

## **Climatic change and plant growth as factors affecting population growth rate of Japanese rock ptarmigan in Tateyama Mts.**

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Cold biomes such as arctic, antarctic, and alpine ecosystems, having simple food-web structures and biotic interactions, are suitable places to assess how climatic change influences on population dynamics of plants and animals within an ecosystem. In the high arctic, Ny-Alesund, population growth rate of Svalbard reindeer was associated significantly with Arctic Oscillation index, which was also associated with plant growth (*Cassiope tetragona*) (Aanes et al., 2002). Such a study could be carried out when long-term observation data and some indicators reflecting past climate and past plant growth, are available. In Tateyama Mountains, a mid-latitude alpine of central Japan, the number of individuals of Japanese rock ptarmigan has been continuously examined for a long period over twenty years by some research groups. In this presentation, I report factors (density dependency, climate change, and growth of alpine dwarf pine) affecting population growth rate of Japanese rock ptarmigan by linear autoregression model, using data collected by Toyama Rock Ptarmigan Research Group (2002). I stress an importance of plant chronology to predict effects of climate change on population dynamics of herbivores in cold biomes.