

Supplemental Material

CBE—Life Sciences Education

Price *et al.*

Appendix 1. Expert surveys. Italics represent answer choices for force-response questions in both surveys.

Survey 1: Evaluation of 24 concepts extracted from textbooks

1. Is [this key concept]...

Emphasized *Mentioned* *Not Covered* or *Not Applicable?*
Critical *Important* *Marginal* or *Wrong?*

2. Should any of the concepts be explained differently? How so?

3. What additional concepts do you think are essential for a graduating senior, who has taken a course in evolution, to understand about genetic drift?

4. What alternative conceptions do your students have about genetic drift? These 'wrong ideas' are the ones that are particularly hard for students to change.

5. What is your favorite organismal system or vignette for teaching genetic drift concepts to your students?

Survey 2. Evaluation of multiple true-false items.

1. This vignette is fictional, but inspired by real evolutionary examples. Is the scenario plausible? *Yes or No*. If not, explain.

2. Is this question stem clear? *Yes or No*. If not, explain.

3a. Does this statement address the key concept? *Yes or No*.

3b. Is the statement clear? *Yes or No*. If not, please explain.

3c. Is the statement true? *Yes or No*. If not, please explain.

3d. We recognize that you, as an expert, may have a more nuanced interpretation; is it reasonable for someone with a background in general biology to conclude that this statement is [true/false?] *Yes or No*. Explain.