

CANYONS & CAVES

A Newsletter from the Natural Resources Offices
Carlsbad Caverns National Park

Edited by Dale L. Pate

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"Man is a dream, thought an illusion, and only rock is real."

Edward Abbey from **Desert Solitaire**.

REMINDER - Coins cleaned out of pools, pits, or other areas of Carlsbad Cavern are legally the property of the U.S. Government. Please send them to the Cave Resources Office. Occasionally, they are cleaned and added to the Donation Account for the park.

RESOURCE NEWS

PAT O'DELL from the Geologic Resources Division in Denver reports that the Yates Energy Corporation is canceling their last remaining Application for Permit to Drill (APD) in the Dark Canyon area north of the park. O'Dell also reports that Moncrief, an oil and gas company that holds several leases in the Cave Protection Zone north of the park, has submitted two APDs on their leases. The Dark Canyon EIS specifically does not allow for any new surface occupancy for drilling within the Cave Protection Zone. It appears that Moncrief is setting the stage for a "takings" suit much like the one that the Yates Energy Corporation settled this past summer.

DR. LARRY MALLORY, in a recent talk to park staff, elaborated on his microbe studies in Lechuguilla Cave to date. Approximately 1200 strains of microbes have been collected from the cave. Though he still is in the process of collecting microbes from the cave, initial testing of a number of them for medicinal qualities has produced some exciting results. Six of the microbes, which have all been collected from the least visited areas of the cave, have shown positive results when combined with human breast cancer cells. Of these six, one has been selected for continued testing because of its ability to kill all cancer cells, but leaves normal cells intact. This particular microbe is excreting a chemical that is responsible for the die-off of cancer cells. It is hoped that this chemical will be identified within a couple of months. If all goes well, a new drug could be ready for use on humans with breast cancer within five to ten years. Dr. Mallory is in the beginning stages and plans to conduct additional tests on the microbes found in Lechuguilla Cave and from other caves, particularly Mammoth Cave and caves in and around Hawaii Volcanoes National Park.

DR. WILLIAM ELLIOTT, a cave biologist from Austin, Texas, was in the park the week of September 23 - 27 to do field work in Carlsbad Cavern. Dr. Elliott was awarded a contract to study the biota of the Signature Pool as well as the biota that may be living in the various wood debris piles that are found throughout the Main Corridor of Carlsbad Cavern. A final report will also include recommendations for management concerning the pool and the removal of the wood debris piles. Of interest, flatworms and copepods were collected from the pool. The flatworm did have eyes, but has lost most of its pigments indicating that it may be slowly adapting to the cave environment.

LOWER CAVE LADDERS - The ladders and attachment points leading into Lower Cave are slated to be

replaced utilizing stainless steel. The dates for completion of this project will be from January 31 to February 27, 1997.

VERTICAL RESCUE TECHNIQUES training took place on October 16-18 and was a great success. The last day of the training found the crew evaluating, rigging, and hauling a couple of patients (Clarence Wadkins & David Hall) up and down the drop in **Wen Cave**. Thanks to everyone who participated and keep practicing those knots and z-rigs. It is hoped that we will have several mock-rescues over the next several months.

A MOCK RESCUE FROM LOWER CAVE occurred on December 18 and was very beneficial. Paul Mauermann was placed in a SKED and carried, hauled, and otherwise muscled out of the cave. Rigging a vertical haul system up the series of ladders was a challenge and gave us ideas concerning the new set of ladders being prepared for replacing the current ladders.

WE WOULD LIKE to extend our appreciation to the many Student Conservation Associates (SCA's) and Volunteers (VIP's) who have worked with Resource Management. Their help has been an integral part of our program. Currently, there are four people working on a variety of projects

Mark Bremer (VIP) is working with the Surface Resource Team summarizing an accumulation of photomonitoring data on Lee's pincushion cactus. This cactus, which is federally listed as threatened and state listed as endangered, is found only in Carlsbad Caverns National Park. As the sole steward, we are attempting to gain a better understanding of the plant's life history, abundance, distribution, and vulnerability to fire. Mark is a Civil Engineer currently re-engineering his life. He works part time at CCGMA and will be working with us until his re-engineering takes him elsewhere.

