

## CANNIBALISM AMONG REPTILES

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Cannibalism in human beings is generally regarded with abhorrence and, even among animals, is often looked upon as an expression of the lower depths of utilitarian turpitude. When I first wrote about cannibalism, over 40 years ago, I concluded that in general the practice is often ecologically important and probably related to protein shortage. Furthermore, although human cannibalism has, in the past, also been prompted by hunger, more frequently it has had a superstitious significance or formed a part of ceremonial rites (Cloudsley-Thompson, 1959). A few years later, these ideas were developed and expanded (Cloudsley-Thompson, 1965). Only recently, however, has the subject of cannibalism in animals been investigated in any depth (Elgar & Crespi, 1992).

In the last few years, too, human sacrifice in the Aztec empire has been regarded by some authors as an excuse for cannibalism on a large scale, but this is disputed and others believe that human flesh was eaten only for religious reasons. This subject and the evidence regarding the possible existence of cannibalism among early hunter gatherers has been reviewed by Megarry (1995).

Huntingford & Turner (1987) were among the first authors to consider the subject of cannibalism among animals at all seriously. They presented a table indicating the significance of intra-specific infanticide and cannibalism which they categorized as follows: (a) Sexual selection – to gain reproduction advantage, (b) Exploitation, using conspecifics as food, (c) Resource competition and the removal of competitors, (d) Parental manifestation of fecundity by the killing of offspring.

Cannibalism is widespread in amphibians, and the production of cannibal morphs an insurance of survival in seasons of low rainfall (Cloudsley Thompson, 1999; Crump, 1992). Among reptiles, on the other hand, cannibalism has seldom been mentioned in the literature. Although it undoubtedly occurs in a number of instances, the young are usually avoided, either because the parents do not feed in the neighbourhood of their nest, or because they can recognise their own young. Adult conspecifics are shunned as much as any other dangerous enemies. It is among social species and those that aggregate that a certain amount of cannibalism might be expected under exceptional conditions of food shortage.

The three orders of reptiles living today are only distantly related: they evolved as separate lineages some 300 million years ago. It is not surprising, therefore, that their behaviour should be so varied. Tortoises and turtles (*Chelonia* or *Testudinata*) have not evinced any form of social behaviour, but it is probably present in all the crocodylians and is found in some of the Squamata but not in others. Carnivorous marine turtles must occasionally eat their own young and those of conspecifics, but this can only be accidental and is in no way related to the categories of cannibalism listed by Huntingford & Turner (1978) – other than that of (b), exploitation as food. Probably all species of crocodylians inadvertently prey upon their own young as well as those of conspecifics, as do some predatory snakes and lizards also. Lizards will even eat their own tails after these have been automized (Cloudsley Thompson, 1994).

In a survey of the incidence of cannibalism among amphibians and reptiles, Polis & Myers (1985) cited 45 papers dealing with cannibalism and/or oophagy in 49 species from 16 families in five orders of Reptiles. Most of the reports were extracted from studies that analysed diet rather than focusing on the significance of cannibalism.

Conspecifics formed a contants, albeit low, proportions of the diet of many species. The authors concluded that cannibalism in reptiles is purely opportunistic predation and, for this reason smaller individuals of the same species are usually the ones to be eaten. Cannibalism is probably more frequent in the class Reptiles than has previously been believed to be the case.

Nevertheless it appears that cannibalism has little ecological significance among reptiles. Not even Hans Gadow (1909) or Angus Bellairs (1969), who understood reptiles as well or better than most herpetologists before or since, even mentioned the subject in their work. Nevertheless, when predatory reptiles are kept together in captivity, it is sensible to separate larger individuals that might eat their companions, and smaller ones that could inadvertently become their prey.

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