

Researchers have concerns...

...PCI implemented solutions

Doing science forward:

Peer review of preregistrations at



Dr. Corina Logan

Recommender & Managing Board Member at PCI Ecology



**Comparative
Behavioral
Ecology**

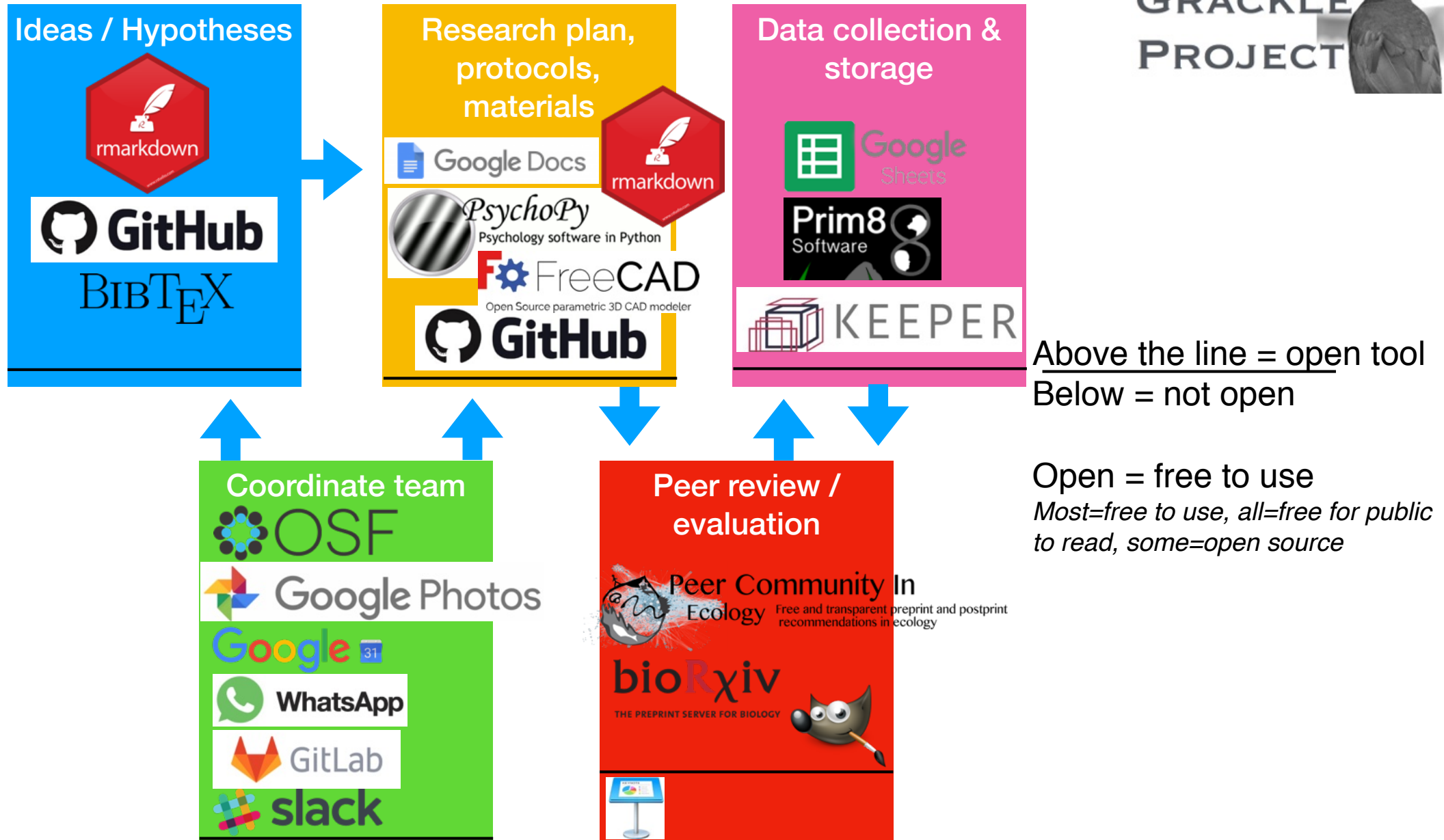
Department of Human Behavior, Ecology and Culture
Max Planck Institute for Evolutionary Anthropology
corina_logan@eva.mpg.de | @LoganCorina

