AN ANALYSIS OF FOSSIL IDENTIFICATION GUIDES TO IMPROVE DATA REPORTING IN CITIZEN SCIENCE PROGRAMS

BACKGROUND
Science instruction frequently relies on field guides. Students and professionals alike use these visual keys to identify species. Surprisingly little research has investigated field guides under controlled conditions. Testing variables to improve their effectiveness would benefit everyone who uses field guides: professionals, students, and hobbyists.

METHODS
Three nearly identical field guides for identifying the fossils of the Peace River Formation were produced. The only variable on the field guides was the image style: color photograph, grayscale photograph, or illustration.

Subjects sorted fossils out of sediment from a Polk County, Florida, microfossil site. They used one of the field guides to identify fossils. This data was compared with data produced by three graduate students who identified their own finds using published descriptions.

DATA
Subjects also answered a survey about their current education, whether they have previously found a fossil, and their interest level in finding fossils.

CONCLUSIONS
Field guides that use photos, whether color or grayscale, are the most helpful to novices. Higher education also improves accuracy, despite none of the subjects having studied related fields. Previous experience finding fossils improves accuracy, but high levels of enthusiasm dramatically decrease accuracy.

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