Masatoshi Katabuchi

Associate Professor
Xishuangbanna Tropical Botanical Garden, Chinese Academy of Sciences, Mengla, Yunnan, 666303 China
University of Chinese Academy of Sciences, Beijing, 100049 China
katabuchi@xtbg.ac.cn mattocci27.github.io 0000-0001-9900-9029

Research Interest

Community ecology, Tropical forest ecology, Functional traits, Global change biology, Bayesian and likelihood methods

Education

Tohoku University, Japan, Supervisor: Tohru Nakashizuka

2012 **Ph.D. (Life Sciences)**, Graduate School of Life Sciences "Community assembly and dynamics in tropical rainforests on the basis of functional traits".

2009 **M.S. (Life Sciences)**, Graduate School of Life Sciences, "Reproductive ecology of a common dioecious fig and its pollinating wasp in a tropical secondary forest in Sarawak, Malaysia"

2007 **B.S. (Biology)**, Department of Biology

Academic & Research Positions

June 2019-
Associate Professor, Xishuangbanna Tropical Botanical Garden, Chinese Academy of Sciences, China

October 2019-
Graduate Supervisor, University of Chinese Academy of Sciences, China

August 2017-February 2019
Postdoctoral Research Associate, Michigan State University, USA

January 2017-August 2017
Visiting Scholar, University of Florida, USA

March 2016-January 2017
Postdoctoral Research Associate, University of Florida, USA

February 2014-February 2016
JSPS Postdoctoral Fellow for Research Abroad, University of Florida, USA

September 2012-February 2014
Postdoctoral Research Fellow, Xishuangbanna Tropical Botanical Garden, Chinese Academy of Sciences, China

April-August 2012
Postdoctoral Research Fellow, Tohoku University, Japan

April 2010-March 2012
JSPS Research Fellow DC2, Tohoku University, Japan

Grants & Fellowships

2025 NIG-JOINT 193,000 JPY

2025 Xingdian Talent Support Program of Yunnan Province (E5YNR03B01) 600,000 RMB

2024 NIG-JOINT 149,000 JPY

2023 Xishuangbanna State Rainforest Talent Support Program (E4BN041B01) 360,000 RMB

2022 ZiHui (Wisdom) Yunnan Program (202203AM140026) 120,000 RMB

2021 National Natural Science Foundation of China/RGC (3211101015) PIs: Louise Ashton, Akihiro Nakamura. Co-Is: Jin Wu, Min Cao, Masatoshi Katabuchi.

2020 Chinese Academy of Sciences President's International Fellowship Initiative (2020FYB0003) 300,000 RMB

2014 JSPS Postdoctoral Fellowship for Research Abroad (no. 25-504) 10,512,000 JPY

2013 Chinese Academy of Sciences Fellowships for Young International Scientists (no. 2013Y1SB0002) 165,000 RMB

2010 Grant-in-Aid for Scientific Research for JSPS Research Fellowship (no. 22-7035) 1,400,000 JPY

Collaborator Named on Foreign Grants

2021 The Japan Society for the Promotion of Science Grant-in-Aid for Scientific Research (21H02248). PI: Yoshiko Iida. Co-PIs: Wakana Azuma, Mai Kamakura, Takashi Kohyama. External Scientific Collaborator: Masatoshi Katabuchi

Publications

*: corresponding author, †: equal contribution

1. Kurokawa, H.*, Arai, T., Takayanagi, S., Kobayashi, M., Fukuzawa, K., **Katabuchi, M.**, Oguro, M., Aiba, M., Nagano, S., Hikosaka, K., Shibata, H., Kaneko, N. & Nakashizuka, T. Leaf litter decomposition along an elevation gradient across two contrasting forest types: Implications for future climate change. ***Ecological Research*** 41, e70021 (2026) [doi].

2. Chen, Y.-J.†*, Maenpuen, P.†, **Katabuchi, M.†**, Tor-ngern, P., Palmroth, S., Zhang, S.-B., Xiao, Y.-X., Liu, M. & Oren, R.†* H□ □ jydraulic conductivity-induced systematic parameter variation in a widely used thermal dissipation sap-flow technique. ***New Phytologist*** (2025) [doi].

