

SECTION VII

RELEASE OF CAPTIVE-BRED SPECIES: CARNIVORES

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## RELEASE OF CAPTIVE BRED SPECIES: MAMMALS, CARNIVORA

## GENERAL

The observations on the effects of the release of captive bred Carnivora, on wild populations of the same or closely related species, generally fall into two categories: animals were introduced

- (a) to increase the size of the wild population which was deemed to be threatened, and
- (b) accidentally, as escapes from captivity or domestication.

In the first category falls the introduction of captive-bred otters in Norfolk and Suffolk. On the continent several introductions have taken place of Carnivora in areas where they had been made extinct previously; this includes introductions of lynx (*Lynx lynx*) (Gossow & Honsig-Erlenburg 1986), bear (*Ursus arctos*) and others.

In the second category comes the presence of feral cats (*Felis catus*), dogs (*Canis familiaris*), and escapes from fur farms: mink (*Mustela vison*) and various foxes, in many parts of Europe and elsewhere.

The effects of deliberate introduction of carnivores to increase the size of existing populations have not been assessed, and all evidence is anecdotal. However, somewhat more is known of the consequences of contacts between escaped domestic (or feral) animals and wild populations.

## CASE HISTORIES

Otters *Lutra lutra*

There have been several releases of otters in areas where the population was deemed to be too low, but this usually involved mere transplantation, and the effects were not documented (Stephens 1957, Müller *et al.* 1976, Kempf 1981). The only substantial release of captive bred otters which has been documented for Europe has been in East Anglia (Jefferies *et al.* 1985, 1986). From 1983 until 1987 a total of 14 otters has been released there (Wayre 1988), in sites which were defined as 'gaps' between 'pockets' of remnant populations (Jeffers *et al.*, *op.cit.*). These remnant populations were defined from the presence or absence of faeces (an unreliable method: Kruuk & Conroy 1987). The range-sizes of otters were assumed to be smaller than 30 km. However, present knowledge (H. Kruuk, *pers. obs.*) indicates that otters range over stretches of river of 70 km or more; thus, the captive bred otters were effectively released into an existing population which is declining (Jessop 1985).

The released animals were second, third or fourth generation captive bred, of unknown, presumably English origin. Once released there was very little follow up. A few released otters were followed by radio-tracking for some days, in one case for 7 weeks; after that, all information gathered came from the presence or absence of faeces (which could not be identified from those of 'wild' otters). The released otters have been reported to be breeding, and their offspring is also stated to have bred (Jefferies *et al.* 1986, Wayre 1988). However, evidence for all this is very circumstantial, and it was not

possible to assess the overall effect of this release on otter numbers, let alone on genetic composition of the population. It is still unknown why otter populations are so very low in East Anglia.

#### Wildcat *Felis silvestris*

The species is widely distributed throughout northern Scotland, and interbreeds with the domestic cat *Felis catus* (French *et al.* 1988). However, hybridization is limited because of a difference in habitat selection between the two species; in general, wildcats tend to keep far from human inhabitation, and domestic cats do not stray far from houses (Corbett 1979). There are relatively few feral cats in natural areas on the Scottish mainland. Despite this, it has been established that modern wildcat populations in Scotland contained a high proportion of hybrids.

Most hybridization probably occurred earlier this century, when wildcat numbers were low. Because of this, the increase in wildcat numbers over the past 50 years in Scotland may include many hybrid cats (French *et al.*, *op. cit.*). Since wildcat numbers have built up, it is possible that there is now less interbreeding with *F. catus*, a phenomenon observed in many other species (Sziijj 1966, Mayr 1970).

There is some evidence that the genotype of the modern wildcats is returning to that of the old, 'pure' wild type. The modern wildcat populations appear to contain a smaller proportion of hybrids than the populations in the recent past (French *et al.*, *op. cit.*), and they resemble, therefore, the 'old'

wildcats more closely than do the wildcats from the more recent past. It is possible, therefore, that somewhat more 'pure' wildcat populations will again become established after several further generations.

If the evidence presented by French *et al.* (1988), that the proportion of hybrids is decreasing, can be substantiated this then suggests that both feral cats and feral-wildcat hybrids are less viable (at least under Scottish conditions) than the wildcat, and that at least some effects of the introduction of domestic cats on populations of wildcats can be undone by natural selection pressures.

#### Feral dogs *Canis familiaris*

There was evidence that a population of feral dogs in Galapagos (Ecuador) was genetically distinct from domestic dogs on the islands, despite the probably frequent contact (Kruuk 1979, Kruuk & Snell 1981). The feral population studied had started from domestic animals about 80 years earlier, and there were many more domestic dogs on the islands than feral ones, of distinctly different morphology and coloration. The feral dogs lived in an extremely harsh environment. This evidence, as well as direct observations of the feral population, suggested a strong natural selection pressure in favour of a particular phenotype, perhaps obliterating further genetic contamination from domestic stock.