translatE
Transcending language barriers to environmental sciences

THE UNIVERSITY OF QUEENSLAND
AUSTRALIA
CREATE CHANGE

# December 2022 update on the progress of translatE project

12/12/2022

Tatsuya Amano and Violeta Berdejo-Espinola (University of Queensland)

It has been a while since our last update on the progress of the translatE project this year. We are now happy to share with you the latest project news, including recent publications and presentations from the project, media coverage, a brief update on two of our sub-project components, and exciting news on having secured a new grant. Enjoy!

## 1. New funding secured

We are absolutely delighted to announce that we have been awarded an Australian Research Council Discovery Project grant for the next three years!

This is going to be another global collaboration with many collaborators including Prof William Sutherland at the University of Cambridge and Assistant Prof Fangyuan Hua at Peking University. Please see below the project summary – we can't wait to develop the translatE project further!

***Tapping into non-English-language science in tackling global challenges***

*This project aims to transform the conventional practice of English-biased evidence use to multilingual evidence synthesis to enable us to better tackle global challenges. The project expects to lay the foundations and provide platforms for multilingual, unbiased evidence-based solutions to global issues including biodiversity loss, climate adaptation and animal-origin diseases. Expected outcomes include a database of non-English-language evidence on the three global issues of focus, machine learning tools, and machine translation platforms that make non-English-language evidence accessible. This should benefit national/international policies and practices by making a neglected source of evidence available for science-led decision-making.*

## 2. New paper: Pottier, P., Hsien-Yung, L., Oh, R.R.Y., Pollo, P., Rivera-Villanueva, A.N., Valdebiento, J.O., Yang, Y., Amano, T., Burke, S., Drobinak, S.M., Nakagawa, S. (2022). A comprehensive database of amphibian heat tolerance. Scientific Data.

This work was a multi-lingual collaboration led by Patrice Pottier, a PhD candidate at the University of New South Wales. As a team of eleven multi-lingual researchers, we systematically searched literature on amphibian heat tolerance in seven languages, and produced the most comprehensive dataset to date on amphibian upper thermal limits, spanning 3,905 estimates from 213 studies across 616 species (and 37 families!) (Figure 1).

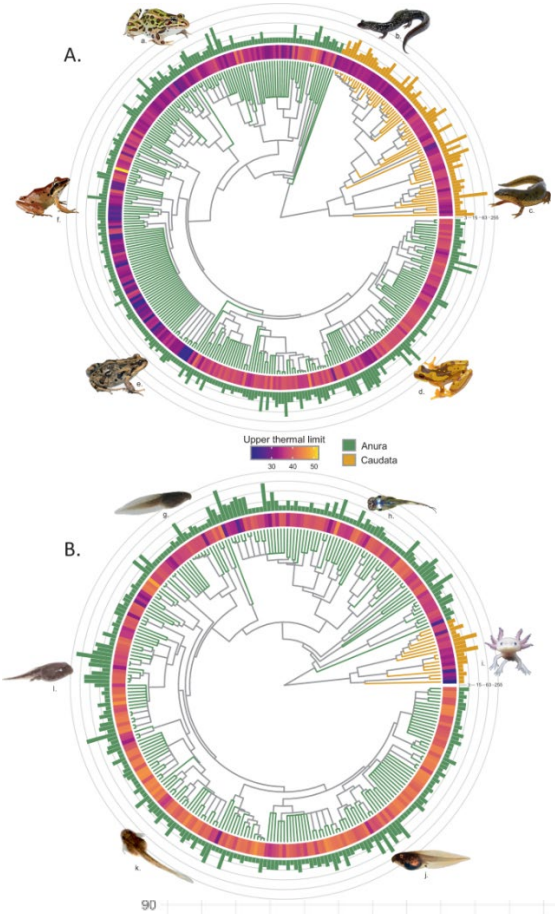



**Figure 1.** Distribution of estimates and mean upper thermal limits across the phylogeny of species included in the database. (A) adults. (B) larvae and juveniles.

