Third update on the progress of TRANSLATE for searching non-English-language literature

01/06/2020

Tatsuya Amano and Violeta Berdejo Espinola (University of Queensland)

Progress so far

We are glad to announce that searches for **7 languages (Russian, Japanese, Spanish, Portuguese, Korean, Turkish, and Persian)** have been completed to date, thanks to the huge help of our collaborators. From these, Russian, Japanese, Spanish, and Persian have been double-checked by our fellow colleagues from Conservation Evidence (CE), who have been steadily working with us. Many other languages are also close to completion (French, Italian, Traditional Chinese, Simplified Chinese, Polish, and Arabic) going through the last relevant information extraction or reference check by CE. Of course, all this is thanks to the 45 collaborators who very patiently helped and worked against all odds throughout these months with us. Lastly, following up with the inaccessibility issue for some German-language journals due to the pandemic-related library closures, we are joyful that very soon we will get access to them and thus, continue our work with this language. One more time, we want to say big thanks for your help!

Preliminary results

Thanks to the extraction of detailed information from each paper, we are now able to sort the identified papers by species and locations. Here, we are extremely excited to share with you the very first attempt to visualise outcomes for a few example languages (Japanese, Russian, Persian and Spanish)!

We first plotted the location of all identified studies in the four languages (coloured dots below), in comparison with the number of English-language studies, currently stored in the Conservation Evidence database, within each 2-degree grid cell (blue gradation: this is based on Christie et al. *in press*. The challenge of biased evidence in conservation. *Conservation Biology*).
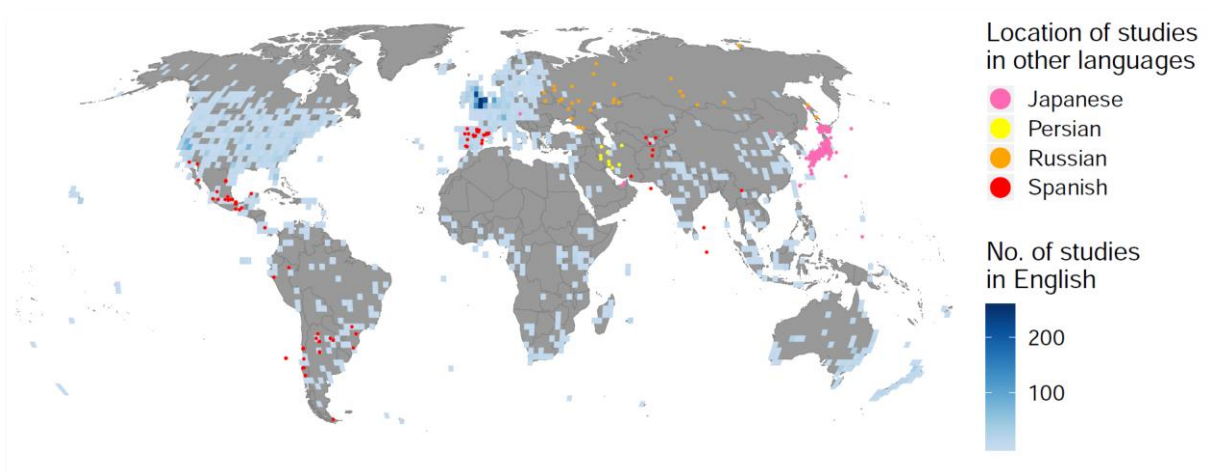
Here, you can see that although English-language studies are fairly widespread globally, non-English-language studies are also found in some of the data-poor regions, such as Japan, Russia, Latin America and Middle East/Central Asia.

