

Mugumaarhahama Yannick

Ph.D. in Biometry

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Profile

Ph.D.-trained biostatistician and environmental scientist specialising in spatial modelling, ecological statistics, and data-driven approaches to environmental and agricultural systems. Expertise in analysing complex ecological processes using advanced statistical methods, geospatial tools, and machine learning techniques.

Extensive experience (>10 years) in research and development projects in Democratic Republic of Congo, with a focus on sustainable land use, livestock systems, climate change adaptation, and landscape dynamics. Skilled in integrating heterogeneous datasets (ecological, climatic, socio-economic) to generate evidence-based insights for decision-making.

Proven track record in scientific publishing, interdisciplinary collaboration, and capacity building. Strong advocate of reproducible research and open science, with the ability to communicate complex analytical results to both scientific and non-technical audiences, including policymakers and development partners.

Qualifications

- Ph.D. in Biometry with advanced expertise in statistical modelling, spatial analysis, and ecological data science, with a focus on presence-only data, uncertainty quantification, and species distribution modelling.
- Over 10 years of professional experience in research, teaching, and consultancy in environmental sciences, agriculture, and natural resource management, particularly in Central Africa.
- Strong expertise in advanced statistical methods, including GLM/GLMM, GAM, multivariate analysis, and inhomogeneous Poisson point process models, applied to ecological and environmental systems.
- Advanced skills in geospatial analysis and remote sensing, including land-use/land-cover change modelling, environmental indicator extraction, and integration of spatial and socio-economic datasets.
- Proven experience in applying machine learning techniques (Random Forest, XGBoost, SVM) to environmental and agricultural data for predictive modelling and decision support.
- Demonstrated capacity in designing and implementing data-driven research projects, including data collection systems, database management, and reproducible analytical workflows.
- Strong track record in scientific publication, interdisciplinary collaboration, and capacity building, including supervision of students and training of professionals in statistics, GIS, and data science.
- Experience in translating complex scientific results into actionable insights for policy, development programmes, and stakeholder decision-making.
- Fluent in French and Swahili, with good working proficiency in English, enabling effective communication in international and multicultural research environments.

Technical Skills

Languages

French: Fluent (reading, writing, speaking)
English: Intermediate (reading, writing, speaking)
Swahili: Fluent (reading, writing, speaking)
Mashi: Basic proficiency

Programming and Analytical Environments

Advanced

R
Advanced statistical analysis, mixed-effects modelling, GLM/GLMM, time-series analysis, and reproducible research workflows.
Main packages: `tidyverse`, `caret`, `sp`, `terra`, `sf`, `vegan`, `nlme`, `mgcv`, `ggplot2`, `shiny`, `rmarkdown`.

Python
Data processing, machine learning, statistical modelling, and geospatial analysis.
Main libraries: `pandas`, `numpy`, `scikit-learn`, `matplotlib`, `geopandas`, `xgboost`, `statsmodels`.

Intermediate

MATLAB
Numerical modelling, optimisation, and environmental signal processing.

Advanced

LaTeX / Markdown / Quarto / RMarkdown
Scientific writing, dynamic reporting, reproducible academic articles, and automated technical documentation.

Statistical Analysis and Advanced Modelling

Core expertise

Linear, generalized, and mixed models (**ANOVA, GLM, GLMM, GAM**); multivariate analysis (**PCA, CA, RDA, CCA**); hierarchical clustering; supervised and unsupervised classification; inhomogeneous point process models; ecological niche modelling; logistic and Poisson regression; survival models; rare-event modelling; uncertainty quantification; scenario simulation; and model validation using **AIC, BIC, RMSE, adjusted R^2, cross-validation, and bootstrap**.

GIS and Remote Sensing

Advanced

Software: QGIS, ArcGIS Pro, ENVI, SNAP, Google Earth Engine.
Applications: multispectral and radar image processing (**Landsat, Sentinel-1/2, MODIS**); extraction of environmental indicators (**NDVI, NDWI, LST, texture indices**); land-use and land-cover change analysis; supervised and unsupervised classification; Random Forest modelling; accuracy assessment; integration of spatial, socio-economic, and climatic datasets; multicriteria mapping (**AHP, Weighted Overlay, MCDA**); and spatial prioritisation of intervention areas.

