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## Population dynamics of endangered gypsophyte species: *Verbascum gypsicola* Vural & Aydoğdu

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### *Verbascum gypsicola* Vural & Aydoğdu (*Scrophulariaceae*)

Endemic  
Ir-Tur element  
CR (Critically Endangered)  
on gypsaceous slopes in steppe  
500-800 m

- Caespitose perennial, with thick, woody rootstock, densely white woolly tomentose. Stem erect to ascending, unbranched, terete, 20-40 cm.
- Leaves mostly congested at base; basal leaves narrowly elliptic-oblong, 3-14 x 0,4-1,2 cm, crenate, obtuse to acute, attenuate into a 1-3 cm long petiole; cauline leaves similar but smaller; upper sessile, lanceolate.
- Inflorescence loosely cylindrical, 5-16 cm, usually simple or with sparse short branches at base, with loose clusters of 1-4 flowers.
- Bracts ovate-lanceolate to linear, acute or acuminate, 2-5 mm, lower caudate to 10 mm. Longest pedicels as long as calyx, up to 5 mm; bracteoles 2, 1-2 mm.
- Calyx 4-6 mm, lobes lanceolate, acute.
- Corolla yellow, 12-20 mm diam., with pellucid glands, densely stellate tomentose outside; tube 1-1.5 mm; lobes suborbicular.
- Stamens 5, anthers reniform, filaments with whitish yellow wool up to anthers.

### Introduction

The genus *Verbascum* L. (Scrophulariaceae) comprises about 360 species in the world (1). Turkey seems to be a major centre for *Verbascum* with 242 species and 129 hybrids. The endemism ratio of the genus is very high, with 193 endemic species (80%) (2). *Verbascum gypsicola* Vural & Aydogdu is endemic to Turkey (3).

*Verbascum gypsicola* Vural & Aydoğdu'nun Çayırhan (Beypazarı-Nallıhan/Ankara) which is in the category of CR according to IUCN the loss of habitat is in danger of extinction. In this study, biotic and abiotic factors affecting the population dynamics of *Verbascum gypsicola* Vural & Aydoğdu, a species of gypsophyte under risk at global scale, were examined.

### Material and Method

Some of the populations have been surrounded by wire mesh to observe the influence of grazing press and other biotic factors. Number of individuals were counted at protected and unprotected populations blooming and fruiting times twice a year. Climatic parameters affecting the population fluctuation are examined.

### Results and Discussion

While 370 individuals were counted in 2015 in Çayırhan, the number of individuals was counted as 392 in 2016. Since there is no significant change in climatic and biotic factors, this situation is regarded as a fluctuation due to biology of the species.

Outside of the species protection area, there are estimated to be 3700 individuals in an area of 10 times larger than the protected area, but only 1143 individuals are counted. This indicates the effectiveness of biotic pressures on the field.

Significant results have been obtained in terms of biotic pressures, but since there is no significant change in the climatic parameters of the last 3 years, a correlation can not be established and it is expected to be observed for many years to obtain meaningful results.

### References

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