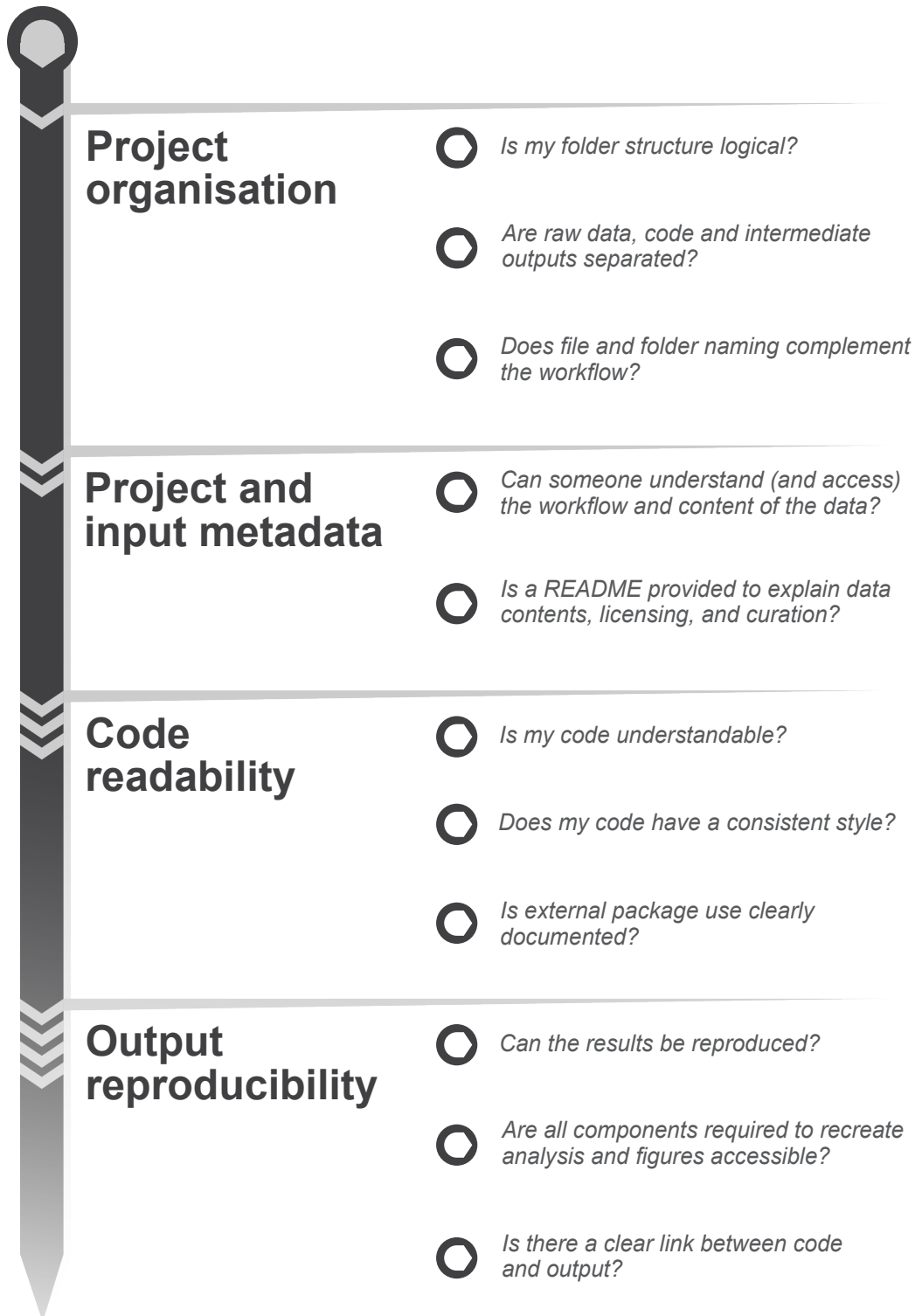


**Supplementary Material: Implementing Code Review in the Scientific Workflow: Insights from Ecology and Evolutionary Biology**

Edward R. Ivimey-Cook\*, Joel L. Pick, Kevin R. Bairos-Novak, Antica Culina, Elliot Gould, Matthew Grainger, Benjamin M. Marshall, David Moreau, Matthieu Paquet, Raphaël Royauté, Alfredo Sánchez-Tójar, Inês Silva, and Saras M. Windecker\*

\*corresponding author(s)

[e.ivimeycook@gmail.com](mailto:e.ivimeycook@gmail.com) & [saras.windecker@gmail.com](mailto:saras.windecker@gmail.com)



<b>Project organisation</b>	<input type="checkbox"/> <i>Is my folder structure logical?</i>
	<input type="checkbox"/> <i>Are raw data, code and intermediate outputs separated?</i>
	<input type="checkbox"/> <i>Does file and folder naming complement the workflow?</i>
<b>Project and input metadata</b>	<input type="checkbox"/> <i>Can someone understand (and access) the workflow and content of the data?</i>
	<input type="checkbox"/> <i>Is a README provided to explain data contents, licensing, and curation?</i>
<b>Code readability</b>	<input type="checkbox"/> <i>Is my code understandable?</i>
	<input type="checkbox"/> <i>Does my code have a consistent style?</i>
	<input type="checkbox"/> <i>Is external package use clearly documented?</i>
<b>Output reproducibility</b>	<input type="checkbox"/> <i>Can the results be reproduced?</i>
	<input type="checkbox"/> <i>Are all components required to recreate analysis and figures accessible?</i>
	<input type="checkbox"/> <i>Is there a clear link between code and output?</i>

Figure S1. A printable checklist for code review. Figure design by B.M.M.

# Box 1: Example 4Rs. *Examples of how each “R” in code review can be assessed.*

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## 1. Is the code as Reported?

For instance, methods may state that an analysis uses a generalised linear model with Poisson error, but the code instead fits a Gaussian error structure.

### **Methods:**

“Data was analysed using a Poisson error structure”.

### **R:**

```
lm(response ~ 1 + predictor, family = “Gaussian”, data = data)
```

### **Python:**

```
sm.OLS(response, predictor)
```

---

## 2. Does the code Run?

For instance, code will not be able to be run if it includes calls to libraries (or modules) that are not installed in the current computing environment.

### **R:**

```
library(tidyverse)
```

Error in library(tidyverse): there is no package called ‘tidyverse’.

### **Python:**

```
Import numpy as numpy
```

ModuleNotFoundError: No module named ‘numpy’.

---

## 3. Is the code Reliable?

For instance, code may select or modify the wrong column in a dataset, the code will still run, but produce a reproducible yet inaccurate result.

### **R:**

```
wrong.data <- data[,c(1,2)]
```

```
right.data <- data[,c(“column2”, “column3”)]
```

### **Python:**

```
wrong.data = data.iloc[:,[0,1]]
```

```
right.data = data.loc[:,[“column2”, “column3”]]
```

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## 4. Are the results Reproducible?

For instance, the final outputs may not match those reported in the analysis and results sections (including any relevant figures and narrative text contained within these sections).

### **Reported result:**

“We found a positive effect of x on y”.

### **Reproduced result:**

Reproduced results suggest a negative effect. Outputs do not match analysis and results.

