

## NIGHT MIGRATION

Migratory songbirds perform some very clever navigational techniques, such as using the earth's magnetic field and the stars to find their way at night.

Researchers at the University of Oldenburg in Germany and Duke University Medical Centre in Durham, North Carolina, have found an area in the brain of night-migrating songbirds that is specialised for night vision. This area, called Cluster N, seems to be activated by dim light.

Two night-migrating species, Garden Warblers, *Sylvia borin*, and European Robins, *Erithacus rubecula*, and two non-migratory species, Zebra Finches, *Taeniopygia guttata*, and Canaries, *Serinus canaria domestica*, were exposed to periods of simulated night. The birds were then euthanised, and their brains preserved, sliced and stained to show gene expression related to the firing of neurons. This enabled the researchers to identify those parts of the brain activated during the simulated night. The result of the experiments are described in The Proceedings of the National Academy of Sciences.

Cluster N was active only in the brains of the two migratory species, and only at night. However, when some of the Robins had their vision completely blocked by eye caps, the activity in Cluster N ceased. As Cluster N is near a visual pathway that transmits information from the retina of the eye to other parts of the brain, the researchers suggest that the cluster is probably processing visual information as well, although at much lower light levels.

As stars are very dim, the cluster could be processing their light. While there's no light from the earth's magnetic field, other research has uncovered evidence that the magnetic field affects the light sensitivity of parts of the retina. So migratory birds may sense the magnetic field as visual patterns. If this is so, these visual patterns may be processed through Cluster N as well.

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BIRD KEEPING IN AUSTRALIA