3. Nguyen, T. D. & **Katabuchi, M.*** Saturating allometric relationships reveal how wood density shapes global tree architecture. ***Journal of Forestry Research*** 36, 107 (2025) [doi].

4. **Katabuchi, M.***, Kitajima, K., Wright, S. J., Van Bael, S. A., Osnas, J. L. D. & Lichstein, J. W. Decomposing leaf mass into metabolic and structural components explains divergent patterns of trait variation within and among plant species. ***Oecologia*** 207, 71 (2025) [doi].

5. Song, X.†, **Katabuchi, M.†**, Chase, J. M., Johnson, D. J., Zhang, W., Deng, X., Cao, M. & Yang, J.* Drought tolerance and species abundance mediate dry season negative density dependence in a tropical forest. ***Ecology*** 105, e4382 (2024) [doi].

6. Zhou, C., Nakamura, A., Song, X. & **Katabuchi, M.*** Artificial Light at Night (ALAN) Influences Understory Plant Traits through Ecological Processes: A Two-Year Experiment in a Rubber Plantation in China. ***Ecologies*** 4, 704–713 (2023) [doi].

7. Phoutthavong, K., **Katabuchi, M.***, Nakamura, A., Cheng, X. & Cao, M. Inter- and intraspecific adaptations of pteridophyte leaf traits in limestone and non-limestone forests of monsoon tropical regions of southwest China. ***Journal of Plant Ecology*** 16, rtad026 (2023) [doi].

8. Maenpuen, P.†, **Katabuchi, M.†***, Onoda, Y., Zhou, C., Zhang, J.-L.* & Chen, Y.-J. Sources and consequences of mismatch between leaf disc and whole-leaf leaf mass per area (LMA). ***American Journal of Botany*** 109, 1242–1250 (2022) [doi].

9. Chen, Y.-J., Choat, B., Sterck, F.*, Maenpuen, P., **Katabuchi, M.**, Zhang, S.-B., Tomlinson, K. W., Oliveira, R. S., Zhang, Y.-J., Shen, J.-X., Cao, K.-F.* & Jansen, S.* Hydraulic prediction of drought-induced plant dieback and top-kill depends on leaf habit and growth form. ***Ecology Letters*** 24, 2350–2363 (2021) [doi].

10. Chen, Y.-J.*, Maenpuen, P., Zhang, Y.-J.*, Barai, K., **Katabuchi, M.**, Gao, H., Kaewkamol, S., Tao, L.-B. & Zhang, J.-L. Quantifying vulnerability to embolism in tropical trees and lianas using five methods: Can discrepancies be explained by xylem structural traits? ***New Phytologist*** 229, 805–819 (2021) [doi].

11. Swenson, N. G.*, Hulshof, C. M., **Katabuchi, M.** & Enquist, B. J. Long-term shifts in the functional composition and diversity of a tropical dry forest: A 30-yr study. ***Ecological Monographs*** e01408 (2020) [doi].

12. Sreekar, R., **Katabuchi, M.**, Nakamura, A., Corlett, R. T., Slik, J. W. F., Fletcher, C., He, F., Weiblen, G. D., Shen, G., Xu, H., Sun, I.-F., Cao, K., Ma, K., Chang, L.-W., Cao, M., Jiang, M., Gunatilleke, I. A. U. N., Ong, P., Yap, S., Gunatilleke, C. V. S., Novotny, V., Brockelman, W. Y., Xiang, W., Mi, X., Li, X., Wang, X., Qiao, X., Li, Y., Tan, S., Condit, R., Harrison, R. D. & Koh, L. P. Spatial scale changes the relationship between

beta diversity, species richness and latitude. ***Open Science*** 5, 181168 (2018) [doi].

