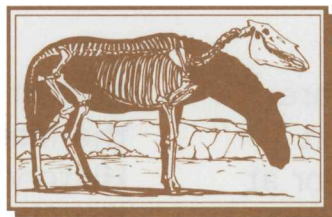


The FOSSIL



RECORD

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THE BARE BONES OF THIS ISSUE:

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VISITOR INFORMATION

SCHEDULE - The Visitor Center will continue with the winter schedule at the National Park Service until seasonal staff are hired from the current list of applicants. Visitor Center located along Highway 30 in Hagerman across from the High School. Hours are 10:00 am to 4:00 p.m., Thursday through Saturday.

RANGER PATROL- Two hunters were fined regarding their violations on the Monument last Fall. One was fined \$50 for hunting on the upper portion of the Monument, and the other \$250 for illegally possessing game. Both were on the upper elevations of the Monument. Hunting is legal from the water line to 50 feet in elevation above the river, which is marked with yellow fiberglass markers.





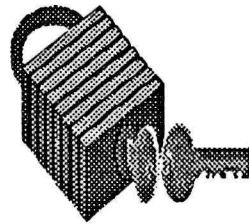
Two other individuals paid fines of \$100 each for digging with a pick and shovel, and possessing specimens. They indicated they knew they were on a National Monument, but didn't realize they couldn't take souvenirs. All resources on the Monument are protected for the enjoyment of this and future generations.

AREA CLOSURE -

Superintendent Neil King announced that a two acre area around the pump station and power substation operated by Bell Rapids Mutual Irrigation Company on the Hagerman Fossil Beds National Monument, is now closed to all public access, including hunting and fishing. The remainder of the hunting zone remains open by foot or boat access.

Mr. King explained that "this emergency closure is on a Special Use Area designated in the General Management Plan (GMP)." Red fiberglass stakes mark areas closed on the Monument. The action is needed

to deter tampering and vandalism at the facilities, and is authorized by the Code of Federal Regulations (CFR), Section 36, Part 1.5 for reasons cited in Part 2.31. Trespassing into the closed area is subject to a citation which can result in a \$500 fine and/or six months in jail.



A locked gate will be installed across the pump station road near the Snake River at the last parking area prior to Fossil Gulch and the pump station. Mr. King emphasized that hiking, bicycling, or equestrian use is still allowed on the road beyond the gate, except inside the closed two acre area around the pumping and substation facilities. The trail detours to the west, uphill from the substation, where it dead ends at the pipeline. This trail will be extended to the north boundary of the Monument when funds for planning and construction become available.

RESOURCE MANAGEMENT

FIRE RESTORATION - In September, 1996, a hawk hit a power line on the Bell Rapids project and fell to the ground in flames. Wind quickly swept the fire easterly into the Monument where it burned 60 acres. Quick action by local farmers who began tilling the perimeter of the fire kept it from spreading northerly and southerly. A Bureau of Land Management helicopter and ground tanker crews extinguished the fire on the Monument.



Unfortunately, non-native cheat grass is very adapted to fire. The stems are fine and burn very quickly, dropping prolific numbers of seeds to the ground. These seeds, sometimes called foxtails, are pointed on one end

and work their way into the ground easily. They germinate at first rainfall, and await the spring warmth to grow to full size. This early establishment and rapid growth is what causes cheat grass to outcompete the native grasses.

To stabilize the slopes from Spring erosion and to give the native grasses a fighting chance, approximately 121 million seeds were scattered. These native grass species included Idaho fescue, bluebunch wheatgrass, Indian and rice grass.

It is assumed that many of the seeds were eaten by rodents and birds, but there should still be sufficient number to re-establish the native grasses. This is the first fire rehabilitation program to occur in the Monument.

MONUMENTAL SCIENCE

HORSE QUARRY TO REOPEN
Canon U.S.A., Inc., working through the National Parks Foundation, recently announced the award of a \$48,000 grant to Hagerman Fossil Beds National Monument as part of the national 'Expedition into the Parks' program. This volunteer based program is designed to help conserve, protect and restore natural resources in the National Parks. The one million

dollar program is the largest corporate gift ever to the National Park Foundation for natural resource conservation.

