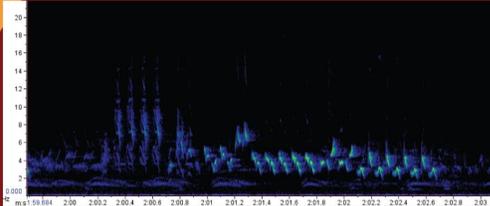


SONOGRAMS THROUGHOUT THE SEASONS: LEARNING TO SEE WHAT YOU HEAR

Thursday, March 24, 7:30 PM
Kerry Wood Nature Centre, Red Deer

Dr. Stuart will discuss the fascinating world of sonograms (pictures of sounds). Different equipment used to record sounds will be explored as will the software required to analyse them. Participants will learn about sound production in birds and amphibians, whilst listening to a selection of local species (e.g., Great Horned Owl and Boreal Chorus Frog). Sonograms will be explored to visualise and learn more about the amazing sounds that animals produce. Dr. Stuart will also explain how volunteers can participate in a project involving sounds of whales.



Dr. Sally Stuart



Dr. Stuart has a PhD in Comparative Physiology from the University of Nottingham, England. She has taught physiology and anatomy at Red Deer College in the Department of Biology for the past 27 years. She feels that it is a great privilege to help students understand the basic physiology and anatomy of both humans and the animals. She moved with her family to an acreage near Sylvan Lake 17 years ago and became fascinated with the wildlife residing on these few acres. She was especially captivated with the spring chorus of the Wood Frogs. This led to a quest to document and record (pictures and sounds) the wildlife found in this area throughout the seasons. Using software (Raven from Cornell) has allowed her to further analyse the sounds she records, particularly in an attempt to understand the mechanisms of sound production. To help students learn more about local species, the analysis of sounds and sonograms have become part of a project in one of her zoology classes.



SPONSORED BY



- Admission free and
open to the public

RDRWA Spring Forum

March 11, 2016
8:30 AM to 3:00 PM
Village of Alix
Community Hall
5008 49 Ave.

Register online @rdrwa.ca
or phone Kelly @
403-340-7379
Cost: \$10.00

Agenda

8:30 Registration
9:00 Opening Remarks
9:15 A Sneak Peek: *Blueprint: An Integrated Watershed Management Plan for the Red Deer River Watershed*
10:00 Networking Break
10:15 Stewardship of Our Lakes: A Local Profile
10:45 New Directions in Lake Management
11:15 Monitoring of Our Lakes
11:45 Lunch and Networking
12:30 RDRWA: A Year in Review and Plans for 2016
12:50 Our Lakes, Our Health
1:20 Break and Bundle
1:30 Activity Walk to Alix Lake: Partners In Action
2:45 Closing Remarks

2016 NORTH AMERICAN BLUEBIRD SOCIETY CONFERENCE

Ellis
Bird Farm



www.ellisbirdfarm.ca
www.nabluebirdsociety.org



BIRD STUDIES
ÉTUDES D'OISEAUX CANADA

Bird Studies Canada and their North American Bird Conservation Initiative partners are pleased to announce that the **State of North America's Birds** report will be released this spring. The report, which marks the 100th anniversary of the 1916 Migratory Bird Convention, represents the first joint conservation assessment of the birds of Canada, the U.S. and Mexico. Much of the information for the report was collected by volunteers.

This important report will be available online. However, Bird Studies Canada members can choose to receive a free printed copy with the Summer issue of *BirdWatch Canada*. To request your copy, please enter your name and email address at the following link: <http://www.birdscanada.org/organization/index.jsp?tar-getpg=stateofthebirds&lang=EN&number=3>.

Ellis Bird Farm, Lacombe, Alberta, Canada
July 8-10, 2016

*Unlocking the Mysteries of Bird Migration:
Using Technology to Track Avian Journeys*

SEASONAL SIGHTS AND SOUNDS OF ALBERTA: A QUICK GLIMPSE OF AN ANCIENT AVIAN DINOSAUR

It is a gloomy, misty March morning. Stepping out of the door, grasping buckets of horse food, I first hear then see the magpie, standing on the fence, eyeing the horses breakfast. My mind is elsewhere, concentrating on a project that my students have been working on involving an ancient 150 million year old Jurassic fossil. I can almost imagine that the bird I see in front of me is actually that ancient creature *Archaeopteryx lithographica*.

