

EVOLUTION OF FIELD TECHNIQUES IN TEN YEARS OF RAT MANAGEMENT TO PROTECT ITALIAN SHEARWATER COLONIES

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Several restoration projects have been planned and were carried out on the Italian islands during the last decade, in order to mitigate the detrimental impact of black rats *Rattus rattus* on the reproductive success of shearwaters. Early eradication projects (1999-2000) have been carried out on small islands (1 to 7,5ha), mainly selected according to their size, rather than to distance from mainland and expected benefit. Baits were placed inside bait stations, with a density of 6-10 per hectare. When islands were closer than 320m to land, rat recolonization attempts occurred within 2-5 years. A second wave of projects (2005-2006) aimed at eradicating rats from much larger and isolated islands (Zannone and Giannutri, respectively 103 and 240ha). In these projects a more precise calibration of bait station density and bait amount was allowed by specific studies on rat relative abundance in different habitat types. Bait stations were placed at an average density of 4 per hectare, and bait uptake was monitored at each replacement. Bait was applied on three different occasions, at intervals of 30 days; on both islands, a final supplementary baiting session was carried out on 50% and 25% of the area. Finally, Molara Island (350ha) was treated in October 2008 from the air. Rodenticide pellets of brodifacoum were spread from helicopters, along flight lines followed by GPS navigation system, on two sessions (10kg bait/ha for each distribution), with an interval of 20 days. Monitoring of the latter experiment is still in progress and the outcomes will be evaluated over the next months/years. The Zannone and Giannutri projects were apparently successful. In the 2009 breeding season, the productivity of c. 200 pairs of Cory's Shearwater *Calonectris diomedea* and c. 450 of Yelkouan Shearwater *Puffinus yelkouan* – previously close to nil – will be again on normal levels. The aerial technique, new for the Mediterranean context, appears to be suitable for lowering monetary costs of restoration projects and actually made the Molara operation possible.