The grant will ensure safe collection of fossils in landslide prone areas adjacent to the world famous, Smithsonian Institution Horse Quarry. The last excavation by the Smithsonian occurred in 1934. Their primary purpose was to remove fossils of this newly discovered "Hagerman Horse" to use them for exchange with museums around the world. Not many field notes were taken. In the 1960's, other excavations were conducted by Idaho State University and the Los Angeles County Museum. In the last 30 years, the science of paleontology has expanded greatly to provide an understanding of ancient ecosystems. Between the two previous excavations is where paleontologist, Dr. Greg McDonald, and his field crew will dig into the strata to locate the bone bed.

New science will be applied, including laser survey techniques and three-dimensional computer mapping. The sediments around the fossils will tell the story of their deposition. Was it a flooded stream as the experts now believe that washed all of the bones to this one location? If so, what direction and speed was the water flowing? Where did the sediments originate?

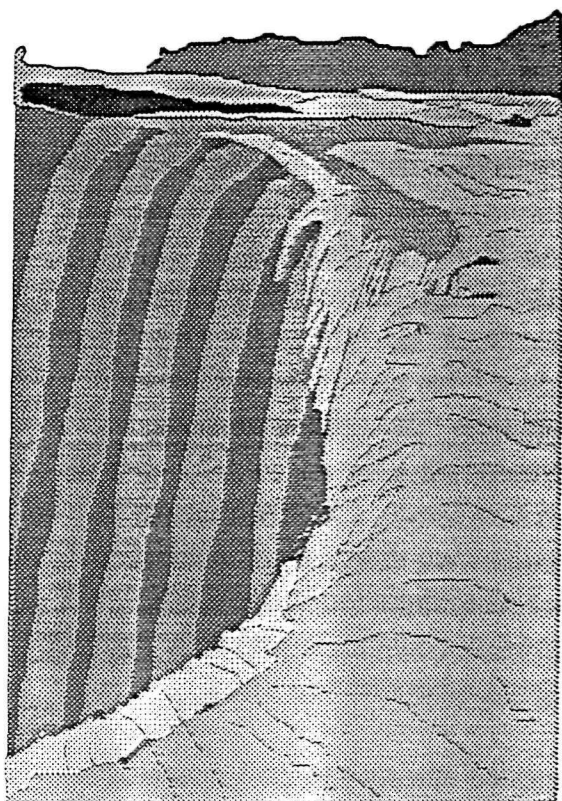
These and many other questions should be answered.

Public access to the research area is now closed and requires accompaniment by a Park Ranger. The community "Fossil Days" celebration on May 24 and 25 will be the first chance for the public to view the research site. The next issue of the "Fossil Record" will include information on these tours, and a schedule of subsequent tours.

Thank You

GENEROUS DONATIONS-

In response to the upcoming research at the Monument, two donations were recently received. The Arlen Crouch family made a generous donation specifically for the Horse Quarry project and Beverly Lawson Krause made a non-specific donation. Our thanks go out to you. Donations should be made to the Hagerman Fossil Council, Inc., P.O. Box 56, Hagerman, ID 83332.



workings of the cake are visible because a slice of the cake has been removed from the downcutting of the Snake River during the Bonneville flood. At the Monument the exposure of 550 feet of vertically stacked sediments provides a unique cross-sectional view into the aquifer. Because of this environment Neal is evaluating the interconnected relationship between geology and groundwater flow. Three million year old stream channels filled with sand are distributing groundwater to multiple locations on the hillside. Once the soils become saturated, slumping usually occurs in varying degrees because of the abnormal weight. This produced an intriguing, and sometimes confusing site to study. The results will be included in Neal's Master degree thesis.

