TONG QIU

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Nicholas School of the Environment
Duke University
Durham, NC, 27708, USA

EDUCATION

May 2020	**Ph.D., Geography, University of North Carolina at Chapel Hill, NC, USA** Dissertation: Characterizing the responses of land surface phenology to urbanization, climate change, and extreme weather events using remote sensing and Bayesian models. Committee: Drs. Conghe Song (chair and adviser), James S. Clark (Duke), Erika Wise, Diego Riveros-Iregui, and Allen Hurlbert (UNC Biology)
June 2015	**B.Eng., Remote Sensing, Wuhan University, China** (Graduated with the Highest Honor, GPA Ranking: 1/229) Thesis: Water body extraction based on satellite imagery Advisor: Drs. Yue Wang and Zhongqiu Liu

ACADEMIC APPOINTMENTS

2024 –	**Duke University**, Durham, NC Assistant Professor, Nicholas School of the Environment Graduate Faculty, Environment, University Program in Ecology
2022 – 2024	**Pennsylvania State University**, University Park, PA Assistant Professor, Department of Ecosystem Science and Management Faculty Associate, Institute for Computational and Data Sciences Graduate Faculty, Intercollege Graduate Degree Program in Ecology
2020 – 2022	**Duke University,** Durham, NC Postdoc Associate, Nicholas School of the Environment
2015 – 2020	**University of North Carolina at Chapel Hill**, Chapel Hill, NC Graduate Assistant; Instructor (2019 Fall)

PUBLICATIONS

[* indicate postdocs and † indicate graduate students]

MANUSCRIPTS IN REVIEW/REVISION

X. Li*, Y. Wei†, H. Chen†, **T. Qiu**. Biodiversity modulates climate change impacts on plant phenology across the United States, *in revision, Global Ecology and Biogeography*

X. Li*, H. Chen†, Y. Wei†, **T. Qiu**. Precipitation delays fall senescence across interacting plant species in the contiguous United States, *in revision, Journal of Ecology*

Y. Zhang, J. Mao, G. Sun, Q. Guo, J. Atkins, W. Li, C. Song, J. Xiao, T. Hwang, **T. Qiu**, L. Meng, D. Ricciuto, X. Shi, X. Li, P. Thornton, F. Hoffman. Earth's exceptional Greening in 2020, *in revision*, *Remote sensing of Environment*

T. Qiu, C. Song, H. Chen†, X. Li*, Y. Wei†. Projected changes of vegetation phenology in the next 100

years across the United States, *in review*

MANUSCRIPT IN PREPARATION

Y. Wei[†], H. Chen[†], K. R. Kovach, P. A. Townsend, …, **T. Qiu.** Climate modulates the spectral-biodiversity relationship across biomes in the United States, *draft available upon request*

H. Chen[†], X. Li[*], Y. Wei[†], …, **T. Qiu.** Climate and Habitat change jointly determine the spatial variations of spring and fall phenology across the United States, *draft available upon request*

T. Qiu, …, J.S. Clark. The timing of spring green-up affects tree reproduction in the temperate and boreal forests, *results available upon request*

PUBLISHED JOURNAL ARTICLES

2024

T. Qiu, J. S. Clark, K. R. Kovach, P. A. Townsend, J. J. Swenson. Remotely sensed crown nutrient concentrations modulate forest reproduction across the contiguous United States (2024), *Ecology, doi: 10.1002/ecy.4366*

J. Atkins, K. Aho, X. Chen, A. Elmore, R. Fiorella, W. Luo, D. Lombardozzi, C. Lunch, L. Manak, L. Pablo, A. Myers-Pigg, S. Record, **T. Qiu**, S. Reed, B. Ruddell, B. Strange, C. L. Torrens, K. Yule, A. Richardson. Recommendations for developing, documenting, and distributing derived data products from NEON data, *in press*, *Ecosphere*

V. Journe, M. Bogdziewicz, B. Courbaud, G. Kunstler, **T. Qiu**, … J. S. Clark (author listed alphabetically). The relationship between maturation size and maximum tree size from tropical to boreal climate, *in press*, *Ecology Letters*

