

Taking to the skies

Audio transcript presented by Ben Garrod

Once all the features for powered, or flapping, flight were in place, how did these feathered animals eventually take to the skies?

The origin of avian flight has been the subject of debate for hundreds of years and currently there are a number of popular theories, illustrated by these modern birds.

One of the first theories of the origin of avian flight is the arboreal, or 'from the trees down', model.

This suggests that as an ancestor of birds leapt from tree branch to tree branch, anything that aided gliding, such as feathered limbs, meant it could travel further.

Eventually, modifications to these feathered limbs through evolution led to flapping wings for powered flight.

The cursorial model, or 'from the ground up', theory basically involves an ancestor of birds running along the ground.

By stretching out their feathered forearms for stability and balance whilst either chasing prey or during an elaborate display they may have been able to achieve short periods of time in the air by being lifted up by air currents or after a leap.

Wing-assisted incline running is a variation of the cursorial model.

However, this theory suggests that powered flight evolved from flapping their feathered forelimbs to aid their grip while running up a steep slope, such as a tree, cliff or boulder, to escape from a predator.

One of the more recent theories of how powered flight evolved is the 'pouncing proavis' model.

This theory proposes that flight evolved from raptorial ancestors.

These predators seized their prey using claws or talons and specialised in ambush attacks from elevated positions such as trees or cliffs.

This differs from the arboreal theory of the origin of avian flight by suggesting an emphasis on a greater swooping range to hunt, rather than short leaps between branches.