

## NGSS scientific practices addressed in the Wallace case.

### 1. Asking questions

- ▣ [Wallace] Deciding to explore the Amazon (motivation)
- ▣ [Wallace] Securing funding for research - through sales of specimens.

### 2. Developing and using models

- ▣ Construct taxonomic models of palms.
- ▣ Compare and assess traditional and computer-generated taxonomies

### 3. Planning and carrying out investigations

- ▣ [Wallace & Bates] Planning voyage; organizing observational records (locations of species, behaviors, uses of palms)
- ▣ [Wallace & Bates] Collecting specimens -- fixing, preserving, storing.
- ▣ [Wallace] Arranging logistics to send specimens home (including customs!).
- ▣ [Wallace] collaborating with local experts

### 4. Analyzing and interpreting data

- ▣ Reading maps and plotting geographical data
- ▣ Comparing Wallace's drawings and data to modern photographs and data

### 5. Using mathematics and computational thinking

- ▣ Converting data into a phylogenetic matrix (data table) for analysis
- ▣ Using a computer program to generate phylogenetic tree

### 6. Constructing explanations

### 7. Engaging in argument from evidence

- ▣ Defending taxonomies based on similarities in data

### 8. Obtaining, evaluating, and communicating information

- ▣ Drawing and labeling palm trees to identify parts
- ▣ [Wallace] corresponding with Stevens, colleagues & family
- ▣ [Wallace] Documenting and clearly communicating morphology of trees (drawing)
- ▣ [Wallace] Writing and publishing investigative findings