2023

T. Qiu, M.-C. Aravena Acuna, D. Ascoli, Y. Bergeron, M.Bogdziewicz, R. Bonal, T. Boivin, T. Caignard, M. Cailleret, R. Calama, J. J. Camarero, C.-H. Chang-Yang, J. Chave, F. Chianucci, B. Courbaud, A. Cutini, A. Das, N. Delpierre, S. Delzon, M. Dietze, S. Donoso Calderon, L. Dormont, J. M. Espelta, T. Fahey, W. Farfan-Rios, J. Franklin, C. Gehring, G. Gilbert, G. Gratzer, C. Greenberg, A. Guignabert, Q. Guo, A. Hacket-Pain, A. Hampe, Q. Han, J. Holík, K. Hoshizaki, I. Ibañez, J. Johnstone, V. Journé, T. Kitzberger, J. Knops, G. Kunstler, J. Lageard, J. LaMontagne, F. Lefevre, T. Leininger, J.-M. Limousin, J. Lutz, D. Macias, A. Marell, E. McIntire, C. Moore, E. Moran, R. Motta, J. Myers, T. Nagel, M. Noguchi, R. Parmenter, P. Samonil, I. Pearse, I. Perez-Ramos, L. Piechnik, T. Podgorski, J. Poulsen, M. Redmond, C. Reid, K. Rodman, F. Roiguez-Sanchez, J. Sanguinetti, C. L. Scher, B. Seget, S. Sharma, M. Silman, M. Steele, N. Stephenson, J. Straub, S. Sutton, J. Swenson, M. Swift, P. Thomas, M. Uriarte, G. Vacchiano, A. Whipple, T. Whitham, A. Wion, S. Wright, K. Zhu, J. Zimmerman, M. Żywiec, and J. S. Clark. Masting is uncommon in trees that depend on mutualist dispersers in the context of global climate and fertility gradients (2023), *Nature Plants, doi: 10.1038/s41477-023-01446-5*

- Behind the paper and News coverage: Science Daily, Phys.org, EurekAlert!, Science Magazine, Mirage News, Skynews, Earth.com, Outdoor News, Penn State News

T. Qiu, A. Bell, J. J. Swenson, J. S. Clark. Habitat-trait interactions that control response to climate change: North American ground beetles (Carabidae) (2023), *Global Ecology and Biogeography, doi: 10.1111/geb.13670*

- Cover article and News coverage: Science Daily, Phys.org, EurekAlert!, ENN, Mirage News, Earth.com, Penn State News, Duke News

Wu, H., Zhuang, M., Chen, Y., Meng, C., Wu, C., Ouyang, L., Liu, Y., Shu, Y., Tao, Y., **T. Qiu**, and Li, J. Urban Treetop Detection and Tree-Height Estimation from Unmanned-Aerial-Vehicle Images (2023), *Remote Sensing, doi: 10.3390/rs15153779*

M. Bogdziewicz., Calama R, Courbaud B, Espelta JM, Hacket-Pain A, Journé V, Kunstler G, Steele M,

T. Qiu, Zywiec M, and J.S. Clark. How to measure mast seeding? (2023), *New Phytologist, doi: 10.1111/nph.18984*

Q. Ma, C. Niu, Q. Ma, T. Hu, X. Luo, X. Tai, **T. Qiu,** Y. Zhang, R. Bales, L. Liu, M. Kelly, and Q. Guo, Tree mortality during long-term droughts is lower in structurally complex forest stands (2023), *Nature Communications, doi: 10.1038/s41467-023-43083-8*

M. Bogdziewicz, …, **T. Qiu**, …, J. S. Clark (94 co-author listed alphabetically, I am one of the six authors that co-wrote the paper), Seed size and number on the map of trait syndromes in trees (2023), *Global Ecology and Biogeography, doi: 10.1111/geb.13652*

2022

C. Wu, C. Li, L. Ouyang, H. Xiao, J. Wu, M. Zhuang, X. Bi, J. Li, C. Wang, C. Song, **T. Qiu**, D. Haase, M. Finka. Spatiotemporal evolution of urbanization and its implications to urban planning of the megacity, Shanghai, China (2022), *Landscape Ecology, doi: 10.1007/s10980-022-01578-7*