Machine Learning and Applied Artificial Intelligence

Implementation of machine learning methods for prediction, classification, and segmentation in environmental and agricultural applications.
Algorithms: **Random Forest, XGBoost, CatBoost, SVM, KNN, K-Means, neural networks**.
Additional competencies: feature engineering, variable selection (**PCA, Boruta, LASSO**), ensemble learning (bagging and boosting), performance assessment (**ROC, confusion matrix, precision, sensitivity**), data preprocessing, dimensionality reduction, and development of reproducible analytical workflows in R and Python.

Technical Skills (continued)

Data Visualisation and Reporting

- Design of clear, decision-oriented, and publication-quality visualisations for researchers, donors, and public decision-makers.
  Includes: interactive dashboards in **R Shiny**; geospatial and temporal data visualisation; heatmaps, choropleth maps, network diagrams; automated reports with **RMarkdown, Quarto, and LaTeX**; scientific figures and infographics; and integration of automated data updates through APIs.

Data Collection, Management, and Integration

- **Tools:** KoboToolbox, ODK, Google Forms.
  Design of structured survey instruments; field data quality control; cleaning and validation in R/Python; detection of inconsistencies, duplicates, and outliers; development of unified and standardised relational or spatial databases; and integration of heterogeneous datasets including geographic, demographic, climatic, and socio-economic information.

Automation, Deployment, and Reproducibility

- Automation of analytical workflows using **R scripts** and **Python notebooks**; project documentation and version control with **Git, GitHub, Zenodo, and OSF**; full reproducibility of research outputs; collaborative cloud environments such as **Google Colab** and **RStudio Cloud**; and development of reusable analytical tools and open workflows for research and decision support.

Training, Scientific Communication, and Capacity Building

Extensive experience

- Training of students, researchers, and practitioners in **R, Python, QGIS**, applied statistics, and spatial analysis; supervision of theses and research projects involving predictive and spatial modelling; organisation of capacity-building workshops for NGOs, public institutions, and research teams; and translation of complex analytical outputs into accessible messages for non-technical audiences.

Employment History

2024 – Present

- **Lecturer and Researcher**
  Faculty of Agriculture and Environmental Sciences, Université Evangélique en Afrique, Democratic Republic of Congo
  Teaching undergraduate and graduate courses in statistics, biometry, and data science applied to environmental and agricultural systems. Conducting research in ecological modelling, spatial analysis, and livestock systems. Supervising student theses and research projects, and contributing to scientific publications and interdisciplinary research initiatives.

2021 – Present

- **Research Assistant**
  South Kivu Forest and Mountain Landscape Observatory, Democratic Republic of Congo
  Supporting research on forest dynamics, land-use change, and landscape ecology. Involved in data collection, geospatial analysis, and statistical modelling of environmental processes. Contributing to scientific reporting and collaborative research projects on biodiversity and ecosystem management.

Employment History (continued)

Research Assistant
Centre de Recherche en Géothermie (CRGeo), South Kivu, Democratic Republic of Congo
Participating in multidisciplinary research on environmental systems, including data analysis, modelling, and interpretation of geophysical and ecological datasets. Supporting research design, field data collection, and technical reporting.

2020 – Present **Freelance Consultant**
Independent consultancy in data science and environmental analysis
Design and implementation of data collection systems (KoboToolbox, ODK); advanced statistical analysis and modelling; assessment of livestock production systems; environmental impact studies; development of decision-support tools; and capacity building for NGOs, research institutions, and development projects.

2014 – 2024 **Teaching and Research Assistant**
Faculty of Agriculture and Environmental Sciences, Université Evangélique en Afrique, Democratic Republic of Congo
Assisted in teaching statistics, biometry, and agricultural sciences. Supported research activities including data collection, analysis, and reporting. Contributed to student supervision and capacity building in quantitative methods and scientific writing.

