as the poster for the 2005 Cave Week. Fact sheets on Virginia's new state bat – the Virginia Big-eared Bat – will be developed and distributed in conjunction with Cave Week.

Cave Week Poster

Ms. Ward noted that the 2006 Cave Week would feature a poster with a groundwater theme.

Show Cave Contacts

The Virginia show cave contacts are:

Dixie Caverns (Dr. Kastning)
Crystal Caverns at Hupp's Hill (Ms. Rovner)
Cumberland Gap National Historic Park caves (Dr. Buhlmann)
Endless Caverns (Ms. Ward)
Grand Caverns (Ms. Molnar)
Luray Caverns (Mr. Davis)
Natural Bridge Caverns (Mr. Barns)
Natural Tunnel State Park caves (Ms. Futrell)
Shenandoah Caverns (Mr. Harrison)
Skyline Caverns (Mr. Davis)

Virginia State Bat

Ms. Ward reported that House Bill 2579, the Bill to designate the Virginia Big-eared Bat *(Corynorhinus townsendii virginianus)* as the official bat of the Commonwealth, has

passed both the Virginia House and Senate and awaits Governor Warner's signature to become law.

The Board discussed the possibility of producing educational posters, pamphlets, and/or postcards. Mr. Davis suggested having a small downloadable letter-sized or ledger-sized poster that teachers or other interested persons could print themselves. Dr. Culver suggested seeking corporate grant funding to pay for such educational materials. Mr. Barns appointed an Ad Hoc Committee consisting of Ms. Ward and Mr. Davis to explore options for producing a half-page fact card on the new Virginia State Bat.

Elements of Erosion and Sediment Control in Karst

Dr. Kastning presented a revised copy of "Elements of Erosion and Sediment Control in Karst" to the Board. Dr. Kastning is seeking illustrations for the pamphlet, which he hopes to have published in hardcopy. The Board discussed publishing and web posting options including producing a downloadable .pdf version of the pamphlet for the Cave Board website.

New Business

Jewell Ridge Pipeline Project

Mr. Orndorff noted that he would be meeting with representatives from Duke Energy and Schnabel Engineering to discuss ways to minimize impact to caves and karst along the route of the proposed natural gas pipeline. The Jewell Ridge Pipeline was previously discussed during committee reports.

Public Comments

Dr. Kastning announced that the Greenbrier Pipeline Project had been abandoned. Dr. Kastning reported that a dye tracing study has been performed by Mr. William K. Jones at the site of Rockydale Quarry's proposed Timber Ridge Quarry in Botetourt County. Mr. Orndorff reported that he had been in touch with Mr. David Willis of Rockydale Quarry and that the company still plans to quarry the site, using engineering solutions to stop interaction of the quarry with Catawba Creek.

Ms. Kastning announced that the Virginia Department of Environmental Quality UST/LUST program was looking for caves near Blacksburg that might have hydrocarbon contamination issues.

Dr. Culver announced that the proposal for "Biotic Inventory of the Appalachians" failed for the second consecutive year to be approved for funding by the National Science Foundation, and that the proposal would likely not be submitted a third time. The proposed project sought funding for taxonomists to perform descriptions of numerous rare, undescribed troglobitic species from the Appalachian region, and also requested

money to train zoologists working in state Natural Heritage programs in the Appalachian region in the identification of described, cave-adapted invertebrate fauna.

Set Next Meeting Date

The next two meetings of the Virginia Cave Board will be held on July 30, 2005 and December 3, 2005 at locations to be determined at a later time.

Adjournment

Mr. Barns adjourned the meeting at 3:40 PM.

Respectfully submitted,

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Board Chairman Joseph Fagan, Secretary