Geraldine Klarenberg

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EDUCATION

2017 PhD, Agricultural and Biological Engineering, University of Florida (USA)
Including a certificate in Biological Systems Modeling
Dissertation: *Hidden disturbance in regional vegetation dynamics from road paving in a coupled natural and human system: a case study from the Southwest Amazon*

2004 BSc+MSc, Tropical Land Use/Free program: Irrigation and Water Management, Wageningen University (The Netherlands)
Including a concentration in Law and Governance
Thesis 1: *Infiltration and drainage properties of the Savutalele catchment, Fiji Islands*
Thesis 2: *Fishing in troubled waters. Two case studies of water quality management in sub-catchments of the Olifants Basin, South Africa.*

PROFESSIONAL APPOINTMENTS

2019 – current **Lecturer Quantitative Data Science**, School of Forest Resources and Conservation, University of Florida, USA

2018 – 2019 **Post Doctoral Associate**, Department of Wildlife Ecology and Conservation, University of Florida, USA (phasing out)

2017 **Research scientist**, postdoctoral research, Department of Agricultural and Biological Engineering, University of Florida, USA

2016 – 2017 **Biological scientist II**, Fisheries and Aquatic Sciences, School of Forestry and Natural Resources, University of Florida, USA

NON-ACADEMIC WORK EXPERIENCE

2015 – 2016 **Statistician**, Suwannee River Water Management District, USA

2010 – 2011 **Independent consultant / researcher**. Topics: integrated water resources management, water supply and sanitation, climate change adaptation, livelihoods-based development, South Africa / USA

2005 – 2010 **Senior policy specialist / Project and programme manager**, The Mvula Trust (water and sanitation NGO), South Africa

2001 **Intern**, Hydrological modeling department, Murray-Darling Basin Commission, Australia

RESEARCH EXPERIENCE

2018 - current The effect of invasive species on ectoparasite population dynamics. Development of occupancy models and mechanistic / agent-based models to evaluate the impact of invasive species on tick populations in Florida
Lab: Samantha Wisely (Department of Wildlife Ecology and Conservation, University of Florida)

2017 - current Development and analysis of indicators focused on sustainable intensification of agriculture in Tanzania, based on a dataset collected as

part of the Vital Signs project (www.vitalsigns.org). Focus on environmental indicators: (agro)biodiversity, land cover, biomass, soil, erosion, landscape fragmentation, rainfall and temperature anomalies. Overall analysis revolves around environmental, economic, social, productivity and human condition indicators.
Lab: Cheryl Palm (Department of Agricultural and Biological Engineering, University of Florida).

2017 - current	Analysis of a long-term Florida horseshoe crab monitoring dataset, and the development of an occupancy and abundance model. With Dr. Jane Brockmann (Department of Biology, University of Florida).
2016 – 2017	Assistance to researchers of the Environmental Engineering Department at the University of Florida on Dynamic Factor Analysis of Amazon fisheries data and Florida hydrology data.
2016 – 2017	Development of a dynamic population model to assess recruitment and mortality anomalies of bonefish population in the Florida Bay area, and relationships of these anomalies with variables associated with climate, hydrology, water quality and habitat changes. Lab: Mike Allen and Rob Ahrens (Fisheries and Aquatic Science, University of Florida).
2012 – 2017	Graduate Research Assistant. Research as part of the project "Global Sensitivity & Uncertainty Analysis for Evaluation of Ecological Resilience: Theoretical Debates over Infrastructure Impacts on Livelihoods & Forest Change", funded by the National Science Foundation, grant 1114924. Lab: Rafael Muñoz-Carpena (Department of Agricultural and Biological Engineering, University of Florida)
2003 – 2004	MSc research with field work in South Africa, focused on institutional development and (new) policies regarding water quality management. Qualitative research on perceptions from, and power struggles between, various stakeholders (government, communities, mines) concerning water pollution in the Olifants Basin (SA). Lab: Flip Wester (Department of Environmental Sciences, Water Resources Management, Wageningen University)
2003	MSc research with field work in Fiji: part of the CROPPRO project (an EU 7th Framework funded programme), aimed to provide assistance to Pacific Island countries (Fiji, Samoa and Tonga) with the development of integrated farming approaches for sustainable crop production in environmentally constrained systems and used the erosion model LISEM for planning purposes. Research on infiltration and saturated hydraulic properties of different soils under different vegetation, and hydrological and erosion modeling with the model SWAP. Lab: Jos van Dam (Department of Environmental Sciences, Soil Physics and Land Management, Wageningen University).