Experience in data analysis

2026 **Data Analyst**
Feasibility study on the development of a lake flood forecasting model: Case of Lake Tanganyika (Eastern Democratic Republic of Congo). Study commissioned by TearFund.
Reference: Prof. Espoir Bagula
+243 977 749 902 bespoir@yahoo.com

2025 **Data Analyst**
Optimizing black soldier fly (BSF) larvae production as a livestock protein source: Impact of local substrates on growth performance and nutritional quality in South Kivu. Study commissioned by the African Agricultural Leadership Institute (AALI).
Reference: Prof. Valence Mutwedu
+243 975 710 481 mutweduvalence@gmail.com

Data Analyst
Substitution effects of fishmeal and soybean meal on growth performance and profitability of pigs in South Kivu. Study commissioned by the African Agricultural Leadership Institute (AALI).
Reference: Prof. Valence Mutwedu
+243 975 710 481 mutweduvalence@gmail.com

Data Analyst
Strengthening smallholder farmers' resilience to climate change through improved livestock management, land use, and climate-smart technologies in post-conflict eastern Democratic Republic of Congo. Study funded by RUFORUM.
Reference: Prof. Valence Mutwedu
+243 975 710 481 mutweduvalence@gmail.com

2024 **Data analyst**
Assessing genetic gains induced by artificial insemination on smallholder farms in Tanganyika Province. Research commissioned by Vétérinaires sans Frontières - VSF in the framework of the PICAGL project.
Reference: Prof. Rodrigue Ayagirwe
+243 979 318 896 rayagirwe@gmail.com

Experience in data analysis (continued)

Data analyst
Assessing genetic gains induced by artificial insemination on smallholder farms in South Kivu Province. Research commissioned by Vétérinaires sans Frontières - VSF in the framework of the PICAGL project.
Reference: Prof. Rodrigue Ayagirwe
+243 979 318 896 rayagirwe@gmail.com

2023 **Data analyst**
Assessment of the vulnerability and adaptation of the livelihoods of local communities in the Fizi territoire to the effects of climate change. Study commissioned by the Spanish Red Cross.
Reference: Prof. Espoir Bagula
+243 977 749 902 bespoir@yahoo.com

Data analyst
Morphometric and Weight Characterization of Cattle Breeds Raised in Provinces of South Kivu and Tanganyika. Research commissioned by Vétérinaires sans Frontières - VSF & International Institute of Tropical Agriculture - IITA in the framework of the PICAGL project.
Reference: Prof. Rodrigue Ayagirwe
+243 979 318 896 rayagirwe@gmail.com

2022 **Data analyst**
Assessment of the vulnerability and adaptation of the livelihoods of local communities in the Uvira territoire to the effects of climate change. Study commissioned by the Spanish Red Cross.
Reference: Prof. Espoir Bagula
+243 977 749 902 bespoir@yahoo.com

Data analyst
Modeling land use change and identifying priority management areas in Equateur Province. Study commissioned by Rainforest.
Reference: Prof. Espoir Bagula
+243 977 749 902 bespoir@yahoo.com

2021 **Data analyst**
Assessing the perceptions and vulnerability of pastoralists to the effects of climate change in South Kivu Province. Research funded by RUFORUM.
Reference: Prof. Azine Ciza
+243 971 912 778 cizaazine@yahoo.fr

Data analyst
Analysis of the dynamics of land use and land cover from 2000 to 2020 in the territories of Kabare and Walungu in South Kivu Province. Study commissioned by the RGEM project and carried out by the Observatoire indépendant des forets et paysages montagneux du Sud-Kivu, funded by the FAO.
Reference: Prof Katcho Karume
+243 994 304 633 kkatcho@yahoo.com

Data analyst
Evaluation of the "*Tujenge Pamoja kwa ajili ya Amani*" project implemented by International Alert.
Reference: Prof. Justin Sheria
+243 994 036 899 justinsheria@yahoo.fr

Data analyst
Genetic improvement of cattle - challenges and prospects in the provinces of South Kivu and Tanganyika. Research commissioned by International Institute of Tropical Agriculture - IITA in the framework of the PICAGL project.
Reference: Prof. Rodrigue Ayagirwe
+243 979 318 896 rayagirwe@gmail.com

Experience in data analysis (continued)

2020

Data analyst
Assessment of health risks along the dairy value chain in Tanganyika Province. Research commissioned by IITA as part of the PICAGL project.
Reference: Prof. Valence Mutwedu
+243 975 710 481 mutweduvalence@gmail.com

Data analyst
Identifying local opportunities for self-management of governance structures around the Itombwe Nature Reserve. Research commissioned by AFRICAPACITY
Reference: Mr Léon Kazamwali Muzee
+243 972 525 885 kazamwali@gmail.com

