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Monitoring of the European Hare (*Lepus europaeus*) in the Natural Reserve of the Lungo and Ripasottile lakes (Rieti, Italy)

RISERVA DEI LAGHI LUNGO E RIPASOTTILE

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In the Province of Rieti the *Lepus europaeus* is monitored for over a decade by the Hunting geographical areas (ATC Rieti1 and Rieti2) in the areas destined for hunting. The Lazio Regional Law 17/1995 (Art. 29, paragraph a) requires that in those territories the species status is annually updated according to the criteria included in the three-year management Plans. This allows us to quantify the amount of the hunting (which according to the Law 157/1992 has to be sustainable), and the perspective repopulation actions. To this end both the ATCs will have a similar monitoring system structured on sample areas covering at least 10% of the territories of their respective jurisdiction. In these areas the Spot Light Census (SLC) technique is applied. Therefore, the population dynamics of the species are potentially known in hunting areas and unknown in protected areas. In fact, apart from some sessions carried out to check the presence/absence of the Italic Hare (*Lepus corsicanus*), no protected area of the Province has ever adopted special monitoring programs for the species. These are the conditions which prompted the Natural Reserve of Lakes Lungo and Ripasottile (RNLLR) to enable a suitable five-year plan of the lagomorph monitoring on its territory.

The goal is to keep under constant observation the dynamics of the species, also regarding the repopulation actions carried out in adjacent areas. It is not to be underestimated or to be excluded that there may be a migration of subjects from hunting areas to the protected area (assessed as the seasonal changes in the amount). In order to obtain comparable data with those of the hunting areas also in the RNLLR, the SLC technique is applied and the monitoring program provides that the detection sessions are carried out in pre-reproductive periods, post-reproductive periods, and subsequently to the repopulation activities carried by ATC. Given the fact that the RNLLR extends for about 3.000ha, that the SLC requires to inspect not less than 10% of the entire investigated territory and that the headlights used emit a light beam with a useful depth of 75m (resulting in a 150m buffer) are been identified and georeferenced with the GIS system approximately 12.5km of paths. This way the total inspected area during each detection session is approximately 317.6ha, equal to 10.6% of the entire protected area. After some simulation sessions, designed to detect and solve any potential problems due to the tracks (if necessary adapting them to the plant cover) and after the development of equipment for use, in late autumn/winter period (pre-reproductive period) were performed 5 official detection sessions, in each of which has been intercepted an average of 9.6 subjects (S.D.=±3.29), which have allowed to estimate an average density of 3.02 hares/100ha. Whereas the density of the hare in the areas of the ATCs is estimated between 1.5 and 1.8 units/100ha, the action of the species conservation put in place by the RNLLR proved itself substantially effective, although the density is still quite low, an issue that deserves to be studied.