



South Party group, from left to right: Bert Schultz, Mylan Stout, Emery Blue, Robert Long, Loren Eiseley, Eugene Vanderpool, and Frank Crabill. (University of Pennsylvania Archives)

Walking in the Footsteps of Loren Eiseley

Scientific Discoveries in Western Nebraska

By BRANDON NELSON

LOREN Eiseley contributed to the scientific discoveries in western Nebraska like no other. From the years he spent digging for traces of the past in the Panhandle's unforgiving expanses to the graceful recounting of his findings through the use of his inimitable writing and poetry styles, the Lincoln, Nebraska-born bone hunter and naturalist helped to place western Nebraska on the paleontological map.

As a University of Nebraska-Lincoln student, Eiseley embarked on a series of paleontological digs in the 1930s in support of the school's natural history museum. He and his fellow diggers canvassed the Cornhusker State's western reaches, launching excavations in the gaps and canyons near the famed Chimney Rock in Morrill County, Signal Butte in Scotts Bluff County, and quarries east of Harrisburg, north-west of Crawford, and north of Harrison.

At the time, few outside of the paleontology profession knew these eroded areas contained the world's finest Tertiary fossil beds. The work of Eiseley and his companions yielded unprecedented finds. The team discovered the bones of ancient mammoths, camels, and rhinoceroses, as well as pieces of Paleo-Indian history. Eiseley later noted that most

of the knowledge of the successive American faunas is derived from excavations in those sterile, sun-washed regions. The land offered up a wellspring of inspiration in addition to fossils. Eiseley grew up on the Great Plains and was, as he put it, drawn irresistibly to the rougher margins of the Wildcat Hills and badlands. In the same way Charles Dickens was haunted by "the cold, wet, shelterless streets of London" and Henry David Thoreau was entranced by the canopy of the country's eastern forests, the region became Eiseley's muse and the setting for his future writings.

"Robert Louis Stevenson once remarked that some landscapes cry out for a story," Eiseley states in his preface to the poem "The Innocent Assassins." "As a young man engaged in such work, my mind was imprinted by the visible evidence of time and change of enormous magnitude... Finally, through some strange mental osmosis these extinct, fragmented creatures merged with and became part of my own identity."

Eiseley, who later acquired his PhD from the University of Pennsylvania and served as head of the Department of Anthropology, penned his now renowned essays and poetry in the years following the digs. Noted science fiction author Ray Bradbury urged Eiseley to write a book. He would go on

to write several, but this initial encouragement led Eiseley to coalesce a collection of essays into *The Immense Journey* in 1957, a book *The New York Times* later listed among the fifty most influential books of the twentieth century.

In his writing, Eiseley uses narrative, parable, and exposition to contemplate his observations as well as meditate on more arcane matters, including mankind's purpose, man's relationship with his environment, and the universe's endless cycle of creation and destruction.

"The Slit," the essay that begins *The Immense Journey*, carries the reader to Scotts Bluff County's timeless prairies to witness a discovery of a fossil that invites Eiseley to consider his own origins. While horseback riding alongside the rugged buttes and escarpments about ten miles from the modern-day Wildcat Hills Nature Center, Eiseley comes upon a body-width crack in the sandstone canyon walls. He dismounts, sets to exploring the Slit, and soon finds himself staring into the empty eye sockets of an animal skull.

His mind wanders as he chips away at the sandstone to free the timeworn skull. "The creature had never lived to see a man, and I, what was it I was never going to see?" He mulls over the question and daydreams of answers. Traveling back sixty million years to the Paleocene epoch and forth to the reign of modern primates, Eiseley weighs the meaning of man's existence on time's grand scale. He busies his hands with digging and concludes that the journey itself is more important than where it begins or ends. "Do not look for the purpose," he says. "Think of the way we came and be a little proud."

Bone hunting in Scotts Bluff County uncovered coyotes, horses, and Paleo-Indian artifacts, including dart points and tools, which revealed ways man hunted prehistoric bison. Instead of pursuing the animals on horses, hunters rigged clever traps to capture and slay the bison. Nature illustrator Kelly Taylor portrays these techniques in the *Scottsbluff Quarry Bison Kill*, a depiction of a large-scale hunt occurring approximately fourteen thousand years ago.