Data analyst
Dynamics of conflicts around the PNKB: Prospects for peaceful coexistence between the PNKB and the indigenous Pygmy peoples and other riparian populations. Research conducted by the Catholic University of Bukavu and the Université Evangélique en Afrique.
Reference: Prof. Justin Sheria
+243 994 036 899 justinsheria@yahoo.fr

Data analyst
Diagnostic analysis of dairy production systems in Tanganyika Province. Research commissioned by Vétérinaires sans Frontières - VSF in the framework of the PICAGL project.
Reference: Prof. Fabrice Nfuamba
+243 992 007 000 fabricelukeba@gmail.com

Data analyst
Analysis of factors limiting the spread of the Corona virus in eastern DRC. Study carried out by the Université Evangélique en Afrique.
Reference: Prof. Rodrigue Ayagirwe
+243 979 318 896 rayagirwe@gmail.com

Data analyst
Diagnostic analysis of dairy production systems in South Kivu Province. Research commissioned by Vétérinaires sans Frontières - VSF in the framework of the PICAGL project.
Reference: Prof. Rodrigue Ayagirwe
+243 979 318 896 rayagirwe@gmail.com

Education

2019 – 2024

Ph.D., Biometry
University of Abomey-Calavi, Republic of Benin
Thesis title: *Spatial point process model for analyzing presence-only data: accounting for species characteristics and uncertainties in data.*

2016 – 2018

M.Sc., Statistics, Major Biostatistics
University of Abomey-Calavi, Republic of Benin
Thesis title: *Poisson Point Process Models for Analysis of Presence-only Data: Relative Performance of Methods Accounting for Sampling Bias and Imperfect Detection.*

2006 – 2011

B.Sc., Animal Production
Université Evangélique en Afrique, Democratic Republic of Congo
Dissertation title: *Assessing the constraints to goat rearing in South Kivu: the case of Kabare territory.*

"Graduat", Basic Agriculture
Catholic University of Bukavu, Democratic Republic of Congo

Education (continued)

2001 – 2006 **State Diploma, Electrical Engineering**
Institut Technique Avenir, Democratic Republic of Congo

Miscellaneous Training and Workshops

Workshops in Geographic Information Systems

December 2019 **DAAD Summer school**
The use of GIS for estimation of Bahir Dar population - GIS4EA - GIS for decision support integrated in applied Master Courses for East African Universities
Organiser : Esri Germany & Beuth University of Applied Sciences
Bahir Dar, Ethiopia

September 2018 **DAAD Summer school**
The use of GIS for Urban planning: Weighted overlay techniques - GIS4EA - GIS for decision support integrated in applied Master Courses for East African Universities
Organiser : Esri Germany & Beuth University of Applied Sciences
Khartoum, Soudan

February 2018 **African Mathematical School of Abomey-Calavi**
Mathematical modeling for epidemiology, ecology and conservation
Organiser : Laboratoire de Biomathématiques et d'Estimations Forestières - LABEF
Abomey-Calavi, Republic of Benin

January 2018 **Training workshop for M.Sc and Ph.D students**
Geographic Information Systems, Forest Modeling, & Introduction to Geostatistics
Organiser : Laboratoire de Biomathématiques et d'Estimations Forestières - LABEF
Abomey-Calavi, Republic of Benin

September 2017 **DAAD Summer school**
The use of GIS for estimation of Bukavu population - GIS4EA - GIS for decision support integrated in applied Master Courses for East African Universities
Organiser : Esri Germany & Beuth University of Applied Sciences
Bukavu, DR Congo

March 2017 **Use of ODK, ArcGis and QGis**
Introduction to Open Data Kit (ODK) and Spatial Data Collection Spatial Data, Spatial data management, processing, and Analysis & Introduction to Remote Sensing and Spatial Statistics
Organiser : Cabinet IMPACT+
Abomey-Calavi, Republic of Benin

Training in public administration

June 2015 **Procedures for the award and performance of public contracts**
Trainer : Public Procurement Regulatory Authority (DR Congo)
Kalambo, DR Congo

May 2015 **Ethics, Deontology and Professional Conduct**
Trainer : Cellule de la mise en Œuvre de la Réforme de l'Administration publique / Ministry of the Public Administration (DR Congo)
Kalambo, DR Congo

April 2015 **Project management, results-based management and leadership skills development for young professionals**
Trainer : SETYM International & Cellule de la mise en Œuvre de la Réforme de l'Administration publique / Ministry of the Public Administration (DR Congo)
Kalambo, DR Congo

Grants & Scholarships

2022 – 2024 **CEA-SMIA Excellence Scholarship**
Highly competitive doctoral scholarship awarded by the African Center of Excellence in Mathematical Sciences, Informatics and Applications (CEA-SMIA), University of Abomey-Calavi (Benin), with support from the World Bank and the Government of Benin. This programme aims to strengthen African expertise in mathematical modelling, applied statistics, and artificial intelligence.
Support: Full funding covering living allowance and advanced training in quantitative sciences.

