

## MANAGEMENT AND IMPLICATIONS OF A NEW PREDATOR SPECIES IN NORTH-EASTERN ITALY: THE GOLDEN JACKAL (*CANIS AUREUS*)

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The golden jackal is a relatively new species in Italy, where it appeared about 30 years ago in the North-East. This study reports the first outcomes of acoustic monitoring of the species and the first warning of possible human-animal conflicts in Friuli-Venezia Giulia. We carried out 145 jackal-howling sessions in 5 macro-areas from summer 2011 to spring 2013, with an average of 5 emissions/session (679 emissions). We recorded 42 vocalizations, which were then analyzed in order to estimate the number of callers by screening the fundamental frequency of the single emissions within a howl. Jackal presence was confirmed only in 2 out of the 5 monitored macro-areas (Carnia and Carso), but it was stable only in Carso, with a 20% response rate. The response rate decreased with the number of emissions in a session (E1=9.6%, E2=7.1%, E3=8.0%, E4=3.2%, E5=2.5%, E6 and following=0.0%) and the responses were concentrated in February-April and July-August. Acoustic analysis of vocalizations allowed determining the number of emitters: one animal in 18 cases, two animals in 13 cases, three animals in 11 cases. These numbers are lower than those initially estimated during field recording sessions, when up to 5 individuals were supposed to vocalize simultaneously in one session. However, the presence of groups of up to 7 individuals has been recorded by scout cameras in Carso. In this area, three predation events, leading to the loss of 11 sheep, were reported by one farmer during the study period and are now becoming more frequent. In spite of this, the presence of a predator is well tolerated by this farmer, who valued this species as a touristic attraction for its importance as a source of biodiversity and landscape preservation. This situation suggests that, at the moment, the coexistence of the predator with farming activities may be possible, but a continuous monitoring of the species is required in order to prevent future problems. Jackal howling appeared to be an adequate technique for jackal monitoring. In order to optimize the efforts, our results suggest that sampling should be concentrated in few months, when response rate is higher, and limited to 3-4 emissions/session. Acoustic analysis of the recorded vocalizations is highly recommended in order to obtain more reliable information on the number of individuals. To this aim, keeping records of indirect signs of presence and the use of scout cameras may help to get a complete information on this expanding species.

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