

Providing incentives to encourage a control program of hooded crows (*Corvus corone cornix* L., 1758): a case study in Rieti province (Italy), 2005-10

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Abstract

The hooded crow is allowed to be hunted according to Italian law. This bird is characterized by a very high reproductive potential and is considered a pest species. In this paper we present the results of a control program of hooded crow (*Corvus corone cornix* L.) undertaken in Rieti province (central Italy) in 2005-10. The Hooded crow is considered as a pest species by hunters due to its wide distribution and abundance, and to the impact on small game species. The program was organized by Local Hunting management Authorities (ATC), in compliance with Italian rules. These plans are intended to reduce the hooded crow population to reduce predation on eggs and/or small game, particularly *Lepus europaeus*, *Perdix perdix* and *Phasianus colchicus*.

Keywords: containment, *Corvus corone cornix* L., Larsen trap, letter box, Rieti province

Introduction

The hooded crow (*Corvus corone cornix* L.) is present throughout Italy, including islands, with the exception of the eastern and western portions of the Alps, where it is replaced by the carrion crow (*C. corone corone*) (Incerpi et al., 1980). In the sympatric areas the two populations hybridize, producing fertile offspring with intermediate plumage color. This bird is characterized by a very high reproductive potential (Loman, 1980) and is considered a pest species. The species frequents a wide range of habitats ranging from the plains to the mountains, both in wooded and open areas. Nest sites are in the upper parts of tall trees. This species is particularly common in populated areas and especially where food resources are available in high amounts (e.g. garbage dumps). The gregarious and omnivorous hooded crow lives in mixed flocks with the jackdaw (*Corvus monedula*) and finds food resources in agricultural fields (Incerpi et al., 1980). Predation of eggs and chicks of wild bird species has been documented (Valle, 1998; Dei et al., 2000; Scarton et al., 2004; Gargiano and Guerrini, 2005; Mostini, 2007), although the intensity of the impact on bird populations has not been measured (Meinig and Boye, 2001). Incerpi et al., (1980) reported the predation of some mammals, especially if young and debilitated. In Rieti province the predation of hare puppies has been reported (Adriani, 2009). This behavior and/or the predation of game species, together with the numerical increase in hooded crow populations that took place in recent decades persuaded hunters that it is a major factor limiting the increase of game species (mainly partridge, pheasant and hare). The species is included in the list of hunted species but is not regarded as a game species. This does not contribute to its containment and has led many institutions to undertake monitoring and/or control activities, usually conducted using the Larsen trap (Cocchi, 1996). This study aims to provide a comprehensive picture of measures to reduce the hooded crow conducted in the province of Rieti by the Local Hunting Authorities (ATC) through the provision of incentives to hunters.

Materials and methods

The institutions for wildlife management (ATC) in Rieti province have implemented a plan to contain the hooded crow, which provided incentives represented by game animals (brown hare, pheasant, grey partridge). To the hunters a number of wild animals were assigned on the basis of crows eliminated. The R11 ATC assigns a hare for every 3 foxes killed and a pheasant for every 5 crows; the assigned game animals were used for restocking in the municipality of residence of the hunter. The ATC R12 in the hunting season 2009/2010 has activated a program for predator control which awarded the participants a certain score according to the animals captured. The scores were as follows: 1.5 points per crow shot, and 0.75 points if captured in a trap provided by the ATC. The hunters can spend the score accumulated in different ways: a) 100 bonus points give 1 per year's insurance policy for hunting (value € 85.00); b) 75 points for one hunting permit in the following hunting season; c) 75 points allowed to use the dog

training area in the next season; d) wild animals to repopulate the municipality, 1 brown hare = 50 points, 1 pheasant = 10 points, 1 grey partridge = 5 points.

Results

The programs put in place by the hunting organizations (ATC RI1 and RI2) induced an intense killing of hooded crows throughout the Province. In table 1 the overall number of hooded crows captured in the period 2005-2010 is reported separately for ATC (RI1 and RI2).

Tab. 2 Trend of the overall number of hooded crows captured in the hunting districts RI1 and RI2 in 2005-2010

Year	05/06	06/07	07/08	08/09	09/10	Total
RI1	430	609	740	1,332	1,322	3,733
RI2	536	938	526	863	1,536	4,399
Total	966	1547	1,266	2,195	2,858	8,132

If we consider the average withdrawal per km² the results is about three crows/km². By the social point of view the 95% of hunters chose the reimbursement of insurance policy, and 5% the possibility to train dogs as the first choice. As a second choice the 36% of hunters chose the training dog opportunity and 64% the release of hunting species.

Discussion

The containment program has been conducted only in the hunting areas. For this reason, the program was affected by the presence of crows in undisturbed areas. The removal of hooded crow was zero in some areas (eg. protected areas) and well above average in others. It is not easy to explain the cause of the increase in crow removal, from 966 birds in 2005-6 to 2,858 in 2009-10. The increase might have been due to the improvement of the capture strategies, or more simply to the attractiveness of the incentives provided to the participants. It is hoped that the recent initiation of a monitoring plan for the species throughout the province (from 2010 in ATC RI2 and from 2011 in the ATC RI1) and the simultaneous indication of the density of the target species in different geographical areas of Rieti province (Adriani and Bonanni, 2010; Adriani et al., 2011) can give an indication of the efficacy of the control activities of the hooded crow. The monitoring of the species now begun makes it possible to assess the results that will be pursued in future operations.

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