2021 – 2023 **Training the Next Generation of Scientists (Grant RU/2020/GTA/DRG/036)**
Pan-African competitive research and capacity-building programme funded by the Carnegie Corporation of New York and implemented by RUFORUM.
Selected to conduct innovative research in data science applied to sustainable agriculture, including statistical modelling and machine learning approaches for assessing climate change impacts on livestock systems.
Support: Full funding covering research, training, and scientific dissemination.
Outcomes: Peer-reviewed publications, supervision of young researchers, and contribution to regional capacity building in statistical modelling.

2019 – 2024 **Graduate Teaching Assistantship (GTA)**
Doctoral fellowship under a partnership between the University of Abomey-Calavi (Benin) and the Université Evangélique en Afrique (DRC), facilitated by RUFORUM.
Combined advanced doctoral training with teaching responsibilities in statistics, R programming, and GIS, alongside research in spatial ecological modelling.
Outcomes: Scientific publications, development of teaching modules, and contribution to strengthening academic capacity in African universities.

2016 – 2024 **UEA Institutional Scholarships (M.Sc. and Ph.D.)**
Scholarships awarded by the Université Evangélique en Afrique (UEA) within its institutional programme to strengthen research and teaching quality, funded by Brot für die Welt (Germany).
M.Sc. (2016–2018): Research on Poisson point process models applied to species presence-only data (Project A-COD-2018-0383).
Ph.D. (2019–2024): Advanced research in biometry and spatial ecological modelling (Project A-COD-2023-0035).
Impact: Contributed to the development of expertise in biostatistics and environmental modelling within UEA.

Publications

Journal Articles

2026 Bacigale, S. B., **Mugumaarhahama, Y.**, Mutwedu, V. B., Balezi, A. Z., Bashagaluke, J. B., Ncangu, B. B., Nabahungu, L. N., Katunga, D. M., Kokou, K., Gicheha, M. G., and Osuga, I. M.
Physicochemical properties of soils drive floristic richness of pastures in eastern Democratic Republic of Congo.
Ecological Processes, 15(1).
DOI: 10.1186/s13717-025-00663-4

2025 Ayagirwe, R., Kyallo, M., Meutchieye, F., Manjeli, Y., Mutwedu, V. B., **Mugumaarhahama, Y.**, Baenyi, P., Wasso, S., Bisimwa, P., and Yao, N.
Genomic characterization and population structure of indigenous cavies from the Democratic Republic of Congo: Implications for breeding and conservation.
Veterinary and Animal Science, 29:100490.
DOI: 10.1016/j.vas.2025.100490

Publications (continued)

- Cirezi, N. C., **Mugumaarhahama, Y.**, Useni, Y. S., Bayumbasire, C. C., Karume, K., Lumbuenamo, R. S., Bastin, J., and Bogaert, J.
  Spatial patterns and ecological drivers of tropical moist forest transitions in the Kahuzi-Biega National Park landscape, eastern Democratic Republic of Congo.
  Discover Forests, 1(1).
  DOI: 10.1007/s44415-025-00046-9

- Foussiakda, C. A., Balegamire, J. B., Claire, G., **Mugumaarhahama, Y.**, and Blavier, A.
  Posttraumatic stress disorder, dyadic adjustment, sexual desire, and couple resilience 10 years after the experience of rape by survivors in the Eastern Democratic Republic of the Congo.
  Social Sciences, 14(3):131.
  DOI: 10.3390/socsci14030131

- Kangela, A. M., Shukuru, B. N., Mukotanyi, S. M., Imani, G., **Mugumaarhahama, Y.**, Iragi, D. M., Bahati, D. S., Bashagaluke, J. B., and Munyahali, W.
  Bayesian spatial prediction of soil organic carbon stocks in eastern DRC using INLA-SPDE and environmental covariates.
  Environmental Challenges, 21:101303.
  DOI: 10.1016/j.envc.2025.101303

