

The Marion Island cat programme

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The feral house cat, *Felis catus*, population, originating from five pets introduced by 1949, was estimated at $2\,139 \pm 290$ individuals in 1975 and was increasing at a rate of 23% per annum (Van Aarde 1979). The 1975 cat population consumed an estimated 450 000 burrowing petrels and posed a serious threat to the remaining populations (Van Aarde 1980), the common diving petrel *Pelecanoides urinatrix* having been decimated as early as 1965 (Watkins & Cooper 1986). The viral disease, feline panleucopaenia (FPL), to which the population was fully susceptible, was introduced as a primary control measure during 1977 (Van Aarde & Skinner 1982, Howell 1984) when the population was estimated at 3 405 cats (Van Aarde 1979). Following the resulting epidemic, cat numbers decreased by 29% annually to an estimated 615 ± 107 cats in 1982 (Van Rensburg *et al* 1987).

Despite the drastic reduction in cat numbers, the numbers and breeding success of several other bird species declined sharply, particularly winter-breeding greatwinged petrels, *Pterodroma macroptera*, and grey petrels, *Procellaria cinerea* (Van Rensburg & Bester 1988a, Newton & Fugler 1989). As the remaining cats developed an immunity, the population began to stabilise (Van Rensburg *et al* 1987). However, at these reduced densities hunting at night as a secondary control measure became feasible and, following trials (Van Rensburg & Bester 1988b), a full-scale hunting effort was initiated in the austral spring of 1986. As hunting was practicable right across the island (Van Rensburg 1986), an intensive constant hunting effort was directed at controlling and possibly eradicating the remaining cats (Van Rensburg & Bester 1988b). Scheduled to run over three summers (1986/87, 1987/88 & 1988/89), eight two-man teams using battery-operated spotlights and 12-bore shotguns killed 458, 206 & 143 cats respectively. The progressive decline in hunting success and sighting rate of cats over the three seasons



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suggested that hunting alone was not reducing their numbers sufficiently. However, the drastic decrease in density of cats had led to a decline in fecundity, as a result of decreases in the number of females breeding and the number of litters produced per female per year (Bloomer & Bester 1991). This increased the likelihood of eradicating the cat population at low densities (Bloomer & Bester 1992).

Since an increased hunting effort was not possible, a combination of hunting and trapping was expected to reduce the population to very low levels (Bloomer & Bester 1992). Used experimentally in the winter of 1989 (by four teams), and then in increasing numbers over the following two years ending April 1991, trapping (by five teams) proved to be a more effective technique than hunting alone, accounting for 30%, 60% & 92% of all cats removed (50, 95 & 120) in the respective periods. Inevitably, avian species such as Subantarctic skuas, *Catharacta antarctica*, and lesser sheathbills, *Chionis minor*, were also trapped, but procedures kept it below 1.5% of their respective breeding populations (Bloomer & Bester 1992).

Eradication offers the only long-term solution to the cat problem at Marion Island. Currently, action is directed at mass trapping and the use of poisoned baits after due consideration of humaneness of the exercise, risks to handlers and possible environmental pollution. As only eight cats were trapped over the 12 months since April 1991, despite a vastly increased trapping effort (1 100 — 1 200 traps deployed), and no record of any sightings (by three teams), it is believed that with sustained effort eradication of the few possible surviving cats will be achieved in the foreseeable future. The vastly improved breeding success, with zero chick mortality, of the threatened

winter-breeding *Pterodroma macroptera* population in 1990 (Cooper & Fourie 1991) already bears testimony to the virtual elimination of predation pressure by cats on Marion Island.

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