Conference Abstract

Habitat selection of Capercaillie (*Tetrao urogallus*) displaying males: Case from Rila Mountain, Bulgaria

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Abstract

Current habitat management of the peripheral, regionally unique, and isolated Balkan capercaillie *Tetrao urogallus rudolfi* Dombrowski, 1912 meta-population in Bulgaria is based on obsolete knowledge of the spatial requirements of the species. Thus, we studied the habitat availability and the patterns of use by Capercaillie adult males, at the home range scale to inform and contribute to the conservation-oriented management of the threatened subspecies and its habitats. The field study was conducted during 2014–2015 in the northeastern part of Rila Mtn., Southwestern Bulgaria. Using GPS tags ("Bird 2A", e-obs Digital Telemetry, Grünwald, Germany), a total of 38,640 GPS fixes from 3 displaying males, associated with one lek were gained. On this basis, we calculated annual and seasonal Minimum Convex Polygons (MCP), traditionally used as a measure of the maximum area of activity. Capercaillie habitat preference was computed using Manly's habitat selection ratios (w), design III, combined with 90% Bonferroni simultaneous confidence intervals. To calculate habitat selection, we determined surface (Steepness and Exposure), forest stand succession and vegetation cover categorical variables. The habitat and surface layers was rasterized into 8 m square pixels. At the home range (MCP) scale, tagged roosters used vegetation cover non-randomly (annual: Khi2L=5738.89, df=14, p<0.001; winter: Khi2L=3773.28, df=13, p<0.001; summer: Khi2L=3646.32, df=14, p<0.001), and preferred forests dominated by Scots pine and Macedonian pine, such as

the annual selection of Scots pine and summer selection of Macedonian pine are significantly different. In terms of forest stage succession, roosters used forest stages non-randomly (annual: Khi2L=3492.57, df=8, p<0.001; winter: Khi2L=2075.18, df=8, p<0.001; summer: Khi2L=1670.1, df=6, p<0.001), and demonstrated clear avoidance of forests stands in age classes: "0 to 40" and "41 to 80" years within the summer and annual ranges. The roosters demonstrated significant preference for southeastern exposure during the winter and annually, and significant overall avoidance of northern exposure, as well as avoidance of north-eastern aspect during the winter and south aspect during the summer (annual: Khi2L=4671.87, df=18, p<0.001; winter: Khi2L=3909.04, df=16, p<0.001; summer: hi2L=3095.84, df=18, p<0.001). The slope class "63.1 to 73°" was not used. In the summer, Capercaillie males significantly preferred slopes within the class "27.1 to 36°" and avoided the classes "0 to 9°", "9.1 to 18°" and "54.1 to 63°". The birds also demonstrated significant avoidance of flat terrains within the "0 to 9°" class annually (annual: Khi2L=608.24, df=17, p<0.001; winter: Khi2L=1148.37, df=16, p<0.001; summer: Khi2L=906.54, df=17, p<0.001).

Keywords

Capercaillie, utilization distribution, Rila Mtn., resource selection

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