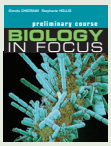
EVOLUTION OF AUSTRALIAN BIOTA

Chapter 2 The evolution of Australian flora and fauna



Linked to page 256

Additional information on variation

Variation in Australian species

Australian examples of variation within a species and their chances of survival when the environment changes are also interesting to study.

Magpies

Size and shape

There has been ongoing debate as to whether magpies belong to a single species or several species. They belong to the genus *Gymnorhina* but present-day taxonomists have agreed to put all the magpie variations into one species and then divide it into subspecies. Even the subspecies are not clearly divided because mixed forms may occur in adjacent regions. The variation occurs in the shape and the size of the magpies, depending on their geographical distribution. For example, northern (top-end) magpies live in the Northern Territory and north-west of Western Australia. The largest magpies live on the east coast, from Melbourne to Brisbane. They have long, slender bills.

The differences (Alex Miligan, 1903) are thought to be due to different soil and climatic conditions and probably also due to the different food found above ground. Northern magpies which encounter long periods of dry weather may have to eat scorpions and poisonous spiders.

The shortest and most compact magpies are the Tasmanian magpies—their short beaks are suitable for cracking the outer coat of hard-shelled beetles and cockroaches.

This is all speculation and other reasoning has been suggested:

- *Different body size due to climate.* Large magpies live in temperate climates, medium to small live in tropical areas. Does climate affect food choice which in turn affects body size? (This general trend does have one exception—magpies on the mainland in Victoria, facing Tasmania, are amongst the largest.)
- Another possibility is that *social organisation (mate attraction) may influence body size.*

Colouration

Black-backed magpies occur throughout Australia. White-backed magpies are largely confined to Western and Southern Australia. Some intermediate forms do exist. It is thought that their colour may be linked to their origins—the black form may have originated in the north (Torresian origin) where the climate is tropical or subtropical and the white form may be Bassian in origin (southern/temperate). The significance of the different-coloured plumage is not known.

Koala—size and colour

The koala is the only species in this family. Koalas in northern Australia have smaller bodies, shorter hair and a lighter coat colour than koalas in southern Australia. This change is very gradual, making classfication vague. (See **www.thebigzoo.com/zoo/Phascolarctidae.asp**.)

Following Bergmann's Rule, southern koalas from the cooler climates are larger. A typical Victorian koala has longer, thicker fur, and has a darker back and a lighter belly. New South Wales' koala size is considered to be average. In tropical and sub-tropical Queensland, however, the koala is smaller, often rather scruffy grey in colour and has shorter, finer fur. The variation from one form to another is continuous and there are also differences between individual koalas in any given region. (See **http://en.wikipedia.org/wiki/Koala**.)

Snow gums—height of trees and leaf length

Snow gum clines: **www.publish.csiro.au/paper/BT9660167.htm**