We also focused on bird studies as an example taxon.
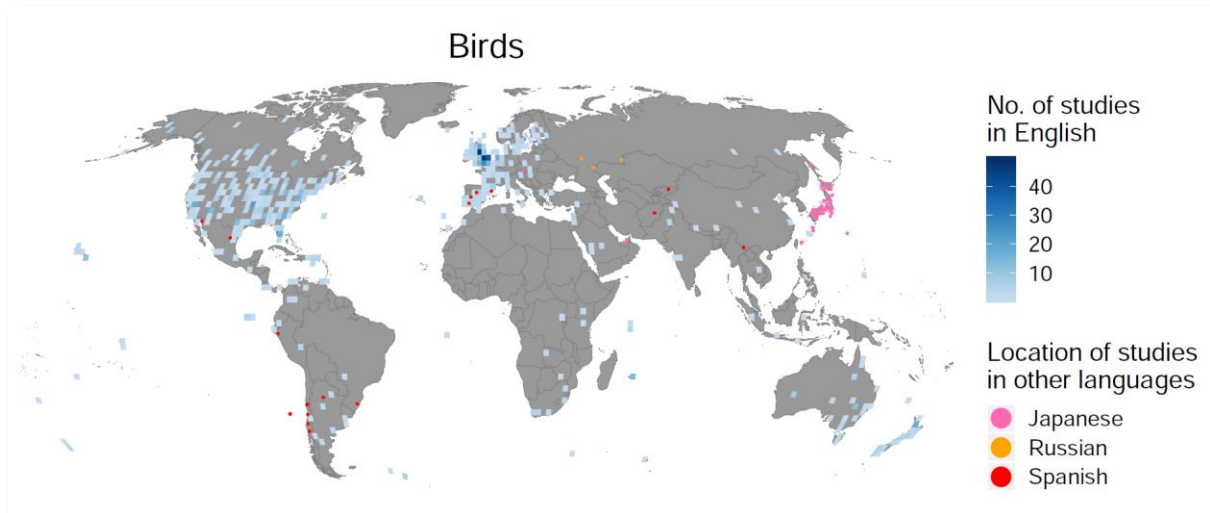
The number and spread of studies have inevitably declined for all languages, but we can still find a good number of non-English-language studies in some areas poorly-covered by English-language studies, such as Japan and South American countries.
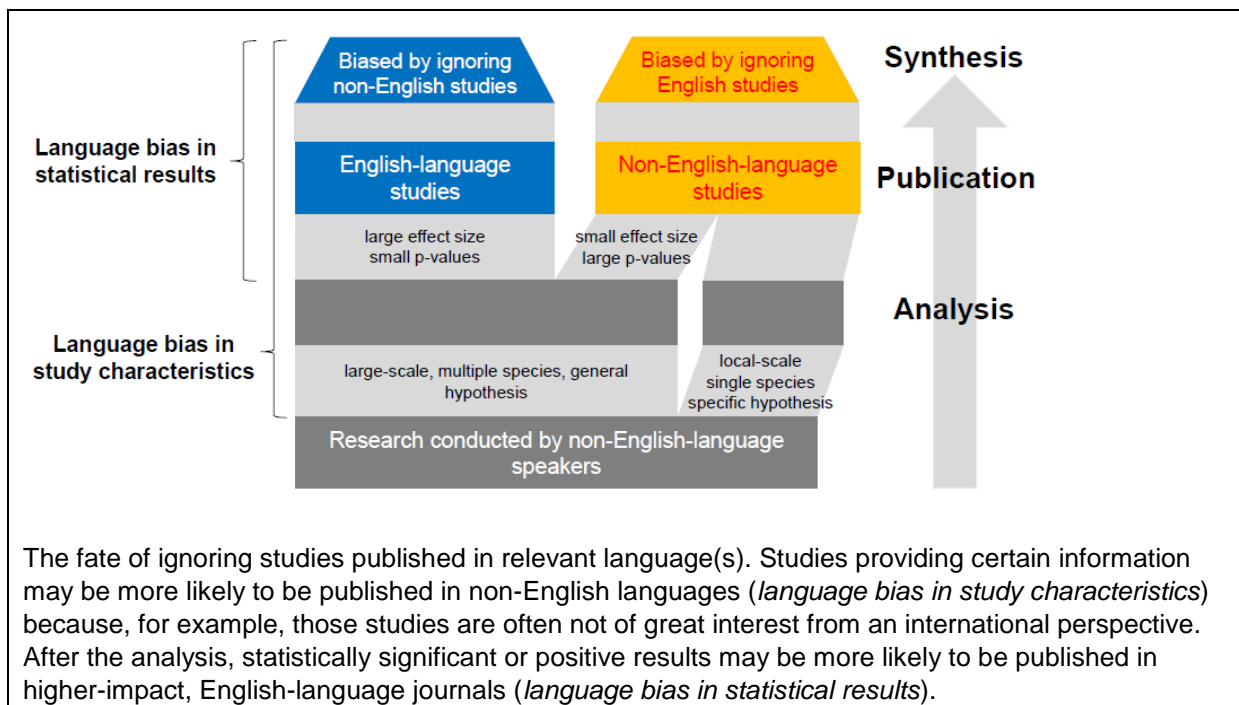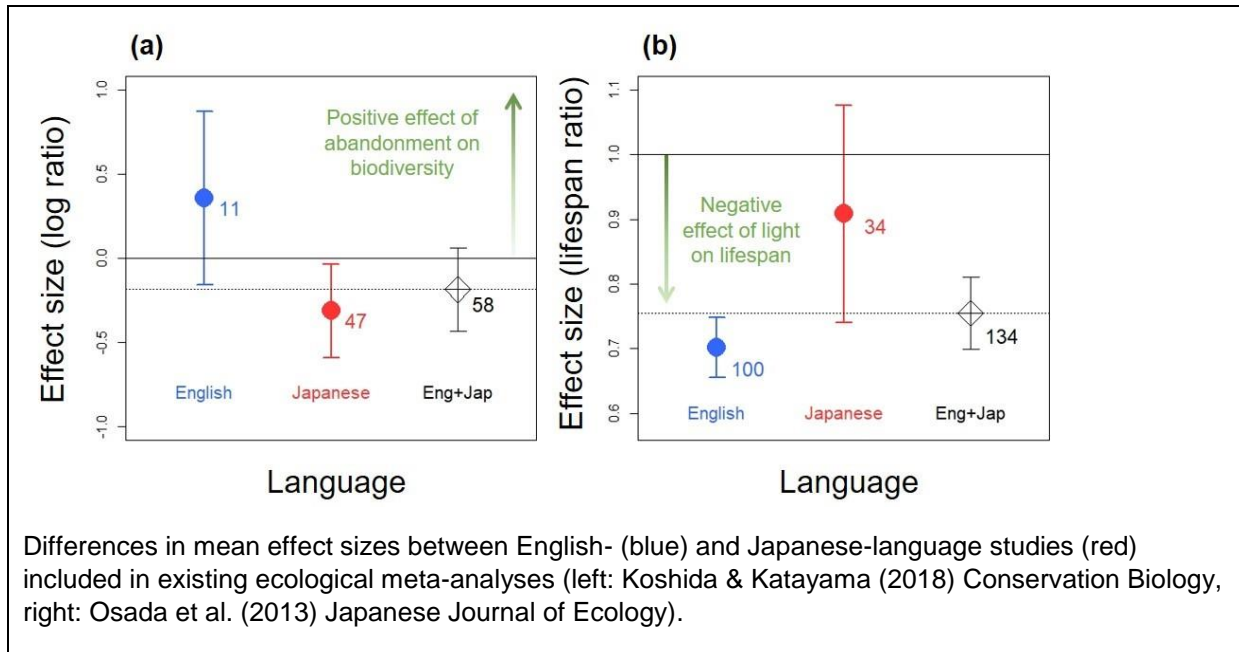
Note that this is still very preliminary, and adding other major languages, such as Chinese, Portuguese, and German, will surely change the appearance of these figures. Also we are not looking only at locations; we are aiming to explore which species each study provides evidence for, and how the quality of non-English-language studies is comparable to that of English-language studies. Nevertheless, we are extremely happy to be able to share this result, especially after three years of work, and show you all what this project is trying to investigate in a little bit more detail. We will keep you updated on our progress as we are moving on to further, more proper analyses.

