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The Age of Birds in Nebraska

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Let each mile of highway I-80 represent a million years. That way, ½ mile represents 500,000 years, 1/10 mile = 100,000 years, 1/100 mile (52 feet) = 10,000 years; 1/1000 mile (5.2 feet) = 1,000 years, and 6 inches = 100 years. A decade (ten years) equals about a half-inch. It is 450 miles from the 60th St. on-ramp to I-80 in Omaha to the westernmost exit at the Wyoming border. These 450 million years encompass most of the time that evidence of life has been found on earth, but the earth itself is more than four billion years old, or ten times older than the time scale described here.

Some 450 million years ago, as we join the I-80 in Omaha, we are in the middle of the Paleozoic era, when Nebraska was submerged in a great inland sea, and the animals present would be mostly corals, sponges, and mollusks, plus a few primitive fishes, such as sharks. Evidence of this early life can be found in limestone outcrops such as those near Weeping Water in southeastern Nebraska. There were no birds or mammals to be seen.

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As we drive the 50 miles to Lincoln, we have covered 50 million years to 400 million years ago, and are entering the Devonian era. We must drive all the way to Keamey, some 270 million years ago, before the last remnants of the Permian Sea have retreated and left us on dry land. To reach the great age of dinosaurs, the Mesozoic, which started some 220 million years ago, we must get to Cozad. From there to Ogallala, the distance representing the peak of the dinosaur era, there is no clear geologic record in Nebraska, but dinosaur fossils in eastern Wyoming and western South Dakota tell us of these great beasts. The first known bird, Archaeopteryx, took flight during the middle of the Mesozoic, sharing the sky with flying reptiles, about 140 million years ago. By then a few primitive mammalian groups were also already present. The last great period of the Mesozoic, the Cretaceous period, covers the distance from Ogallala to Sydney. It is a time when Nebraska was again covered by shallow seas, with long-necked plesiosaurs swimming through the waters and sometimes rivaling the largest dinosaurs in size. There were also mosasaurs, sea-going lizards with large crushing jaws, eating sharks and bony fishes. Loon-sized but flightless fish-eating birds, Hesperornis and its kin, swam through the shallow seas of what is now Kansas and probably also Nebraska. Above the seas, tern-like birds (Ichthyornis, Apatornis) fished in the shallows.

Finally, near Sydney, about 60 miles from the Wyoming border, we reach the start of the Cenozoic era, the Age of Mammals. During this time what is now Nebraska was covered in sequence by tropical forests, then savanna-like mixtures of trees and grasses, and finally true grasslands. Many browsing and grazing mammals were present, from camels through rhi-

nos, horses, and many others. Early ducks, geese, cranes, hawks and other predatory birds were common. Great elephant-sized titanotheres lumbered across the uplands of Nebraska nearly 40 million years ago (near Potter on our I-80 time scale). Some 30 million years ago large, long-legged predatory birds such as Bathornis, distant relatives of cranes and rails, stalked the Nebraska grasslands It isn't until we reach Kimball, 20 million years ago, that Nebraska began to resemble the grassy plains we know today. At that time grazing animals such as horses, rhinos, camels, grass-eating rodents and dogs occurred, and the earliest cats arrived. Some 15 million years ago, in the middle Miocene, limpkin-like (Aramornis) birds also waded through Nebraska's wetlands, only later to disappear completely. The first elephants arrived from Asia 14 million years ago; these were mastodons and four-tuskers. These would also disappear and be replaced later by more modern kinds of elephants, including mammoths. Most or all of the modern families of birds were present by then.

About ten million years ago, or near Bushnell on our 1 -80 time-scale, vast volcanic clouds of dust settled on Nebraska, choking herds of horses and rhinos, and providing the basis for what is now the Ashfall Fossil Beds State Historical Par in northeastern Nebraska. Cranes, closely resembling the modern crowned cranes of Africa were there, and only a few million years later sandhill cranes were wading the marshes of ancient western Nebraska, making that species the longest-surviving known species of extant bird.

A little more than two million years ago, or just two miles from the end of our road, the first of several glaciers swept slowly southward out of Canada, bringing with them enormous

mammals, such as mammoths, arctic-adapted bears, giant camels, large beavers and giant predatory cats. Arctic-adapted birds were also no doubt present, but except for a few species (such as bald eagles) we know little of the specific types that were present in what is now Nebraska.

The first humans (Native Americans) probably reached North America about 12,000-15,000 years ago, or about 75 feet from the end of our trip. By then there were already two kinds of bison on the plains of Nebraska, a giant type that became extinct about 10,000 years ago and a smaller one that was the direct ancestor of the modern bison. The last glacial retreat from the Great Plains left deposits of rich glacial till over earlier layers of wind-blown loess deposits in the Missouri Valley, remnant woodlands of boreal-adapted trees in the Niobrara Valley, and opened the way for temperate-loving birds such as cardinals and mockingbirds to move gradually into southern Nebraska. The majestic seasonal migrations of bison developed in the Great Plains, and the Platte gradually settled into its present-day meandering channels, giving water and safety to these great herds and to the vast migrating flocks of waterfowl and cranes that followed the retreating glaciers northward to tundra breeding grounds.

American wasn't "discovered" by Europeans until about five centuries ago, or about three feet from the end of our road. Nebraska was mostly settled by Europeans less than a century ago, or about six inches from the last turn-off. That settlement spelled disaster for the passenger pigeon, Eskimo curlew, and near-extinction for many other bird species including the whooping crane, but the recognition of such losses also marked the start of such conservation-oriented

groups as the National Audubon Society and the Nebraska Ornithologists' Union.

The people who are alive today represent only a few inches or even less of our total history, based on this 450 million-year time scale between Omaha and the Wyoming border. If this time-scale were expanded to include all of the earth's 4-5 billion-year history, our trip would have had to start on the eastern side of the Atlantic Ocean, and the human story would represent a distance of a few hundredth's of an inch, or about the thickness of the metal on the last Nebraska I-80 exit sign.

This is a sobering realization, especially when we consider the great ecological damage that we have done to our environment during our relatively short stay on earth. Even the greatest dinosaurs left no visible scars on our land during their hundred-million-year rule, yet we are unwilling to leave mountains unmined, marshes undrained, and forests uncut. When the last prairie has been ploughed, the last prairie-chicken silenced and the last prairie rose killed by herbicides, we might perhaps pause and wonder where they all went, and where we too have gone.