- Mutwedu, V. B., Mushagalusa, P. B., Cilabara, C. S., **Mugumaarhahama, Y.**, Bisimwa, P. N., Ayagirwe, R. B. B., and Katcho, K.
  Exploring farmers' knowledge, attitudes and control practices on ixodid tick in the context of climate change of South Kivu province, Eastern Democratic Republic of Congo.
  Scientific Reports, 15(1):36617.
  DOI: 10.1038/s41598-025-20504-w

- Azine, P. C., **Mugumaarhahama, Y.**, Mutwedu, V. B., Baenyi, S. P., Kunde, E. A., Mwanga, JC. I. M., Bacigale, S. B., Karume, K., and Ayagirwe, R. B. B.
  Livestock feeding practices in South Kivu, Eastern Democratic Republic of Congo: challenges and opportunities.
  Discover Animals, 2(1):8.
  DOI: 10.1007/s44338-025-00053-2

- Azine, P. C., **Mugumaarhahama, Y.**, Mutwedu, V. B., Mondo, J. M., Chuma, G. B., Buchekabiri, A., Mutume, T., Bagula, E. M., Ayagirwe, R. B. B., Baenyi, S. P., et al.
  Assessing smallholder farmers' vulnerability to climate change and coping strategies in South Kivu Province, eastern Democratic Republic of Congo.
  Environmental Systems Research, 14(1):2.
  DOI: 10.1186/s40068-025-00393-8

2024

- Cirezi, N. C., Bastin, J.F., **Mugumaarhahama, Y.**, Useni, Y. S., Karume, K., Lumbuenamo, R. S., and Bogaert, J.
  Analyzing Drivers of Tropical Moist Forest Dynamics in the Kahuzi-Biega National Park Landscape, Eastern Democratic Republic of Congo from 1990 to 2022.
  Land, 14(1):49.
  DOI: 10.3390/land14010049

- Ndeko, A. B., Diedhiou, A. G., Founoune-Mboup, H., Chuma, G. B., **Mugumaarhahama, Y.**, Diouf, D., Fall, S., Mushagalusa, G. N., and Kane, A.
  Site climate more than soil properties and topography shape the natural arbuscular mycorrhizal symbiosis in maize and spore density within rainfed maize (*Zea mays* L.) cropland in the eastern DR Congo.
  PLOS ONE, 19(12):e0312581.
  DOI: 10.1371/journal.pone.0312581

Publications (continued)

- Cokola, M. C., Noël, G., **Mugumaarhahama, Y.**, Caparros, M. R., Bisimwa, E. B., and Francis, F.
  Planting date in South Kivu, eastern DR Congo: A real challenge for the sustainable management of *Spodoptera frugiperda* (Lepidoptera: Noctuidae) by smallholder farmers.
  PLOS ONE, 19(12):1–18.
  DOI: 10.1371/journal.pone.0314615
- Ndeko, A. B., Chuma, G. B., Cokola, M. C., Mondo, J. M., **Mugumaarhahama, Y.**, Basengere, E. B., Civava, R., and Mushagalusa, G. N..
  Typology of smallholder maize farmers in South-Kivu, Eastern DR Congo: implications in improving farming practices and markets.
  Discover Agriculture, 2(1):47.
  DOI: 10.1007/s44279-024-00053-y
- Foussiakda, C. A., Balegamire, J. B., **Mugumaarhahama, Y.**, Gavray, C., and Blavier, A.
  Stress induced by children born of rape and the parental alliance in the DR Congo.
  Family Relations, 73(5):3343–3356.
  DOI: 10.1111/fare.13080
- Zamukulu, P. M., Bagula, E. M., Mondo, J. M., Chuma, G. B., Bulonza, G. M., Mwaluke, S., **Mugumaarhahama, Y.**, Mwimangire, C. B., Cinyabuguma, E. L., Lubobo, A. K. and Mushagalusa, G. N.
  Assessment of the nitrogen fertilizer split-application on maize grain yield and profitability on Nitisols of South-Kivu, Eastern D.R. Congo.
  CABI Agriculture and Bioscience, 5:22.
  DOI: 10.1186/s43170-024-00224-3

