

## **CHANGES OF THE RED FOX POPULATION IN THE EASTERN PART OF HUNGARY BETWEEN 1970 AND 2009**

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### **ABSTRACT - Changes of the Red Fox Population in the Eastern Part of Hungary Between 1970 and 2009**

Red fox (*Vulpes vulpes*) is the most widely distributed, and from the game management point of view the most important predator species in Hungary. This is why the population and its changes are crucial management and, often, emotional factors. The status of the red fox population was believed to be fairly stable until the 1990's, then it showed a sharp increase due to the immunisation against rabies, as well as environmental and habitat changes. This trend is supported by the annual hunting bag data of the National Game Management Database ([www.ova.info.hu](http://www.ova.info.hu)), along with the data of the estimated population sizes given in the questionnaires of previous years, emphasising that there is no direct cause-and-effect relation between immunisation and population growth (summarised in: Heltai, M. (ed.) 2010. Emlős ragadozók Magyarországon. {Mammal Predators in Hungary - in Hungarian} Mezőgazda Kiadó, Budapest 240 pp.). In our research we tried to find out whether the changes of the population in the Eastern regions of predominantly small game areas, where immunisation started significantly later (after 2001) than in Transdanubia (where it started in 1992), are in correspondence with the national tendencies. Our research is based on the annual hunting bag data (from 1970 to 2009) and the annual estimation data (from 2004 to 2009) of the National Game Management Database, as well as the data of the estimated population sizes from the mail questionnaire surveys carried out earlier (between 1987 and 2006) by SZIU-IWC. When assessing the results, we assumed that the changes of the hunting bag data also reflect the changes of the population. We found that the changing patterns of the population are far more diverse in the examined areas than it is demonstrated in the national data. The most important differences are the following: (i) Obvious population growth started in the 1970's both in the Eastern (Tiszántúl) and in the Central (Duna-Tisza köze) region of Hungary, in contrast with the relative stability typical of the national data of this period. The rate of increase had a greater variety in Tiszántúl, whereas the Central region showed a relatively even growth. (ii) During the course of the complete studied period, a sharp increase could be observed from the mid 1990's, especially in Tiszántúl. At that time immunisation had not started in that area yet. By 2002 the hunting bag data of Tiszántúl show an increase of almost 300 % (in 1994: 9751, in 2002: 28771), while those of the Duna-Tisza region demonstrate a growth of more than 200 % (in 1994: 8553, in 2002: 17785). (iii) Following the peak of 2002, significant decrease, then – besides a few minor drops – population growth can be observed, which is in correspondence with the national tendencies.

**Keywords:** red fox, population changes, immunisation