

# Takuji Usui

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## ACADEMIC POSITIONS

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**EEB Postdoctoral Research Fellow** | Oct. 2025 – Current

University of Toronto

Collaborators: Prof. Stephen Wright & Prof. Megan Frederickson

**Faculty of Arts & Sciences Postdoctoral Fellow** | 2023 – 2025

University of Toronto

Supervisor: Prof. Megan Frederickson

**Research Studentship** | 2016 – 2017

University of New South Wales & University of Sydney

Supervisor: Prof. Shinichi Nakagawa

**Research Studentship** | 2015 – 2016

University of Edinburgh

Supervisor: Prof. Ally Phillimore

**Field Assistant** | 2015 – 2016

University of Edinburgh

Supervisor: Prof. Jarrod Hadfield

## EDUCATION

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**University of British Columbia** | 2017 – 2023

PhD, Botany (*Excellence in Doctoral Research Award*)

Thesis: Experimental evolution of species ranges and coexistence

Supervisor: Prof. Amy Angert

**University of Edinburgh** | 2011 – 2015

BSc, Evolutionary Biology (*First Class Honours with Ashworth Medal and Prize*)

Thesis: Temporal shifts and temperature sensitivity of spring migratory phenology

Supervisor: Prof. Ally Phillimore

## PUBLICATIONS

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\* = Undergraduate student mentee

### *In review or in revision:*

15. Marjakangas, E.-L., Barreto, E., Borregaard, M.K., Chaikin, S., Carvajal-Quintero, J.D., Marshall, K.E., **Usui, T.**, Pires, M.M., Graham, C.H., Lessard, J.-P. (2026) The role of biotic permeability in species' range dynamics. In review at *Trends in Ecology & Evolution*
14. **Usui, T.**, Yu, J.\* & Frederickson, M.F. (2026) For colonization success, should hosts and microbes travel alone, together, or swap partners along the way? In review at *New Phytologist* (Preprint: doi.org/10.1101/2025.10.27.684839).
13. **Usui, T.** & Angert, A.L. (2025) Competition enables rapid adaptation to a warming range edge. In revision at *Science* (Preprint: doi.org/10.1101/2024.08.22.609250).

### *Published:*

12. Gillies, G.J.\*, Angert, A.L. & **Usui, T.** (2024) Temperature-dependence and genetic variation in resource acquisition strategies in a model freshwater plant. *Functional Ecology*, 38, 1600-1610.
11. **Usui, T.** & Angert, A.L. (2024) Range expansion is both slower and more variable with rapid evolution across a spatial gradient in temperature. *Ecology Letters*, 27, e14406.
10. **Usui, T.**, Lerner, D., Angert, A.L., Eckert, I., Garroway, C.J., Hargreaves, A.L., Lancaster, L.T., Lessard, J.-P., Riva, F., Schmidt, C., van der Burg, K. & Marshall, K. (2023) The evolution of plasticity at geographic range edges. *Trends in Ecology & Evolution*, 38, 831-842.
9. **Usui, T.**, Senior, A., MacLeod, M., McCann, S. & Nakagawa, S. (2021) Meta-analysis of variation suggests that embracing heterogeneity improves both replicability and generalizability in preclinical research. *PLoS Biology*, 19(5), e3001009.
8. Bontrager, M., **Usui, T.**, Lee-Yaw, J.A., Anstett, D.N., Branch, H.A., Hargreaves, A.L. & Angert, A.L. (2021) Adaptation across geographic ranges is consistent with strong selection in marginal climates and legacies of range expansion. *Evolution*, 75, 1316-1333.
7. Germain, R.M., Angert, A.L., Bassar, R.D., Henao Diaz, F.L., Hart, S.P., Otto, S.P., Rolland, J., Sakarchi, J., Schluter, D., Siepielski, A.M., Turcotte, M.M., **Usui, T.** & Waters, M. (2020) On the origin of coexisting species. *Trends in Ecology & Evolution*, 36, 284-283.
6. Miller, T.E.X., Angert, A.L.A., Brown, C.D., Lee-Yaw, J.A., Lewis, M., Lutscher, F., Marculis, N.G., Melbourne, B.A., Shaw, A.K., Szűcs, M., Tabares, O., **Usui, T.**, Weiss-Lehman, C. & Williams, J.L. (2020) Eco-evolutionary dynamics of range expansion. *Ecology*, 101, e03139.
5. Baur, J., Laurentino, T.G., **Usui, T.** & Eichhorn M. (2019) Liana abundance and relationships to sapling and tree hosts in an East African primary forest. *African Journal of Ecology*, 57, 130-136.

