

Bioclimatic modeling and the probability of spread of some species of Orobanchaceae Vent. in the Saratov Region

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Abstract [PDF RUS](#) [PDF ENG](#) [Full text](#) [PDF RUS](#)

Abstract. In recent years, an increase in the occurrence and dispersal of broomrape species (Orobanchaceae Vent.) into new habitats has been observed in a number of regions of the Russian Federation. Nine broomrape species are known in the Saratov Region, including the sunflower broomrape (*O. cumana*), which damages sunflower crops. However, the presence of the branched broomrape (*O. ramosa*) and the pale broomrape (*O. reticulata* subsp. *pallidiflora*) in the region requires confirmation. This paper presents the results of modeling potential bioclimatic ranges using the MaxEnt algorithm for four broomrape species (*Orobanche cumana* Wallr., *O. reticulata* subsp. *pallidiflora* (Wimm. & Grab.) Hayek., *O. ramosa* L., and *O. caesia* Rchb.). The range of some climatic variables at the registration points of the species under consideration within the distribution range in Europe and Central Asia and their ecological-climatic optimum are determined and compared with the climatic parameters of the Saratov Region. Bioclimatic modeling revealed the absence of areas in the Saratov Region with suitable climatic parameters for the growth of *O. reticulata* subsp. *pallidiflora* and *O. ramosa*. However, single cases of these species in agrocenoses have been described. High bioclimatic suitability of the areas was identified, and, consequently, the likelihood of further dispersal of *O. cumana* is high both in the Saratov Region and in some neighboring regions (Orenburg Region, Republic of Bashkortostan). *O. caesia* is also located in the ecological-climatic optimum zone in the Saratov Region.

Keywords:

climatic factors, modeling, distribution, potential range, *Orobanche cumana* Wallr., *Orobanche reticulata* subsp. *pallidiflora* (Wimm. & Grab.) Hayek., *Orobanche ramosa* L., *Orobanche caesia* Rchb.

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