

## Research on the presence and fluctuation of the species mainly captured at the MonITRing station of Ripasottile from 2015 to 2017

Rampini E.\*, Sterpi L.\*\*, Sterpi M.\*\*\*

\*Ornithologist, Rieti, Italy (ericarampini1994@gmail.com)

\*\*Ornithologist, Rieti, Italy (lucaste08@gmail.com)

\*\*\*Ornithologist, Rieti, Italy (mauryste@gmail.com)

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**Abstract:** The MonITRing ringing National project was started at Nature Reserve of Lakes Lungo e Ripasottile, with the aim of broadening ornithological knowledge in the Nature Reserve territory over the course of an entire year. This final elaboration studies the data gathered by means of the MonITRing project in the three-year period between 2015-2017. During this time 4606 birds, totaling 44 species, were netted of which 3076 were first captures and 1530 were re-captures. From the data it has been noted that of 44 species, 3 are to be found in Annex I of Directive 2009/147/CE on the conservation of Wild Birds and 3 species are found to be in Annex II. Furthermore the species were sub-divided according to the IUCN Red List (breeding in Italy and breeding in Lazio) in order to furnish a useful tool in the management of the Nature Reserve. Following this, a parameter was established for the evaluation of which species presented enough data to make an in-depth study possible. The species which filled those criteria were: Eurasian Reed Warbler, Eurasian Black Cap, Long-tailed Tit, Common Chiffchaff, European Robin and Cetti's Warbler. For these species it has been possible to compare the strategies used for dealing with seasonal changes as reported in the data with those which are to be found in the current literature. Finally it can be concluded that in order to fully understand and confront the strategies of all the species captured, apart from the 6 species which have been studied in detail, a wider spectrum of data is necessary which can be obtained through the continuation of the MonITRing project.

**Keywords:** Project MonITRing, Natural Reserve of Lakes Lungo e Ripasottile, Birds, Ornithology

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### 1. INTRODUCTION

The project was started at the Nature Reserve of Lakes Lungo and Ripasottile, a moist area with a high naturalistic value (for other information you can see Di Carlo *et al.*, 1960, 1981). The protected area has a SIC, ZPS and a ZSC zone (IT6020011). Specifically, the study was started in the MonITRing station of Ripasottile, which, since 2015, adhered to the National Scientific research Project, promoted and coordinated by ISPRA (Superior Institute for environmental protection and research), based on the ringing method for scientific purposes.

This project has the purpose to make a group of ringing station operate located in the territory, on the same period and using the same method to obtain series of snapshots of the ornithological Italian situation, comparable over time. Such project is developed on a national level. For the Nature Reserve the objective goal is to constantly monitor the local situation.

#### 1.1 Study area

The MonITRing station of Ripasottile is located on the shore of the lake Ripasottile, a humid environment. The place is composed mainly of reed thicket, hydrophilic Grove, cultivated and faluned fields (for other information Rampini E. 2018)

### 2. MATERIALS AND METHODS

#### 2.1 The ringing method for scientific purposes

The ringing method use the practice of “capture-marking-re-capture”. Such method allows to understand and, in some cases, to predict the trends of an ornithological population across the study of

the demographic rate, the reproductive success, the survival etc. For many reasons, like the ubiquitous presence of birds, it is used to monitor environmental and climatic changes. This research method is done through the use of capture nets Mist-net (fog-nets), which allows the capture of birds. Once released from the nest, the birds are taken in special bags to the place where the ringing operations will be carried out. Once the workplace is reached, the bird is extracted from the bag and the species is recognized. Afterwards, we proceed by marking the animal with the affixing on the tarsus a special ring, with a unique, serial and alphanumeric code that will allow, in case of a re-capture, the identification of the bird. Then, if possible, we recognize the sex of the animal and the age. Finally, we proceed with some specific morphological measures. Once we brought these processes to an end, the bird is freed (for other information Rampini E. 2018; Magnani A. *et al*, 2000). The Data collected are then transferred to a computer database and sent to ISPRA where they are stored together with those of all the ringing Italian station.

## 2.2 Discriminant parameter

Specifically, it was decided to investigate the most caught species based on the annual behaviors. In order to identify them, a discriminated parameter has been used, based on twice the average number of annual catches of individual species. This parameter was then compared with the number of annual catches of the individual species and those which exceeded it in at least two annuities were chosen.

