

## **Density and vulnerability of capercaillie *Tetrao urogallus* in the area of Vitoroga in the Republika Srpska.**

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### **Summary**

Vitorog Mountain is a typical habitat of capercaillie *Tetrao urogallus*. However, the state and hazard for vulnerability of this micropopulation have never been studied, although the operations of felling, silviculture and forest protection have been underway since the seventies of the last century. For this reason, the aim of this research was to assess the density of this micropopulation and to make a comparative analysis of the forest state in FMU "Vitoroga".

Vitorog Mountain is located in the western part of central Bosnia (Republika Srpska). Our research was performed in the south-eastern side, which covers the area of 1,500 *ha* at the altitude from 1,120-1,906 *m*. The climate is montane. Mean annual air temperature is 6.1°C, mean annual precipitation is 1,246 *mm*. Forests in FMU "Vitoroga" are classified into three management classes: high forests of beech and fir with spruce (1209); high forests of fir and spruce (1212); and high forests of beech and spruce



(1217).

The capercaillie density was assessed in the spring. The birds were observed in morning hours during their gathering and mating at two known and active leks according to the inventory form A (Adamič, 1987, Čas, 2000). Both leks were visited and observed three or more times during the four successive seasons (2004-2007). The comparative analysis of forest state was based on the data of the regular forest inventory, i.e. the comparison of forests by management classes in two different periods (1982 compared to 2000). The analysis of forest management measures and operations (scope, type and period) was based on the records and archive documents of the Forest Estate -the manager of this area.

Spring density of the capercaillie micropopulation in the period 2004-2007 (0.7-1.3 birds per  $km^2$ ) was lower compared to the majority of Eurasian habitats (1.0-3.0 birds per  $km^2$ ). Compared to the neighboring (adjacent) habitats, the study area is surrounded by bare lands and poorly stocked forest lands. Therefore, it can be presumed that the study birds are not related to the habitats located east, south and west of Vitorog Mountain. These birds are a separate (marginal) part of a larger population which lives in the connected and large montane complex of forests north-west of Vitorog Mountain, which is an additional indicator of their highly threatened status.

The analysis of forests in FMU "Vitoroga" shows significant changes in all management classes. The felling of larger-diameter trees caused the canopy thinning and an intensive development of ground vegetation. Also, the mixture proportion of conifers changed and the number of trees in smaller-diameter classes ( $\leq 30$  cm) increased. On the other hand, in recent years spruce has been endangered by bark beetle outbreaks, so the diseased trees had to be removed and a great number of pheromone traps had to be placed and controlled, which caused frequent capercaillie disturbances throughout the habitat. As forest management affects the habitat suitability for capercaillie, instead of the practiced selection system, we recommend the implementation of group-selection system which is designed by forest management plan, and forestry operations should be harmonized with the biological demands of the capercaillie.



Map showing the capercaillie study area in the Vitorog Mountain.

Summary reproduced from Zubić G. 2009. Density and vulnerability of capercaillie (*Tetrao urogallus*) in the area of Vitoroga in the Republika Srpska. Bulletin of the Faculty of Forestry 100: 71-84.

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