Importantly, we identified 27 non-English-language studies that met the eligibility criteria (about 13% of all studies identified), which again indicates the importance of searching literature in multiple languages (Figure 2). Two strengths of this database are that it formally includes data from non-English language publications, and it also has a methodological workflow that can be easily reproduced, expanded, and updated to a wider range of species, including other ectothermic taxa.

Read the paper and access the database here.

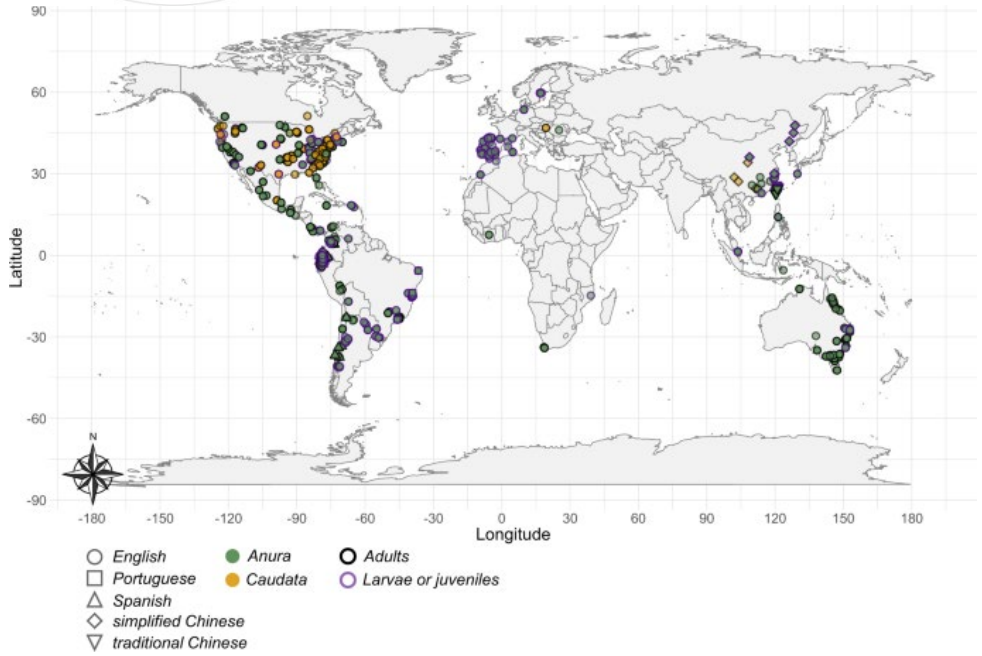



**Figure 2.** Geographical locations at which experimental data were collected. Points denote which order of amphibians were assayed (point filling), at which life stage (point border) and in what language were the findings published (point shape). Note that geographical coordinates were missing for 659 (21.3%) of the estimates, notably when animals were raised in the laboratory for numerous generations.

3. **New paper: Chowdhury, S., Zalucki, M. P., Amano, T., Poch, T. J., Lin, M.-M., Ohwaki, A., Lin, D.-L., Yang, L., Choi, S.-W., Jennions, M. & Fuller, R.A. (2022) Trends and progress in studying butterfly migration. Integrative Conservation.**

This paper was led by Shawan Chowdhury, previously at the UQ and now at iDiv,and has been published in Integrative Conservation.

This study reviewed studies on butterfly migration published in six languages (English, Simplified Chinese, Traditional Chinese, Japanese, Korean, and Spanish), summarised how migration in butterflies has been studied, explored geographic and taxonomic patterns in the knowledge base, and outlined key future research directions.

We found that most English-language studies on butterfly migration (total English-language studies = 581) were from temperate or cooler regions, especially from the US and the UK, with far fewer from the sub/tropics, or the Southern Hemispher. However, by searching in four Asian languages and Spanish, we found another 345 relevant studies, mostly on species in North America (162 Spanish-language studies), but also in South America (44 in Spanish) and Europe (37 in Spanish), and Asia (99 studies in total: 58 in Japanese, 29 in Simplified Chinese, 11 in Traditional Chinese, and 1 in Spanish, Figure 3).

