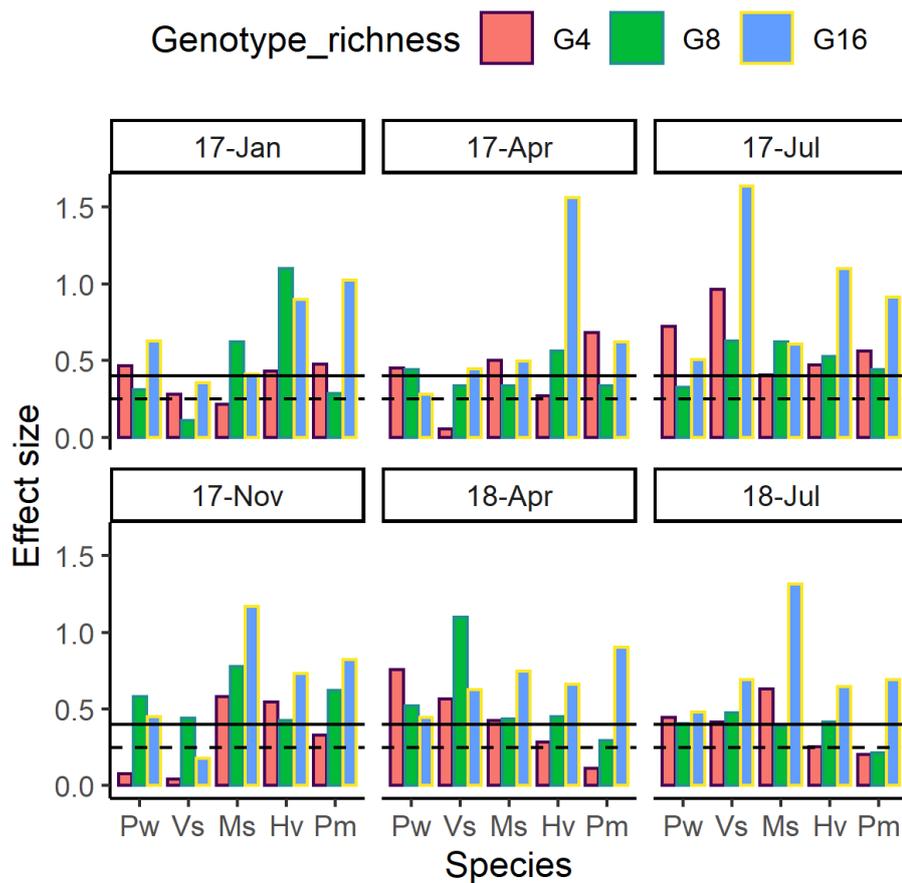


**Figure S1** The statistical distribution of genetic distance of five submerged species based on Nei (1978). For species name, Pw means *Potamogeton wrightii*; Vs means *Vallisneria spinulosa*; Ms means *Myriophyllum spicatum*; Hv means *Hydrilla verticillata*; Pm means *P. macckianus*.



**Figure S2** The effect size of genotype richness on the variation of periphyton biomass on five macrophytes for each sampling dates. The solid and dashed line indicates a large and medium effect size, respectively. For species name, Pw means *Potamogeton wrightii*; Vs means *Vallisneria spinulosa*; Ms means *Myriophyllum spicatum*; Hv means *Hydrilla verticillata*; Pm means *P. macckianus*. The dates (17-Jan, 17-Apr, 17-Jul, 17- Nov, 18- Apr, 18-Jul) were shorten as Year-abbreviation of Month for January 2017, April 2017, July 2017, November 2017, April 2018 and July 2018.