2023

- Ndjadi, S. S., Vissoh, P. V., Vumilia, R. K., Mondo, J. M., **Mugumaarhahama, Y.**, Mushagalusa, G. N., Saidou, A., and Ahoton, L. E.
  Yield potential and land-use efficiency of onion (*Allium cepa* L.) intercropped with peanut (*Arachis hypogaea* L.) under organic soil fertility management in South-Kivu, Eastern DR Congo.
  Bulgarian Journal of Agricultural Science, 29(2):87–98.
  DOI: 10.2298/BAJRS2302087N
- Chuma, G. B., **Mugumaarhahama, Y.**, Mondo, J. M., Bagula, E. M., Ndeko, A. B., Lucungu, P. B., Karume, K., Mushagalusa, G. N., and Schmitz, S.
  Gully erosion susceptibility mapping using four machine learning methods in Luzinzi watershed, eastern Democratic Republic of Congo.
  Physics and Chemistry of the Earth, 129:103295.
  DOI: 10.1016/j.pce.2022.103295
- Bacigale, S. B., Ayagirwe, R. B. B., Mutwedu, V. B., **Mugumaarhahama, Y.**, Mugisho, J. Z., Nziku, Z., Fofana, M., Udomkun, P., and Mignouna, J.
  Assessing milk products quality, safety, and influencing factors along the dairy value chain in eastern Democratic Republic of the Congo.
  Frontiers in Sustainable Food Systems, 7:1105515.
  DOI: 10.3389/fsufs.2023.1105515
- Ayagirwe, R. B. B., Baruti, F., Kahindo, H. S., **Mugumaarhahama, Y.**, Shukuru, D. W., Kamgang, Vanessa W., and Mutwedu, V. B.
  Therapeutic effects of avocado (*Persea americana* Mill.) seed powder against reproductive toxicity induced by Mancozeb (herbicide) in female rabbits.
  Heliyon, 9(7).
  DOI: 10.1016/j.heliyon.2023.e18057

Publications (continued)

- **Mugumaarhahama, Y.**, Fandohan, A. B., and Glèlè Kakaï, R. L.
  Performance of inhomogeneous Poisson point process models under different scenarios of uncertainty in species presence-only data.
  Environmental Systems Research, 12(1):27.
  DOI: 10.1186/s40068-023-00312-9

- Foussiakda, C. A., Gavray, C., **Mugumaarhahama, Y.**, Balegamire, J. B., and Blavier, A.
  Gender differences, trauma, and resilience of children born of rape, and perception of their behavior by parents and the community in the east of the Democratic Republic of Congo.
  Psych, 5(4):1156–1169.
  DOI: 10.3390/psych5040077

2022

- Kwankanaba, F. B., Mushagalusa, A. C., Barume, C. A., **Mugumaarhahama, Y.**, and Sefu, A. G.
  Farmers' perceptions on technical controls and risk factors of East Coast Fever caused by *Theileria parva* in Mountainous Kivu, Democratic Republic of Congo.
  Journal of Animal and Plant Sciences, 51(2):9213–9226.

- **Mugumaarhahama, Y.**, Fandohan, A. B., Mushagalusa, A. C., Sode, I. A., and Glèlè Kakaï, R. L.
  Inhomogeneous Poisson point process for species distribution modelling: relative performance of methods accounting for sampling bias and imperfect detection.
  Modeling Earth Systems and Environment, 8(4):5419–5432.
  DOI: 10.1007/s40808-022-01417-3

- Muhaya, V. N., Chuma, G. B., Kavimba, J. K., Cirezi, N. C., **Mugumaarhahama, Y.**, Fadiala, R. M., Kanene, C. M., Kabasele, A. Y. Y., Mushagalusa, G. N., and Karume, K..
  Uncontrolled urbanization and expected unclogging of Congolese cities: Case of Bukavu city, Eastern DR Congo.
  Environmental Challenges, 8:100555.
  DOI: 10.1016/j.envc.2022.100555

- Mutwedu, V. B., Bacigale, S. B., **Mugumaarhahama, Y.**, Muhimuzi, F. L., Munganga, B., Ayagirwe, R. B. B., Nguezet, P. M. D., and Manyawu, G.
  Smallholder farmers' perception and challenges toward the use of crop residues and agro-industrial byproducts in livestock feeding systems in Eastern DR Congo.
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  DOI: 10.1016/j.sciaf.2022.e01239

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I hereby certify the accuracy of the information provided.

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