Eiseley didn't limit his thoughts to essays. With "The Innocent Assassins," he explains in verse the time he and his companions unearthed the fossil of two saber-toothed tigers locked in a life-death struggle in the Black Hawk Canyon south of Bayard. The twenty-five-million-year-old fossil was found during the expedition in Morrill County, which also yielded remnants of ancient mammoths, rhinoceroses, and other creatures in Redington Gap and Bridgeport Quarry.

The poem delineates Eiseley's beloved badlands, where the university's dig team discovered the fossil and the menacing qualities of the ancient cat bones. "We dug until the full length of the striking saber showed beautiful as Toledo steel, the fine serrations still present along the blade, a masterpiece of murderous art conceived by those same forces that heaved mountains up from the flat bottoms of Cretaceous seas."

Eiseley marvels at how such a refined killing machine could become extinct, while man, a creature born without talons or fangs, could live on. He also expresses sadness for mankind, who is no stranger to the antique trades of killing and self-destruction, and suggests that early man's envy of the saber-tooth's power inspired him to create similarly shaped weapons out of flint and other earthen elements.

"We are all atavists and yet sometimes we seem wrapped in wild innocence like sabertooths, as if we still might seek a road unchosen yet, another dream," Eiseley states.

Eiseley furthers his thoughts on man's deep connection to his past in "The Last Neanderthal," where he meets what he imagines to be a haunting throwback to an earlier time. During a Wildcat Hills fossil dig, Eiseley meets a thickset girl whose features resembled the extinct Neanderthal. "We are those who eliminated her long ago," he says of the dig team. "It is an old scene endlessly reenacted. Only the chipped stones and the dead games are lacking."

The meeting leads Eiseley to ponder the idea that evolution is still happening. The energy-hoarding modern man could be hurting unknowingly toward an uncontrolled future, possibly orchestrating his own demise. Eiseley somewhat likens it to the way Neanderthals could not grasp how the rise of *Homo sapiens* signaled the end of their kind. "Without knowledge of the past, the way into the thickets of the future is desperate and unclear," he says.

While an adept storyteller, Eiseley is also a time traveler. His universal messages transcend time.

For example, "The Bird and the Machine" articulates Eiseley's reluctance to embrace certain modern advancements by intertwining the future with an encounter he had years ago with a sparrow hawk. "It's life I believe in, not machines," he states as he pours over news articles telling of new machines that may soon be able to build themselves.

Eiseley holds the thought and sweeps the reader back in time to Banner County, where a younger version of himself has been assigned to capture native animals for some far-away menagerie. While searching for birds, Eiseley investigates what remains of an abandoned cabin, which is eroding away as the earth reclaims the components used to build it. The structure's rundown state conjures futuristic images of fractured concrete and corroded steel in a city occupied by birds "after the last man has run away to the hills."

Eiseley catches one of two sparrow hawks roosting in the dilapidated building. Seeing this hawk engaged draws him to consider the differences between living beings and machines. Eiseley releases the hawk the next morning and watches it reunite with its mate far overhead. He writes, "The machine does not bleed, ache, hang for hours in the empty sky in a



This painting of two "saber-toothed tigers," (*Nimravus brachyops*) locked together, never to fight again, is based on a twenty-five-million-year-old fossil found near Bayard, Nebraska, in 1932. Eiseley helped find the fossil, and he describes this discovery in his book, *The Innocent Assassins*. The painting and fossil cast can be seen at the Wildcat Hills Nature Center near Gering, Nebraska. (Note: Description includes information from web research and Eiseley multimedia on www.eiseley.org; funding for painting by Ray Boice through the Oregon Trail Community Foundation, Scottsbluff, Nebraska.) (Jan Vriesen)



