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Genetic diversity and population structure of East Asian populations of *Plantago asiatica* (Plantaginaceae)

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Plantago asiatica (Plantaginaceae) is a wind-pollinated plant that grows mainly on fields in East Asia. Starch gel electrophoresis was used to investigate the allozyme diversity and population structure of 18 populations of this species. Although the plantain populations were isolated and patchily distributed, they maintained a high level of genetic diversity; the average percentage of polymorphic loci was 57.1%, the mean number of alleles per locus was 2.07, and the average heterozygosity was 0.201. The corresponding estimates for these parameters at population levels were 46.6%, 1.76, and 0.158. These estimates are considerably higher than those from species with similar life history and ecological characteristics. The majority of genetic variance resided within populations (91%). The combination of a wind-pollinated, large population sizes, high gene flow between subpopulations, and a propensity for high fecundity may explain the high level of genetic diversity within populations. A direct gradient in overall genetic diversity is associated with latitude. Genetic diversity is markedly decreased from 35°3'N to high latitude, but slightly decreased from 35°3'N to low latitude. *P. asiatica* did not show a longitudinal gradient in genetic diversity.

Keywords: Allozyme diversity, genetic structure, *Plantago asiatica*, plantain