

Bird Migration to and from the ACT

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In the south-eastern highlands in particular, movement, both regular and random, is an essential part of the economy and ecology of many birds species' lives. An understanding of the ecology of any species is essential to its successful rehabilitation, and particularly release.

Migration is the regular and predictable movement of all or most members of a species from a summer breeding area to a warmer wintering range.

While many northern hemisphere species do come to the southern hemisphere, not many of them come to Australia. The reason is our unpredictable climate, or more precisely, the effects of the El Nino cycle. It is significant in this that the exceptions are seabirds (eg the shearwaters) and shore waders, both of which use a 'drought-proof' habitat.

Nomadism is a much more common form of movement in Australian birds, and especially arid land species. It is also typical of grassland species, inland flower followers. It involves unpredictable movement, either following a resource – rains, or flowering – or random scattering in search of such a resource.

Many inland waterbirds behave thus and in fact there is no other way a water dependent bird could survive on the fickle inland waterways. In some instances it can lead individuals far from their origins, where they may persist for some time. Canberra's Little Corellas probably originated like this. The now rapidly spreading Crested Pigeons in Canberra certainly arrived thus, staying on after seeking refuge here from the 1982 drought.

The one important Australian exception to the 'non migration' rule is a very significant one for us in Canberra. Only in the highlands of south-eastern Australia are the winters predictably harsh enough for a significant number of species to justify the risk and effort of true annual migration. Every autumn many species of honeyeater, cuckoo, woodswallow, martin, kingfisher, dollarbird, bee-eater, warblers, swifts, trillers, songlarks, orioles leave for destinations many of which are still largely unknown, though all are to the warmer north.

Of these we do know, White-throated Warblers, Bee-eaters, Sacred Kingfishers and Dollarbirds all go to northern Qld and even New Guinea. It is very relevant that all of these species rely on insects as their main food source.

In spring they return to breed, because the conditions which produce the harsh winters also produce a spring flush of flowers and insects. It sounds contradictory, but in more temperate, or in tropical climates, spring is not so rich. This is because plants and insects have the luxury of flowering or breeding for most or all of the year, so remain at steady, but lower numbers throughout, with no sudden post-winter build-up.

Some returning migrants stay on the plains and river valleys around Canberra, others continue on up into the mountains. These species are only seen in Canberra as they pass through during autumn and spring, and are known as passage migrants.

Some individuals of a generally migratory species stay put; presumably for them the risk of travel outweighs the risk of winter, and the advantage of being 'in place' to set up a territory before the competition arrives makes it worth while. Locally Red Wattlebirds are a good example of a 'partial migrant'.

There is also a sort of reverse flow. For some species, Canberra winter is a balmy change from the mountains where they breed in summer – Gang-gangs, King Parrots, Pied Currawongs, Eastern Spinebills. This is known as altitudinal migration. Since migration is essentially an

adaptation, it is not surprising that species can be flexible about it when conditions change. Hence many Pied Currawongs no longer return to the mountains in summer to breed, since Canberra gardens provide a reliable food source for them.

The trigger for migration is hormonal. The hormones in turn are switched on by decreasing day length; temperature, early frosts, wind and cloud cover may determine the precise time of departure. Departure, particularly amongst long distance migrants, is preceded by a period of very serious eating to lay up reserves for the journey. Some can nearly double their weight in a few days. Many normally daytime birds migrate at night – though the local honeyeaters move at mid-morning (at least as they leave).

It seems that many migrants navigate by the sun or the stars, automatically compensating for their movement, and for changes produced by going north or south. Larger long-lived birds apparently learn landmarks – mountains, rivers, even cities. A few, such as shearwaters, apparently recognise their burrow by smell.

Our understanding of the way in which birds can navigate by reading the earth's magnetic field has increased dramatically in recent years. It is intriguing to speculate what birds actually experience when sensing the magnetic field; is it like a pattern of glowing lines across the landscape to follow? Or is it like a scent which grows fainter as the bird veers off course? Sadly we can't ever know that.

Another recent extraordinary discovery is that while migrating – but not for the rest of the year – at least the Northern Hemisphere songbirds studied needed only a third of the sleep that they did while not travelling. They were just as alert and competent in behavioural tests as for the rest of the year. Nor did they do it by sending half of their brain to sleep. How they do it and why they can't do it for the rest of the year, is a complete mystery still.

There are competing theories about why travelling birds – especially large ones – fly in V formations. A series of experiments and observations have led us to believe that a combination of aerodynamic advantage and social benefits are relevant.

Migration may require species to cope with very different habitats during different parts of the year. For instance Latham's Snipe breeds in Japanese fields and fir forests, but spends our summer in swampy wetlands. Some skuas breed on open tundra but winter on the open sea.