T. Qiu, R. Andrus, M.-C. Aravena, D. Ascoli, Y. Bergeron, R. Berretti, D. Berveiller, M. Bogdziewicz, T. Boivin, R. Bonal, D. C. Bragg, T. Caignard, R. Calama, J. J. Camarero, C.-H. Chang-Yang, N. L. Cleavitt, B. Courbaud, F. Courbet, T. Curt, A. J. Das, E. Daskalakou, H. Davi, N. Delpierre , S. Delzon, M. Dietze, S. Donoso Calderon, L. Dormont, J. Espelta, T. J. Fahey, W. Farfan-Rios, C. A. Gehring, G. S. Gilbert, G. Gratzer, C. H. Greenberg, Q. Guo, A. Hacket-Pain, A. Hampe, Q. Han, J. Hille Ris Lambers, K. Hoshizaki, I. Ibanez, J. F. Johnstone, V. Journe, D. Kabeya, C. L. Kilner, T. Kitzberger, J. M.H. Knops, R. K. Kobe, G. Kunstler, J. G.A. Lageard, J. M. LaMontagne, M. Ledwon, F. Lefevre, T. Leininger, J.-M. Limousin, J. A. Lutz, D. Macias, E. J.B. McIntire, C. M. Moore, E. Moran, R. Motta, J. A. Myers, T. A. Nagel, K. Noguchi, J.-M. Ourcival, R. Parmenter, I. S. Pearse, I. M. Perez-Ramos, L. Piechnik, J. Poulsen, R. Poulton-Kamakura, M. D. Redmond, C. D. Reid, K. C. Rodman, F. Rodriguez-Sanchez, J. D. Sanguinetti, C. L. Scher, W. H. Schlesinger, H. Schmidt Van Marle, B. Seget, S. Sharma, M. Silman, M. A. Steele, N. L. Stephenson, J. N. Straub, I-Fang Sun, S. Sutton, J. J. Swenson, M. Swift, P. A. Thomas, M. Uriarte, G. Vacchiano, T. T. Veblen, A. V. Whipple, T. G. Whitham, A. P. Wion, B. Wright, S. J. Wright, K. Zhu, J. K. Zimmerman, R. Zlotin, M. Zywiec, and J. S. Clark. Limits to reproduction and seed size-number trade-offs that shape forest dominance and future recovery (2022), *Nature Communication,* 13:2381*; doi: 10.1038/s41467-022-30037-9*

- Editors' Highlights and News coverage: Science Daily, Terra Daily, Phys.org, EurekAlert!, NSF, Mirage News, True Viral News, AZO Cleantech, Thinking port, Duke News, NSF News

V. Journe, …, **T. Qiu**, …, J. S. Clark (101 co-author listed alphabetically, I am one of the five authors that co-wrote the paper), Globally, tree fecundity exceeds productivity gradients (2022), *Ecology letters*, 25, no. 6, 1471-1482; *doi: 10.1111/ele.14012*

2021

T. Qiu, M. Aravena, R. Andrus, D. Ascoli, Y. Bergeron, R. Berretti, M. Bogdziewicz, T. Boivin, R. Bonal, T. Caignard, R. Calama, C. Julio, C. Clark, B. Courbaud, S. Delzon, C. Donoso, W. Farfan-Rios, C. Gehring, G. Gilbert, C. Greenberg, Q. Guo, R. Hille, K. Hoshizaki, I. Ibanez, V. Journe, C. Kilner, R. Kobe, W. Koenig, G. Kunstler, J. LaMontagne, M. Ledwon, J. Lutz, R. Motta, J. Myers, T. Nagel, C. Nunez, I. Pearse, L. Piechnik, J. Poulsen, R. Poulton-Kamakura, M. Redmond, C. Reid, K. Rodman, C. Scher, V. Schmidt, B. Seget, S. Sharma, M. Silman, J. Swenson, M. Swift, M. Uriarte, G. Vacchiano, T. Veblen, A. Whipple, T. Whitham, A. Wion, S. Wright, K. Zhu, J. Zimmerman, M. Zywiec, J. S. Clark. Is there tree senescence? The fecundity evidence (2021), *Proceedings of the National Academy of Sciences (PNAS) 118(34)*; *doi*: *10.1073/pnas.2106130118*

- From the Cover and News coverage: TheScientist, News Break, Phys.org, Le Figaro, Mirage News, Green Report, France Inter, Sciences et Avenir, Duke News, WUSTL News, NSF News

T. Qiu, S. Sharma, C. Woodall, J. S. Clark. The niche shifts from trees to fecundity to recruitment that determine species redistribution with climate change (2021), *Frontiers in ecology and evolution*;

doi: *10.3389/fevo.2021.719141*

M. Jiang, Y. He, Y. Pan, **T. Qiu**, S. Tian. Disaggregating climatic and anthropogenic influences on vegetation changes in Beijing-Tianjin-Hebei region of China (2021), *Science of the total environment 786: 147574; doi: 10.1016/j.scitotenv.2021.147574*