TEACHING AND OUTREACH

2019	FNR 5608 – Research planning. Lead instructor: Wendell Cropper.
2019	USDA-ARS / UF Machine Learning Training. Two-day workshop. Development of course material, instructor and helper. Workshop lead: Adam Rivers (USDA-ARS)
2019	Assistance to "Coding in the environmental sciences; A free workshop for underrepresented students". One-day workshop for middle and high schoolers. Workshop developer and lead: Amy Kendig (University of Florida).
2017 – current	Certified Data and Software Carpentry instructor –instructor and helper at 2-day workshops at the University of Florida campus and at the Fort Lauderdale Research and Education Center (1-2 times a semester)
2016	Introductory workshop on R, for UF PhDMoms (student organization)
2014	Instructor for 'Aqua-Arts', an after-care program on water use education for elementary school students using artistic teaching methods at two local elementary schools.
2013	Teaching Assistant for course "Land and Water Resources Engineering". Main instructor and course developer: Rafael Muñoz-Carpena (University of Florida).

PUBLICATIONS

Refereed journal articles

Klarenberg, G., R. Muñoz-Carpena, M. Marsik, J. Southworth, L. Zhu, C. Baraloto and S. Perz. A spatiotemporal natural-human database to evaluate road development impacts in an Amazon trinational frontier. Scientific Data, 2019; 6(93)

Klarenberg, G., R. Ahrens, S. Shaw, M. Allen. Use of a dynamic population model to estimate mortality and recruitment trends for Bonefish in Florida Bay. Environmental Biology of Fishes, 2018; https://doi.org/10.1007/s10641-018-0805-4

Klarenberg, G., R. Muñoz-Carpena, M. Campo-Bescós and S. Perz. Changing lanes: Highway paving in the southwestern Amazon alters long-term trends and drivers of regional vegetation dynamics. Heliyon, 2018; 4(8): e00721

Hahus, I., K. Migliaccio, K. Douglas-Mankin, **G. Klarenberg** and R. Muñoz-Carpena. Using cluster analysis to compartmentalize a large managed wetland based on physical, biological, and climatic geospatial attributes. Environmental Management, 2018; 62(3): 571-583.

Colvin, J., F. Ballim, S. Chimbuya, M. Everard, J. Goss, **G. Klarenberg**, S. Ndlovu, D. Ncala and D. Weston (2008). Building capacity for co-operative governance as a basis for integrated water resource managing in the Inkomati and Mvoti catchments, South Africa. Water SA, 2008; 34(6): 681-689.

Manuscripts in submission

Klarenberg, G. and S. Wisely. Evaluation of NEON data to model spatio-temporal tick dynamics in Florida. *Submitted to Insects.*

Manuscripts in preparation

Klarenberg, G., R. Muñoz-Carpena, M. Medina and R. Huffaker. Causality analysis of regional biophysical and vegetation variables reveals increased feedback along a road paving gradient in the SW Amazon. *In preparation for Anthropocene.*

Klarenberg, G. and J. Brockmann. Abundance modeling of horseshoe crabs (*Limulus polyphemus*) in Florida to explore temporal dynamics and the importance of site variability. *In preparation for Animal Conservation.*

Other (non-peer reviewed) publications

Klarenberg, G., M. Allen, R. Ahrens, S. Shaw, R. Santos and J. Rehage. 2017. Application of a dynamic population model to investigate changes in bonefish populations in Florida Bay between 1980 and 2014. Technical report to the Bonefish and Tarpon Trust.

Munnik, V., **G. Hochman***, M. Hlabane and S. Law. 2010. The Social and Environmental Consequences of Coal Mining in South Africa. A Case Study. Environmental Monitoring Group (South Africa) and Both Ends (The Netherlands).

Vienings, A., I.B. Modiba, **G. Hochman***, C.B. Broadwell and M. White. 2010. Access to safe and sustainable water supply – whither SADC? (Regional Water Study). Southern African Development Community Council of Non-Governmental Organisations (SADC – CNGO).

*married name

AWARDS AND HONORS

2017   First place – Best Poster presentation at the annual poster symposium of UF's Agricultural and Biological Engineering Department: *Changing lanes: SW Amazon road paving alters vegetation dynamics and its drivers*.

2015   First place – Best Paper presentation at the American Society of Agricultural and Biological Engineering (ASABE) Florida section meeting: *Non-linear time series analysis on Amazon vegetation data*.

2014   Attribute of a Gator Engineer Award 2014-2015: Leadership

2014   Second place – Best Paper presentation at the American Society of Agricultural and Biological Engineering (ASABE) Florida section meeting: *A Spatial and Temporal Analysis of possible Impacts of Inter-Oceanic Highway Road Paving on Vegetation Dynamics in the SW Amazon: Dynamic Factor Analysis*.

2014   Third place – 3 Minute Thesis Competition at the Department of Agricultural and Biological Engineering (University of Florida): *Seeing the forest for the trees. Resilience of a socio-ecological system in the Amazon*.