Robin Anderson (SCA) is working with the Surface Resource Team to further an evolving monitoring program for seeps and springs in the park. She has worked-out much of the methodology and is writing a draft protocol for future efforts. In conjunction with the seeps and springs monitoring, Robin is working on a relational data base that will ultimately be used for a variety of resource data. Robin just returned to the north country with the mid December winds. We are hoping she will return for a month in late January?

Jenny Lin (VIP) is working with the Surface Resource Team on two projects. Currently she is collecting habitat information on nests of Neotropical migrant birds at Rattlesnake Springs. The nests were found last spring during ongoing research on the extent of cowbird parasitism on host bird species. After completing this work she will help with density estimates on Lee's pincushion cactus. Jenny will be going back to school at Harvard University, where she is in her third year, in mid January.

Paul Mauermann (SCA) is working with the Cave Resources Office on a variety of projects, including management concerns Lechuguilla Cave. Paul will spend much of his time accompanying Harry, Jason, and/or Dale into various caves of the park (mostly Carlsbad Cavern) to accomplish various goals. Paul has a BA in History from the University of Delaware.

VANDALISM LEADS TO ARRESTS - In June 1995, Floyd Collins Crystal Cave in Mammoth Cave National Park was illegally entered and vandalized. Gypsum and travertine cave formations and two sculpted clay heads had been stolen. The clay heads were carved in 1920 by Floyd Collins and his brother. An investigation determined that three men had sold the formations to local rock shops. Two of the men were sentenced to 21 months in federal prison and three years probation while the third was sentenced to 33 months in prison and three years probation. Within a few days of the sentencing by the federal court, 8 out of 13 local rock shops were cited by police for illegally selling cave formations. The cited business owners face fines of \$250 or greater and up to 90 days in jail if convicted.

U.S. FISH & WILDLIFE STING - In late November, the U.S. Fish & Wildlife Service issued search and

arrest warrants in New Mexico, Arizona, and Colorado ending a 2-year investigation into a commercial trapping ring dealing in Bald and Golden Eagles and other migratory birds. There will be approximately 35 individuals and businesses charged in this sting. In one area alone during last year's migration, 60 eagles were intentionally killed. Whole birds as well as various parts and especially the feathers were all offered for sale. Some of the eagles brought up to \$1,000 each.

JAQUAR SIGHTINGS - The Defenders of Wildlife report that there have been recent sightings of jaquars in southwestern New Mexico and southeastern Arizona.

LIFE BELOW THE SURFACE by Harry Burgess

In many ways caves are the last place on this planet with areas never before seen or influenced by mankind. This fact is intriguing to many in search of the unknown and has drawn people into these dark holes for centuries. We are fortunate that even today new caves are being discovered and their secrets revealed to us by these intrepid explorers.

Within Carlsbad Caverns National Park, one cave discovered only ten years ago is today providing very significant discoveries to those willing to explore its depths. The cave, Lechuguilla Cave, was known for years as "Misery Hole", a 400 ft. long cave which was mined for guano in the early part of this century. For years, those entering the cave noted a wind which issued from a rubble pile within the cave, yet it wasn't until May of 1986 that anyone dug through the pile to find more cave beyond. Since the breakthrough, Lechuguilla Cave has yielded over 89 miles of passage and numerous mineralogical, geological, and microbiological discoveries.

For thousands of years, until the day the cavers dug through the rock pile, Lechuguilla Cave was separated from the outside world. The only influences from the surface came from water seeping through the rock (no flowing streams) and the air which the cave inhaled or exhaled according to changes in barometric pressure outside. In this relative isolation, a separate and unique ecosystem developed which supported its own brand of life.

As we learn more about this cave, we are beginning to understand that just because the cave may appear to be uninhabited - without the streams common to eastern caves there are no blind fish, salamanders, or worms, and since the entrance was sealed there wasn't a large population of bats beyond the initial 400 ft. of passage - there may still be life invisible to the naked eye. Dr. Larry Mallory, a former University of Massachusetts professor who has recently started his own business devoted to studying medicinal uses of newly discovered microbes, has for the past several years been visiting Lechuguilla and collecting samples to look for organisms that were previously unknown.

According to Dr. Mallory, the environmental conditions found in Lechuguilla have caused the specialization of certain microbes to allow them to survive in the cave's unforgiving conditions. Without sunlight or a consistent organic food source, life in this cave has been limited to small microbes capable of reducing minerals to use as food, and to other microbes who eat these primary producers. Most of the life is contained within the cave's pools, concentrated at the "bathtub ring" around the pools where the air, water, and rock interface. The limited availability of food has dictated severe competition, and each pool within the cave has developed its own distinct population of microbes, most of which have never before been identified.