## 3. RESULTS

With the help of the MonITRing station it was possible to capture 4606 birds, divided into 44 species and captured in 96 days. In the first year, 1784 birds were caught, in the second 1504, and in the third 1318. Considering the sampling effort, the situation does not change. The average day catches in the first year were 61,52 birds, the second year 44,24, and the third year 39,94. The species that exceeded the chosen minimum parameter were 6: Eurasian Reed Warbler (*Acrocephalus scirpaceus*), Eurasian Black Cap (*Sylvia atricapilla*), Long-tailed Tit (*Aegithalos caudatus*), Common Chiffchaff (*Phylloscopus collybita*), European Robin (*Erithacus rubecula*) and Cetti's Warbler (*Cettia cetti*). For these specieses it was possible to study their numerical fluctuations (significant), the strategies to face the seasonal changes and so compare them to the literature.

## 4. CONCLUSIONS

The captures at the Ripasottile MonITRing Station have been reduced. In addition, from the data it has resulted that 6 species, among those captured are present in the Bird Directive 2009/147/CE, are Red-Backed Shrike, Moustached Warbler, and Kingfisher are present in the Annex I. Differently, the Blackbird, Song Thrush and the Staling are present in the Annex II. For the Red List of Breeding Birds in Italy the species caught are classified in the following way: 2 species NA (Unenforceable), 31 species LC (At lower preoccupation), 5 species NT (Nearly threaten), 4 species VU (Susceptible) are the Red-Backed Shrike, Moustached Warbler, Tree Sparrow, and Penduline Tit, 1 species EN (At risk) the Torcicollo, and 1 species CR (In pericolo critico) the Warbler. For the Red List of Breeding Birds in Lazio 2011 the species are divided into this category 40 species NE (Unvalued), 1 species DD (Unvalued), 2 species VU (Susceptible) the Kingfisher, and the Goldcrest, 1 species EN (At risk) the Hawfinch. Meanwhile the Great Spotted Woodpecker, and the Green Woodpecker are mentioned in the list in the art. 2 of Law 157/92 which indicates the species to which particular attention and protection must be given. Analysing the 6 species in detail it has been observed that:

The Eurasian Reed Warbler (*Acrocephalus scirpaceus*), in literature, nests in the reeds in the months of June and July, and its migratory behavior has also been confirmed.

The Eurasian Black Cap (*Sylvia atricapilla*), in literature, is considered sedentary and migratory based on the population of the area, while from the catches it is absent during the wintering period, in December and January (in contraddition with the literature).

The Long-tailed Tit (*Aegithalos caudatus*) is absent in the months of May and July, but it is present sporadically in the months of June and August, to then have a numerical increase in the winter period. These data are in contrast with the literature which reports the species to be sedentary, nesting, regular and winter migrant. The discrepancy between the data could be the small number of individuals of the species that nest in the area of study, making the probability of capture in the period considered extremely low.

In the literature the Common Chiffchaff (*Phylloscopus collybita*) is considered as a nesting, short and long range migrant and wintering in Italy. From the results this species is present in the migratory period (autumn and winter) and is wintering. Differently, it is in small numbers in the rest of the year. It also appears that the species has suffered a strong decline in the autumn of 2017, information to reconfirm with future investigations.

The European Robin (*Erithacus rubecula*) is considered as a nesting species, regular migrant, wintering and partially sedentary in Italy. The data collected on this species coincide with the literature.

Cetti's Warbler (*Cettia cetti*) is a sedentary, migratory, wintering and nesting species. The data agree with the literature.

## 5. DISCUSSION

The study carried out at the MonITRing station of Ripasottile has demonstrated the naturalistic importance of the Lakes Lungo and Ripasottile Natural Reserve, which are characterized by a strong presence of migratory, wintering and nesting species. Furthermore, analyzing the data, for some species, a numerical decrease can be detected even if the period examined is too short to provide complete information on the case. Various hypotheses have been formulated to explain this negative trend, two of which, already formulated in Mirko Mariani final work, seem to be the most probable: 1 Variations in the climatic/meteorological conditions of the migratory direction and of the area in question; Changes in ecological conditions within the Protected Area.

The second hypothesis finds confirmation in the anthropic use of high-impact cropping systems. This situation was a studied object from ISPRA, who carried out some exams in the Nature Reserve territory. In fact, the studies have shown the presence of pesticide residues even one year apart. These products are widely use in the Piana Reatina's territory, which includes the territory of the Nature Reserve. This kind of substances can act as a limiting factor for the presence of wildlife. The study carried out three years of activity of the MonITRing project, producing useful information both for a greater knowledge of the ornithic fauna and for a better management of the protected Area.

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