The Scottsbluff Quarry Bison Kill painting by paleontologist artist Kelly Taylor, working with consultants George Ziemens, archeologist, and Dr. George Engelmann, paleontologist, depicts a time twelve thousand to fourteen thousand years ago when Pale-Indians set traps for bison and may have used the atlatl to kill them. Research by Schultz and Eiseley discovered Paleo-Indian artifacts and fossil remains of prehistoric bison (*Bison occidentalis*). Because there were no horses in North America at this time to use to pursue bison, traps were likely prepared. According to *The Cellars of Time* (Nebraska Game and Parks Commission, 1995), "Hunters used the increased leverage provided by the atlatl to give added velocity and range to their weapons. This spear-thrower was virtually abandoned after development of the bow and arrow." Ziemens notes in *Paleontological Evidence for the Antiquity of the Scottsbluff Bison Quarry and Its Associated Artifacts* (Blackwell Publishing, 1935) that "The use of the atlatl is possible even probable but we don't know for sure as no atlatl have been found that date to that time period." (Ray Boice)

torment of hope to learn the fate of another machine, nor does it cry out with joy nor dance in the air with a fierce passion of a bird."

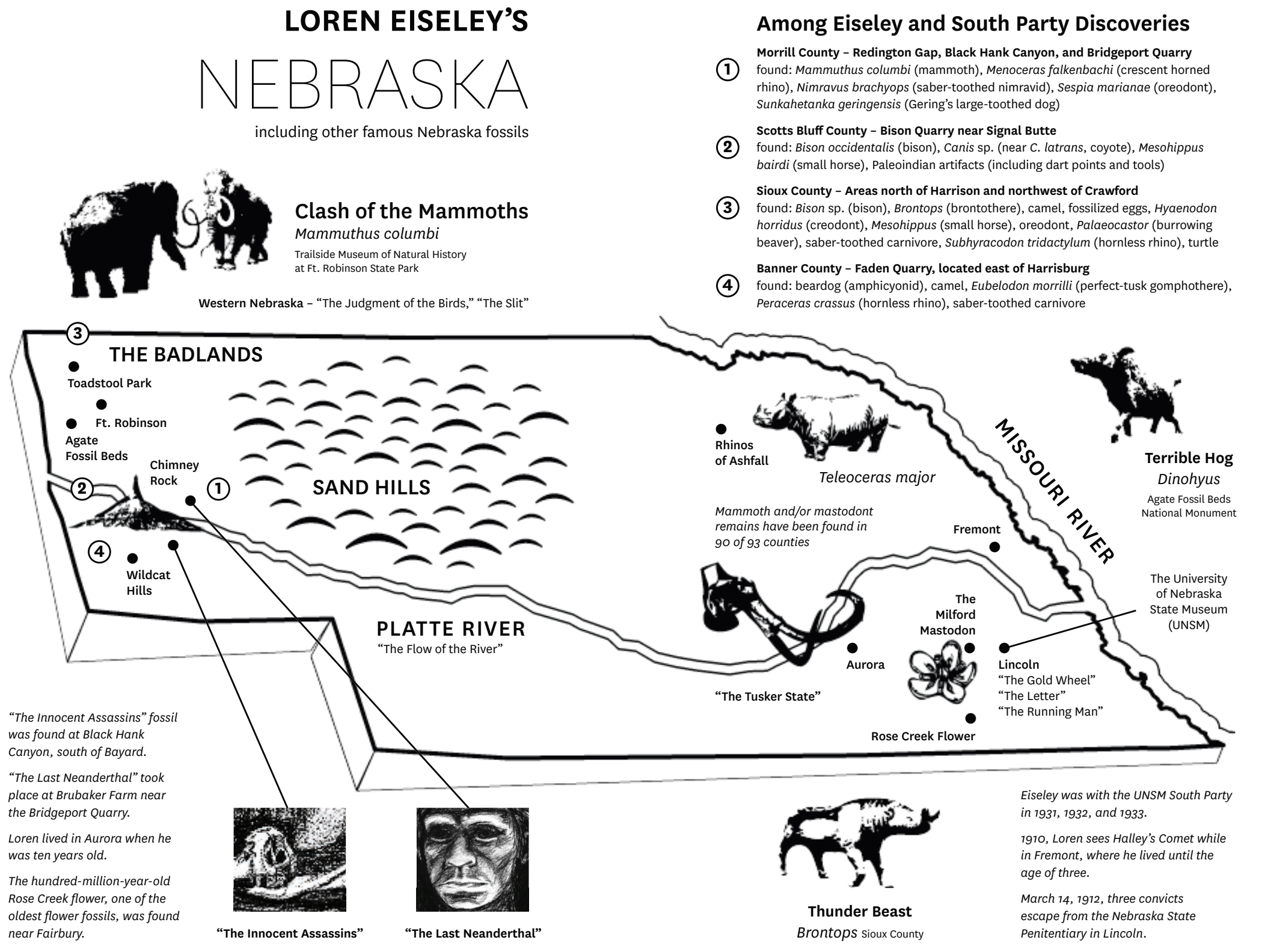
Sites throughout the Panhandle complement Eiseley's writing by immortalizing his work. Visitors to the Wildcat Hills Nature Center near Gering can gaze upon Jan Vriesen's painting "The Innocent Assassins" along with replications of Eiseley's poem and a cast of the original fossil. At Chimney Rock National Historic Site, a prominent landmark in a land steeped in history, a memorial placed by the Boy Scouts of America's Project SOAR (Save Our American Resources) commemorates Eiseley's exploits and the mark he left on the region.