13. Johnson, D. J.*, Needham, J., Xu, C., Massoud, E. C., Davies, S. J., Anderson-Teixeira, K. J., Bunyavejchewin, S., Chambers, J. Q., Chang-Yang, C.-H., Chiang, J.-M., Chuyong, G. B., Condit, R., Cordell, S., Fletcher, C., Giardina, C. P., Giambelluca, T. W., Gunatilleke, N., Gunatilleke, S., Hsieh, C.-F., Hubbell, S., Inman-Narahari, F., Kassim, A. R., **Katabuchi, M.**, Kenfack, D., Litton, C. M., Lum, S., Mohamad, M., Nasardin, M., Ong, P. S., Ostertag, R., Sack, L., Swenson, N. G., Sun, I. F., Tan, S., Thomas, D. W., Thompson, J., Umaña, M. N., Uriarte, M., Valencia, R., Yap, S., Zimmerman, J., McDowell, N. G. & McMahon, S. M. Climate sensitive size-dependent survival in tropical trees. ***Nature Ecology & Evolution*** 1 (2018) [doi].

14. Osnas, J. L. D., **Katabuchi, M.**, Kitajima, K., Wright, S. J., Reich, P. B., Van Bael, S. A., Kraft, N. J. B., Samaniego, M. J., Pacala, S. W. & Lichstein, J. W.* Divergent drivers of leaf trait variation within species, among species, and among functional groups. ***Proceedings of the National Academy of Sciences of the United States of America*** 115, 5480–5485 (2018) [doi].

15. Li, Y., Shipley, B.*, Price, J. N., Dantas, V. de L., Tamme, R., Westoby, M., Siefert, A., Schamp, B. S., Spasojevic, M. J., Jung, V., Laughlin, D. C., Richardson, S. J., Bagousse-Pinguet, Y. L., Schöb, C., Gazol, A., Prentice, H. C., Gross, N., Overton, J., Cianciaruso, M. V., Louault, F., Kamiyama, C., Nakashizuka, T., Hikosaka, K., Sasaki, T., **Katabuchi, M.**, Frenette Dussault, C., Gaucherand, S., Chen, N., Vandewalle, M. & Batalha, M. A. Habitat filtering determines the functional niche occupancy of plant communities worldwide. ***Journal of Ecology*** 3, 808–809 (2017) [doi].

16. **Katabuchi, M.***, Wright, S. J., Swenson, N. G., Feeley, K. J., Condit, R., Hubbell, S. P. & Davies, S. J. Contrasting outcomes of species- and community-level analyses of the temporal consistency of functional composition. ***Ecology*** 98, 2273–2280 (2017) [doi].

17. Siefert, A.*, Violle, C., Chalmandrier, L., Albert, C. H., Taudiere, A., Fajardo, A., Aarssen, L. W., Baraloto, C., Carlucci, M. B., Cianciaruso, M. V., de L. Dantas, V., de Bello, F., Duarte, L. D. S., Fonseca, C. R., Freschet, G. T., Gaucherand, S., Gross, N., Hikosaka, K., Jackson, B., Jung, V., Kamiyama, C., **Katabuchi, M.**, Kembel, S. W., Kichenin, E., Kraft, N. J. B., Lagerström, A., Bagousse-Pinguet, Y. L., Li, Y., Mason, N., Messier, J., Nakashizuka, T., Overton, J. M., Peltzer, D. A., Pérez-Ramos, I. M., Pillar, V. D., Prentice, H. C., Richardson, S., Sasaki, T., Schamp, B. S., Schöb, C., Shipley, B., Sundqvist, M., Sykes, M. T., Vandewalle, M. & Wardle, D. A. A global meta-analysis of the relative extent of intraspecific trait variation in plant communities. ***Ecology Letters*** 18, 1406–1419 (2015) [doi].

18. **Katabuchi, M.*** LeafArea: An R package for rapid digital image analysis of leaf area. ***Ecological Research*** 30, 1073–1077 (2015) [doi].

