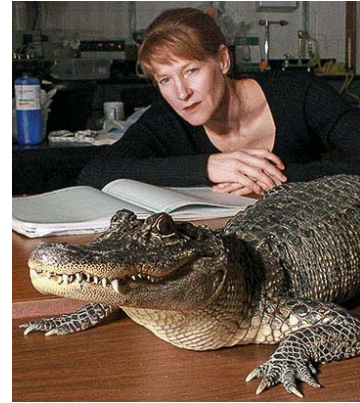


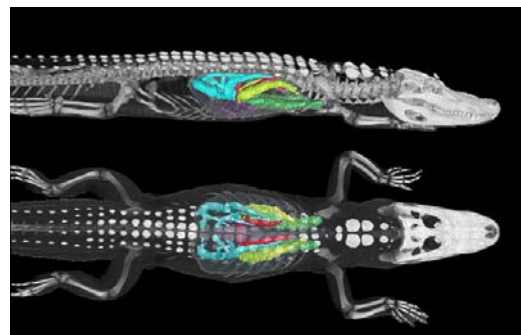
The Mysterious Bird Lung

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Aerodynamic valves in bird lungs cause air to flow in one direction as the birds inhale and exhale through most of the gas-exchange structures: a circuit of dorsobronchi, parabronchi, and ventrobronchi (d-p-v). Biologists have long wondered why, on inspiration, air travels through the d-p-v circuit to fill a set of sacs in the cranial part of the bird, rather than flowing by a more direct route into the sacs. Similarly, when they exhale, gases from air sacs in the caudal region move through the d-p-v circuit, rather than taking a more direct path out of the bird. The discovery of unidirectional airflow in non-avian reptiles has enabled the power of a comparative approach to be used to form new hypotheses and to test old ones about how the valves work. Computational fluid dynamics models have also helped to elucidate the mechanisms underpinning these mysterious valves.



Friday January 27th 2017 at 10.00
Seminar room at zoophysiology