

MODULE No.:	Effects of climate change on biodiversity and their consequences for species migration
SUBJECT AREA:	Wildlife species and population conservation
NAME:	¹ Bollmann, K., ^{1,2} Graf, R.F.
INSTITUTE:	¹ Swiss Federal Research Institute WSL, Birmensdorf ² Zurich University of Applied Sciences ZHAW, Wädenswil
ADDRESS OF PARTICIPATING AUTHOR:	Swiss Federal Research Institute WSL Research Unit "Biodiversity and Conservation Biology" Zürcherstrasse 111 CH-8903 Birmensdorf, Switzerland
EMAIL:	kurt.bollmann@wsl.ch
TITLE:	Effects of climate change on grouse species of the Alps
ABSTRACT:	<p>Climate change is expected to affect species distribution and habitat quality over all continents and many taxa. Particularly, geographically isolated species adapted to cold climate conditions face a high risk of range contraction. In Central Europe, negative effects of climate change are mainly predicted for habitat specialists of subalpine and alpine ecosystems. While the impact of climate change on the distribution of species at the continental scale is a priority in biodiversity research, the mechanisms by which populations are affected at the regional and habitat scale remain sparsely studied. Particularly, the interaction and relative impact of climate and land use change on the viability of species of conservation concern are poorly understood. Besides, reciprocal feedback between land use management and climatic processes in semi-natural ecosystems are rarely considered in landscape management.</p> <p>In Central Europe, four grouse species (<i>Bonasa bonasia</i>, <i>Lagopus mutus</i>, <i>Tetrao tetrix</i>, <i>Tetrao urogallus</i>) occur along the ecological gradient from semi-open cultural landscapes to high alpine tundra and are appropriate model organisms to study the direct and indirect impact of climate change on flagship species of biodiversity conservation. In our presentation, we will review the expected relative impact of climate and land use change on the distribution (macroscale) and local abundance (microscale) of each Alpine grouse species by considering a time scale of about 50-100 years. A special focus will be given to semi-natural vs. natural ecosystems, edge vs. core populations, subalpine vs. alpine habitats, and seasonal asymmetry between precipitation, plant phenology and breeding biology (mismatch hypothesis). We will also address the impact of extreme weather events like windstorms in driving habitat development of forest grouse and the potential of topographic heterogeneity and habitat management in buffering the negative consequences of climate change on Alpine grouse species.</p>

Note: The paper will be presented in German.