

## **SEED SIZE VARIATION AND ITS EFFECT ON SEED GERMINATION IN *GENTIANA PUBERULENTA***

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*Abstract:* Seed size is an ecologically important trait because it is often a predictor of dispersal distance, germination rate and seedling growth or survivorship. Variation in seed size within and between populations has been observed in many species and correlated with estimates of fitness. We are investigating seed size variation and its effect on germination rates in *Gentiana puberulenta*. *Gentiana puberulenta* is an herbaceous, long-lived perennial with a widespread distribution in North American tallgrass prairie. In Illinois, the species is considered an indicator of high-quality prairie remnants. We bagged inflorescences and conducted controlled crosses to determine if inbreeding influences seed size in *G. puberulenta*. Our data showed seeds from outcrossed and selfed fruits did not differ in mass or germination rate. However, maternal parent had a significant effect on both variables. Furthermore, maternal plants which produced larger seeds also had higher germination rates. In addition, we collected seeds from nine central-Illinois tallgrass prairie remnants to evaluate the potential effects of population size and genetic diversity on seed mass and germination rates. Seed mass differed among populations but the difference was due to smaller seeds in one large population. We are currently conducting germination trials and evaluating population genetic diversity with RAPD (randomly amplified polymorphic DNA) and ISSR (inter single sequence repeat) markers. We will report whether seed mass or germination rates are correlated with population size or population genetic diversity.