Ian McGregor

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EDUCATION

North Carolina State University, Center for Geospatial Analytics　　　*Raleigh, NC*
PhD Candidate, Geospatial Analytics　　　expected May 2023

University of Oxford, School of Geography and the Environment　　　*Oxford, UK*
MSc Environmental Change and Management　　　September 2017
- Distinction for dissertation

University of California, Berkeley, College of Natural Resources　　　*Berkeley, CA*
BSc Conservation and Resource Studies, Society and Environment　　　May 2015
- Dean's Honors

ENVIRONMENTAL RESEARCH

North Carolina State University　　　Raleigh, NC
Ph.D. dissertation　　　Aug. 2019 - Present
- Improving near real-time deforestation monitoring using multi-source satellite data
- Developing a novel method of combining satellite data (Landsat 8, Sentinel 1, Sentinel 2), and using time series analysis to quickly and accurately identify forest disturbances

Research Assistantship, Center for Geospatial Analytics　　　Aug. 2019 – Aug. 2020
- Contributed code and analysis for phenology research comparing ground-based eddy-covariance flux tower data with satellite (MODIS) data.
- Wrote remote sensing blog posts for lab website

Smithsonian Conservation Biology Institute　　　Front Royal, VA
Research Analyst, Ecosystems and Climate Change Lab　　　Sept. 2018 – Aug. 2019
- Led long-term ecological study of dendrology surveys and data analysis for climate change policy
- Analyzed dendrochronological records to quantify tree drought responses under climate change
- Created maps in ArcGIS and R and drafted content for publications

ForestGEO Technician, Ecology Lab and Conservation Ecology Center　　　Mar. – Sept. 2018
- Collaborated with field crew in surveying the Forest Global Earth Observatory study plot via application of standardized, tree research methodology
- Developed field maps for Smithsonian partners, and assisted with eMammal camera trap deployments

University of Oxford　　　Oxford, UK
Graduate Researcher, dissertation　　　May – Aug. 2017
- Created protocol for assessing prescribed fire policy in the savanna-rainforest mosaic in central Gabon
- Delivered recommendations to national park authority based on results from field research

Lab Assistant　　　Sept. 2017 – Mar. 2018
- Processed and analyzed tropical leaf traits in lab setting, ran MatLab for image analysis

Orange Coast College　　　Costa Mesa, CA
Research project　　　Mar. – June 2016
- Produced fire history maps for study region within Yosemite National Park and analyzed the spatiotemporal severity of fire spread in support of a UC Berkeley doctoral thesis

PROTECTED AREA CONSERVATION

Bolsa Chica Conservancy   Huntington Beach, CA
Program and Administrative Coordinator   Jan. – Sept. 2016
- Managed the revision of a botanical guide for the wetland reserve, via surveying, mapping, and cataloguing in a new database.
- Led as editor for quarterly newsletter, drafted science communication articles for local publication, drafted content for social media, supported grant applications.
- Coordinated and led wetland ecology education outreach, service projects with volunteers, and guided public tours of the reserve

Student Conservation Association   Adirondack State Park, NY
Crew Member, Adirondack Corps   May – Aug. 2015
- Led field projects for backcountry trail crew, involving active risk assessment and mitigation, conflict management, and drafting project-specific emergency response plans.
- Partnered with state agency to repair trails, construct bridges, and various tasks using forestry best practices

LEADERSHIP

North Carolina State University   Raleigh, NC
Secretary – Geospatial Graduate Student Organization   Jun. 2020 – Present
- Support geospatial student body, keep organized minutes
- Coordinate Lunch and Learn Seminar Series, as well as Race and Place Seminar Series
- Assist with coordinating events for GIS Week 2021

Secretary – International Society for Tropical Forestry club   Jun. 2020 – Present
- Support group agenda and keep notes; send weekly emails; host guest speakers
- Co-lead diversity, equity, and inclusion workshop for the 2021 ISTF Annual Meeting