Slides CC-BY 4.0 at <https://osf.io/bstph/>



Department of Human Behavior, Ecology and Culture

Being open and transparent saves time and makes my science better



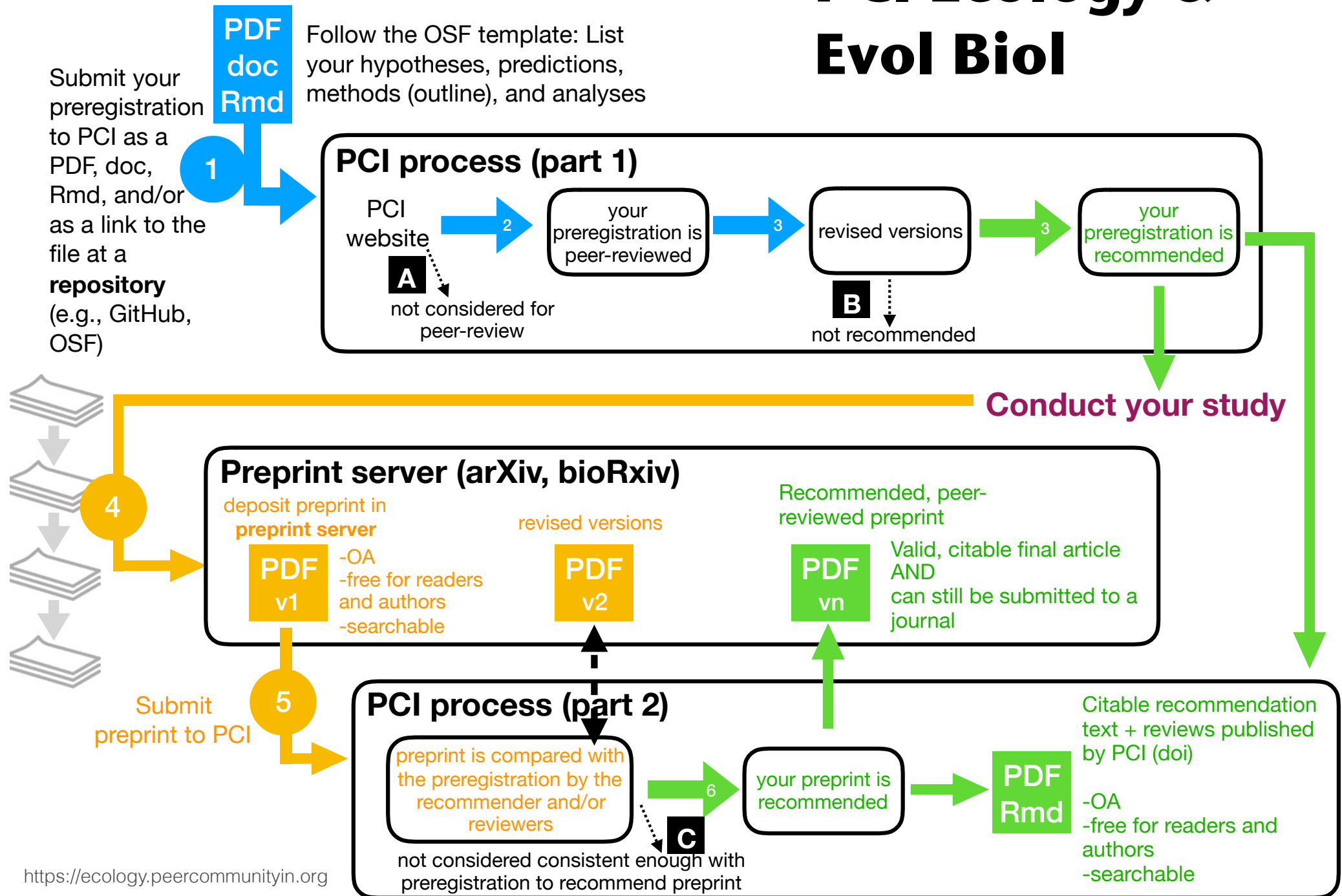
See GenR blog for a conversion of this work flow to all open source tools:

<https://genr.eu/wp/making-research-workflow-open-source/>

BEFORE conducting your study...

Submit your preregistration to *PCI Ecology* for peer review

Preregistrations @ PCI Ecology & Evol Biol



Preregistration = benefits for authors

- All co-authors on same page before research begins
- Makes me more creative!
- Author contributions defined in advance
- Citable
- Refer colleagues/students to materials
- Rmd at GitHub: only 1 file; automated track changes; version control
- Reviewers super helpful! Actually gave me code



Corin@ Logan @LoganCorina · 4 Jul 2018

6/ I started [#preregistering](#) all of my research since 2017 & have reaped massive benefits that improve [#research](#) [#rigor](#): all co-authors on same page b4 data collection begins so you know you are collecting the right data & not wasting resources on measuring the wrong variables...

1 1



Corin@ Logan @LoganCorina · 4 Jul 2018

7/ ...it makes me more creative! I designed better experiments that get more at causal relationships bc I was forced to write everything down before doing the research, which gave me more space to think about all of the details and figure out better ways of doing things...

1 1



Corin@ Logan @LoganCorina · 4 Jul 2018

8/ ...complicated politics among co-authors can be reduced by addressing these topics b4 doing the research: authorship order is listed on the [#preregistration](#), as are author contributions, which are updated if people do more. Also clarifies what is expected of everyone...

1 1



Corin@ Logan @LoganCorina · 4 Jul 2018

9/ ...cite [#preregistrations](#) in [#grant](#) & job applications & in reports to funders. Get a DOI for your [@github](#) repository via [@ZENODO_ORG](#)...

