

Winging it – bird watching with a difference

April 3 2006

If you enjoy wildlife programmes then you'll probably have seen bird's-eye view footage of flying, taken from cameras attached to birds. A research group from the University of Oxford has gone one step further: by attaching a compact motion measurement unit in addition to cameras they hope to glean novel information on what it is that makes birds aeronautical experts.

Their results could help in designing wing-morphing aircraft that would have deformable wing and tail parts, in place of conventional trailing-edge flaps. Dr Graham Taylor has been testing the system in Denmark on a trained Steppe Eagle and will introduce the technique on Monday 3rd April at the Society for Experimental Biology's Annual Main Meeting in Canterbury.

Using this technique allows the researchers to study the flight mechanisms of free-flying birds, which apart from being more informative offers an ethical means of bird flight analysis. Several cameras are mounted on the bird's back or belly and point at the wings, head and tail.

The motion measurement unit weighs less than 50g and provides complete 3-dimensional information on the orientation, rotation and acceleration of the Eagle. The research group want to fit their motion measurements to dynamical models of bird flight to allow them to work out how the Eagle's control system functions.

Recent trials in Denmark have proved successful. "We can measure tail

spread, pitch angle and bank angle from the onboard video directly", says Taylor. "The plan is to relate these measurable control inputs to the body motion of the bird, which we can quantify using the motion measurement unit."

Source: Society for Experimental Biology

Citation: Winging it – bird watching with a difference (2006, April 3) retrieved 25 April 2024 from <https://phys.org/news/2006-04-winging-bird-difference.html>

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