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**How Open Science is changing the Paradigm for Biodiversity Research:
The Case of Invasive Species**

by

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KEYWORDS. — Open Science; Research Reproducibility; Repeatability; Policy Advice; Workflow.

SUMMARY. — Traditionally research has been thought of as a linear flow, from having an idea, collecting data, analysing the result, writing the paper and then going onto the next idea. However, as any researcher knows, scientific research is often considerably more chaotic than this. Ideas rarely survive the reality of real data and new evidence often derails what seems to be a good plan. Furthermore, this one-off model of research is unsuitable for monitoring and for informing policy. In these cases, repeatability, reproducibility, provenance, comparability and reliability are key. The solution is to build research pipelines that can be repeated, as, and when, they are needed, and by anyone who needs them. This can only be achieved if all components of the workflow are open, otherwise the complexity and expense become insurmountable. Over the past four years the TrIAS project aimed to change the way research is done in biodiversity informatics by leading by example. TrIAS created a full cycle workflow including publishing open data, writing open source code and publishing open results. We demonstrated that fixed period funding can have a greater legacy than a handful of publications, and rather than starting a new project, we look forward to building on the foundations we have built in TrIAS.

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