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#### "EAGLE-EYE"

Any birder would like to have an "eagle-eye." But how good is an eagle's vision? Traditionally, it is much superior to a human's; also, laboratory estimates have indicated that a hawk's retina contains up to seven times as many cones (bright-light receptors) as a human retina, a fact that also implies extraordinary acuity.

However, the quality of an optical system depends not only on the resolving power of its light receptors but also on the size of the aperture. To achieve full utilization of its sensor resolution, a hawk's eye would have to have a pupil diameter of at least 18.4 millimeters (2/3 inch)!

In testing ophthalmoscopically an African Serpent Eagle Dryotriorchis spectabilis, whose pupil diameter remained between 6.0 and 6.5 millimeters, Robert Shlaer of the University of Rochester and the University of Chicago concluded that "the visual system of the eagle under test may be capable of from 2.0 to 2.4 times human resolution. On the basis of size [direct scaling] the Golden Eagle Aquila chrysaetos might reach 2.4 to 2.9 times, and the Martial Eagle Spizaetus bellicosus ... 3.0 to 3.6 times human visual acuity." These are minimum values, and actual performance may be somewhat better.

Furthermore, Dr. Shlaer notes (Nature, Vol. 176, page 920) that eagles have particular ability to detect objects against a blue (sky) background. But the small size of an eagle's cones means that their performance as light receptors falls off rapidly as the illumination decreases.

It would be interesting to read of similar experiments with members of such families as owls (night feeding) and nightjars (twilight and night).

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#### BEHAVIORAL NOTE ABOUT STARLINGS

On March 9, 1974, at 10:30 a.m. EDT, we were watching various birds feeding in our backyard near an Arbor Vitae about 30 feet away. A pair of Starlings began to squabble, and after about a second one of the birds fell on its side, though we did not see it struck by the other bird. It remained thus for a total of perhaps 10 seconds. At first, we thought the bird was dead, but after about five seconds it moved its head slightly. Meanwhile, the other Starling stood behind and within a few inches of the fallen bird, apparently watching but making no aggressive gesture.

Then a disturbance occurred, and the mixed flock flew away. About a second later, the Starling on the ground rose quickly and flew off after the other birds in a perfectly normal manner. Overall, the behavior of this bird seemed to evidence an act of "playing possum."

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