JOSHUA MWENDWA BENJAMIN

University of Florida, Department of Biology

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Education

2021- Present: Ph.D., Biology (Zoology) University of Florida, Gainesville, Florida, USA

Dissertation Title: From Big to Small: Longitudinal changes in fish assemblages, macroinvertebrate communities, and trace element concentrations in an Afrotropical River

Adviser: Professor Amanda Subalusky

2017-2019: M.Sc., Limnology and Wetland Management, BOKU University Austria and IHE Delft, Netherlands

Dissertation Title: Longitudinal trends in macroinvertebrate communities, functional feeding groups, and performance of regional biotic indices for bioassessment of the Gura River, Kenya.
Advisers: Prof. Wolfram Graf & Prof Charles M'Erimba

2012-2016: B.Sc., Environmental Studies, Karatina University, Kenya

Thesis Title: Assessment of nitrate levels associated with the urban environment within Ragati River, Kenya.

Adviser: Prof Gilbert Nduru**.**

Research interests

Macroinvertebrate and ecology, fish taxonomy and ecology, community ecology, ecotoxicology in aquatic systems, stable isotopes in aquatic food web.

Teaching and Research Experience

Fall 2023: Research Assistant

Responsibility:

- Sorting and identifying aquatic insects.
- Conducting water nutrient chemistry using seal AQ400 analyzer.
- Preparing slides for fish gut contents.

Spring 2023: Graduate teaching assistant, University of Florida, U.S.A

Responsibilities:

- Teaching discussion sections of the Quest 2 course, Water for People and Nature (IDS2935).
- We are holding regular office hours to respond to the academic needs of the students.
- Grading students' assignments.

Fall 2022: Graduate teaching assistant, University of Florida, U.S.A

Responsibilities:

- I am teaching discussion sections of the Critical Analysis of Biology Research course (BSC 4936).
- Holding regular office hours to respond to the academic needs of the students.
- Grading students' assignments.

Summer 2022: Research assistant, Maasai Mara, Kenya

Responsibilities:

- Field sampling of water quality, macroinvertebrates, and fish in the Mara River.
- Laboratory analysis of water samples, macroinvertebrates sorting and identification.
- I taught summer school at the Mpala Research Centre in Kenya on stream ecology, macroinvertebrate identification, and biomonitoring using benthic macroinvertebrates.

Spring 2022: Graduate teaching assistant, University of Florida, U.S.A

Responsibilities:

- I am teaching discussion sections of Integrated Principles of Biology 1 Lab (BSC 2010L).
- We are holding regular office hours to respond to the academic needs of the students.
- Grading students' assignments.

Summer and Fall 2021: Research assistant, Maasai Mara, Kenya

Responsibilities:

- Field sampling of water quality, macroinvertebrates, and fish in the Mara River.
- Laboratory analysis of water samples, sorting and identifying macroinvertebrates.

Spring 2021: Graduate teaching assistant, University of Florida, U.S.A

Responsibilities:

- I am teaching discussion sections of Integrated Principles of Biology 1 Lab (BSC 2010L).
- We are holding regular office hours to respond to the academic needs of the students.
- Grading students' assignments.

Dec 2019 – Dec 2020: Research assistant, Maasai Mara, Kenya

Responsibilities:

- Field sampling of water quality, macroinvertebrates, and fish in the Mara River.
- Laboratory analysis of water samples, sorting and identifying macroinvertebrates.

May-Oct 2019: Project leader, Mpala Research Centre, Nanyuki, Kenya

Responsibilities:

- Designing sampling technique for terrestrial invertebrates
- Collecting invertebrate data from the field.
- Taxonomic identification of the invertebrates
- Keeping the project data safe and updated.
- Data analysis

April – July 2017: Volunteer, Voluntary services Overseas company (VSO), Kenya

Responsibilities:

- Carrying out projects through action research.
- Steering various training sessions in County Technical Training Institutes in Makueni County.

July-Nov 2016: Internship, Geothermal Development Company, Nakuru, Kenya

Responsibilities:

- Conducting Environmental Baseline Studies (EBS), Environmental Social Impact Assessments (ESIA), and Environmental Audits (EA).
- Rehabilitation works for degraded sites.
- Tree nursery management - seed collection, treatment, and seedbed preparation.
- Hazardous waste management and toxic substance control.
- Corporate Social Responsibility/Community Liaison.
- Report writing.

Scientific publications

1. **Benjamin, J. M**., Abuya, D., Omollo, B., & Merimba, C. (2023). Longitudinal patterns of abundance, diversity and functional feeding guilds of benthic communities in East African tropical high-altitude streams.
   African Journal of Ecology, 00, 1– 13. https://doi.org/10.1111/aje.13177

2. **Benjamin, J.M.**, D.K. Abuya, C. Merimba (2021). Longitudinal trends in macroinvertebrate functional feeding groups in a high-altitude tropical stream (a case study of Gura River). *Egerton Journal of Science and Technology*, *18*, 1–18.
   Retrieved from https://eujournal.egerton.ac.ke/index.php/EJ/article/view/58

3. **Benjamin,** J.M., & Graf W. Further evidence of the phoretic association between Heptageniidae Afronurus (mayfly) and Simulium (blackfly) in Gura River, Kenya. *In preparation for submission to the Biological Society of Linnean Society.*

Fellowships, Honors, and awards

2023: $22,000: Tropical Conservation and Development (TCD) Assistantship, Center for Latin America, University of Florida**.**

2022: Recognition as an academic member of the Alpha chapter at the University of Florida.