With his interest in medicinal uses for microbes, Dr. Mallory hypothesized that the scarcity of food likely caused these microbes to develop means for eliminating their competition. This survival tactic could be in the form of a compound which one microbe may produce to kill off the other microbes that eat the same food. If so, these compounds could possibly be used in medicine to kill unwanted cells such as cancer cells in an ill patient. With that in mind, Dr. Mallory set out to see what he could find.

So far, after four years of sampling and research, Dr. Mallory has discovered over 1000 microbial strains in Lechuguilla's pools. His research has provided the park with a new understanding of

the cave's fragile ecosystem, as each pool seems to be different from any other. Through testing, preliminary results have shown that over 5% of the strains collected have cytotoxic properties (they produce compounds which kill other cells) and several strains proved effective against leukemia cells in mice while another apparently targets human breast cancer cells without attacking non-cancer cells. The results have been very promising indeed, and Dr. Mallory's future plans include ongoing work with the anti-cancer agents as well as searching for anti-viral and anti-infectious agents.

This new information forces us to reevaluate the significance of Lechuguilla Cave and every other cave, known or unknown. The newly discovered microbial population of Lechuguilla has been described as richer than any other area on earth, including the tropical rainforests. So we must strive to protect this resource from harm or carelessness before it is irreparably damaged, lest we lose not only species diversity but also the potential benefits to mankind.

In order to evaluate the changes that Lechuguilla has already undergone due to human explorations and to possibly reduce future impacts, Diana Northup, a researcher with the University of New Mexico, has initiated a study to determine the extent of such human impact. Exploration and research in Lechuguilla Cave often requires trips of several days in duration, thus requiring camping within the cave. The cave itself is 68 degrees F with 99% humidity, and many passages require crawling or ropes to negotiate their length. To simply visit Lechuguilla therefore causes interaction with the cave's environment, and any interaction with a normally closed system could potentially cause changes in that environment.

Ms. Northup's challenge was to develop a way to quantify the human-caused impacts to Lechuguilla Cave. She decided that this could be accomplished by looking in the cave for certain microbes that would be present in this environment only through human introduction. The microbes she chose as indicators of "contamination" are e.coli. (would show fecal contamination, of specific interest are the water sources), high-temperature bacillus (a fungal spore that would be picked up on the surface and tracked in on cavers' boots), and staph. aureus (normally present on some people's skin, would be deposited in cave by sweating). By sampling areas within the cave and then testing for these indicators, Ms. Northup could determine if areas had been contaminated/impacted and by testing areas that haven't been visited for some time, she can learn whether or not the cave recovers from such impacts.

Through her sampling efforts so far, Ms. Northup has begun to construct a model for human associated impacts to Lechuguilla. During this past year (1996) the cave has been closed to exploration trips, thus reducing the number of cavers in the cave and allowing Ms. Northup to gauge if the cave recovers from these impacts (recovery would be if the introduced microbes did not survive without additional inputs). With only partial results in, the picture is brighter than originally perceived. Although all three indicators were found within the cave, all populations do decline with time. How much time it takes for any of the indicators to disappear altogether is still to be determined, and will be of primary importance in the Park's future management plans when deciding on numbers allowed into the cave, duration of trips, and areas allowed to be visited.

The challenge now is to incorporate what is currently known about Lechuguilla Cave into a management plan that both protects this valuable resource and provides for further study. What once was perceived as a sterile environment has proven to be teeming with life, both native and introduced. There have been other studies which also contributed to our understanding of this system and there are undoubtedly future discoveries still to be made. Many of the management ideas implemented already are being adopted by other parks and cave managers. Life, as we are learning, can be found in the most unexpected of places, and we must be careful in our activities to avoid altering a balance achieved only by time.

UPDATE ON BROOD PARASITISM BY BROWN-HEADED COWBIRDS AND EFFECTS ON NEOTROPICAL MIGRANTS AT RATTLESNAKE SPRINGS by David Roemer

THE PROBLEM

Brown-headed cowbirds, *Molothrus ater* (molothrus is Latin for vagabond), are brood parasites. Brood parasites do not construct nests of their own, rather they lay their eggs in the nest of other "host" species. This particular behavior is not unique to the brown-headed cowbird. In North America, bronzed cowbirds, yellow-billed cuckoos, and black-billed cuckoos are also known to practice brood parasitism, although the latter two most often parasitize each other. Cliff swallows also practice a variety of brood parasitism, transporting eggs in their bills to the nests of other cliff swallows in their colony.

