

# Feather Fascination!

with local Birdwatcher, Jim Butler

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## THE BIRD'S EYE

The Wedge-tailed Eagle has enormous eyes compared with other birds, and this explains its legendary eyesight. However, the eagle's acute vision comes at a price. Eyes are heavy, fluid-filled structures, and the larger they are the greater the body-weight. Hence the Wedgie is also the largest forest bird in Brisbane West.

Vision is the most important sense for birds, since good eyesight is essential for safe flight and successful hunting. The importance of birds' eyes is implied by their size - they are the largest eyes relative to their size within the animal kingdom. In simple terms, a bigger eye means better vision. In some owls, the eyes comprise up to 33% of the total weight of the head; in humans it is only about 1%. However, often birds' eyes don't look large! The pupil and iris fill the exposed eyeball and the greater part of the eyeball is wholly covered with skin and feathers. All birds have round pupils. To reduce weight,

birds have minimised the muscles around the eyes so they are immobile in their sockets. Hence, raptors and owls in particular have to move their whole head when they are scanning the terrain.

Birds' eyelids are used only for sleeping with the lower eyelid rising to cover the eye. In addition to the two eyelids found in vertebrates, birds' eyes are protected by a third transparent movable nictitating membrane used for blinking. The bird's cornea is swept with tears every time the membrane sweeps horizontally across the eye like a windscreen wiper while still allowing a milky view of the bird's surrounding. The membrane also acts as a contact lens in many aquatic birds when they are under water. And the plummeting falcons can protect their eyes from the rushing wind simply by closing their nictitating membranes.

~ Jim

Image: Wedge-tailed Eagle's Eye,  
by Peter Evans ©