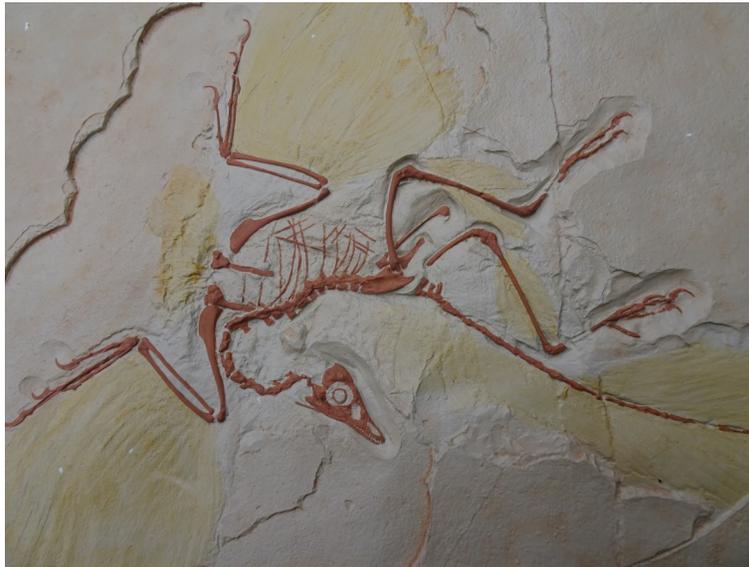
Considering how difficult it is to locate fossils, it is remarkable that scientists have found several specimens of *Archaeopteryx* (as shown in this fossil reproduction), from which a tremendous amount has been learned.

Compared to the magpie, it would have been somewhat similar in size (although *Archaeopteryx* probably weighed a bit more) and appearance. It would have been covered in white feathers with black tips (based on analysis of several feathers by scientists at University of Manchester) and the tail would have been long. Like the magpie, *Archaeopteryx* had a beak, modified forelimbs with some fusion (less individual bones with independent movement, instead they “fuse” together) and digits reduced to three to form the wings. However, many of the features of *Archaeopteryx* were very reptilian; the long tail was composed of individual vertebrae, unlike the fused short pygostyle of modern birds. The digits in the forelimbs ended in claws (modern birds of course have claws on their hind limbs which they use for activities such as grasping hold of branches when perched) and the vertebral column lacked much fusion. Also the jaw (beak) still retained teeth.

There is really very little that differentiates reptiles and birds. This fact is not surprising as they share a common ancestor. A fascinating TED talk by Jack Horner called *Building a Dinosaur from a Chicken* describes experiments with chicken embryos which show that the genes are still present for the rep-

tilian characteristics. Switch the teeth development gene off and no teeth appear, switch another gene on and the tail is reabsorbed plus the forelimb is modified. Is *Archaeopteryx* an early bird or a modified reptile? This debate has been going on for a long time. Does it matter? Birds evolved from dinosaurs in the Jurassic, dinosaurs are reptiles therefore birds are modified reptiles. Dinosaurs and birds even share similar eggshells.

Another component of the debate is the ability of *Archaeopteryx* to fly. Certainly it lacked the large sternum needed for flight muscle attachment and its skeletal system lacked much of the fusion. On the other hand, in terms of adaptations for flight, X-ray technology shows a sophisticated brain with a good sense of balance and vision. Further evidence suggests that *Archaeopteryx* may indeed have had lungs which were similar to modern birds—connected to air sacs within the bones—which would have lightened the skeleton in terms of flight. Curved claws on the forelimbs are rather similar to



those of the young of the hoatzin, which uses its claws to scramble up trees. Perhaps *Archaeopteryx* behaved in this fashion, and then glided down. However, the Jurassic environment was quite different, and in at least some locations where fossils were found there may not have been many trees. Finally, although feathers are one of the defining characteristics of modern birds, they cannot be assumed to be indicative of

flying ability as many members of a group of dinosaurs known as the theropods were also feathered; however, their feathers were probably for insulation and thermoregulation.

Considering all the available evidence, *Archaeopteryx* probably ran around flapping its wings and could indeed make short flights.

Bird or reptile, flying or non-flying, the ongoing debate surrounding *Archaeopteryx* is fascinating. *Archaeopteryx* is not the direct ancestor of modern birds but is a very important fossil. As I watch the magpie, he hops off the fence stretches his wings, soars across to a nearby tree where he sits and calls. Suddenly it is 150 million years ago. Perhaps this is the sound of the ancient *Archaeopteryx*, if only I had been around to record the sound!

FLOWER FOCUS

March 16th - 10:00 AM - Kerry Wood Nature Centre

Richard and Lorna Townell will talk about their trip to the Arctic shores at Paulatuk in the NWT.



A big THANK YOU to Maureen Dixon and Howard Northey for folding the RDRN newsletters for the past two + years. Maureen plans to move to Victoria this summer, so we will be looking for someone new to help with this task. Thank you again, Maureen and Howard!

The Red Deer River Naturalists, the first natural history organization to be established in Alberta, was incorporated as a society in 1906. The objectives of the society are to foster an increased knowledge, understanding and appreciation of natural history, and to support conservation measures dealing with our environment, wildlife and natural resources.

Annual membership is \$15.00 for individuals and \$20.00 for families.

Regular meetings are held at 7:00 p.m. on the fourth Thursday of most months at the Kerry Wood Nature Centre, 6300-45 Ave., Red Deer, AB. Non-members are welcome.

Members are encouraged to contribute to this newsletter. Deadline is the last Friday of the month.

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the cost of newsletter printing



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