Prior to 2020

T. Qiu, C. Song, J. S. Clark, B. Seyednasrollah, N. Rathnayaka, J. Li. Understanding the continuous phenological development at a daily time step with a Bayesian hierarchical space-time model: impacts of climate change and extreme weathers (2020), *Remote Sensing of Environment 247: 11956; doi: 10.1016/j.rse.2020.111956*

T. Qiu, C. Song, J. Li. Deriving Annual Double-Season Cropland Phenology Using Landsat Imagery (2020), *Remote Sensing*, *12:* 3275; *doi: 10.3390/rs12203275*

T. Qiu, C. Song, Y. Zhang, H. Liu, and J. M. Vose. Urbanization and climate change jointly shift land surface phenology in the mid-latitude large cities (2020), *Remote Sensing of Environment 236: 111477; doi: 10.1016/j.rse.2019.111477*

Q. Zhang, Y. Wang, S. Tao, R.E. Bilsborrow, **T. Qiu**, C. Liu, S. Sannigrahi, Q. Li, and C, Song, Divergent socioeconomic-ecological outcomes of China's conversion of cropland to forest program in the subtropical mountainous area and the semi-arid Loess Plateau (2020), *Ecosystem Services* 45: 101167*; doi: 10.1016/j.ecoser.2020.101167*

T. Qiu, C. Song, and J. Li, Impacts of urbanization on vegetation phenology over the past three decades in Shanghai, China (2017), *Remote Sensing 9.9: 970; doi:10.3390/rs9090970*

CONFERENCE ARTICLE AND OTHER PUBLICATIONS

J.J. Swenson, **T. Qiu**, A. Schwantes, C. Kilner, C. Nunez. L. Scher, S. Sharma, and J.S. Clark. Community reorganizing response to climate change: species interactions, state-space model, and food webs. *2020 IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*

GRANTS

Current Extramural Grants (~$1.3 million total, ~$1 million as lead PI)

Determining forest recruitment change through the integration of NASA Earth observation data and predictive modeling, ***NASA** ROSES*, **lead PI: T. Qiu**, co-PIs: J. S. Clark, M. E. McDill (Penn State), 01/01/2024–12/31/2027, $1,012,073 from NASA and an additional $454,700 cost-share from PA Department of Conservation and Natural Resources (DCNR). News Release

DISES: Socioecological Outcomes of Restoration in Forest-Grassland Ecosystems, ***NSF**,* lead PI: I. Djenontin (Penn State), co-PIs: F. Fleischman, E. Smithwick, **T. Qiu** (institutional PI at Duke), 08/15/2024–07/31/2029, $1,300,000 in total and $335,105 to Duke.

Pending Extramural Grants (~$1.5 million total as lead PI)

Continent-wide biodiversity forecasts: scaling the climate-habitat relationships. ***NASA** ROSES*, submitted, **lead PI: T. Qiu,** co-PIs: J. S. Clark, P. A. Townsend, $749,916

Integrating CLM-FATES and digital twins to understand the impacts of land cover land use change on climate variability in the Eastern U.S.A. ***NASA** ROSES*, step-2 proposal submitted, **lead PI: T. Qiu,** co-PIs: M. Yu, J. D. Fuentes, $738,963

Internal Grants and Awards from Penn State (~350K total, ~$150K as lead PI)

Developing climate-smart agricultural practices under global climate change, *Institute for Sustainable Agricultural, Food, and Environmental Science (SAFES) seed grant*, **sole PI: T. Qiu,** collaborators: A. R. Kemanian, 02/01/2023 – 09/31/2024, $8,500.

Forest biodiversity modeling through the synthesis of hyperspectral, LiDAR, and tree inventories within a deep learning framework, *Institute for Computing and Data Sciences (ICDS) seed grant*, **lead PI: T. Qiu,** co-PIs: M. Yu, 07/01/2023 – 08/31/2024, $30,000 and an additional $22,000 cost-share from the College of Agricultural Sciences.

Understanding 21st century forest regeneration: the bridge from habitat to forest trees to vertebrate community in a changing climate, *Bridges Large Research Grant at the Department of Ecosystem Science and Management*, **lead PI: T. Qiu**, co-PIs: J. Avery, F. Buderman, P. Drohan, J. Duncan, L. Leites, M. McDill, D. Miller, 04/15/2023 – 06/30/2023, $50,000 and an additional $43,177 match from faculty fund.

