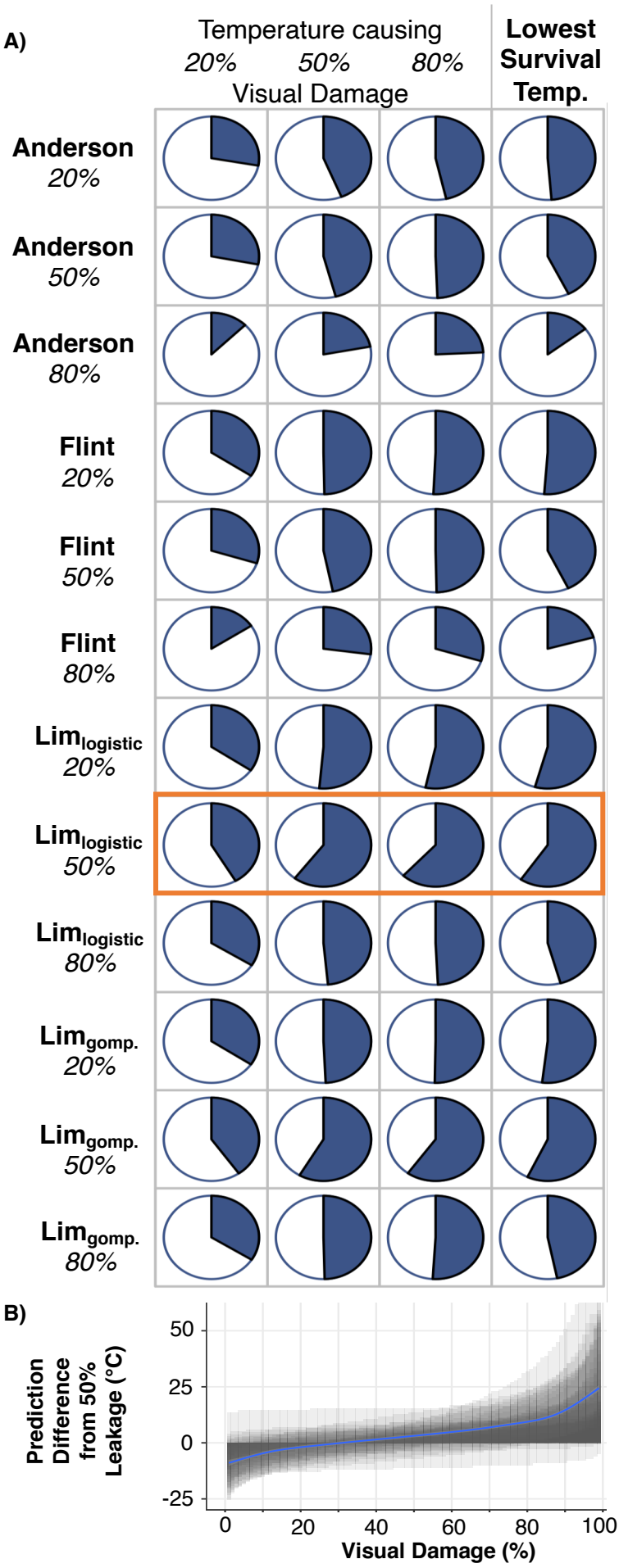

Additional file 3. A) Validation of critical values from four approaches to modeling electrolyte leakage (as in Fig. 1) against visual estimates of freezing damage. Critical values reflect either 20%, 50%, or 80% electrolyte leakage (rows) or visual damage (columns). The rightmost column indicates lowest survival temperature (LST; Sakai et al. 1986), the lowest temperature at which stems experienced < 50% damage. Pie wedge size indicate correlations. B) 50% electrolyte leakage values using the $Lim_{logistic}$ approach (orange box) best predicted visual damage in the 40-60% damage range.