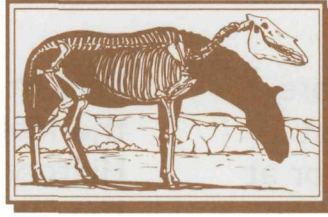

HAGERMAN FOSSIL BEDS NATIONAL MONUMENT

The
FOSSIL



RECORD

FALL, 1996

VOLUME 5, NUMBER 3

**THE BARE BONES
OF THIS ISSUE:**

Ranger Patrol

Resource Management

Monumental Science

Critter Corner

School Programs



**VISITOR
INFORMATION**

FALL SCHEDULE - October 1 begins the fall season at the National Park Service Visitor Center located along Highway 30 in Hagerman. Hours are 9:00 am to 5:00 pm Thursday through Sunday.

RANGER PATROL

A \$500 reward has been offered for the conviction of the vandals who senselessly destroyed the new Oregon Trail Overlook directory sign in the parking lot over the Labor Day weekend. If you have any information about the crime, please contact the National Park Service at (208) 837-4793.



The graveled parking lot area at the Oregon Trail Overlook has been repeatedly damaged by vehicles spinning their wheels at a high rate of speed as they circle around the lot. If you see anyone damaging these public facilities, please phone the National Park Service or the Twin Falls County Sheriff's office.

The Snake River Overlook register box, added this summer, was also vandalized. Visitors are urged to report any damages to the National Park Service.

Hunting season has begun. The Monument staff wish a safe season to all and urge hunters to wear orange. Duck hunters should remember to wear their life vests while boating. The water in the Snake River is cold and immersion in the water could lead to hypothermia.



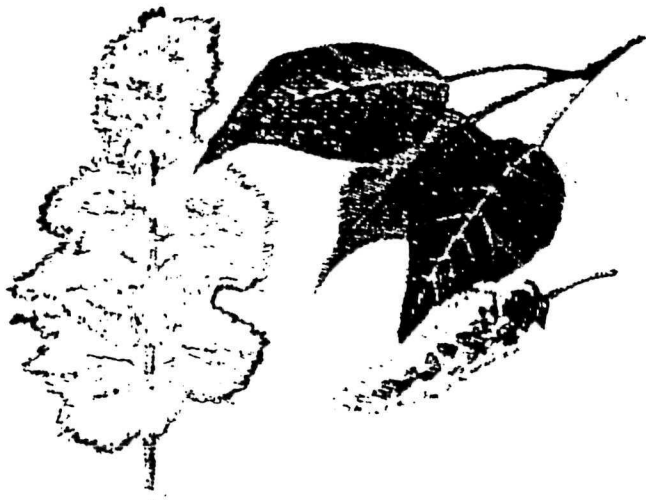
RESOURCE MANAGEMENT

HABITAT RESTORATION - Russian olive trees out-competing native species were mechanically cleared with a forestry machine called a "slash buster" along the shoreline of Hagerman Fossil Beds National Monument. Native cottonwood and willow trees were retained. About 500 black cottonwood saplings from this area were planted with a protective cover to reduce damage from rodents. "Once established, the new forest should grow quickly," commented Chief Ranger, Bob Willhite.

The project will not only benefit the expansion of this dwindling native tree, but also provide more habitat for bald eagles, hawks, owls, herons, and ground mammals that benefit from the cover.

The Monument has some of the few remnant, native black cottonwood trees along the middle reach of the Snake River. These species ceased natural establishment because the 19 dams upstream stopped periodic flooding and siltation. These groves established naturally in the early 1900's with ideal seedbed conditions of extensive siltation at stream outlets washing from the highly erosive

slopes. Later silt deposition at the mouth of these streams was invaded by very competitive, non-native Russian olive trees.



The “slash buster” is usually used for treatment of logging slash and pre-commercial thinning. It is like a giant weed eater with a three-foot wide wheel with spikes on the edges and bottom. The boom allows the machine to reach out to the shoreline without impacting the soft soils. It starts at the top of the Russian olive and reduces it to a battered stump. The resulting debris is about eight inches deep and the individual chunks average about one foot long.

MONUMENTAL SCIENCE

THE HILLS ARE ALIVE!!