Cowbirds have significantly expanded their range and have increased in abundance since the arrival of Europeans to North America. Originally residents of the Great Plains, where they were associated with roaming bison herds, cowbirds have greatly expanded their breeding range in relation to improved habitat (i.e., cleared forests, livestock grazing, agriculture, and irrigation). Whereas cowbirds formerly parasitized approximately 50 species, they are now known to parasitize at least 220 species. Cowbird chicks usually require shorter incubation periods than their host species, are often larger, and more aggressively seek food from the host bird. Thus nestling survival of the host species is decreased.

Declines of migratory songbird species, due in part to brood parasitism by cowbirds, have been documented throughout the southwest. Desert riparian areas are of particular concern as they are relatively rare and isolated, and provide important habitat for breeding birds. New Mexico has lost approximately 90% of its riparian habitat since European settlement, and over 50% of the avian species listed as endangered by the New Mexico Department of Game and Fish depend on the remaining fragmented riparian habitat for breeding or foraging. The riparian area at Rattlesnake Springs provides critical nesting habitat for the New Mexico state endangered Bell's vireo (*Vireo bellii*). Rattlesnake Springs is also potential habitat for the southwestern willow flycatcher (*Empidonax traillii extimus*), a federally endangered species that is likewise a preferred host by cowbirds. Other species that nest at Rattlesnake Springs and are common hosts to cowbirds include orchard orioles, yellow-breasted chats, blue grosbeaks, and red-winged blackbirds.

1996 MONITORING

During nest monitoring activities at Rattlesnake Springs during the spring and summer of 1996, we discovered brood parasitism by cowbirds in 11 of 33 (33%) observable migratory songbird nests. Parasitism occurred in 2 of 6 (33%) Bell's vireo nests. Cowbirds also laid eggs in the nests of yellow-breasted chats, blue grosbeaks, house finches, and several unidentified nests that were found containing cowbird eggs after the host species chicks had fledged. Cowbird eggs were addled in all nests that were still being incubated by the host bird (see below).

SPECIES CODE	HOST EGGS	COWBIRD EGGS	COWBIRD EGGS ADDLED?	RESULTS
BEVI	4	1	YES	4 BEVI chicks fledged
BEVI	4	1	YES	4 BEVI chicks fledged
YBCH	4	1	YES	2 YBCH chicks fledged
YBCH	4	1	YES	Predation / nest abandonment
YBCH	3	1	YES	Unknown
HOFI	4	1	YES	Predation / nest abandonment
BLGR	1	3	YES	Nest abandonment
BLGR	2	1	NO	2 BLGR chicks fledged
UNKN	?	1	NO	Unknown

UNKN	?	1	NO	Unknown
UNKN	?	1	NO	Unknown

Overall, 73 nests were located in the study area. 63 nests belonged to species that brown-headed cowbirds might potentially parasitize. Many nests were too high (e.g., western kingbirds) or of such a construction (e.g., oriole nests), such that it was impossible to observe the nest contents.

The brood parasitism rates at Rattlesnake Springs, are high compared to rates discovered during a cowbird study at six southwestern and western parks in 1995. For example, at Organ Pipe National Monument, only 2 of 110 nests available to cowbirds (1.8%) were parasitized, including 0 of 24 Bell's vireo nests. The highest parasitism rate of the six parks (10.7%) was at Point Reyes National Seashore, where 15 of 140 nests were parasitized.

Next year we will continue to monitor nests, and conduct point counts to document cowbird abundance and use of the Rattlesnake Springs area. Cowbird eggs will be added and replaced in the nest of state or federally endangered bird species (e.g., Bell's vireo and southwestern willow flycatcher), to increase breeding success in these host birds. Cowbird eggs will not be added or removed from non-listed host species (e.g., blue grosbeak, red-winged blackbird, etc.) in order to determine the effects of brood parasitism on host success. Long-term mitigation measures, such as cowbird removal by trapping or shooting, possible habitat improvement for nesting birds, and irrigation practices at Rattlesnake Springs will be critically reviewed, and recommendations made for future management.

