

# RADIO-TELEMETRY OF LESSER KESTREL (FALCO NAUMANNI) IN THE COURSE OF REINFORCEMENT OF THE SPECIES IN BULGARIA

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**INTRODUCTION**

Despite the fact that Lesser Kestrel (*Falco naumanni*, Fleischher, 1818) was a common species in Bulgaria (Patev, 1950, Arabadzhiev 1962), there are no detailed surveys on its biology and ecology like the ones implemented in countries still harboring abundant populations, such as Spain, Italy, Greece, etc. After Green Balkans launched the reinforcement of the species in Bulgaria and the recovery of the Lesser Kestrel as a breeder in the country (Gradev et al., in press), it is now possible to study the species using modern technologies and methods.

Similar Lesser Kestrel studies were carried out using various types of transmitters – radio transmitters in Greece (Vlachos et al, 2014), PTT satellite transmitters in Spain (Liminana et al, 2012), GIPSY-4 data-loggers (Gustin et al, 2012) in Italy, etc.

## STUDY AREA

The research was implemented near the village of Levka, Sakar SPA (BG0002021), situated in a low mountain and hilly region harboring arable and non-arable open areas. This region is located in Southern Bulgaria, near the borders with Turkey and Greece.

## MATERIALS AND METHODS

The survey involved the birds from the newly established Lesser Kestrel colony. The establishment of this colony began in 2013 with the construction of a Lesser Kestrel Release and Adaptation Module for juveniles hatched in captivity.

In order to identify the foraging grounds, dispersal areas, and roosting sites of the birds, in the period 2014-2015 6 birds of different age and sex were tagged with radio transmitters. Two of these birds were male individuals from pairs breeding in 2014, while the rest of the tagged birds were juvenile and non-breeding birds. The equipment used for the radio telemetry included:



**Transmitters:** PIP Ag393 Tag produced by Biotrack, a "backpack" device. This is a 2.38 gr transmitter; yet, the total weight including the attachment elements (Teflon ribbons, thread, glue) could reach some 3,4 gr. The team observed the rule that the weight of the transmitter should not exceed 4% of the bird's weight in order to avoid changes in the behavior of the individual (Sergio, 2015);

**Antennas:** Directional antennas TYP Y-4FL of 150-152 mhz frequency range;

**Receivers:** Radio receivers ICOM, models IC-R5 and IC-R6;

**Communication between the team members:** Radio stations, model YAESU FT-80, and cell phones;

**Determining the positions of the team tracking the tagged birds:**

GARMIN GPS devices - UTM WGS84.

LOAS version 4.0.3.3. was used to process the data, while the visualization of the positions on the map was done through Map Windows GIS and ArcMap of Esri.

## RESULTS

Two of the tagged birds were male individuals from pairs breeding in 2014, while the rest of the tagged birds were juvenile and non-breeding birds. The hunting grounds of the two breeding Lesser Kestrels were identified, covering areas of 29.70 and 46.80 sq.m. respectively, and almost overlapping in the field. The habitats these birds used to forage during the study period were cereal fields at harvest-time and the stubbles left after the crops have been harvested. The remotest recorded location of a tagged bird was at a distance of 7,08 km from the colony. Two roosting sites and pre-migration gathering areas of the birds from the colony were identified, located at 5.00 km (2014) and 4.30 km (2015) from their nesting sites.