19. Ashton, L. A., Nakamura, A.*, Basset, Y., Burwell, C. J., Cao, M., Eastwood, R., Odell, E., de Oliveira, E. G., Hurley, K., **Katabuchi, M.**, Maunsell, S., Mcbroom, J., Schmidl, J., Sun, Z., Tang, Y., Whitaker, T., Laidlaw, M. J., Mcdonald, W. J. F. & Kitching, R. L. Vertical stratification of moths across elevation and latitude. ***Journal of Biogeography*** 43, 59–69 (2016) [doi].

20. Nakamura, A.*, Burwell, C. J., Ashton, L. A., Laidlaw, M. J., **Katabuchi, M.** & Kitching, R. L. Identifying indicator species of elevation: Comparing the utility of woody plants, ants and moths for long-term monitoring. ***Austral Ecology*** 41, 179–188 (2016) [doi].

21. Nakamura, A.*, Burwell, C. J., Lambkin, C. L., **Katabuchi, M.**, Mcdougall, A., Raven, R. J. & Neldner, V. J. The role of human disturbance in island biogeography of arthropods and plants: An information theoretic approach. ***Journal of Biogeography*** 42, 1406–1417 (2015) [doi].

22. Deng, X., Mohandass, D.*, **Katabuchi, M.**, Hughes, A. C. & Roubik, D. W. Impact of Striped-Squirrel Nectar-Robbing Behaviour on Gender Fitness in *Alpinia Roxburghii* Sweet (Zingiberaceae). ***PLoS ONE*** 10, (2015) [doi].

23. Hikosaka, K.*, Sasaki, T., Kamiyama, C., **Katabuchi, M.**, Oikawa, S., Shimazaki, M., Kimura, K. & Nakshizuka, T. Understanding of species niche, coexistence and extinction based on functional traits : Approaches from community and physiological ecology for subalpine moorland plant communities [in Japanese]. ***Chikyu-Kankyo*** 19, 33–46 (2014).

24. Kamiyama, C.*, **Katabuchi, M.**, Sasaki, T., Shimazaki, M., Nakashizuka, T. & Hikosaka, K. Leaf-trait responses to environmental gradients in moorland communities: Contribution of intraspecific variation, species replacement and functional group replacement. ***Ecological Research*** 29, 607–617 (2014) [doi].

25. Sasaki, T.*, **Katabuchi, M.**, Kamiyama, C., Shimazaki, M., Nakashizuka, T. & Hikosaka, K. Vulnerability of moorland plant communities to environmental change: Consequences of realistic species loss on functional diversity. ***Journal of Applied Ecology*** 51, 299–308 (2014) [doi].

26. Cádiz, A., Nagata, N., **Katabuchi, M.**, DíAZ, L. M., ECHENIQUE-DíAZ, L. M., Akashi, H. D., Makino, T. &

Kawata, M.* Relative importance of habitat use, range expansion, and speciation in local species diversity of anolis lizards in cuba. ***Ecosphere*** 4, (2013) [doi].

27. Asanok, L.*, Marod, D., Duengkae, P., Pranmongkol, U., Kurokawa, H., Aiba, M., **Katabuchi, M.** & Nakashizuka, T. Relationships between functional traits and the ability of forest tree species to reestablish in secondary forest and enrichment plantations in the uplands of northern Thailand. ***Forest Ecology and Management*** 296, 9–23 (2013) [doi].
28. Sasaki, T.*, **Katabuchi, M.**, Kamiyama, C., Shimazaki, M., Nakashizuka, T. & Hikosaka, K. Variations in species composition of moorland plant communities along environmental gradients within a subalpine zone in northern japan. ***Wetlands*** 33, 269–277 (2013) [doi].
29. Aiba, M.*, **Katabuchi, M.**, Takafumi, H., Matsuzaki, S. I. S., Sasaki, T. & Hiura, T. Robustness of trait distribution metrics for community assembly studies under the uncertainties of assembly processes. ***Ecology*** 94, 2873–2885 (2013) [doi].
30. Sasaki, T.*, **Katabuchi, M.**, Kamiyama, C., Shimazaki, M., Nakashizuka, T. & Hikosaka, K. Nestedness and niche-based species loss in moorland plant communities. ***Oikos*** 121, 1783–1790 (2012) [doi].
31. Sasaki, T.*, **Katabuchi, M.**, Kamiyama, C., Shimazaki, M., Nakashizuka, T. & Hikosaka, K. Diversity partitioning of moorland plant communities across hierarchical spatial scales. ***Biodiversity and Conservation*** 21, 1577–1588 (2012) [doi].
32. **Katabuchi, M.***, Kurokawa, H., Davies, S. J., Tan, S. & Nakashizuka, T. Soil resource availability shapes community trait structure in a species-rich dipterocarp forest. ***Journal of Ecology*** 100, 643–651 (2012) [doi].
33. **Katabuchi, M.***, Isagi, Y. & Nakashizuka, T. Development of 17 microsatellite markers for *Ceratosolen Constrictus*, the pollinating fig wasp of *Ficus Fistulosa*. ***Molecular Ecology Resources*** 8, 840–842 (2008) [doi].
34. **Katabuchi, M.***, Harrison, R. D. & Nakashizuka, T. Documenting the effect of foundress number in a dioecious fig, *Ficus Fistulosa*, in Malaysia. ***Biotropica*** 40, 457–461 (2008) [doi].

