

Stock, AJ, Campitelli, BE and Stinchcombe, JR. 2014. Quantitative genetic variance and multivariate clines in the Ivyleaf morning glory, *Ipomoea hederacea*. *Phil. Trans. R. Soc. B.* **369** doi: 10.1098/rstb.2013.0259

Supplementary material

Supplemental methods:

We used the AFLP data presented in Campitelli and Stinchcombe [1] to evaluate F_{ST} and isolation by distance in the 20 populations used here. For a full analysis of population structure, differentiation, and autocorrelation in AFLP allele frequencies in a larger population sample (77 populations), see Campitelli and Stinchcombe [1]. We estimated F_{ST} using Hickory [2], to obtain both pairwise F_{ST} and credibility intervals. We used the theta-II values from the f-free model of Hickory, which are directly comparable to F_{ST} from Weir & Cockerham's [3] approach. For the set of 20 populations used here, Hickory utilized 170 AFLP loci. We found an overall average F_{ST} of 0.024 (credibility interval: 0.017 – 0.032). To examine neutral population structure, we regressed pairwise F_{ST} on pairwise geographic distance; F_{ST} was transformed as $F_{ST}/(1 - F_{ST})$ for these analyses, following Rousset [4]. We failed to detect any pattern of isolation by distance ($P = 0.67$; Figure S1).

References for supplemental methods:

1. Campitelli B.E., Stinchcombe J.R. 2013 Natural selection maintains a single-locus leaf shape cline in Ivyleaf morning glory, *Ipomoea hederacea*. *Molecular Ecology* **22**(3), 552-564. (doi:10.1111/mec.12057).
2. Holsinger, K.E., Lewis, P.O. 2003. Hickory: a package for analysis of population genetic data v1.1. Storrs, CT, USA: University of Connecticut.
3. Weir, B.S., Cockerham, C.C. 1984 Estimating F-statistics for the analysis of population-structure. *Evolution* **38**: 1358-1370.
4. Rousset, F. 1997 Genetic differentiation and estimation of gene flow from F-statistics under isolation by distance. *Genetics* **145**:1219–1228.