## TAKUJI USUI | CURRICULUM VITAE

4. **Usui, T.** & Angert, A.L.A. (2018) Species Ranges. *Elsevier Reference Module in Life Sciences*.
3. **Usui, T.**, Noble, D.W.A., O'Dea, R.E., Fangmeier, M.L., Lagisz, M., Hesselson, D. & Nakagawa, S. (2018) The French Press: a repeatable and high-throughput approach to exercising zebrafish (*Danio rerio*). *PeerJ*, e4292.
2. Fangmeier, M., Noble, D.W.A., O'Dea, R.E., **Usui, T.**, Lagisz, M., Hesselson, D. & Nakagawa, S. (2018) Computer animation technology in behavioral sciences: a sequential, automatic, and high-throughput approach to quantifying personality in zebrafish (*Danio rerio*). *Zebrafish*, 15, 206-210.
1. **Usui, T.**, Butchart, S.H.M. & Phillimore, A.B. (2017) Temporal shifts and temperature sensitivity of avian spring migration phenology: a phylogenetic meta-analysis. *Journal of Animal Ecology*, 86, 250-261. Select press coverage: **BBC News; The Guardian**

## FELLOWSHIPS & GRANTS

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2025	EEB Postdoctoral Research Fellowship University of Toronto	\$156,000
2023	Faculty of Arts & Science Postdoctoral Fellowship University of Toronto	\$96,000
2017	International Doctoral Fellowship University of British Columbia	\$138,000
2017	Scientia PhD Scholarship University of New South Wales ( <i>Declined</i> )	\$200,000
2017	Graduate Research Scholarship University College London ( <i>Declined</i> )	£52,660
2017	Overseas Research Scholarship University College London ( <i>Declined</i> )	£78,480
2017	NERC Science and Solutions for a Changing Planet Doctoral Training Partnership Imperial College London ( <i>Declined</i> )	£62,935
2016	Research Studentship University of New South Wales	\$14,000
2015	Research Studentship University of Edinburgh	£2500

## HONOURS & AWARDS

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2024	<u><i>Evolution Early Career Award</i></u> University of Wisconsin-Madison	\$150
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## TAKUJI USUI | CURRICULUM VITAE

2024	Postdoctoral Travel Award Canadian Society for Ecology & Evolution	\$700
2023	<u>Excellence in Doctoral Research Award</u> Canadian Society for Ecology & Evolution	\$600
2023	Graduate Student Travel Award University of British Columbia	\$500
2022	Student Travel Award ESA Plant Population Ecology Section	\$600
2022	President's Academic Excellence Initiative PhD Award University of British Columbia	\$540
2021	<u>Best Talk Award</u> Botany & Zoology Conference, University of British Columbia	-
2021	President's Academic Excellence Initiative PhD Award University of British Columbia	\$1030
2021	Faculty of Science Graduate Award University of British Columbia	\$100
2021	<u>Student Research Award</u> American Society of Naturalists	\$2000
2020	President's Academic Excellence Initiative PhD Award University of British Columbia	\$1000
2019	<u>GREG Lewontin Award</u> Society for the Study of Evolution	\$2000
2018	<u>Vladimir J Krajina Prize in Plant Ecology</u> University of British Columbia	\$2000
2018	<u>Best Poster Award</u> Brackendale Ecology & Evolution Conference	-
2015	<u>Ashworth Medal and Prize for highest grade in Evolutionary Biology Honours</u> University of Edinburgh	£250
2015	Travel Award for National Biodiversity Network Conference University of Edinburgh	£100
2015	Travel Award British Ecological Society	£400