CARLSBAD CAVERN SURVEY by Jason Richards

Through the years, Carlsbad Cavern has had an ongoing mapping project. In the 1960's and early 1970's, the Guadalupe Cave Survey (GCS) was the primary group surveying in Carlsbad Cavern. The "old timers" of the GCS were the forerunners and trailblazers to much of the cave we know today. Cave surveying at that time was in it's infancy and much of the detail we require today was not included in their notes, or on their sketches. The GCS joined ranks with the Cave Research Foundation (CRF) in the early 70's and surveys improved, however, there was still a lack of set survey standards. Up until the early 90's, much of the survey in Carlsbad Cavern was resurvey. There were resurveys over resurveys, floor detail on sketches was omitted, there were no running profiles and very few cross sections. Survey designation numbers were totally out of control, with some designations having as much as nine characters. Foresites on the azimuths were not verified by backsites and therefore inaccurate loop closures were common. Although not required at that time, there was no inventory of mineralogical, historic, or archeological features tied in to the survey. The impact to the cave was tremendous by resurveying the same areas over and over.

All of the above reasons, and the fact that Carlsbad Cavern was now designated a World Heritage Site, the consensus of the Cave Resource Office staff and leaders of CRF, Guadalupe Escarpment Area, was that high-quality survey notes were needed. The choices, were to keep the old map and try to eliminate the bad surveys, or to establish a backbone survey of the cave and start a fresh new survey of Carlsbad Cavern. With the exception of the most current surveys that met today's standards, a careful, meticulous resurvey was decided upon.

Basically, we had the backbone of the cave in place. However, the locations of all the survey points and the conversion data from cartesian coordinates to usable "Compass" coordinates was needed, and with Tom Rohrer's help this was accomplished.

In 1964 and again in 1978, Tom Rohrer, a California cave surveyor, did a theodolite survey of Carlsbad Cavern. Tom did a thorough job starting at the entrance, through the Main Corridor, the Scenics, Big Room, Left Hand Tunnel, Lower Cave, Mystery Room, New Section and Guadalupe Room. Tom was able to locate most of his original sites as they were marked with permanent lead and tack

markers, some actually drilled into the tops of small stalagmites or flowstone, (ouch).

The back bone was established, and some of the more recent data such as the resurveys of the Bell Cord Room, Mystery Room and all of the Chocolate High data was included on the "new map".

ALIENS by Bill Route

In the last two issues of CANYONS & CAVES Gary Vequist examined several species which, for one reason or another, have been extirpated from the local area. Ultimately, we hope to return these species to the park ecosystem. Unfortunately, there is another group of species which we would like to see removed.

We estimate there are at least 14 exotic plants and 8 exotic animals which have taken up residence in Carlsbad Caverns National Park. Some of these species have minimal impacts, while others exert significant pressures on the ecosystem. Below I discuss one example out of many that has a significant impact on the park's natural environment.

Barbary sheep (*Ammotragus lervia*), also known as Aoudad, are perhaps the most well known exotic species in the park. They are also the most difficult and controversial to deal with. Barbary sheep were imported to the U.S. from Africa (via European zoos) in the early 1900's. The drought-resistant Barbary sheep were introduced by the New Mexico Department of Game and Fish (NMDGF) as a substitute for dwindling herds of desert bighorn sheep. The Barbary sheep inhabiting the Guadalupe Mountains are likely the descendants of escapees from a private game enclosure in the Hondo Valley west of Roswell. Unfortunately, they are expanding their range and have the capacity to out-compete native bighorns.

The last reliable sighting of a desert bighorn sheep in the Guadalupe Mountains was in 1946 and the earliest reported sighting of a Barbary sheep in Carlsbad Caverns NP was in 1959. Barbary sheep can now be seen nearly anywhere in the park, but they primarily inhabit the more rugged terrain such as Slaughter and Double Canyons. Since 1978 park staff have recorded observing bands of Barbary sheep on 35 occasions. Bands as large as 27 have been observed, but groups of 1 or 2 are more common.

Are Barbary sheep a big concern? Yes, but before we blunder out and shoot every one we see, we need to consider the obstacles involved in eradicating them and realize the time-line for re-introducing native bighorn sheep.