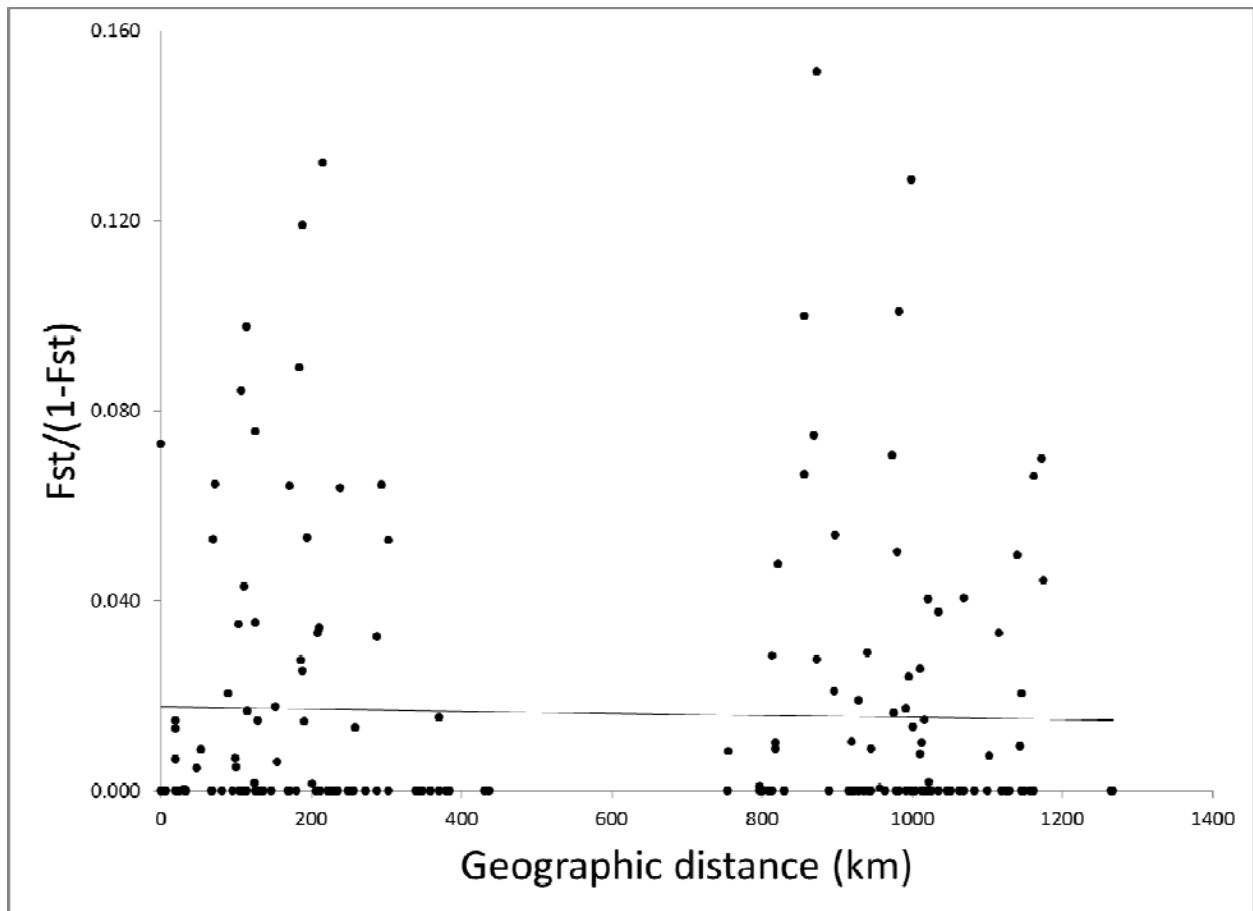


Figure S1: Plot of isolation by distance, portrayed as $F_{ST}/(1 - F_{ST})$ plotted against pairwise geographic distance between populations, based on 170 AFLP loci. The relationship is not significant.

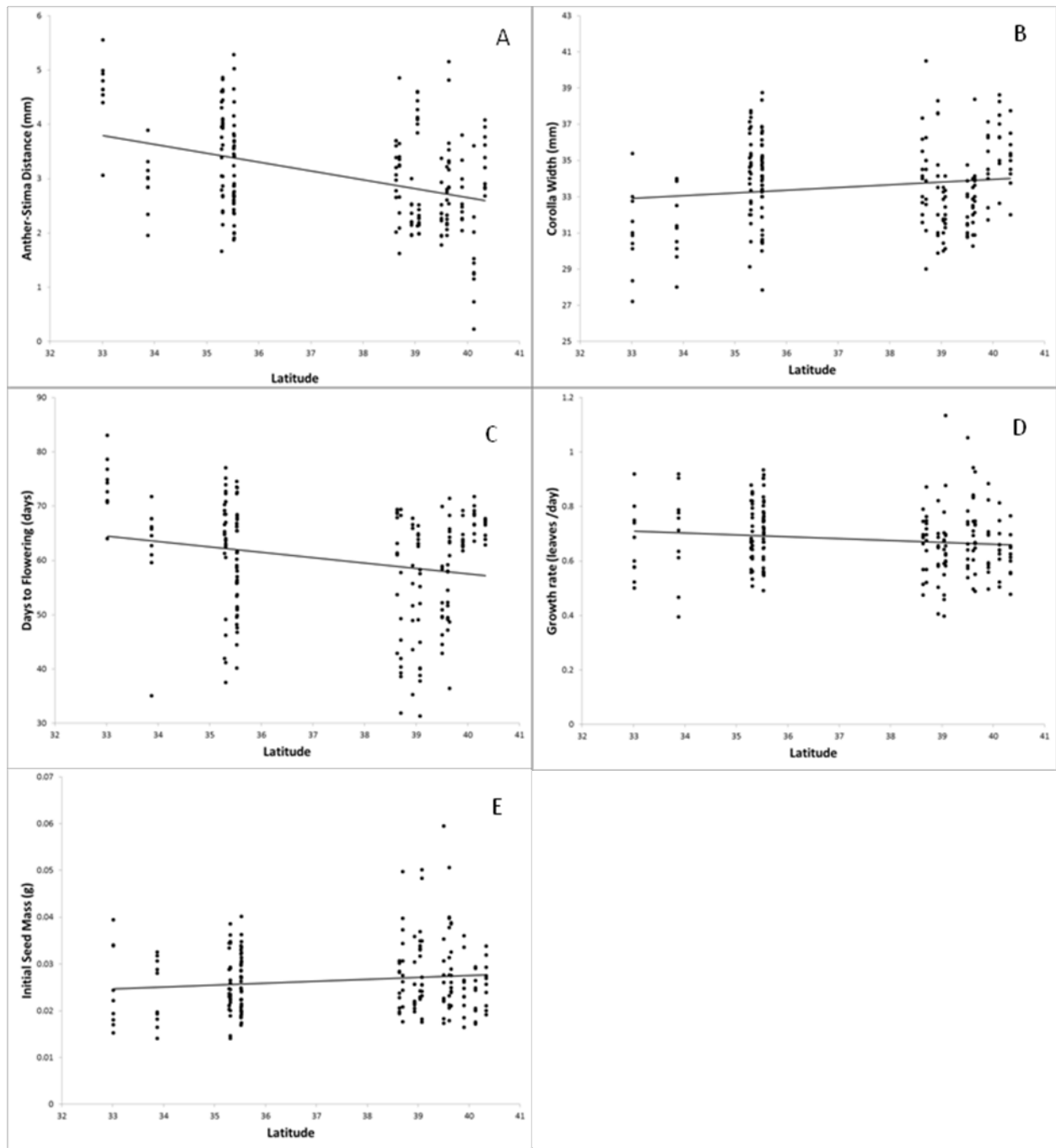


Figure S2a-e: Latitudinal clines in quantitative traits. Plotted are inbred line means for phenotypes against latitude. (A) Anther-stigma distance, (B) Corolla width, (C) Days to flower, (D) Growth rate, and (E) Seed mass.