This highlights the importance of including non-English studies in literature reviews.

Read the paper here.

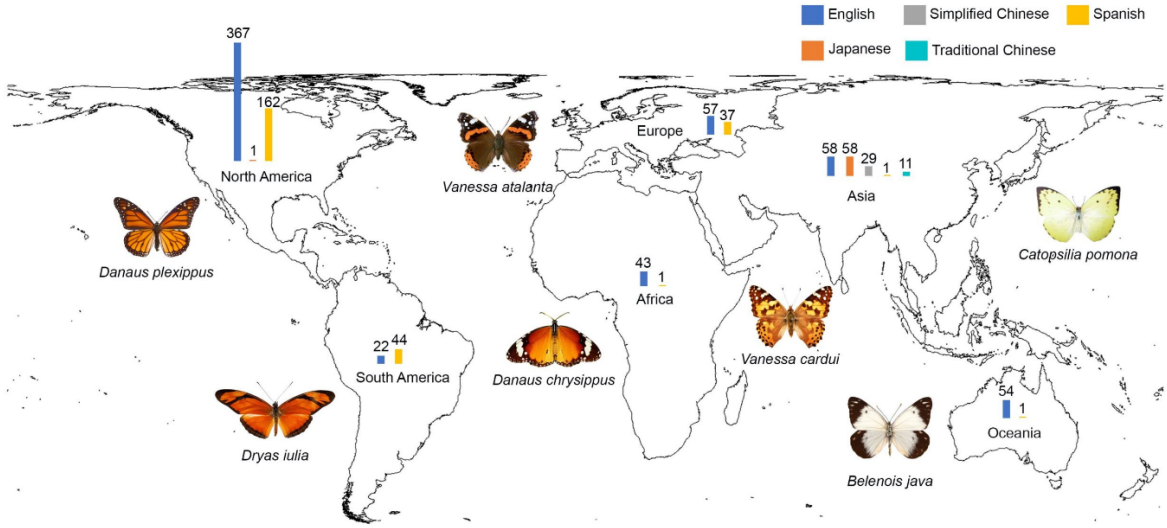



**Figure 3.** The number of butterfly migration studies by language from each continent.

**4. Contribution to a new book: Transforming Conservation: A practical Guide to Evidence and Decision Making**

We are very excited to see the release of a new open access book:

***Transforming Conservation: A practical Guide to Evidence and Decision Making***

which is edited by Prof William Sutherland at the University of Cambridge, and authored by 76 experts from around the world.

The overarching aim of the book is to facilitate the use of scientific evidence in biodiversity conservation, and more broadly in any decision making processes. The book thus covers a wide range of important topics, including rethinking how evidence is assessed, combined, communicated and used in decision-making; using effective methods when asking experts to make judgements; using a structured process for making decisions that incorporate the evidence and having effective processes for learning from actions.

Tatsuya contributed to three chapters of the book:

Chapter 2. Gathering and Assessing Pieces of Evidence
Chapter 4. Presenting Conclusions from Assessed Evidence
Chapter 12. Transforming Practice: Checklists for Delivering Change.

In particular, Chapter 2 includes a section (*2.5.5 Global evidence in multiple languages*) on the importance of non-English-language evidence.

All contents of the book are open access and so freely available here.

Also see blog and video by Prof Sutherland.