Improving predictions of forest management effects on the abiotic environment and its implications for wildlife habitat suitability. ***USDA*** *McIntire-Stennis Grant*, lead PI: J. Avery, other PIs: **T. Qiu**, D. Miller, 10/1/2022 – 10/1/2024, $199,788 (direct cost only)

Proposals pending resubmission

Metropolitan Emissions Integration: Advancing National Carbon Inventories with High-Resolution Urban Data. **lead PI: T. Qiu**, co-PIs: K. Davis (Penn State), A. Bloom (JPL), E. R. Vivoni (Arizona State University)

Integrating multi-source remote sensing and Bayesian models to characterize the impacts of climate change, urban heat islands, and air pollution on land surface phenology across the U.S., **PI: T. Qiu,** Future PI: H. Chen (graduate student in the lab)

TEACHING EXPERIENCE

DUKE UNIVERSITY

2025 Spring (forthcoming): Instructor of Record

ENV 558L: Remote sensing for environmental analysis

PENNSYLVANIA STATE UNIVERSITY

2023 Fall: Instructor of Record

FOR/SOIL/WFS 597: Advance GIS and Remote Sensing (Fall 2023, 11 graduate students)
Course evaluation: median 5/6, mode 6/6, *report available upon request*
- Ecological applications in R and Google Earth Engine (GEE)

2023 Spring: Instructor of Record

FOR 455: Remote Sensing and Spatial Data Handling (Spring 2023, 23 undergraduates; Spring 2024, 20 undergraduate students)
Course evaluation: median 6/7, mode 7/7, *report available upon request.*
- Forest ecology and environmental data sciences in ArcGIS Pro and FUSION

UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

2019: Instructor of Record

GEOG 391: Quantitative methods for geographers (Fall 2019, 25 students)
- Teaching the concepts of fundamental statistics and their applications, including descriptive statistics, data visualization, probability theory, probability distribution, point estimation, hypothesis testing, ANOVA, and basic spatial statistics.
- Creating slides and notes from scratch
- Designing in-class activities (e.g., simulation games and on-line visualization) to help students better understand statistical concepts.
- Designing and grading five homework, two mid-terms, and one final exam.

Course evaluation: mean 4.45/5.0, *report available upon request.*

2018 – 2019: Teaching Assistant

GEOG 477: Introduction to Remote Sensing (Fall 2018)
GEOG 577: Advance Remote Sensing (Spring 2018)
GEOG 370: Introduction to Geographic Information (Spring 2019)

2019: Recitation Instructor *(teaching the usage of ArcGIS and leading problem-solving recitations)*

GEOG 370: Introduction to Geographic Information (Spring 2019)

GUEST LECTURE

ECLGY 515: Advances in Ecology (Fall 2022, Penn State)
ENV 558: Image classification on GEE (Fall 2020, Fall 2021, Fall 2022, Duke)
GEOG 370: Introduction to geographic information (Spring 2019, UNC)
GEOG 577: Advanced Remote Sensing (Spring 2018, Spring 2019, UNC)
GEOG 441: Introduction to Watershed Systems (Spring 2016, UNC)

INVITED TALKS

2024 **T. Qiu**. Biodiversity and forest regeneration in a rapidly changing world: consumers, habitat, and climate change. Nicholas School of the Environment, Duke University

2024 **T. Qiu**. Understanding plant-animal interactions through the lens of remote sensing. Department of Plant Science, Penn State, Jan. 19th

2023 **T. Qiu**. Understanding the regeneration potential of forests under global change. Sino-Ecologists Association Overseas Seminar, Oct. 3rd **(virtual)**

2023 **T. Qiu**. How remote sensing can help us advance the understanding of biodiversity change. Center for Artificial Intelligence Foundations and Engineered Systems, Penn State, Sep. 27th

2023 **T. Qiu**. Understanding the regeneration potential of forests under global change. Department of Biology, New Jersey Institute of Technology, Sep. 19th

2023 **T. Qiu**. Climate-habitat interactions that control biodiversity change: synthesizing NEON AOP with ground observations. National Ecological Observatory Network (NEON) Science Seminar Series, Sep. 12th **(virtual)**

2023 **T. Qiu**. Winners or losers under climate change? It depends on habitat. Climate Solutions Symposium, Penn State, May. 22nd – 23rd **(talk and panelist)**

2023 **T. Qiu**. Response of forest ecosystem functions to climate change. Department of Meteorology and Atmospheric Science, Dynamic Climate Seminar, Penn State, Feb. 18th

2022 **T. Qiu**. Combined LiDAR and Hyperspectral imagery in understanding biodiversity and forest reproduction. Peking University, July 5th **(virtual)**

2022 **T. Qiu**, Usage of joint species modeling in understanding regeneration niche shifts. Ecological Society of American (ESA) Statistical Section and Ecological Forecasting Initiative (EFI) Seminar, Jan 28th (**virtual**).

