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## Mathematical approaches to the analysis of the spatial-age structures of tussock herb species

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### Abstract

Some up-to-date methods of analysis of the spatial and age structures of populations, including local population density maps and Ripley's functions, are described using 20 cenopopulations (CPs) of *Adonis vernalis* L. as an example. Pregenerative plants have been found to be the most contagious, irrespective of climatic and phytocenotic conditions and land use type. The spatial distribution pattern and structure of *A. vernalis* are mainly determined by generative plants forming a tussock, irrespective of the climate and vegetation type. This is explained by higher competitiveness of generative plants, which results in a reduced vegetation density at small distances from them (25-50 cm). Within wider areas, plant distribution may be random due to uniformity of local conditions in microhabitats. The formation of distinct plant aggregations is accounted for by insufficient water supply and the intensity and type of anthropogenic impact. © Pleiades Publishing, Ltd., 2009.

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### Keywords

*Adonis vernalis* L., Cenopopulation, Local population density map, Ripley's function, Spatial-age structure