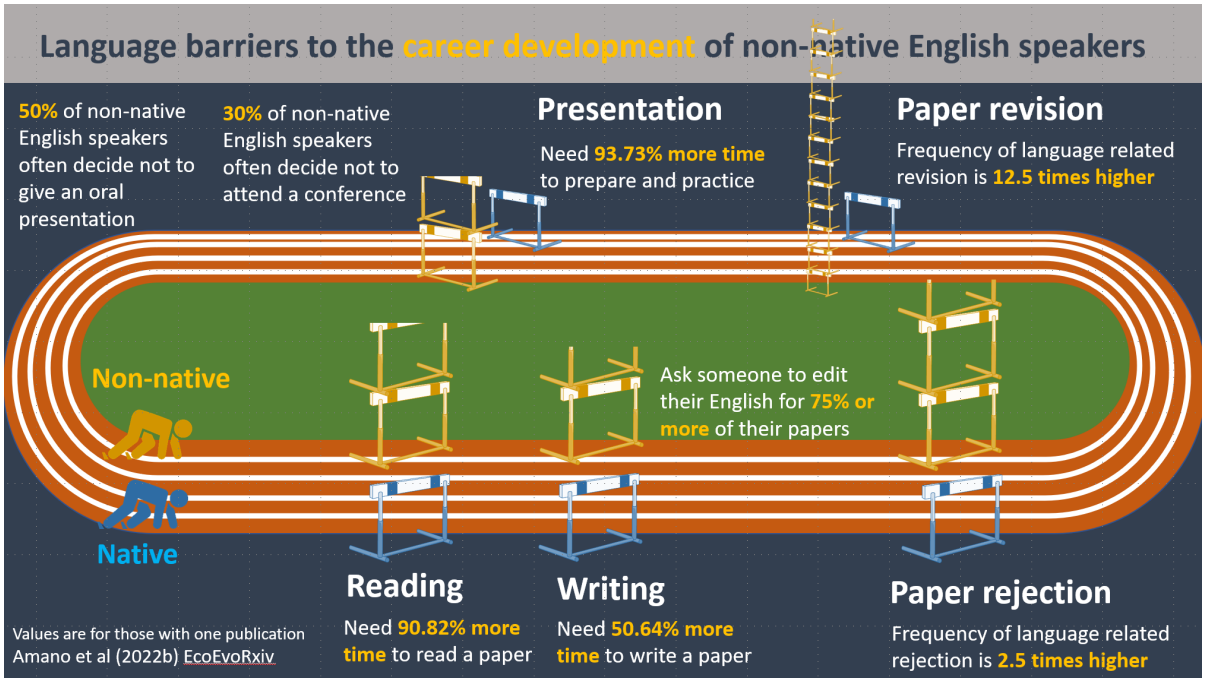

**5. New preprint: Amano, T., Ramírez-Castañeda, V., Berdejo-Espinola, V., Borokini, I., Chowdhury, S., Golivets, M., González-Trujillo, J.D., Montaño-Centellas, F., Paudel, K., White, R. & Veríssimo, D. (2022) The cost of being a non-native English speaker in science. EcoEvoRxiv.**

This project component aims to quantify multiple disadvantages for non-native English speakers when conducting scientific activities in English. With a multi-lingual team of co-authors, we conducted a survey with 908 environmental scientists from eight countries (Bangladesh, Bolivia, Japan, Nepal, Nigeria, Spain, UK, and Ukraine) and compared the amount of effort needed to conduct five types of scientific activities (paper reading, writing, publication and dissemination, and participation in conferences) in English between researchers with different linguistic and economic backgrounds.

What we found was striking. When comparing native and non-native English speakers with only one publication, our survey shows that non-native English speakers need **90% more time** to read each paper, and **50% more time** to write each paper in English. Before they can submit, they still need to ask someone to proofread their English for most of their papers. Even then, their papers are more likely to be rejected simply due to their English writing, and that frequency is **2.5 times higher** in non-native English speakers than native English speakers. Non-native English speakers are also requested to revise their papers **12 times more often** than native English speakers. When preparing an oral presentation, they also need **93% more time** than native English speakers. What's more, **30% of them** often decide not to attend an international conference, and **half of them** decide not to give an oral presentation, due to English language barriers.

With the paper we are seeking to make a real difference in reducing the disadvantages of language barriers for non-native English speakers in their career progression in academia. To assist the process, we have also provided what individuals, institutions, journals, societies and funders can do to start tackling this problem.

