

GENETIC DIVERSITY AND POPULATION GENETIC STRUCTURE OF THE ENDANGERED KAZAKH ENDEMIC *OXYTROPIS ALMAATENSIS* (FABACEAE)

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The central Asian narrow endemic species *Oxytropis almaatensis* is a highly endangered plant with a very restricted distribution in the Tian Shan Mountains. In this study, we present the basic conservation genetic characteristics of this species based on a DNA fingerprinting approach in order to provide yardsticks for official conservation agencies to develop an informed conservation strategy. The three currently known populations with two allopatric subpopulations at each site were sampled in the Trans-Ili Alatau Mountains (S Kazakhstan) and subject to AFLP analysis using four primer combinations. This was supplemented by flow cytometry of plants with remarkably different body sizes to check for possible ploidy differences. The presence or absence of AFLP bands was used in downstream analyses utilising various population genetic approaches. Genetic diversity of *O. almaatensis* was found to be on the upper end of the spectrum typical for other outcrossing species of similar life-history characteristics. Most of the genetic variation was attributable to within (sub) population variance, and we also found a remarkable gene flow between the populations. However, the geographically closer populations were found to be more close to each other genetically, and population differentiation showed the same pattern with a significant isolation by distance. Similar patterns were not found for subpopulations of the geographically more close populations, and the subpopulations living along the same river valley were found to be genetically more cohesive. Flow cytometry did not reveal any difference in DNA content between the small and large forms of the species. All these results suggest the presence of two separate populations at the three localities of this species. Conservation efforts should focus on these two populations, and, given the relatively high genetic diversity within each population, both *ex situ* and *in situ* conservation measures can be effectively carried out based on the currently known populations of this narrow endemic species.

Key words: AFLP, endemic species, genetic diversity, population structure