Smithsonian Conservation Biology Institute   Front Royal, VA
Coordinator – Meet the Scientist   Sept. 2018 – Aug. 2019
- Coordinated biweekly seminar series for interns, scheduled talks with Smithsonian researchers

SKILLS AND INTERESTS

Computer: R, Google Earth Engine, GitHub, remote sensing
Field studies: Project management, data maintenance, qualitative and quantitative analyses
Communications: Presenting research, teaching ecology to students via hands-on learning, outdoor education
Language: Spanish [intermediate], Arabic [intermediate]

PUBLICATIONS

- Gao, X., **McGregor, I.R.,** Gray, J.M. 2022. Satellite observations underestimate the effect of growing season length on global vegetation productivity. [*in review, Global Biogeochemical Cycles*]
- Gao, X., **McGregor, I.R.,** Smith, O., Hinks, I., Shisler, M., 2022. The blsp R package with a Bayesian land surface phenology model. Zenodo. [DOI](#)
- Kim, A.Y., Herrmann, V., Bareto R., Calkins, B., Gonzalez-Akre, E.B., Johnson, D.J., Jordan, J., Magee, L., **McGregor, I.R.,** Montero, N., Novak, K., Rogers, T., Shue, J., Anderson-Teixeira, K.J., 2022. Using GitHub Actions continuous integration to automate quality assurance and control of data on ecological dynamics. [*accepted, Methods in Ecology and Evolution*]
- Dow, C., Kim, A.Y., D'Orangeville, L., Gonzalez-Akre, E.B., Helcoski, R., Hermann, V., Harley, G.L., Maxwell, J.T., **McGregor, I.R.,** McShea, W.J., McMahon, S., Pederson, N., Tepley, A.J., Anderson-

Teixeira, K.J., 2022. Warmer spring temperatures in temperate deciduous forests advance the timing of tree growth but have little effect on annual woody productivity. [*accepted, Nature*]

- Vinod, N., Slot, M., **McGregor, I.R.,** Ordway, E.M., Smith, M.N., Taylor, T., Sack, L., Anderson-Teixeira, K.J., 2022. Thermal sensitivity across forest vertical profiles: patterns, mechanisms, and ecological implications. [*accepted, New Phytologist*]
- Sedio, B.E., Spasojevic, M.J., Myers, J., Wright, S.J., Person, M.D., Chandrasekaran, H., Dwenger, J.H., Prechi, M.L., López, C.A., Allen, D.N., Anderson-Teixeira, K.J., Baltzer, J.L., Bourg, N.A., Castillo, B.T., Day, N., Dewald-Wang, E., Dick, C.W., James, T.Y., Kueneman, J., Lamanna, J., Lutz, J.A., **McGregor, I.R.**, McMahon, S.M., Parker, G.G., Parker, J.D., Vandermeer, J., 2021. Chemical similarity of co-occurring trees decreases with precipitation and temperature in North American forests. Front. Ecol. Evol. 9. [DOI](#)
- **McGregor, I.R.**, Helcoski, R., Kunert, N., Tepley, A.J., Gonzalez-Akre, E.B., Herrmann, V., Zailaa, J., Stovall, A.E.L., Bourg, N.A., McShea, W.J., Pederson, N., Sack, L., Anderson-Teixeira, K.J., 2020. Tree height and leaf drought tolerance traits shape growth responses across droughts in a temperate broadleaf forest. New Phytologist, 231, 601-616. [DOI](#)
- Yoshizumi, A., Coffer, M.M., Collins, E.L., Gaines, M.D., Gao, X., Jones, K., **McGregor, I.R.**, McQuillan, K.A., Perin, V., Tomkins, L.M., Worm, T., Tateosian, L., 2020. A Review of Geospatial Content in IEEE Visualization Publications. arXiv:2009.03390 [cs]. [DOI](#)
- Anderson-Teixeira, K., Gonzalez, B., Gonzalez-Akre, E., **McGregor, I.**, Helcoski, R., Herrmann, V., Kim, A.Y., Terrell, A., Dow, C., 2020. forestgeo/Climate: Initial release. Zenodo. [DOI](#)
- Anderson-Teixeira, K.J., Herrmann, V., Cass, W.B., Williams, A.B., Paull, S.J., Gonzalez-Akre, E.B., Helcoski, R., Tepley, A.J., Bourg, N.A., Cosma, C.T., Ferson, A.E., Kittle, C., Meakem, V., **McGregor, I.R.**, Prestipino, M.N., Scott, M.K., Terrell, A.R., Alonso, A., Dallmeier, F., McShea, W.J., 2020. Long-Term Impacts of Invasive Insects and Pathogens on Composition, Biomass, and Diversity of Forests in Virginia's Blue Ridge Mountains. Ecosystems 24, 89–105. [DOI](#)
- Gonzalez-Akre, E., **McGregor, I.**, Anderson-Teixeira, K., Dow, C., Herrmann, V., Terrell, A., Kim, A.Y., Vinod, N., Helcoski, R., 2020. SCBI-ForestGEO/SCBI-ForestGEO-Data: first release with hydraulic traits data. Zenodo. [DOI](#)
- Anderson-Teixeira, K.J., Helcoski, R., **McGregor, I.**, Tepley, A.J., Herrmann, V., Gonzalez-Akre, E.B., Kunert, N., Pedersen, N., Sack, L., Stovall, A.E., 2019. Resolving interannual climate sensitivity of tree growth and forest productivity by integrating tree-rings, leaf hydraulic traits, and forest census data. AGU Fall Meeting Abstracts. [Online](#)
- Cardoso, A.W., Oliveras, I., Abernethy, K.A., Jeffery, K.J., Lehmann, D., Edzang Ndong, J., **McGregor, I.**, Belcher, C.M., Bond, W.J., Malhi, Y.S., 2018. Grass Species Flammability, Not Biomass, Drives Changes in Fire Behavior at Tropical Forest-Savanna Transitions. Front. For. Glob. Change 1. [DOI](#)