### INVITED PRESENTATIONS

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(<sup>Ψ</sup>Award Talks; ‡ Symposium Talks)

2026	EEB Departmental Seminar, Yale University
2025	EEOB Departmental Seminar, University of California-Riverside

## TAKUJI USUI | CURRICULUM VITAE

- 2025 *Biology Colloquium*, University of Wisconsin-Madison
- 2025 *Biology Department Seminar*, Boston University
- 2025 *Integrative Biology Departmental Seminar Series*, University of Guelph
- 2024 *Evolution Early Career Award*, University of Wisconsin-Madison<sup>Ψ</sup>
- 2024 *Linking theory to empirical research*, CSEE Annual Conference<sup>‡</sup>
- 2024 *Duckweeds, microbes, & symbiosis*, University of British Columbia<sup>‡</sup>
- 2023 *Doctoral Awards Symposium*, CSEE Annual Conference<sup>Ψ</sup>
- 2022 *A new frontier in symbiosis research*, University of Toronto<sup>‡</sup>
- 2021 *Lessons for the lab from meta-research*: Centre for Open Science<sup>‡</sup>

### CONTRIBUTED PRESENTATIONS

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(<sup>†</sup> Posters; <sup>‡</sup> Talks; <sup>Ψ</sup> Awards)

- 2023 EEB Departmental Seminar Series, University of Toronto, ON<sup>‡</sup>
- 2023 Botany Departmental Seminar Series, University of British Columbia, BC<sup>‡</sup>
- 2023 Asilomar Conference, Society of American Naturalists, CA<sup>‡</sup>
- 2022 Joint Annual Meeting of ESA & CSEE, QB<sup>‡</sup>
- 2021 Botany & Zoology Annual Meeting, University of British Columbia, BC<sup>‡Ψ</sup>
- 2019 Brackendale Ecology & Evolution Conference, BC<sup>‡</sup>
- 2018 Brackendale Ecology & Evolution Conference, BC<sup>†Ψ</sup>
- 2017 Brackendale Ecology & Evolution Conference, BC<sup>†</sup>

### SYNERGISTIC RESEARCH ACTIVITIES

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#### Scheduled working groups:

Invited member: **Thermal plasticity and range dynamics**, German Centre for Integrative Biodiversity Research (iDiv) | 2026

Organizer: International Range Edge Dynamics (RED) Working Group

#### Past working groups and workshops:

Invited member: **Climate variability at range edges**, German Centre for Integrative Biodiversity Research (iDiv) | 2025

Organizer: International Range Edge Dynamics (RED) Working Group

Invited member: **Temporal variation in dispersal and range expansion**, CIEE Working Group at University of Toronto | 2025

Organizers: Graydon Gillies (Memorial U), Mia Akbar (U Toronto), Carissa Brown (Memorial U)

## TAKUJI USUI | CURRICULUM VITAE

Lead member of working group: **Plasticity across species' ranges**, UBC | 2023

Organizers: Katie Marshall (UBC) and Jean-Philippe Lessard (Concordia University)

Member of workshop: **Bayesian modelling in JAGS**, UBC | 2023

Organizer: Anne Bjorkman (University of Gothenburg)

Invited member of working group: **Coexistence on evolutionary scales**, UBC | 2019

Organizers: Rachel Germain (UBC) and Adam Siepielski (University of Arkansas)

Invited member of working group: **Eco-evo dynamics of range expansion**, UBC | 2018

Organizers: Tom Miller (Rice University) and Jennifer Williams (UBC)

Member of tropical field research course: **Kibale National Park**, Uganda | 2015

Organizer: Tropical Biology Association (University of Cambridge)

## TEACHING & MENTORING

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### **Graduate Teaching Assistant | 2020 – 2023**

BIOL 121: Genetics, Ecology & Evolution

BIOL 300: Biostatistics

BIOL 336: Fundamentals of Evolution (**Lead/Senior TA** 2021 and 2023)