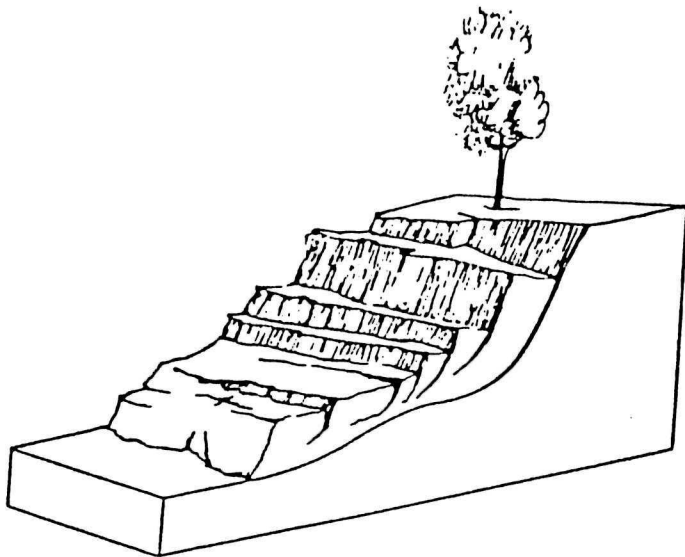
By Larry Growney

Much like Julie Andrews in the classic film “The Sound of Music,” the staff at Hagerman Fossil Beds National Monument can stand on Smithsonian Institution (S.I.) Hill, site of the Horse Quarry, and proclaim (since no one can carry a tune) that the hills surrounding this famous site are, indeed, alive. Over the past several years, seeping groundwater has caused major shifts in the topography of the surrounding slopes visible from this location.

West of S.I. Hill, a major slump has created a twelve foot high scarp. Continuing along this hillside toward S.I. Hill, the zone of seepage has produced a prominent green band of vegetation nearly twenty feet wide which now extends onto S.I. Hill itself. Large patches of surface material, only a few inches thick, are producing a crumpled blanket effect on the hillside as they become so saturated with water that they flow

downhill much like very thick cement. Soil scientists refer to this slow downslope movement of material as creep.

The Horse Quarry has been, and continues to be, the major attraction to scientists and visitors. Access to this site is by a narrow ridge running from the plateau down to S.I. Hill. Within the past year, a series of cracks have formed along the west side of this ridge at its crest, and lie above the zone of seepage characterized by the vegetation. Soil flow is occurring between the cracks and the seepage zone. If movement increases, this easy access to the Horse Quarry may be destroyed, greatly reducing the accessibility to this site.



On the east side of S.I. Hill, facing the river, a prominent, large patch of

vegetation identifies another area of groundwater seepage. Again, saturated surface soils are slowly flowing down the slope. This location lies directly under the strata containing the fossilized horse bones, and could easily destroy at least a portion of this deposit.

The adjoining hillside to the east has experienced nearly 420 acre-feet of seepage per year for each of the past twelve years. Thousands of cubic feet of material have failed along this hillside over the past five years, and a number of seepage locations are on areas of the hillside which have not yet slipped. Recent observations by Monument staff noted that seeps high on the hillside may be producing another set of seeps below, in effect, jeopardizing nearly half the surface area of the hillside. A major failure along this hillside could have dire repercussions for the irrigation company water supply pipelines which lie at the foot of this slope.

The future of S.I. Hill and the Horse Quarry site will continue to be shaped by the instability until the source of groundwater ceases. Plans are underway to reduce the amount of groundwater being supplied to this system. Until these plans become a reality, however, we can all sing “the hills are alive.”

CRITTER CORNER

Taking a Stab at Understanding Hagerman's Sabertooth Cats

By Dr. Greg McDonald
Monument Paleontologist

Just about everyone has heard about sabertooth cats or as they are more popularly known but incorrectly named, "sabertooth tigers," but not everyone is aware that there are many different types of fossil cats with enlarged canines (the saber). In many of these cats the size of the saber varied so species with shorter, dagger-like canines are called dirk-toothed; cats with medium-sized canines are scimitar-toothed, along with the larger sabertooths. Despite the fact that there are many different types of cats with enlarged canines, the overall record of these animals as fossils is limited compared to many other animals. The fossil record of sabertooths from the Monument, as in most fossil faunas, is extremely scanty and only provides a limited amount of information.

In 1933, C.L. Gazin of the Smithsonian described a partial jaw with one tooth as a new species of sabertooth which he called Machairodus (?) hesperus, now

referred to as Megantereon hesperus. Besides this jaw, the only other sabertooth bone from Hagerman available to Gazin was a second metatarsal (one of the bones of the arch of the foot). Not much of a record to go on, but this is often the case for the fossil record of large



carnivores; there are only a small number of specimens for a particular species with which to work.