CONFERENCE TALKS AND POSTERS
Poster Presentations
- **McGregor, I.R.,** Gao, X., Gray, J. Satellite vegetation phenology reliably captures timing of carbon fluxes. *Ecological Society of America Annual Meeting,* Salt Lake City, UT (Aug. 2020) [*virtual*]
- **McGregor, I.R.,** Gao, X., Gray, J. The Correspondence of MODIS Land Surface Phenology and GPP; International Association for Landscape Ecology North America [IALE-NA]; Toronto, Canada (May 2020) [*virtual*]

Oral Presentations
- **McGregor, I.R.** & Gray, J. 2021. We Can't Have It Both Ways – Accepting the Trade-off of Detection Time and Accuracy in Multi-Source, Near Real-time Deforestation Monitoring. *American Geophysical Union Annual Meeting, 12-17 Dec., New Orleans, LA*.

Workshop co-lead

- *International Society of Tropical Forestry 2021 Annual Meeting*, Inclusivity Starts with our Design! Participatory Design Workshop for Inclusion, Diversity, Equity, and Accessibility (IDEA) in Tropical Forestry and Natural Resources

GRANTS

NASA, FINESST, $135,000   2020 – 2023
- Future Investigator in NASA Earth and Space Science and Technology

NC Space Grant, North Carolina Space Grant Research Fellow, $10,000   2020 – 2021

USGIF, US Geospatial Intelligence Foundation Doctoral Scholarship, $5,000   2020 – 2021

IALE-NA, Annual Meeting Student Travel Award, $700   2020
- International Association of Landscape Ecology North America

NCSU CGA, Geospatial Analytics Travel Award, $800   2020
- North Carolina State University Center for Geospatial Analytics

INVITED TALKS

RTI International, Brown Bag lunch seminar series   Jan. 2021
- Near real-time monitoring of forest disturbance using multi-source imagery

PROFESSIONAL MEMBERSHIP

Ecological Society of America, American Geophysical Union