Read the preprint here.



## 6. Update on the project on overcoming language barriers to academic publishing

This project is led by Henry Arenas-Castro and we have been exploring journals' commitment to overcoming language barriers to academic publishing with the help of 30 collaborators who helped us to collect data from over 200 journals' websites and also delivered structured surveys to more than 700 journal editors. Henry is currently finishing writing up the first draft of the manuscript that will be soon circulated among our collaborations for your review and feedback.

Henry also delivered a very inspiring presentation titled "Overcoming language barriers in academic publishing" at the UQ School of Biological Sciences Seminar Series on the 18th November.


## 7. Tatsuya delivered a keynote presentation at the ESA-SCBO 2022

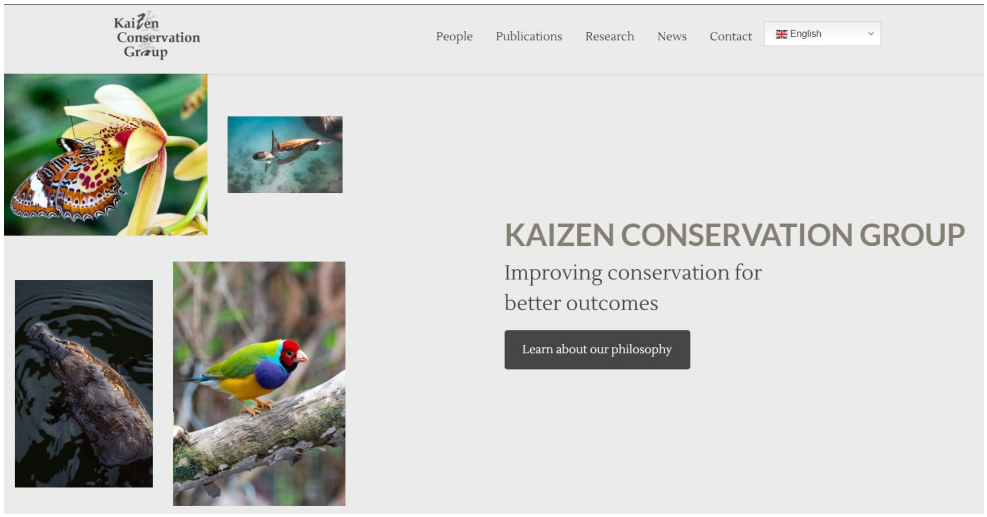
Tatsuya delivered a keynote presentation at the 2022 joint conference of the Eological Society of Australia and the Society for Conservation Biology Oceania in Wollongon, NSW on the 1st December.

The presentation was very successful, attended by hundreds of participants in the conference.

Tatsuya has also recently delivered a presentation about the project for the ARI seminar series at Arthur Rylah Institute for Environmental Research, and for Ecology and Conservation lab seminar at Monash University (both remotely).

### 8. Launch of Kaizen Conservation Group website

Tatsuya's group—Kaizen Conservation Group—has launched its brand-new website. Visit the website to learn what Kaizen Conservation means, and why the group has built its philosophy around Kaizen Conservation.



## 9. Our work featured in Ensia

We are pleased to see our study '[Tapping into non-English-language science for the conservation of global biodiversity]' featured in a recent article in Ensia along with other fantastic work from Eliza Grames. Read the article here.

# LANGUAGE BARRIERS IN CONSERVATION RESEARCH COULD BE HURTING BIODIVERSITY EFFORTS. WHAT CAN BE DONE ABOUT IT?

*Some researchers say that ignoring non-English papers could have disastrous consequences for conservation*


That is another wrap up on the project's update. We would like to thank all of our collaborators and supporters for their huge contributions throughout the year, without whom any part of the project would literally be impossible. Thanks to your support, the translatE project had another exciting and productive year, which we believe would help overcome this important issue of language barriers in science.

We hope you will enjoy the festive season and keep safe and well. See you next year!