2021: University of Florida Graduate Assistantship – to study for a PhD in Zoology.

2017: € 100,844: Netherlands Fellowship Program (NFP) – to study for a master's degree in Limnology and Wetland Management.

Research grants

2023: $5000 – Research Abroad for Doctoral Students (RADs).

2023: $2500 - UF TCD Practitioner Experience Award.

2023: $5000 - The Explorers Club **(**Exploration Fund Grant).

2023: $3000 - University of Florida Biodiversity Institute (UFBI).

2023: $1000 - Michael L. May Interdisciplinary Grant, UF Biology Department.

2022: $7500 - Rufford Grant for Nature.

2022: $750 - Sigma Xi Grants in Aid of Research.

2022: $4000 - UFBI Summer Fellowship.

2022: $1000 - Center for African Studies**,** summer 2022 pre-dissertation research awards.

2022: $300 - Michael L. May Research Grants 2022, UF Biology Department.

2017: $7500 - National Geographic Grant, "From big to small: how wildlife loss and land-use change impact invertebrate communities in Kenya."

2016: $1000 - Nature Kenya & Birdlife International, Evaluation of Macroinvertebrates as indicators of environmental health in Mukurweini and Kianyaga valleys, Kenya. Grant amount awarded.

2016: $300 - Kenya Bird Map, Mapping bird species at the Kenyan Coast.

2016: $450 - Idea Wild, Mapping and Conservation of Hunter's Cisticola bird in Mt. Kenya Ecosystem. Grant amount awarded.

Travel awards

2024: $350- Graduate Student Council travel grant.

2023: $300-CLAS travel grant, University of Florida.

2023: $400 – UF TCD Conference Grant Award.

2023: $1000 – Water Institute Travel award Summer 2023.

2023: $300 - Center for African Studies award to attend ICCB 2023 in Kigali, Rwanda.

2022: $600 - Center for African Studies award to attend JASM 2022 in Michigan, USA.

2022: $300 - College of Liberal Arts and Sciences, University of Florida award to attend JASM 2022.

2022: $500- SFS Board Travel Awards to attend the JASM 2022 conference.

Certificates and other professional development training

2023 -2024: Certificate in Tropical Conservation and Development (TCD), University of Florida.

March 2023: Short course on Water as a Critical and Imperiled Global Resource, Organization for Tropical Studies (OTS), Costa Rica.

Jan 2023: Short course on Fundamental of Ecosystem Ecology (FEE 2023), Cary Institute of Ecosystem Studies, New York, USA.

Nov 2021: Short GIS and remote sensing applications course for the water sector**,** IHE Delft, The Netherlands.

April 2021: South African Scoring System for macroinvertebrates training (SASS5), Ground Truth, Kwa Zulu Natal, South Africa.

July 2019: Training on undertaking oil-contaminated site assessments, Webinar UN environment.

March 2018: Training titled "From sea to source to sustainability," Environmental Academy, UNEP.

Feb 2018: Training on QGIS version 2.18.0, Egerton University, Kenya.

Dec 2016: Training on climate change and sustainable development, Amirkabir University of Technology (AUT), Tehran, Iran.

Sep 2016: Training on ecosystem approach and systems thinking, Environmental Academy, UNEP.

July 2016: Training on climate change and cities, UNCC.

Sep 2014: Training on camping and hardship skills, Karatina University.

June 2014: Short Environmental Impact Assessment (EIA) course, Egerton University, Kenya.

Recent conference presentations

Benjamin, J. Dutton, C. Laban, N. Njangi, E. Emma, R. David, P. and Subalusky, A. [2024]. *"Spatial and temporal shifts: A decade of macroinvertebrate assemblage in a tropical river and its implications for biomonitoring,"* Student Conference on Conservation Science, University of Cambridge, UK.

Benjamin, J. Dutton, C. Njangi, E. and Subalusky, A. [2023]. *"From Big to Small: Longitudinal changes in fish assemblages, macroinvertebrate communities, and trace element concentrations in an Afrotropical River"* International Congress on Conservation Biology, Kigali, Rwanda.

Benjamin, J. Kemunto, D. Omollo, B and Merimba C. [2022]. *"Longitudinal patterns of abundance, diversity and functional feeding guilds of benthic communities in East Africa tropical high-altitude streams."* Joint Aquatic Society Meeting, Michigan, USA.

Benjamin, J. Kemunto, D. Omollo, B and Merimba C. [2022]. *"Longitudinal patterns of abundance, diversity and functional feeding guilds of benthic communities in East Africa tropical high-altitude streams."* Society for Freshwater Science, virtual meeting.