From an ecological standpoint there are two good reasons why large carnivores such as sabertooth cats are rare as fossils. In any given area there will always be more herbivores or plant eaters than carnivores or meat eaters. Whether we are talking about mice to feed hawks or bison to feed

wolves, there has to be a larger population of prey than predators or else the predators would soon run out of food and starve. Usually only five percent or less of the local populations of animals is comprised of predators. Since there are so many more herbivores, they have a better chance to be preserved as fossils than carnivores. The second factor is the body size of the predator. The larger the predator, the more food and space each individual requires for its survival, so the lower the density of the population. A low population density means less chance for preservation in the fossil record unless you have an unusual situation like tar pits. Put these two factors together, low density combined with smaller populations (compared to herbivores) and it's no surprise large carnivores such as a sabertooth cat are not at all common as fossils. So the discovery of any parts at all of a large predator is a special event to a vertebrate paleontologist. Gazin's two pieces of sabertooth cat had beaten the odds.

Since Gazin's original work, the number of bones of sabertooths at Hagerman has not increased by much. Following years of field work at the Monument in the 1960's by the University of Michigan under the direction of C.W. Hibbard, only one other specimen, a fragment of a lower

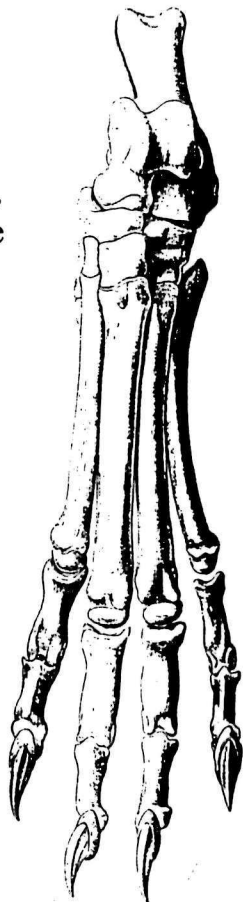
tooth, was found. In his study of the carnivores from Hagerman published in 1970, P.R. Bjork also described a fourth metacarpal from the Smithsonian collections for a total of four specimens. Based on this sample, Bjork concluded that there were actually two types of sabertooths at Hagerman, the one described by Gazin and a second genus called Ischyrosmilus. Obviously, any additional specimens would greatly help our understanding of the Hagerman sabertooths.

Recently some of those specimens were found by park service field crews conducting field work on the Monument. A couple of Critter Corners ago (Fossil Record Volume 4, Number 1), I reported on a bear humerus that was found by one of our volunteers, Hugh Harper. Since that report, I have been able to borrow some modern bear bones for comparison and much to my embarrassment, I need to bear my soul that the humerus was not that of a bear but of a sabertooth cat.

Additional exploration in the area where the humerus was found has turned up part of the canine (saber) of the cat and a complete wrist bone called the scapholunar. As I've already noted, every little bit is important and helps fill in another

piece of the puzzle. For example, the partial canine preserves serrations, similar to those on a steak-knife, along its front and back edges. These serrations which make it easier to slice through the skin of thick-skinned prey are not present in all sabertooth cats, and its presence or absence is used to tell different sabertooths apart. For example, the genus Megantereon, lacks these serrations on its upper canines, but they are present on the canines of Ischyrosmilus. Based on our new specimens, it would seem that our new discoveries are the latter sabertooth. What is needed is a closer examination and comparison of our new bones with material from other collections in order to confirm their identity, or better yet, perhaps more bones will be found in the same area.

In order to better understand the sabertooth cats from Hagerman, both work in the field and other collections is needed.



SCHOOL PROGRAMS

Almost 600 students from ten different schools enjoyed programs offered at Hagerman Fossil Beds National Monument this fall. Park Rangers provided hands-on activities at the Visitor Center, lead field trips to the famous Horse Quarry, or traveled to individual schools to present programs.

If your school is planning a spring field trip, consider visiting Hagerman Fossil Beds National Monument. Our services are free and our programs may be tailored to your interests. Just give us a call to reserve a day and time!

“Everyone needs to play and to play out of doors. Without parks and without outdoor life, all that is best in civilization will be smothered. To save ourselves, to prevent our perishing, to enable us to live at our best and happiest, parks are necessary. Within national parks is room - glorious room - room in which to find ourselves, in which to think and hope, to dream and plan, to rest and resolve.”

Enos Mills, Your National Parks, 1916