Copyrighted Material

Polymorphism

Polymorphism is the occurrence within a population of two distinct forms, usually, but not necessarily, in colour or pattern. Different geographical races or subspecies are not polymorphic: the two forms have to occur side by side. Nor should it be confused with slight differences in colour and markings that are always present in any population of animals, nor with differences between males and females, which is sexual dimorphism. Finally, polymorphism does not include occasional mutations, such as albinos, unless they become fixed in a population and occur at a more-or-less constant proportion of the population.

Polymorphism can be advantageous to a population where predators build up a search image for a type of prey. Individuals that do not match the search image may be overlooked. If one type becomes more common than the other, more predators may build up search images for that type until its numbers are reduced and the other type becomes more common, and more heavily predated. Eventually, an equilibrium will be reached. All other things being equal, we would expect two or more types in a polymorphic population to occur in roughly equal numbers. There are many examples of polymorphic populations in frogs; a common variation is for populations to consist of individuals with or without pale lines running down the middle of their backs.

BELOW The Madagascar reed frog, *Heterixalus madagascariensis*, occurs in many colour forms. The bright yellow individual (below left) was living in the same tree as the pale blue one (below) along with several other variants.

with three or four colour forms occurring side by side. The argus reed frog, *Hyperolius argus*, is unusual in having males and females that look completely different from each other, with females having large cream spots and bars on a dark brown background whereas males are uniform pale green.

Camouflage is sometimes enhanced by the addition of skin flaps on the bodies and limbs of frogs. In its simplest form, this consists of small triangular processes or spines on the heels, and sometimes on the elbows as well. Other species, such as the frilled tree frog, *Rhacophorus appendiculatus*, have a scalloped fringe of skin along their flanks, chin and the outer edges of their limbs, also intended to break up the outline