Other news

· We are currently developing our project website, which we hope is coming soon.

· A new paper from the project, titled "**Ignoring non-English-language studies may bias ecological meta-analyses**" by Konno, Akasaka, Koshida, Katayama, Osada, Spake & Amano, is now out in *Ecology and Evolution*. See: https://doi.org/10.1002/ece3.6368

This paper reanalysed existing meta-analyses including both English- and Japanese-language studies and showed that effect sizes differed significantly between English- and Japanese-language studies. This means that excluding Japanese-language studies in these meta-analyses could cause considerable changes in overall mean effect sizes and even their direction (see figure below). The differences in effect sizes are likely attributable to systematic differences in reported statistical results (*language bias in statistical results* – see diagram below) as well as study characteristics, particularly taxa and ecosystems (*language bias in study characteristics*), between English- and Japanese-language studies. This finding has a broad, yet simple implication: future meta-analyses—

particularly those conducted at global extents or in regions where English is not widely spoken—should actively search for relevant non-English-language studies, and if appropriate, include them.

Differences in mean effect sizes between English- (blue) and Japanese-language studies (red) included in existing ecological meta-analyses (left: Koshida & Katayama (2018) Conservation Biology, right: Osada et al. (2013) Japanese Journal of Ecology).

The fate of ignoring studies published in relevant language(s). Studies providing certain information may be more likely to be published in non-English languages (*language bias in study characteristics*) because, for example, those studies are often not of great interest from an international perspective. After the analysis, statistically significant or positive results may be more likely to be published in higher-impact, English-language journals (*language bias in statistical results*).

· As the TRANSLATE project is expanding, we are now looking for potential students and collaborators who are keen to work with us on language barriers in science in more detail. There are multiple scholarships (although highly competitive!) for graduate students at the University of Queensland, with the next application for the International Scholarship opening on the 27th June. If you know anyone who might be interested, please forward this information, and encourage them to contact Tatsuya Amano (t.amano@uq.edu.au) to discuss possibilities.

Project timeline

While we are still working with collaborators to complete searches for a few remaining languages, we are now moving on to the next stage of a deeper analysis of the collected information. We are expecting to see the completion of all searches in July, then hoping to finish the analysis within a few months after that. We will keep everyone informed on our progress with this bimonthly update.

Again, big thanks to everyone and stay safe!