2022 **T. Qiu**. What drives the variations of seed production of global forest trees? The GeoInsider Webinar, May. 8th **(virtual)**

2020 **T. Qiu**, Tracking and forecasting the seasonal rhythms of terrestrial ecosystem: insights from remote sensing, Duke University, University Program in Ecology, Durham, NC, Sep 8th

2019 **T. Qiu,** The combined effects of urbanization and climate change on vegetation phenology in the northern mid-latitude large cities. UNC Geography Graduate Research Colloquium,

Chapel Hill, NC, Mar. 21st

2019 **T. Qiu,** Extraction of Water Bodies using remotely sensed spectral signature: A case study in Wuhan City. Winston Salem, NC, Feb 27th – Mar 1st, G. Herbert Stout Award

2018 **T. Qiu,** Remote sensing as technical frontiers in understanding our environment. UNC-CH and UNC-G Joint Geography Colloquium, Chapel Hill, NC, Oct. 26th

SCHOLARLY PRESENTATIONS

SELECTED CONFERENCE PRESENTATIONS (only first author and lab presentations are included)

[* indicate postdocs and † indicate graduate students]

2024 Yu Wei†, H. Chen†, **T. Qiu**, Imaging spectroscopy captures temperature-dependent plant biodiversity across the United states. Ecological Society of America annual meeting, Aug. 4th – 9th **(talk)**

2024 H. Chen†, X. Li*, Yu Wei†, **T. Qiu**, Habitat mitigates climate impacts on vegetation phenology across the National Ecological Observatory Network (NEON), Ecological Society of America annual meeting, Aug. 4th – 9th **(talk)**

2024 **T. Qiu**, X. Li*, H. Chen†, Biodiversity mediate climate change impacts on plant phenology across the United States. Ecological Society of America annual meeting, Aug. 4th – 9th **(talk)**

2024 **T. Qiu**, X. Li*, H. Chen†, Species interaction and habitat mediate climate impacts on plant phenology, International Associate of Landscape Ecology – North America Meeting, April 1st – 5th **(talk at a symposium)**

2023 **T. Qiu**, R. Kays, K. R. Kovach, A. W. Parsons, C. L. Scher, J. J. Swenson, P. A. Townsend, J. S. Clark, Combined LiDAR and hyperspectral data for modeling of vertebrates across the National Ecological Observatory Network (NEON) sites, American Geophysical Union Fall meeting, Dec. 10th – 15th **(talk)**

2023 X. Li*, **T. Qiu**. Evaluating the impacts of climate factors and species interactions on fall phenology in the United States, American Geophysical Union Fall meeting, Dec. 10th – 15th **(poster)**

2023 X. Li*, T. Ault, A. D. Richardson, S. E. Frolking, D. A. Herrera, M. A. Friedl, C. Carrillo, C. Evans, **T. Qiu**. Northern Hemisphere Land-atmosphere feedback from Prescribed plant phenology in CESM, American Geophysical Union Fall meeting, Dec. 10th – 15th **(poster)**

2023 **T. Qiu**. How does remote sensing help us understand biodiversity change? Insect-NET: AI for Ecological and Agricultural Science Symposium, Sep 15th **(talk)**

2023 **T. Qiu**, J. S. Clark. The timing of spring green-up affects tree reproduction in the temperate and boreal forests. Ecological Society of America annual meeting, Aug. 6th – 11st **(talk)**

2023 **T. Qiu**. Winners or losers under climate change? It depends on habitat. Predictive Ecology: Temporal, Spatial, or Phylogenetic Forecasting, Jun. 5th – 9th **(poster)**

2022 **T. Qiu**, A. Bell, J. J. Swenson, J. S. Clark. Habitat-trait interactions that control response to climate change: North American ground beetles (Carabidae). American Geophysical Union Fall meeting, Dec. 12th – 16th **(talk)**