Book

1. Yang D., Tai X., He Y., Liu T., Li S. and **Katabuchi M.** (*in press*), Earth Observations for Deforestation. In: Huang X., Tsatsaris A., Kalogeropoulos K. and Wang S. (eds.), Data-Driven Earth Observation for Disaster Management: From Theory to Practical Applications. Elsevier, Amsterdam. (ISBN: 9780443338038)
2. Hikosaka K., Sasaki T., Kamiyama C., **Katabuchi M.**, Oikawa S., Shimazaki M., Kimura H. and Nakashizuka T. (2016), Trait-Based Approaches for Understanding Species Niche, Coexistence, and Functional Diversity in Subalpine Moorlands. Structure and Function of Mountain Ecosystems in Japan.

Software

2020 **ztpln**: Zero-Truncated Poisson Lognormal Distribution, R CRAN package

2015 **LeafArea**: Rapid Digital Image Analysis of Leaf Area, R CRAN package

2015 **mglmn**: Model Averaging fro Multivariate GLM with Null Models, R CRAN package R CRAN package

Teaching Experience

2025 The 8th Advanced Statistics Workshop, Xishuangbanna Tropical Botanical Garden, Chinese Academy of Sciences, China

2019- Advanced Field course in Ecology and Conservation, Xishuangbanna Tropical Botanical Garden, Chinese Academy of Sciences, China

2013 Experimental Design and Data Analysis, ATBC Asia-Pacific chapter, Banda Aceh, Indonesia

2013 R and generalized linear models, Xishuangbanna Tropical Botanical Garden, Chinese Academy of Sciences, China

Academic Service

2023- Editorial Board Member of Thai Forest Ecological Research Journal

2015-2017 Working Group Member of INNGE, International Network of Next-Generation Ecologists

2015-2017 INNGE manager, The Japan Society of Tropical Ecology

2013- Statistical editor for Lepcey, The Journal of Tropical Asian Entomology

Reviewer for journals (~ 12 per year):

- AoB Plants
- Biotropica
- BMC Evolutionary Biology
- BMC Plant Biology
- Ecological Research
- Ecology
- Ecology Letters
- Ecosphere
- Forest Ecology and Management
- Frontiers in Plant Science
- Functional Ecology
- Global Ecology and Biogeography
- Journal of Applied Ecology
- Journal of Ecology
- Journal of Plant Research
- Journal of Sustainable Forestry
- Journal of Vegetation Science
- Nature Communications
- Oecologia
- Oikos
- Plant Ecology
- PLOS ONE
- Scientific Reports

Awards and Prizes

2012 Dean's award for excellence, Graduate School of Life Sciences (Doctoral Program), Tohoku University

2009 Dean's award for excellence, Graduate School of Life Sciences (Master's Program), Tohoku University

Invited Seminars

2021 Introduction to visualization using ggplot2, International Institute of Tropical Agriculture, Kenya

2018 A quantitative model for divergent drivers of leaf trait variation within and among plant species, Xishuangbanna Tropical Botanical Garden, China