GROUNDWATER RESEARCH - University of Idaho graduate student, Neal Farmer of Twin Falls, is conducting research on how the Monument's geology affects surface flows from unnatural groundwater sources. In studying groundwater the hydrogeologist typically has to describe the aquifer from the ground surface only. An analogy to this idea is somewhat similar to a multilayered chocolate cake. Most of the time the hydrogeologist has to describe layers of the cake by viewing them from the top only. At this site, the inner



CRITTER CORNER

By Dr. H. Greg McDonald
Monument Paleontologist

Hibbard's Swan:

Although generally thought to be relatively rare in the fossil record, bird bones are more common than most paleontologists would admit. The usual explanation for the lack of fossil birds is blamed on their bone construction. In order to be light enough to fly, bird bones are hollow with thin walls in the shaft. Thin walls mean the bone can be easily broken and thus quickly destroyed before they have a chance to become fossils. A lack of fossil bird bones results in a lack of knowledge about the fossil history and evolution of birds. This general lack of detailed knowledge of fossil birds, however, is more likely a reflection of the relative scarcity of paleontologists that work on fossil birds rather than the material itself. Actually bird bones show up frequently as fossils and are collected, only to be relegated to a museum drawer where they languish until one of those relatively rare paleontologists with the knowledge and background to know what bird a particular bone represents rediscovers it in the collection.

Fossil bird bones are certainly

common at Hagerman where at least one good identifiable bird bone shows up every time we conduct paleontological surveys on the monument. At the present 26 different species of fossil bird have been described from Hagerman. This makes Hagerman third in North America in the number of fossil birds known from late Pliocene Blancan localities. The other two sites, Macasphalt, Florida with 42 species and San Diego, California with 36 species owe their larger number of species to their location. Both represent coastal deposits and include large numbers of sea birds.

Included among the 26 species of fossil birds at Hagerman are 10 species which were first described based on specimens found at Hagerman. Hagerman has the distinction of having two of the most eminent of that "rare bird", the avian paleontologist or if you prefer paleornithologist, study and describe its fossil birds. The first of these was Alexander Wetmore, Secretary of Smithsonian and the leading student of fossil birds during the first three-quarters of this century. Fortunately for Hagerman the fossil bird bones collected during the Smithsonian expeditions did not remain forgotten in a drawer and in 1933 Wetmore described the bird material collected

from 1929 to 1931. After the last Smithsonian expedition in 1934 there was a lapse until the 1950's when Claude Hibbard of the University of Michigan began work in the area. Hibbard did not work on birds but rather small animals like mice and voles. However, Hibbard did appreciate the importance of bird bones he and his students found and made arrangements for them to be studied. One of these people was another famous paleornithologist, Pierce Brodkorb, of the University of Florida and in 1958, 25 years after Wetmore's publication, the second paper on Hagerman's fossil birds appeared. Among the species described by Brodkorb was a new species of swan, Olor hibbardi, named after Claude Hibbard in recognition of his efforts at Hagerman.

Like many of the fossils found throughout Hagerman Fossil Beds National Monument birds are often represented by single bones or the ends of bones. While it is true that the thin walls of the shaft of a bone are easily broken, the ends are often robust enough to remain intact and these are what we find on a regular basis. The part found by Hibbard and described by Brodkorb was the end of one of the bones of the lower leg, the tarsometatarsus, where the toe bones attach. While that may not sound like

much with which to work, it happens to have a very distinctive shape, since it has three points of attachment for those toe bones. Careful comparison of the fossil specimens with the same bone in modern swans and with other fossil swans (if one is lucky enough to have the same bone preserved) showed that although there were similarities to the living Tundra Swan the overall differences in size, proportions and general structure distinguished the bone from all known swans, so Brodkorb felt it represented a distinct and new species. Since only the end of one bone was originally described there's not much we can say about Hibbard's swan except that we know it was present at Hagerman and its general size. At the moment Hibbard's swan may seem to be mute, but continued work at the monument will undoubtedly produce other bones that will fill out its skeleton and tell us more about this species. Perhaps this coming summer we will be able to trumpet a new discovery.

Swan Tarsometatarsus.