GRANTS AND FELLOWSHIPS

2019   Travel award and registration waiver to present horseshoe crab research at the 4th International Workshop on the Science and Conservation of Horseshoe Crabs, in Qinzhou City, China (Horseshoe Crab Specialist Group, IUCN)

2018   Travel award to teach Data Carpentry at the UF Fort Lauderdale Research and Education Center (UF Carpentries Club, University of Florida)

2017   Supplemental Retention Scholarship (Office of Graduate Minority Programs, University of Florida)

2017   Travel grant to present at the American Society of Agricultural and Biological Engineers Annual International Meeting (ASABE AIM) in Spokane, WA (IFAS, University of Florida).

2015   Travel grant to present at the American Society of Agricultural and Biological Engineers Annual International Meeting (ASABE AIM) in New Orleans, LA (Office of Research, University of Florida)

CONFERENCE ACTIVITY / PARTICIPATION
Invited talks
2017   *Granger Causality Analysis of Vegetation Dynamics in the Southwestern Amazon.* American Society of Agricultural and Biological Engineers Annual International Meeting (ASABE AIM), Spokane, WA (session: "Explanatory Time Series Analysis in NRES").

2016   *Presentation and Investigation of Continuous Monitoring Data from the Manatee and Fanning Springsheds.* American Water Resources Association (AWRA) Florida Section meeting, Steinhatchee, FL.

Organization
2015   Organizer of all graduate student events and activities at the American Society of Agricultural and Biological Engineers Annual International Meeting (ASABE AIM), New Orleans, LA.

SERVICE TO PROFESSION
Current   Board member (treasurer) of the UF Carpentries Club; providing structured pathways for colleagues to learn informatics skills outside of the traditional university curriculum. Goals are to organize workshops, bring the Carpentries' teaching methods to instructors and to develop a research community dedicated to open and reproducible science.

2017 – 2018   Publicity Chair of the American Society of Agricultural and Biological Engineers (ASABE) Florida Section

2014 – 2015   Member-at-large (Graduate Student Relationships) of the Young Professionals Community (YPC) of the American Society of Agricultural and Biological Engineers (ASABE)

DEPARTMENTAL SERVICE
2018 – 2019   Assistance to Rafael Muñoz-Carpena (Agricultural and Biological Engineering, University of Florida) in organizing weekly Biocomplexity Engineering seminars (https://abe.ufl.edu/faculty/carpena/seminars/index.shtml)

2016 – 2018   Member of 'Editor's Club', providing support to the Editor-in-Chief of the Journal of Hydrology: Regional Studies (Rafael Muñoz-Carpena)

2013 – 2015   President of UF's Agricultural and Biological Engineering Graduate Student Organization (ABE-GSO).

2013 – 2015   Member of the Agricultural and Biological Engineering Graduate Professional Development Committee

2013 – 2014   Member of GSAC, the Graduate Student Advisory Council to the NSF-funded I-cubed Program at the University of Florida: organized the Graduate Student Research Day 2013.

UNIVERSITY SERVICE
2014 – 2015, 2017   Co-President of PhDMoms, a graduate student organization at UF that supports doctoral student-parents, with specific attention to female student-parents. Volunteer in 2017.

| 2014 | Volunteer at UF's Stormwater Ecological Enhancement Project (SEEP) though the UF Wetlands Club |
| 2012 – 2014 | Co-founder of Tanglewood Community Gardens (UF Graduate and Family Housing), and secretary of the Board since Oct 2012. Tanglewood Community Gardens won the UF Sustainability Award in 2013 |

COMMUNITY INVOLVEMENT

| 2018 | Co-founder and organizer of R-Ladies Gainesville |
| 2013 – 2015, 2017 | Science Fair judging for Alachua County middle schools |

RELATED PROFESSIONAL SKILLS

Computer modeling and simulation, incl statistical analyses – R, Python, Fortran, Visual Basic, C, Matlab, Brodgar, Minitab
High performance computing – bash job scripts, parallel computing
Geographic Information Systems – ArcMap, R (gdal)
Data management and version control – MySQL, git
Microsoft Office – Word, Excel, Powerpoint, Outlook, some Access
Hydrological field and laboratory measurements
PADI Open Water & Advanced Open Water Diver

LANGUAGES

	Reading	*Speaking*	*Writing*
Dutch	Native	Native	Native
English	Fluent	Fluent	Fluent
French	Good	Conversational	Competent
German	Good	Conversational	Competent

PROFESSIONAL MEMBERSHIPS

American Society of Agricultural and Biological Engineers (ASABE)
American Water Resources Association (AWRA)
American Fisheries Society (AFS)
KLV Wageningen Alumni Network