9. Study on Conservation Measures Based on Genetic Relationships Among Local Populations of Endangered *Viola raddeana* Plant Using MIG-seq

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In cases where rare plant species are identified in a project area during land development or alteration, a method known as ex situ conservation is often applied, in which the target plants are conserved under human control. In ex situ conservation, it is important to eliminate to the extent possible the negative effects of inbreeding among a limited population, such as reduced genetic diversity. To prevent genetic disturbances in conservation propagation, it is necessary to grasp the genetic structure and establish conservation units in advance. In this study, we evaluated the genetic diversity and genetic structure of *Viola raddeana*, a rare plant inhabiting the Watarase Retarding Basin, Sugao Swamp, and the Kokai riverbed, using single nucleotide polymorphisms (SNPs) (where one DNA base sequence is replaced by another) by MIG-seq. The results indicated that there are populations of *V. raddeana* that can arbitrarily interbreed at each location, and that genetic differentiation can be observed between two geographically close populations. Therefore, as a conservation measure, we proposed that if sufficient budget cannot be secured for *ex situ* conservation, then the *V. raddeana* in Watarase Retarding Basin and the *V. raddeana* in Sugao Swamp could be treated as one large management unit.

Keywords: MIG-seq, single nucleotide polymorphism, genetic diversity, genetic structure, genetic differentiation