2018 Species coexistence and functional traits. Graduate School of Life Sciences, Tohoku University, Japan

2018 Species coexistence and functional traits. Graduate School of Environment and Information Sciences, Yokoyama National University, Japan

2016 Decomposing leaf mass into photosynthetic and structural components explains divergent patterns of trait variation within and among plant species. Department of Ecology and Evolutionary Biology, Princeton University, NJ

2013 Additive partitioning of functional diversity in plant communities, Xishuangbanna Tropical Botanical Garden, China

International Meetings

Invited

2015 **Masatoshi Katabuchi**, "Future perspective for functional trait research", Organized session on "Achievements and outstanding questions for trait-based forest ecology", 62nd ESJ Annual meeting, Kagoshima, Japan

2014 **Masatoshi Katabuchi (Organizer)**, "Seedling dynamics and its consequence to community assembly processes in a tropical forest", Symposium on "Integrating the structure and dynamics of tree communities to uncover the mechanisms underlying species coexistence", 61st ESJ Annual meeting, Hiroshima, Japan

2011 **Masatoshi Katabuchi** and Hiroko Kurokawa "Community assembly and demography of tropical tree species", Workshop on "Life history regulation of forest trees: towards cross-biome analysis", Sapporo, Japan

Submitted

2019 **Masatoshi Katabuchi**, Kaito Umemura, Thomas Koffel, Litchman Elena, Klausmeier A Christopher, "Combining metacommunity and trait-based approaches predicts species abundances distributions in biological communities", 66th ESJ Annual meeting, Kobe, Japan

2015 **Masatoshi Katabuchi**, Kaoru Kitajima, Joesph Wright, Jeanne Osnas and Jeremy Lichstein "Decomposing leaf mass into photosynthetic and structural components explains diverge patterns of trait variation within vs. among plant communities", 100th ESA Annual meeting, Baltimore, USA

2014 **Masatoshi Katabuchi**, Takehiro Sasaki, Chiho Kamiyama, Masaya Shimazaki, Tohru Nakashizuka and Kouki Hikosaka "Intraspecific trait variations affect spatial patterns of functional diversity among moorland plant communities", 99th ESA Annual meeting, Sacramento, USA.

2013 **Masatoshi Katabuchi**, Sylvester Tan and Tohru Nakashizuka "Negative density dependence reduces survival rates of common tree species in a species-rich tropical rain forest", ATBC, San Jose, Costa Rica

2012 **Masatoshi Katabuchi**, Hiroko Kurokawa, Stuart Davies, Sylvester Tan and Tohru Nakashizuka "Soil resource availability shapes community trait structure in a species-rich dipterocarp forest", ATBC Asia-Pacific chapter, XTBG, China

2011 **Masatoshi Katabuchi**, Hiroko Kurokawa, Sylvester Tan, Stuart J. Davies, and Tohru Nakashizuka, "Non-random abundance distributions of a tropical tree community: evidence from traits correlation at a local scale". ATBC, Arusha, Tanzania

2010 **Masatoshi Katabuchi**, Hiroko Kurokawa, Sylvester Tan, and Tohru Nakashizuka, "Soil variation and functional trait assembly in a diverse dipterocarp forest". 95th ESA Annual meeting, Pittsburgh, USA

2009 **Masatoshi Katabuchi**, Jun Yokoyama, and Tohru Nakashizuka, "Inbreeding and mating structure in a dioecious-fig pollinating wasp". ATBC, Marburg, Germany

Outreach

2015 Masatoshi Katabuchi "Leaves and tropical rainforests". Invited by the Japanese Association of Interdisciplinary Study Group in University Florida

Languages

Japanese (native), English (fluent), Malay (basic), Chinese-Mandarin (basic)

Graduate Students

Thi Duyen Nguyen, 2021 - 2025, M.Sc. Student, Recipient of ANSO Scholarship.

Zhou Cong, 2021 - 2023, M.Sc. Student, Recipient of UCAS Scholarship.