Barbary sheep currently occupy a niche nearly identical to that of the native bighorn. Unfortunately, they have a higher rate of increase, can exist on lower quality forage, carry diseases that may be transmitted to desert bighorns, and they are socially aggressive towards bighorns. Thus, we must eliminate Barbary sheep from the entire Guadalupe Mountains before attempting to re-introduce desert bighorns. This can not be accomplished by plinking a few sheep as we see them, they simply reproduce too fast. Rather, it will require a large-scale, multi-year cooperative effort from several state and federal agencies as well as private citizens. The re-introduction of desert bighorns would then need to follow quickly on the heels of the retreating Barbarys.

New Mexico's long-range plan for desert bighorn sheep re-introduction puts the Guadalupe Mountains last in priority, sometime well beyond the year 2002. The plan lists domestic sheep along our borders, and exotic Barbary sheep, as being the primary drawback to re-introductions here. With this plan in place it is unlikely we will get support to do drastic reductions in Barbary sheep or re-introductions of desert bighorns any time soon. Meanwhile, we will assess on a case by case basis the removal of individual bands of Barbary sheep. If done at all, reductions would be because of well documented resource considerations.

THE BEETLE RHADINE LONGICOLLIS by Dale Pate

In July 1926, Warwick Benedict collected specimens of an undescribed species of beetle from the Bat Cave section of Carlsbad Cavern. In the Pan-Pacific Entomologist, Volume IV, No.1 published

in July 1927, Mr. Benedict described and named this new species as *Rhadine longicollis*. This beetle is quite common in Carlsbad Cavern and is usually found in large numbers in Bat Cave and in silty and sandy areas throughout much of the rest of the cave. It is common to see them in the beginnings of Left-hand Tunnel and in the Sand Passage on the route to Hall of the White Giant. They specialize in locating and eating cricket eggs. This species is considered a troglophile, which means it can survive in caves but may be found occasionally in surface locations. It does not exhibit characteristics that cave-adapted beetles do. It has not lost its pigments and is reddish-brown in color, it retains its eyes, and its antenna are not elongated.

Rhadine longicollis is found in numerous caves on the park including Slaughter Canyon Cave and Ogle Cave. It is commonly found in caves in southeastern New Mexico and Culberson County, Texas. Its nearest relative, *Rhadine longiceps*, is found in caves and cellars in the Alpine, Texas area.

1996-97 NATIONAL AUDUBON SOCIETY CHRISTMAS BIRD COUNT AT CARLSBAD CAVERNS

by David Roemer

Through sometimes bitter cold, strong winds, and even *snow*, volunteers have been up at dawn one day around Christmas, dutifully counting the birds in and around Carlsbad Caverns National Park, since 1957. This year will mark the 39th National Audubon Society Christmas Bird Count (CBC) at Carlsbad Caverns. The CBC is an early-winter survey of birds comprising more than 1,500 count circles and involving over 40,000 participants. The success of Christmas Bird Counts at Carlsbad Caverns owes much to the efforts of Steve West and Tom Bemis. Steve West is the coordinator of the event, and takes responsibility for preparing a report and packaging the data off to the Audubon Society.

The Carlsbad Caverns CBC is a 15-mile diameter circle, centered near Lowe Spring, 3.5 miles west of the visitor center. Positioning the count this way allows us to observe birds in a variety of habitats inside and around the park. In past counts, participants have counted birds in Walnut Canyon, Rattlesnake Springs, Longview Springs, the housing area, and portions of the Black River. Longview Spring is on the western edge of the study area, and permits the observation of birds in the higher elevations of the park.

The CBC, first organized in 1900, is an ongoing record of population trends and changes in relative abundance of bird species. When looking at data from the CBC survey, one must recognize that with so many participants (with varying bird identification skills) the accuracy of the survey is unknown. The number of observers and observer effort are also factors to consider - 20 birders will likely see more than 10. Likewise, the study area (count circles) change in number and location from year to year. The selection of count circles is non-random, and could be biased towards certain habitat types. While these biases would render a site-specific trend analysis impossible, researchers hope to detect national trends and patterns through various data analysis techniques. For example, partnering the CBC data with results from the North American Breeding Bird Survey, provides researchers with two different looks at possible bird trends.

This year's count will take place on Saturday, December 21st. So beg, borrow, or steal a pair of binoculars and a bird book, make yourself a thermos of hot coffee, and get ready to bird! Call Bill Route (505-785-2232 ext. 364) to sign up.