BIOL 406: Plant Ecology (**Lead TA in course design** 2021; **Lead TA** 2022-2023)

### **Undergraduate Supervision**

Gemma Hornsey (Centre for Global Change Science Summer Internship Award, 2025-current)

Gabrielle Diez (Work-learn, 2024-2025)

Jerry Yu (Work-learn 2023; KSR USRA 2024; Honours student, 2024-2025)

Joshua Dyer (NSERC Undergraduate Student Research Award, 2023)

Amy Wong (Work-learn, 2022 & 2023)

Burak Ozkan (Research volunteer, 2022)

Kenzie Chute (Research volunteer, 2022)

Sourena Oveisi (Work-learn, 2022)

Vicky Kim (Research volunteer, 2022)

Graydon Gillies (NSERC Undergraduate Student Research Award, 2020 & 2021)

Chris Spangenberg (Work-learn, 2020 & 2021)

Hafsa Ahmed, UBC (Work-learn, 2019)

Emma Menchions, UBC (Work-learn, 2018)

### **EDI Mentorship Programs**

Indigenous Undergraduate Research Mentorship Program (x1 student)

Botany Department Peer Mentor for Incoming Graduates (x1 student)

## SERVICE ACTIVITIES

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### Manuscript reviews

American Journal of Botany; American Naturalist; Aquatic Botany; Ecology; Ecography; Evolution; Global Change Biology; Journal of Animal Ecology; Journal of Avian Biology; Journal of Biogeography; Nature Ecology & Evolution; Oikos; Perspectives in Plant Ecology; PLOS Computational Biology; Evolution and Systematics

### Professional memberships

American Naturalist Society; Botanical Society of America; Canadian Society for Ecology & Evolution; Ecological Society of America; National Biodiversity Network; Society for the Study of Evolution; Tropical Biology Association

### Academic service

- 2025 Member of EDI Committee  
Canadian Society for Ecology & Evolution
- 2025 Postdoctoral Representative  
Department of Ecology & Evolutionary Biology, University of Toronto
- 2025 Postdoctoral Councillor  
Canadian Society for Ecology & Evolution
- 2024 Judge Panel for Excellence in Doctoral Awards  
Canadian Society for Ecology & Evolution
- 2023 Lead Organizer for Make Your Own Model Origami Organism  
University of British Columbia
- 2021 Conference Planning Committee  
Canadian Society for Ecology & Evolution
- 2020 Graduate Student Representative for Biodiversity PDF Selection Committee  
University of British Columbia
- 2020 Selection Committee for Annual Evolution Lecture  
University of British Columbia
- 2019 Lead Organizer and Host for Annual Evolution Lecture  
University of British Columbia
- 2019 Co-director for Annual Zoology/Botany Show  
University of British Columbia

### Community service

- 2025 Volunteer to develop an outdoor program for houseless and at-risk youth  
Partner: 360 Kids, Toronto, ON
- 2022 Volunteer working with Indigenous youth in Vancouver  
Partner: Urban Native Youth Association, Vancouver, BC

## SELECT MEDIA FEATURES

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- 2024    **Computing and the future of AI in EEB**  
The EEQ Quarterly, University of Toronto
- 2023    **Using experimental evolution of duckweeds to understand spatiotemporal patterns of biodiversity**  
International Duckweed Forum
- 2022    **Teaching Spotlight: Getting to know diverse scientists**  
BioNews, University of British Columbia
- 2021    **Meta-analysis of variation suggests that embracing variability improves both replicability and generalizability**  
Partnership for Assessment and Accreditation of Scientific Practice
- 2020    **How species distributions are moving in response to climate change**  
Researchers Revealed, University of British Columbia
- 2016    **Bird migration and global warming**  
World Service News, BBC
- 2016    **Early birds miss out**  
The Times
- 2016    **Climate change driving birds to migrate early, research reveals**  
The Guardian
- 2016    **Global temperature rises causing birds to migrate early**  
The Independent