Kuangyi Xu (徐匡奕)

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PERSONAL INFORMATION

Address: Department of Ecology & Evolutionary Biology, 25 Willcocks Street, Toronto, ON Canada M5S 3B2

Phone: +1 (404) 200-3293

Email: kuangyi.xu@utoronto.ca

Personal Website: https://kyxu.weebly.com

EDUCATION

2018-2023: PhD, Department of Biology, University of North Carolina at Chapel Hill

Supervisors: Maria Servedio, Todd Vision

Dissertation: On the interplay between selfing and population persistence.

2022-2023: MSc, Department of Economics, University of North Carolina at Chapel Hill

Supervisor: Fei Li

Thesis: Relational knowledge transfer with multiple agents.

2014-2018: BSc, School of Physics, Peking University

Supervisor: Yi Tao

Thesis: Fisher's fundamental theorem of natural selection revisited and its biological significance

POSITIONS

2023-present: EEB Postdoctoral Fellow, Department of Ecology & Evolutionary Biology, University of Toronto.

Supervisors: Aneil Agrawal, Matthew Osmond, Stephen Wright

AWARDS & FELLOWSHIPS

2023-2025: **Birgitta Sintring Foundation Postdoctoral Scholarship** (SEK$1020K)

Department of Ecology & Genetics, Uppsala University (awarded but declined).

2023-2025: **EEB Postdoctoral Fellowship** (CAD$136000)

Department of Ecology & Evolutionary Biology, University of Toronto.

2021: **W. C. Coker Fellowship in Botany** ($13K + tuition and health insurance)

Department of Biology, University of North Carolina at Chapel Hill.

2017: **Weiming Elite Program Scholarship** (¥10K)
School of Physics, Peking University.

RESEARCH EXPERIENCE

2018-2023: ***Doctoral Dissertation***: On the interplay between selfing and population persistence.
University of North Carolina at Chapel Hill, US

2022-2023: ***Master Thesis***: Relational knowledge transfer with multiple agents.
University of North Carolina at Chapel Hill, US

2021: ***Research Assistant***: Effects of sexual selection on local adaptation of populations under migration-selection balance with multiple ecological loci.
PI: Maria Servedio, University of North Carolina at Chapel Hill, US

2018-2019: ***Research Assistant***: Simulation of ontological dependency on phylogeny.
PI: Todd Vision, University of North Carolina at Chapel Hill, US

PUBLICATIONS

(*: corresponding author; †: authors contributed equally)

12. **Xu, K.*** (2024). Effects of selfing on the evolution of sexual reproduction. *Evolution* (in press). doi
11. **Xu, K.*** (2024). Evolution of flowering time due to variation in the onset of pollen dispersal among individuals. *Evolution*, *78*(3), 401–412. doi
10. **Xu, K.**, Servedio, M. R., Winnicki, S. K., Moskat, C., Hoover, J. P., Turner, A. M., & Hauber, M. E.* (2023). Host learning selects for the coevolution of greater egg mimicry and narrower antiparasitic egg-rejection thresholds. *Evolution Letters*, *7*(6), 413-421. doi
9. **Xu, K.***, Vision, T. J., & Servedio, M. R. (2023). Evolutionary rescue under demographic and environmental stochasticity. *Journal of Evolutionary Biology*, *36*(10), 1525-1538. doi
8. **Xu, K.*** (2023) Population rescue through an increase of the selfing rate under pollen limitation: plasticity vs. evolution. *The American Naturalist*, *202*(3), 337-350. doi
7. **Xu, K.** †, Lerch, B. A. †, & Servedio, M. R.* (2023). The Fisher process of sexual selection with the coevolution of preference strength. *Evolution*, *77*(4), 1043-1055. doi
6. **Xu, K.*** (2023). Effects of selfing on multi-step adaptation. *Evolution*, *77*(2), 482-495. doi
5. **Xu, K.*** (2022). The genetic basis of selfing rate evolution. *Evolution*, *76*(5), 883-898. doi
4. **Xu, K.*** (2022). Mutation accumulation in inbreeding populations under evolution of the selfing rate. *Journal of Evolutionary Biology*, *35*(1), 23-39. doi
3. **Xu, K**.* (2021). The coevolution of flower longevity and self-fertilization in hermaphroditic plants. *Evolution*, *75*(8), 2114-2123. doi
2. **Xu, K.***, & Servedio, M. R. (2021). The evolution of flower longevity in unpredictable pollination environments. *Journal of Evolutionary Biology*, *34*(11), 1781-1792. doi

1. **Xu, K.**, Li, K., Cong, R., & Wang, L.* (2017). Cooperation guided by the coexistence of imitation dynamics and aspiration dynamics in structured populations. *EPL* (*Europhysics Letters*), *117*(4), 48002. doi

MANUSCRIPTS UNDER REVISION

1. **Xu, K.,*** & Reatini, B. The role of self-fertilization in plant colonization. (in revision for resubmission, *The American Naturalist)* bioRxiv
2. **Xu, K.*** Evolution of plasticity in mating systems and its fitness consequences. (under review)
3. **Xu, K.*** Genetic association between selfing rate and inbreeding depression and its impacts on the evolution of selfing. *Frontiers in Plant Science.* (minor revision)

TEACHING EXPERIENCES

University of North Carolina at Chapel Hill (S = Spring, F = Fall)

2023S: Graduate Research Consultant, Math of Life (BIOL 224H/L)

2022F, 2023S: Teaching Assistant, How Cells Function (BIOL103)

2019S - 2020S, 2022S: Teaching Assistant, Ecology and Evolution (BIOL201)

2022S: Guest lecturer, Mathematics of Evolutionary Processes (BIOL 214H)

2020F: Teaching Assistant, Reasoning with Data: Navigating a Quantitative World (MATH/BIOL 115)

PROFESSIONAL SERVICE & OUTREACH

Reviews for (alphabetical): *Evolutionary Ecology, Genetics, International Journal of Plant Sciences, Journal of Evolutionary Biology, PeerJ, Proceedings of the Royal Society B: Biological Science*

INVITED SEMINARS

2022: **Xu, K.** Selfing as an evolutionary dead end? Population Biology seminar, Department of Biology, Duke University.

PRESENTATIONS AT SCIENTIFIC MEETINGS

2022: **Xu, K.** Rescue through an increase of the selfing rate under pollen limitation: plasticity vs. genetic evolution. ESEB (European Society of Evolutionary Biology) Congress. Talk.

2022: **Xu, K.** Rescue through an increase of the selfing rate under pollen limitation: plasticity vs. genetic evolution. *Evolution meeting (joint meeting of Society for the Study of Evolution/American Society of Naturalists/Society of Systematic Biologists).* Talk.

2021: **Xu, K**. The genetic basis of adaptation through the evolution of self-fertilization. *Evolution meeting*. Talk.

2021: **Xu, K**., Servedio, M., and Vision, T. Evolutionary rescue under demographic and environmental stochasticity. *Virtual meeting, American Society of Naturalists*. Talk