1 2

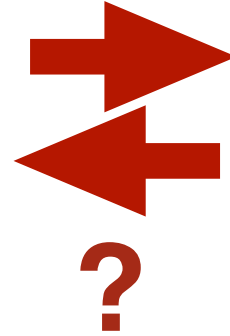


Corin@ Logan @LoganCorina · 4 Jul 2018

10/ ...save time by referring colleagues, students, and collaborators to the [#preregistrations](#) in your [@github](#) repository when they ask for advice on testing procedures, apparatus designs, or how to frame a particular argument...

Post-study peer review: a confound

Poor quality **peer review**
& **editorial** decisions

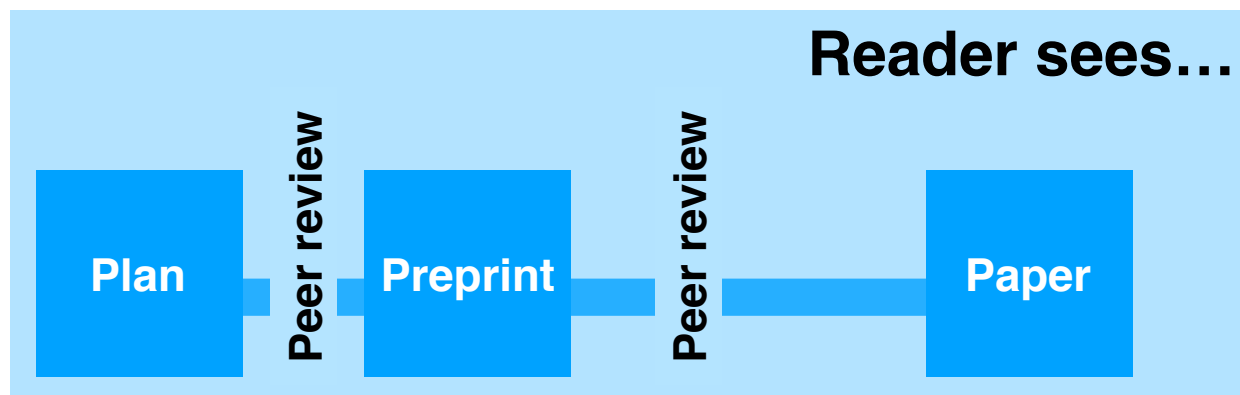


Poor quality of
(published) **research**

- Post-study reviewers/editors can't control study quality
- High quality peer reviews can't retrospectively fix a broken study

Pre-study open peer reviews

- Greater effect on improving research quality **before research has begun** (*doing science forward*)
- Allow **quality checking** of editors, reviewers, and authors
- Transparency **increases research rigor** via enforcing accountability



Registered Reports don't work for my research



Corin@ Logan @LoganCorina · 4 Jul 2018

11/ I prefer [#preregistrations](#) to [#registered #reports](#) (RRs) bc
A) May not be 1-to-1 relationship between # of preregs & # of papers coming from a prereg. Heard from many researchers this is why they don't prereg. Prereg peer-review [@PCI_Ecology](#) similar to RR, but more flexible



- 1 RR = 1 article



Corin@ Logan @LoganCorina · 4 Jul 2018

B1) One thing that deters me from [#registered #reports](#): I get impression I wld have to write whole intro (stated in [@OSFramework](#) guidelines). But just listing hypotheses & predictions = enough for researchers not associated with my project to understand what I'm testing & why



- Have to write most of the article



Corin@ Logan @LoganCorina · 4 Jul 2018

B2) Need to incentivize [#preregistrations](#) by making them more flexible (see above) & less work: write a skeleton of the paper (hypotheses, predictions, variables, analysis plan)



- Closed reviews



Corin@ Logan @LoganCorina · 4 Jul 2018

C) I won't be ready to submit papers from my preregistrations to journals for ~2yrs & publishing landscape changes quickly. Committing to a journal so far in advance via RR means the jrnal might not suit my strict publishing ethics (corinalogan.com/ethics.html) when the paper is ready



- Have to commit to a particular journal

Preregistrations CAN be flexible



Corin@ Logan

@LoganCorina

3/ Myth: #preregistrations=inflexible.
Fact: I revise my preregs all the time! I
say what changed & why so everyone
can see what happened & at what stage:
1) pre-data collection, 2) post-pilot &
pre-data collection, 3) post-data
collection & pre-analysis (noted in
commit @github)

5:42 AM - 4 Jul 2018



Long-term studies:
1 prereg can result in
1+ articles

*Also note in State of
the Data in prereg*

Can update prereg daily:

- Track all changes, give valid reasons for the changes
- Post-study review: reviewers check that changes scientifically valid

For more info...

- **PCI Ecology**
<https://ecology.peercommunityin.org>
- **Why we made it more flexible at PCI Ecology**
<https://twitter.com/LoganCorina/status/1014489213390254080>
- **Examples of PCI Ecology peer-reviewed preregistrations**
<https://github.com/corinalogan/grackles>
- ...and continued discussions on **twitter**: @LoganCorina