2022 **T. Qiu**, A. Bell, J. J. Swenson, J. S. Clark. Habitat-trait interactions that control response to climate change: North American ground beetles (Carabidae). Ecological Society of America annual meeting, Aug. 14th – 19th **(talk)**

2021 **T. Qiu**, J. S. Clark, P. R. Townsend, J. J. Swenson, Combined LiDAR and hyperspectral

imagery for landscape forest reproduction across the United States. American Geophysical Union Fall meeting, Dec 13st – 17th **(virtual poster)**

2021 **T. Qiu**, J. J. Swenson, J. S. Clark, Combined LiDAR and hyperspectral Imagery in tree reproduction and ground beetle's abundance modeling. NASA Biodiversity Forecast Team Meeting, Oct 19th – 21st **(virtual poster)**

2021 **T. Qiu,** B. Courbaud, V. Journe, G. Kunstler, C. L. Scher, J. J. Swenson, J. S. Clark, Global analysis of reproductive investment in trees: effects of soil nutrients, species traits, and phylogeny. Ecological Society of America annual meeting, Aug. 2rd – 5th **(virtual talk)**

2020 **T. Qiu,** C. Kilner, J. J. Swenson, J. S. Clark, Dynamic response of ground beetles to climate change and habitat characteristics. American Geophysical Union Fall meeting, Dec 11st – 16th (**virtual talk**)

2020 **T. Qiu,** C. L. Scher, M. E. Swift, J. J. Swenson, J. S. Clark, Capturing emergent interactions that govern food web dynamics with climate change. Ecological Society of America annual meeting, Aug 3rd – 6th **(virtual talk)**

2019 **T. Qiu,** C. Song, B. Seyednasrollah, N. Rathnayaka, A Bayesian hierarchical space-time model in characterizing the impacts of climate change and extreme weather events on land surface phenology. American Geophysical Union Fall meeting, Dec 9th – 13th (**Poster**)

2018 **T. Qiu,** C. Song, Y. Zhang, and H. Liu, Characterizing the impacts of urbanization and climate change on land surface phenology in the Northern Hemisphere. American Geophysical Union Fall Meeting, Washington, DC, Dec. 10th –14th (**poster**)

2018 **T. Qiu,** C. Song, Y. Zhang, and H. Liu, How urban vegetation responded to land use change and climate change? UNC 6th Annual Climate Change & Resilience Symposium, Chapel Hill, NC, Apr. 12th (**poster**)

2018 **T. Qiu,** C. Song, Using Google Earth Engine to estimate impervious surface area in the U.S. big cities. 1st UNC Google Earth Engine Symposium*,* Chapel Hill, NC, Jul. 27th (**talk**)

2017 **T. Qiu,** C. Song, Understanding the effects of urban expansion on spatio-temporal variations of vegetation phenology at global scale from 1993 to 2014. American Geophysical Union 2017 Fall Meeting*,* New Orleans, LA, Dec. 11th – 15th (**talk**)

2017 **T. Qiu,** C. Song, J. Li, Spatial-temporal patterns of landscape phenology in the urban vegetation and the surrounding agricultural regions. 2017 Annual Meeting of the American Association of Geographers*,* Boston, MA, Apr. 5th – 9th (**talk**)

2017 **T. Qiu,** C. Song, J. Li, Impacts of landscape metrics on vegetation phenology over the past three decades. UNC 3rd Annual Climate Change & Resilience Symposium, Chapel Hill, NC, Mar. 21st (**poster**)

2016 **T. Qiu,** C. Song, J. Li, Characterizing urbanization effects on landscape phenology along a rural-urban gradient using Landsat time series data. American Geophysical Union 2016 Fall Meeting, San Francisco, CA, Dec. 12nd – 16th (**poster**)

2016 **T. Qiu,** C. Song, J. Li, Detecting spatial and temporal variation of urban phenology over the past three decades using Landsat time series data*.* 2nd Congress of the Society of Urban Ecology, Shanghai, China, Jul. 7th – 11th (**talk**)