Also, organizations and individuals are helping to bring Eiseley's writing to new generations. With backing from sev-

eral supporters, the Loren Eiseley Society has produced *The Loren Eiseley Reader*, a special collection of Eiseley's poetry and prose. Consisting of fifteen essays and one poem, this sampling appears in schools and libraries across the state of Nebraska. The society also recognized Ray Boice of Omaha for his efforts to extend Eiseley's work to a wider audience.

For more information about Eiseley's work visit www.eiseley.org.

Brandon Nelson works as a reporter for the Star-Herald newspaper in Scottsbluff, Nebraska. His writing focuses primarily on business and tourism-related developments in western Nebraska. He currently lives in Scottsbluff with his wife, Kristen.



When the Heartland Expressway is completed, it will offer vacationers a corridor of geologic wonders from Denver to Rapid City, S.D.
By JANE PALMER, WORLD-HERALD STAFF WRITER
Construction of the Heartland Expressway from Denver to Rapid City, S.D., is paving the way for more vacation opportunities in western Nebraska and South Dakota.
Geologic wonders, including world-class fossil finds, make this a tourist's paleontology corridor from the Wildcat Hills of Gering, Neb., to the Black Hills and Badlands of South Dakota.
Fossils from here go to museums and are on display in exhibits and recent finds have helped scientists discover the history of such mammals as horses and dogs.
Travelers from eastern Nebraska can start their discoveries at two landmarks on pioneer trails heading west — Chimney Rock and Scotts Bluff National Monument — and then head north to discover the riches of the planet's ancient past.
There is enough in the corridor to offer at least a week's worth of adventures. Even families who ordinarily rush through western Nebraska to reach the Black Hills and Mount Rushmore can allow an extra day to explore.
Just remember to leave any fossils where you find them. It is against the law to collect vertebrate animals with backbones' fossils on public lands.
"Nebraska is famous for vertebrate fossils over the last 40 million years," paleontologist Bruce Bailey said. "Many deposits remain because it is so arid."
The fossil collections at Agate Fossil Beds in northwest Nebraska are remarkable because scientists found entire skeletons in one location, Bailey said.
But a fossil site in Wildcat Hills near Gering is probably the richest in terms of diversity. In the remains of an ancient river, scientists have identified bones of 44 different species, including at least two that are new to science. The two are a large beaver and a gopher.
"There may be others, but we haven't analyzed them enough," Bailey said. "We're hoping to find more."
Bailey says highway construction in Nebraska has helped scientists discover the state's rich fossil heritage. The fossils in Gering, for example, were 20 to 30 feet underground and discovered during construction of the Heartland Expressway.
Bailey is a highway salvage paleontologist based at the University of Nebraska-Lincoln. He travels the state to protect and excavate fossil sites.

