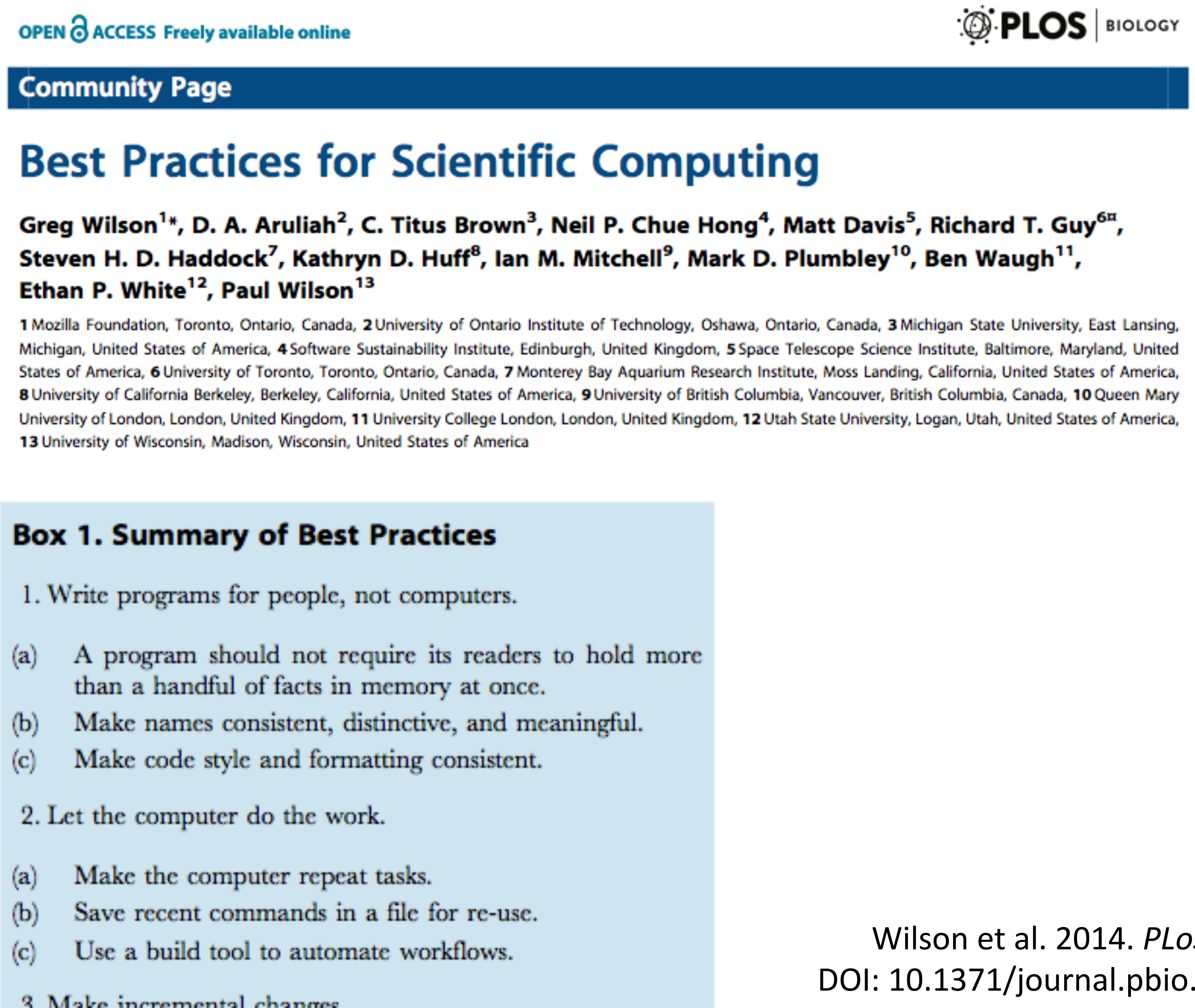
Data Management workflow with Rstudio & git

Lind & Cariveau

Data Management for Biologists

Spring 2018



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Community Page

Best Practices for Scientific Computing

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Box 1. Summary of Best Practices

1. Write programs for people, not computers.

(a) A program should not require its readers to hold more than a handful of facts in memory at once.
(b) Make names consistent, distinctive, and meaningful.
(c) Make code style and formatting consistent.

2. Let the computer do the work.

(a) Make the computer repeat tasks.
(b) Save recent commands in a file for re-use.
(c) Use a build tool to automate workflows.

3. Make incremental changes

Wilson et al. 2014. *PLoS Biology*
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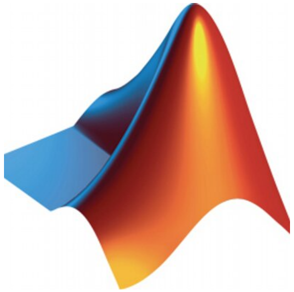
Why `code`?

- **Advantages**:
  - Raw data remain unmodified
  - Can modify repeatedly with easy “undo”
  - Provides record of manipulation
    - good for others
    - *great* for originator (information entropy strikes)

- **Disadvantages**:
  - scripting == programming
  - not all scripting languages (e.g. *R*) are good at big data manipulation and aggregation

Scripting/programming



Why `R`?

- **Advantages**:
  - open-source
  - ecological standard
  - built for visualization & analysis
  - *other people’s code & packages*
  - Integrated development environment (RStudio)

- **Disadvantages**:
  - open-source
  - not always memory-efficient

To R Studio…