## X.1 | Survey method

The main objective of the literature survey was to capture the types of publication bias methods used in the field of ecology and evolution in the last decade. Our new survey was conducted as an extra item (question) in another project, developing PRISMA-EcoEvo (Preferred Reporting Items for Systematic reviews and Meta-Analyses in Ecology and Evolution; see {O’Dea, 2019 #28}). The PRISMA-EcoEvo project collected 102 ecological and evolutionary meta-analyses, that were published between 1 January 2010 and 25 Mach 2019, from the journals categorized as ‘Ecology’ and ‘Evolutionary Biology’ by the *InCites Journal Citation Reports* (for full details of the procedure, see Supporting Information).

For our survey, we asked one question – “*Which publication bias tests are reported in the paper? (Select all that apply)*”. This question listed 11 choices: 1) funnel plots (including contour-enhanced funnel plots; {Peters, 2008 #41}), 2) Normal quantile (QQ) plots ({Wang, 1998 #42}), 3) correlation-based tests (e.g., the rank correlation; {Begg, 1994 #43}), 4) regression-based tests (e.g., Egger egression and its variants; {Egger, 1997 #6}), 5) file drawer numbers or fail-safe *N* (e.g. the methods of; {Rosenthal, 1979 #49;Owrin, 1983 #59;Rosenberg, 2005 #46}), 6) the trim-and-fill method ({Duval, 2000 #61;Duval, 2000 #62}), 7) *p*-curve, *p*-uniform or its variants ({Simonsohn, 2014 #21;van Assen, 2015 #65}), 8) selection model methods (e.g., the method of; {Hedges, 1984 #67;Copas, 1999 #68;Iyengar, 1988 #69}), 9) time-lag bias tests (e.g., regression or correlation on the relationship between effect sizes and time, or cumulative meta-analysis; {Trkalinos, 2005 #34;Jennions, 2013 #33}), 10) none reported and 11) ‘other’ methods. According to Sutton ({, 2009 #17}) (see also {Vevea, 2019 #16}), Methods 1-4 are tests detecting publication bias, whereas Methods 5-8 are assessing the impact of publication bias (we could probably categorize Method 9 as the former; for more details of each method, see Section 3).

# **S1 | APPENDIX**

## X.2 | Results

We found that ecologists and evolutionary biologists have used all the categories of the methods (Methods 1-9) apart from selection models (Method 8). The lack of studies using Method 8 may not be surprising because selection models are a group of publication bias tests that are most technical of all in terms of concept and implementation (for more, see Section 3.5). The popularity of the methods, in descending order, is: 1) funnel plots, 2) fail-safe or file drawer number, 3) regression-based tests, 4) correlation-based tests, 5) trim and fill methods, 6) time-lag bias tests, 7) *p*-curve, *p*-uniform and its variants, and 8) normal quantile plots (Figure 1). In addition, one study ({Loydi, 2013 #70}) in our survey used, as ‘other’ methods, a ‘weighted histogram’ where each effect size is scaled by the inverse of sampling variance (see Section 3.1). The popularity of the methods appeared to reflect two factors: 1) how easy the test is to implement, and 2) how old the test is (e.g., the method of *p*-curve and related methods are relatively ‘new’; see Section 3.7).

Our survey also revealed that 17.8 % of the meta-analyses (18 studies) did not report any types of publication bias tests. Due to different survey procedures, we cannot compare our survey results directly to that of Nakagawa and Santos ({, 2012 #19}), but more meta-analyses seem to have been testing for publication bias in recent years (i.e. 82.2% tested publication bias compared to 51%). Also, the comparable result was 31% in Koricheva and Gurevitch ({Koricheva, 2014 #18}), who examined 322 plant ecology meta-analyses published between 1996-2013. …