On-line Resources

<http://www.im.nbs.gov/bbs/cbc.html> - Includes preliminary trend analysis data from the CBC, crunched by the former National Biological Service (now the Biological Resources Division of the US Geological Survey).

<http://www.ornith.cornell.edu/main.html> - The Cornell Lab of Ornithology is a membership institute dedicated to the study, appreciation, and conservation of birds. This site doesn't pertain to the CBC, but has plenty of interesting bird information.

THE ADVENT OF MECHANICAL ASCENDERS by Dale Pate

I began my caving career during the Summer of 1970 when a few of my friends and I began exploring caves in Central Texas. At that time, carabiners with break-bars were the accepted descending device and the Jumar, the first mechanical ascender to be developed, had only within the last few years become in use by the Texas caving community. Before that, everyone used prussik loops to climb out of caves. The discovery of deep pits in Mexico helped to speed the changeover from prussik loops to the use of Jumars. Sotano de las Golodrinas with its free rappel of 1100 feet was discovered and entered by Texas cavers and others in 1967. At least some of the first group to enter used prussik loops to climb out of the pit.

The following article about the Jumar and the man who invented them appeared in the Fall 1970 issue of the *Southwest Texas State University Grotto Newsletter*.

THE JUMAR FACTORY by Brian Peterson

This summer while traveling in Switzerland, Keith Heuss and myself decided that we would try to locate the factory in which Jumar ascenders are manufactured. After examining our Jumars, we finally found a label still intact and managed to pick out the name of a town, Reichenbach, Switzerland. After about two hours of looking over a map, we located a tiny dot symbolic of the town. Quickly we jumped in the Volkswagon camper and proceeded to look for it.

Could this small town be the home of a great factory? The name of the town did correspond to the name on the Jumar, but there were only about thirty chalets. We stopped at a store and I got out with a Jumar. Speaking no German, I proceeded to wave my arms, roll my eyeballs, and shove the Jumar in the proprietors face. He quickly got the idea and sent me on my way down the road. However, he did provide us with a map.

Obviously, he was somewhat less than proficient in the arts of geography because by using his map we got completely confused. We decided that we would ask the help of other locals. After talking to several housewives; many of whom thought we were trying to sell them the Jumar, we arrived at still another chalet. I knocked at the door and a man came out. When I showed him the Jumar and asked if he knew what it was, he replied, "Yes, I make them." Quietly picking myself off the ground, I began to explain why we had come. The man, Julius Marte, was very receptive and asked us inside. He speaks only a few words of English so he called a friend to translate. When the friend arrived we went down to the factory which is in Mr. Marte's basement. Jumar parts were everywhere! Wow! Fantastic!

Mr. Marte opened a drawer approximately three feet long, two feet wide, and one and one-half foot deep. It was completely filled with right-hand Jumar jaws. He said that he originally designed these ascenders for use in climbing down to eagle nests to band baby eagles. This was back in 1958. Mountain climbers quickly saw the value of these devices and then later cavers started using them. The recent change in the alloy of the cams was necessary due to the grit and mud encountered in caves.

We rigged a rope in his yard and showed him various methods of prussiking with his devices. He then showed us the method which is enclosed with the Jumars. He saw the value of our methods but joked with us by saying, "I can understand why you don't know how to use them, I have never translated the instructions to English." We all laughed. We also demonstrated various rappell devices and Mr. Marte was quite interested. He requested that we collect and send him pictures of different climbing methods using his ascenders and any recommendations or improvements that we may have.

CALENDAR OF EVENTS

Jan. 13-17	Seven Habits Training
Jan. 18-20	Cave Research Foundation - Survey & Restoration in Carlsbad Cavern
Jan. 25-26	North Texas Speleological Society - Restoration in Carlsbad Cavern
Jan. 31-Feb. 27	Replace Lower Cave Ladders Project
Feb. 5	Interagency Search & Rescue Meeting - Hidden Cave, Lincoln NF
Feb. 14-18	Jim & Val Werker - Restoration/Conservation in Lechuguilla Cave
Mar. 15-23	Paul Berger - Survey in Carlsbad Cavern
Mar. 17-21	George Wright Society Conference - Albuquerque
Apr. 26-May 4	LEARN - Survey in Lechuguilla Cave
May 24-26	CRF - Survey/Restoration in Carlsbad Cavern