Conservation Corner

By Corinne Peterson
Pocahontas County Naturalist

March 2, 2016

How did you spend Leap Day 2016? Today I thought it might be fun to look at recent findings that are increasing our understanding of dinosaurs by leaps and bounds. Last week our Preschool programs featured dinosaur names, fossils, and footprints. As I was packing away the bones, one of the teachers recommended a video concerning dinosaur babies, juveniles, and adults. I thank Megan for this week's topic.

What do you know about dinosaurs? If you have young grandchildren or friends, perhaps you know quite a bit. You might recognize that dinosaur means "terrible lizard," which is somewhat of a misnomer as dinosaurs, while reptiles, do not belong to the lizard family. Dinosaurs, like all creatures, were simply trying to survive and perpetuate their species, which in nature can't be so terrible.

According to the fossil record, dinosaurs first appeared on Earth about 230 million years ago and ruled Earth for 135 million years until an extinction event occurred 65 million years ago. The only dinosaurs to survive were the bird-like ones whose descendants are still alive and well, still soaring above Planet Earth. That's right, birds are direct descendants of the dinosaurs. In fact, today dinosaurs and birds are classified as Non-Avian and Avian Dinosaurs. Did you know the turkey is the closest living DNA match to the dinosaur?

To better understand the evolutionary path from dinosaur to bird, scientists are genetically modifying the hands, tails, and beaks of chicken embryos. For example, we know from the fossil record that the first bird beaks appear 40-50 million years after Archaeopterex, but we don't know how modern birds developed the wide variety of shapes and sizes of beaks found today. Using atavism activation, a unique cluster of genes that govern facial development in chickens was isolated and then silenced. In 2015, an article in the journal *Evolution* announced the creation of a chicken embryo whose beak structure had reverted back to its ancestral state.

During the 1800s and 1900s, museums competed for the biggest and best dinosaur display. Perhaps you've seen some of these magnificent specimens at the Field Museum of Natural History in Chicago or the Science Museum of Minnesota in St. Paul. It wasn't until the 1970s, however, that scientists asked the question, Where are all the little ones?

Paleontologist Jack Horner of Montana State University and Museum of the Rockies took another look and found they were actually everywhere. While famous for the discovery of the first dinosaur eggs and embryos in the Western Hemisphere, today Horner is best known for his cutting edge work on growth patterns in dinosaurs. Drawing from Dr. Peter Dobson's 1975 skull comparisons of crested birds and duck-bill dinosaurs, Horner suggests that perhaps up to a third of current dinosaur species may be simply juvenile and adult forms.

I encourage everyone to check out Horner's videos entitled "Shape-Shifting Dinosaurs – The Cause of a Premature Extinction" and "Building a Dinosaur from a Chicken" at www.ted.com. Leap Year – the perfect time to step up and leap forward into the past.