Benjamin, J. Merimba, C. and Wolfram G. [2019]. *"Do macroinvertebrates matter in high-altitude rivers?"* Conference on Great Lakes of the World, (GLOW 9), Kisumu, Kenya.

Selected seminars and workshops

Jan-April 2024: Guest speaker, upscaling the use of macroinvertebrates in biomonitoring tropical rivers: Egerton University, Jomo Kenyatta University, Karatina University, and Maasai Mara University.

Oct 2023: Guest speaker, Tropilunch seminar, University of Florida.

Sep 2023: Guest speaker, Lunch by the Water seminar, University of Florida.

June 2023: Guest speaker at Maasai Mara University: Do macroinvertebrates matter?

April 2023: Building your CV, SACNAS University of Florida.

April 2023: 2023 SNRE Research Symposium, University of Florida.

April 2023: Discussion on the Nagoya Protocol and Digital Sequence Information, University of Florida Biodiversity Institute.

Feb 2023: Grantsmanship 101: Keys to Writing Effective Proposals, University of Florida.

Feb 2023: Webinar on Time management for graduate students, University of Florida.

Feb 2023: Helicopter Science workshop, University of Florida**.**

Jan 2023: Oral presenter, PEERS seminar, biology department, University of Florida.

Jan 2023: Dissertation writing workshop, University of Florida.

Jan 2023: Webinar on Education grants in Africa, National Geographic Society.

July 2022: Guest instructor, University of Florida summer school at Mpala Research Centre, Kenya**.**

June 2021: Instructor for a virtual Aquatic food web ecology course organized by Yale University**.**

March 2020: Instructor for the course "Ecology of streams and rivers," Egerton University, Kenya.

Oct 2019: Oral presenter, National Geographic science telling boot camp, Nairobi, Kenya.

Nov 2018: Conference on sustainable blue economy, Nairobi, Kenya.

Sep 2018: Workshop on environmental history and geography of freshwater ecosystems, University of Ljubljana, Slovenia.

Dec 2017: Seminar on water, food, and energy, Boku University, Austria.

Jan 2017: Seminar on Grant writing, National Geographic Society, Nairobi, Kenya.

Membership in societies and professional bodies

2023: Member- Explorer club**.**

2022: Member- Society for Conservation Biology (SCB).

2022: Academic member- Alpha, Epsilon, and Lambda, University of Florida.

2022: Member- International Association for Great Lakes Research (IAGLR)

2022: Member**-** Association for Tropical Biology and Conservation (ATBC).

2022: Member**-** British Ecological Society (BES).

2021: Member**-** Society for Freshwater Science (SFS).

2017: Member-Environment Institute of Kenya (EIK).

2017: Associate Expert-National Environment Management Authority (NEMA).

2017: Member- Kenya Red Cross Society.

2016: Member- Nature Kenya.

2014: Member- Kenya Bird Map

2012: Member- Nature Club of Karatina University

2012: Member- Wildlife Clubs of Kenya

Peer review experience

1. Reviewer for British Ecological Society grants since 2022.
2. Reviewer for National Geographic Society Level 1 grants 2022.

Undergraduate research mentorship

1. **2023 Fall:** Trained Alesha Wallen on preparing reagents and analyzing nutrient chemistry on a Seal analyzer (AQ400).
2. **2023 Fall:** Provided guidance and training to **Liam O'Connor** on macroinvertebrates' gut content preparation, analyses, and identification of food materials.
3. **2022 Spring:** Provided guidance and training to **Ethan Lawrence** on data analysis, research poster preparation, and oral presentation skills.
4. **2022 Summer:** Provided guidance and training to **Liam O'Connor** on macroinvertebrate sampling, sorting, and identification.
5. **2021 Spring:** I guided **Nicholas Wallis** as he gained experience with macroinvertebrate identification and gut content slide preparation.

Service and leadership roles

2023-2024: President, Tropical Conservation and Development Program Student Group.

2023-2024: Awards committee, BGSA, University of Florida

2022-2023: Recruitment committee member, BGSA, University of Florida

2015-2016: President, Nature Club, Karatina University.

Relevant skills

Computer skills: program R, ArcGIS, QGIS, MS Office Suite, PC ORD, database management.

Technical skills: Aquatic macroinvertebrate sampling and identification, fish sampling and identification, water quality analysis, Bird surveys and identification, macroinvertebrate gut content analysis, wildlife and habitat monitoring, maintaining lab and field equipment, driving field vehicles, manual labor under challenging conditions.

Communication skills: Grant writing, research manuscripts, budget proposals and tracking, technical and policy briefs, permit writing, project and annual reports, oral and poster presentations, article and blog writing, photography and videography, and social media platforms.

Languages: Fluent in English and Swahili, Basic level German**.**

Referees

1. Professor Amanda Subalusky

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3. Mr. Edward Njagi

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4. Dr, Paula Kahumbu, O.G.W

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