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## ABSTRACT

### **Managing non-native mammals in seabird colonies – experiences from Canna**

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Seabird numbers have been monitored on the island of Canna for 30 years by the Highland Ringing Group. By the early 1990s, the formerly large colony of Manx Shearwaters *Puffinus puffinus* had been reduced to very low numbers and, by 2000, it had become extinct. At about this time, serious declines were noted in populations of European Shags *Phalacrocorax aristotelis* and Razorbills *Alca torda*, and the European Shags had begun to move their nesting sites from under boulders to less accessible cliffs. There were frequent signs of predation of eggs and chicks by Brown Rats *Rattus norvegicus* and research by the National Trust for Scotland showed that they were abundant throughout the island, but particularly in the coastal areas. While populations of seabirds often fluctuate due to other causes, such as food supply, the colonies on the nearby Treshnish Islands were showing no similar trends, providing evidence that the problem was local to Canna.

A feasibility study by Wildlife Management International showed that the island, though large, could be cleared of rats by the application of rodenticide. Of particular concern were the two pairs of White-tailed Eagles *Haliaeetus albicilla* and one pair of Golden Eagle *Aquila chrysaetos* that breed on Canna and the need to avoid harming them through secondary poisoning. It is common practice in eradicating rats to use highly toxic second-generation rodenticides, such as bromadiolone or brodifacoum, but this was judged to be too risky on Canna. Accordingly a wax-based first-generation product, diphacinone, was used. This proved to be highly effective and no non-target mortality was recorded, in spite of the fact that Hooded Crows *Corvus cornix* were clearly eating some of the bait. Concerns that the locally distinctive race of Wood Mouse *Apodemus sylvaticus* might be eradicated by the poisoning programme led us to take an assurance population off the island to Edinburgh Zoo, but proved unfounded as a considerable population survived on Canna. Following the last sign of rats on the island (February 2006) a two year period of intensive monitoring was carried through to confirm with some confidence that none remain. Extensive quarantine and contingency measures have been put in place to ensure that rats do not recolonise the island. Experience has shown that the total eradication of rats, though expensive, is a long-term solution to a chronic problem that may be economical in the long-term.