If you go:
Scotts Bluff County Tourism: 1517 Broadway, Suite 104, Scottsbluff, NE 68361. (800) 788-9475 and www.visitscottsbluff.com
Lodging: www.visitnebraska.com
Agate Fossil Beds National Monument

- 1 Chimney Rock:** The most noted landmark on the Oregon Trail is about 19 miles east of Gering, Neb. Don't miss the attractive visitor center where hands-on exhibits include the opportunity to load your own covered wagon.
- 2 Scotts Bluff National Monument:** Roads and hiking trails offer scenic views of sandstone bluffs, prairie and vestiges of the Oregon Trail. Museum exhibits cover geological history and pioneer migrations. Located three miles west of Gering, Neb. Information: www.nps.gov/sbni and (308) 436-4340.
- 3 Wildcat Hills State Recreation Area:** Paleontologists describe this area as one of the most significant in the world because an ancient river left fossils of 44 different species. Nature center exhibits cover the natural history of the area. Enjoy hiking, cross-country skiing and scenic vistas of Scotts Bluff National Monument. Located eight miles south of Gering. Information: www.gering.state.ne.us/parks/wildcat.html and (308) 436-3717.
- 4 Trailside Museum:** See rare fossils from western Nebraska, including a mammoth, and giant tortoise. Exhibits cover the Cretaceous Period and the Oligocene and Miocene Epochs. The museum is located at Fort Robinson State Park, two miles west of Crawford, Neb. Information: www.museum.unl.edu/trailside.html (308) 665-2929.
- 5 Agate Fossil Beds National Monument:** Exceptional displays help visitors visualize the region 20 million years ago when it resembled the Serengeti Plain of Africa. Among the fossil displays are two horned rhinoceros, smaller than a Shetland pony, that was as common here as buffalo were in the 1800s. The center also has a magnificent collection of Native American art and artifacts. Located about 50 miles north of Crawford, Neb. Information: www.nps.gov/agate/index.htm and (308) 668-2211.
- 6 Toadstool Geologic Park:** Eroded buttes and ridges look like toadstools or mushrooms. Fossils here are important to the study of the Oligocene Epoch about 24 million to 30 million years ago. Footprints, made by prehistoric animals that migrated along a shallow, wide river eons ago are the longest known track-way of that epoch. Located 19 miles northwest of Crawford, Neb. Laws prohibit collection of fossils of any kind here. Information: www.s.fed.us/ID/nebraska and (308) 432-0300 or (308) 432-4475.
- 7 Hudson-Meng Bison Bonebed:** About 10,000 years ago a sudden event killed several hundred bison. Researchers are excavating the site to discover if the beasts were victims of Paleolithic hunters or natural causes. The bonebed is near Chadron, Neb., in Nebraska National Forest. A three-mile hiking trail connects the bonebed with Toadstool Geologic Park. The best time to hike it is spring or fall. Information: www.s.fed.us/ID/nebraska/units/psm/hudsonmeng.html and (308) 432-0300.
- 8 Mammoth Site of Hot Springs, S.D.:** A 20,000-square-foot visitor center covers this working paleontological site. Scientists believe as many as 100 Ice Age mammoths died here about 26,000 years ago. Information: www.mammothsite.com and (605) 745-6017.
- 9 Museum of Geology, S.D. School of Mines and Technology:** Skeletons of immense dinosaurs and sea islands captivate visitors. There are also displays of minerals and fossils of ancient camels and horses. The museum has hands-on exhibits for children. Information: <http://museum.sdstate.edu> (605) 394-2407.
- 10 Badlands National Park:** The world's richest Oligocene Epoch fossil beds are 73 million to 35 million years old and provide scientists with information on the evolution of such mammals as the horse, sheep, rhinoceros and pig. The park near Wall, S.D., covers 244,000 acres of sharply eroded buttes, pinnacles and spires. Information: www.nps.gov/bad/ and (605) 433-5361.
- 11 Black Hills Petrified Forest:** This is a privately owned museum near Rapid City, S.D., with hundreds of specimens on a sandstone trail. The wood was petrified into stone more than 100 million years ago. Information: www.kokopelli.org/forest/index.html and (605) 787-4684.

DEAN WEINLAUB/THE WORLD HERALD

Nebraska state Senator John Harms used this poster, designed by the Omaha *World-Herald*, to support his request to the Unicameral Appropriation Committee to set aside \$165,000 for the initial architectural plan to construct the addition to the Wildcat Hills Nature Center. (Ray Boice)