HONORS & AWARDS

2023 High impact publication award in Ecosystem integration, Pennsylvania State Univ

2019 Graduate Student Transportation Grant, UNC-Chapel Hill

2019	Finalist for 3-minute Thesis Competition, UNC-Chapel Hill
2019	James Carlton Ingram Summer Research Fellowship, UNC-Chapel Hill
2019	G. Herbert Stout Award for Innovative Use of GIS
2016/17/18/19	Conference Travel Award (*five times*), Dept. of Geography, UNC-Chapel Hill
2017	Finalist in Student Honors Paper, AAG Remote Sensing Specialty Group
2016	Best Student Paper, Second Congress of the Society for Urban Ecology
2016	Best Undergraduate Thesis (3%), Hubei Province of China
2015	Presidential Fellowship, equivalent to Full-ride Scholarship (0.4%), Wuhan University
2015	Geoway Remote Sensing Academic Star (0.4%), Wuhan University
2012/13/14	National Fellowship (2%, *three times*), Ministry of Education of China
2012/13/14	First-Class Scholarship (5%, *three times*), Wuhan University
2013/14	Pacemaker for Outstanding Student (0.4%, *two times)*, Wuhan University
2012/13/14	Outstanding Student (5%, *three times*), Wuhan University
2013/14	Outstanding Engineer Fellowship (10%, awarded a summer school study in the U.K.)
2013	Best Group Presentation (10%), The University of Cambridge
2012	National Undergraduate Innovative Fellowship (2%), Wuhan University

PROFESSIONAL DEVELOPMENT

Workshop

2024	Macrophenology (part of the ESIIL working group) (July 15th – July 19th, Boulder, US)
2023	Continent-wide forest recruitment change (May 1st – May 4th, SERC, US)
2022	Bottom-up controls on consumers & food webs (November 16th – 18th, INRAE, Grenoble)

SERVICE

MENTORING

Postdoctoral scholar:

Dr. Xiaolu Li (2023 – , transferred to Duke on 7/1/2024)

Ph.D. Students Adviser:

Ms. Hanshi Chen (Ecology, 2023 – , transferred to Duke in Fall 2024)

Ms. Wei Yu (Environment, 2023 –, transferred to Duke in Fall 2024)

Master of Environment Management (MEM) student:

Ms. Guyu Yang (NSOE, 2024 –)

Undergraduate students:

Ms. Alexis Fox (Duke, 2024 –)

Mr. Max Xiong (Duke, 2024 –)

Mr. Finan Turnage-Barney (Penn State Geography, 2023 – 2024)

Mr. Evan Hackett (Penn State Forestry, 2023 Summer)

Mr. Gearhart Kingston (Penn State Forestry, 2024 Summer)

Mr. AJ Gable (Penn State Forestry, 2024 Summer)

GRADUATE COMMITTEE

Brandon Hayes (Duke UPE, Ph.D. Committee Member)

Casey W. Hamilton (Penn State Geography, Ph.D. Committee Member)
Chyvonne Jessick (Penn State Ecology, Ph.D. Committee Member)
Samantha A Allbee (Penn State Ecology, MA Committee Member)
Hannah Klim (Penn State Wildlife and Fisheries, MA Committee Member)
Wu Fan (Penn State Meteorology, Ph.D. Committee Member)

SERVICE TO THE DISCIPLINE

2023 –	Elected Vice Chair, Statistical Ecology Section, Ecological Society of America
2023 fall	Co-Convener and Co-Chair, B21: Ecological Forecasting in the Earth System at Fall Meeting, American Geophysical Union
2024 fall	Co-Convener and Co-Chair, B21: Ecological Forecasting in the Earth System at Fall Meeting, American Geophysical Union

SERVICE TO PENN STATE

2023 – 2024	Qualify Exam Committee, Intercollege Graduate Degree in Ecology, Penn State
2023 – 2024	Scholarship Committee, Department of Ecosystem Science and Management

Ad-hoc JOURNAL REVIEWER

Nature Ecology & Evolution (1), PNAS (2), Ecology Letters (3), Global Change Biology (1), Remote sensing of environment (5), Agricultural and Forest Meteorology (8), ISPRS Journal of Photogrammetry and Remote sensing (1), Journal of Ecology (2), Ecological Applications (1), Journal of remote sensing (1), American journal of Botany (1), Ecography (1), Remote sensing (22), Forests (22), Science of the Total Environment (3), Global and Planetary Change (1), Frontiers in Environmental Science (1), Frontiers in Ecology and Evolution (1), Frontiers in Plant Science (1), Journal of Forestry Research (1), Journal of Marine Science and Engineering (1), Plos One (2), Sustainability (1), PeerJ (1), Frontiers in Artificial Intelligence (1), Plant Ecology (1)

Update: 9/1/2024