

Prof. Dr. Luc De Meester

Research Statement

I am fascinated by how communities and populations respond to environmental gradients, and to what extent ecological and evolutionary processes interact in shaping these responses. My research interests are broad, ranging from the ecology of lakes and ponds to ecological genomics, but with a special interest in evolutionary ecology, eco-evolutionary dynamics and (evolving) metacommunity ecology in the context of Global Change.

Academic Track Record

Since 2020	Director Leibniz-Institut für Gewässerökologie und Binnenfischerei, Berlin Professor of Freshwater Science at Freie Universität Berlin (100%) Full Professor in Ecology and Evolutionary Biology at KU Leuven (20%)
2003-2020	Full Professor in Ecology and Evolutionary Biology at KU Leuven (100%)
2000-2003	Associate Professor, Biology KU Leuven
1995-2000	Assistant Professor, Biology KU Leuven
1994	Postdoctoral Researcher at Max Planck Institut für Limnologie (Plön, Germany)
1991-1995	Postdoctoral Researcher FWO, Biology UGent
1986-1991	PhD student IWONL and FWO, Biology UGent

Supervision PhD Students & Postdocs

I was (co)promoter of >35 completed PhDs and hosted >24 postdocs from Europe and beyond (18 for > 1 year), of which 18 now hold permanent research positions. My current team consists of 7 PhD students and 6 postdocs.

Commissions of Trust (selected)

2012 – present	Editorial board member of <i>Ecology Letters</i>
2019 – present	Board member of <i>One Earth</i>
2007 – 2013	Board member <i>Proceedings of the Royal Society – Biological Series</i>
2006 – 2012	Associate editor of <i>Limnology and Oceanography</i>
2005 – 2008	Member of editorial board of <i>Journal of Evolutionary Biology</i>
2011 – 2017	Member ERC Starting Grants panel LS8 (2011-2017), deputy chair 2015, 2017
2006 – 2013	Member panel BIO3 of National Science Fund FWO-Flanders (chair 2012-2013)
2015 – 2019	Member KU Leuven Research Council (Board member 2015-2017)
2005 – 2010	Head of Department KU Leuven
2010 – 2015	Division Head Ecology, Evolution and Biodiversity Conservation

Publication Profile

<https://lirias.kuleuven.be/cv?u=U0008482>

360+ publications in international peer-reviewed journals, including Nature, Science, Proceedings of the National Academy of Science USA, Nature Climate Change, Nature Communications, Nature Microbiology, Trends in Ecology and Evolution, Ecology Letters, American Naturalist, Evolution, Ecology, Philosophical Transactions of the Royal Society London, Proceedings of the Royal Society of London Biological Series, Global Change Biology, ...

Web of Science: h-index 69, >19000 citations, >2300 citations in 2021; 45 papers with >100 citations. Google Scholar: h-index 83, >28000 citations; 68 papers with >100 citations.

Awards

2012 – 2014 Laureate of a Francqui Foundation Research Professor fellowship
2003 Laureate, Class Natural Sciences. Royal Academy of Sciences and Arts Belgium.

Career Path

My research profile is structured along the following main themes and contributions:

- **Evolutionary ecology, Stress ecology and Ecological genomics**, including the study of local genetic adaptation to natural and anthropogenic stressors using spatial surveys (Urbanisation: Brans et al. 2017 *Global Change Biol*, 2018 *Proc B*), experimental evolution (Climate change: Van Doorslaer et al. 2009 *Evolution* 2009 *Global Change Biol*, Geerts et al. 2015 *Nature Climate Change*; Pesticides: Jansen et al. 2011 *Evolution*, 2015, *Evol Appl*) and resurrection ecology (Predation: Cousyn et al. 2001 *PNAS*, Stoks et al. 2016 *Ecol Lett*; Parasites: Decaestecker et al. 2007 *Nature*; Climate change: Geerts et al. 2015 *Nature Climate Change*), and including multi-trait and combined-stressor analyses (e.g. pollution, food stress, predators and parasites: Coors & De Meester 2008 *J. Appl Ecol*; Pauwels et al. 2010 *Funct Ecol*) and genomics (e.g. Orsini et al. 2012 *Mol Ecol*; Routtu et al. 2014 *BMC Genomics*).
- **Eco-evolutionary dynamics**, with focus on evolving metacommunities (Urban et al. 2008 *Trends Ecol Evol*). I contributed to the rapidly growing field of eco-evolutionary dynamics amongst others through my studies on rapid evolutionary change (e.g. Cousyn et al. 2001 *PNAS*), through the development of the concept of evolution-mediated priority effects (De Meester et al. 2002 *Acta Oecologica*; Urban & De Meester 2009 *ProcB*; De Meester et al. 2016 *Trends Ecol Evol*; Leibold et al. 2019 *PNAS*), empirical research on eco-evolutionary interactions (climate change: De Meester et al. 2011 *Integr Comp Biol*; cyanobacteria blooms: Lemaire et al. 2011 *Evol Appl*; zooplankton communities: Pantel et al. 2015 *Ecol Lett*), the development of eco-evo partitioning metrics (Govaert et al. 2016 *Ecol Lett*), and the idea that evolution can impact regime shifts and tipping points (Dakos et al. 2019, *Nature Ecol Evol*).
- **Metacommunity ecology** using zooplankton (e.g. Cottenie et al. 2003, *Ecology*; Cottenie & De Meester 2004 *Ecology*) and bacteria (e.g. Van der Gucht et al. 2007 *PNAS*; both: Verreydt et al. 2012 *Ecol Lett*) as model systems (multiple organism groups: De Bie et al. 2012 *Ecol Lett*).
- **Aquatic Ecology, Biodiversity and Nature Conservation**, with emphasis on biodiversity (Diaz et al. 2020 *Science*), lake and pond ecology (e.g. Declerck et al. 2005 *Ecology*, 2006 *Biol Cons*; Scheffer et al. 2006 *Oikos*), and global change biology (climate warming: Kosten et al. 2012 *Global Change Biol*; Urban et al. 2016 *Science*, Scheffers et al. 2016 *Science*; urbanization: Merckx et al. 2018 *Nature*).

Publications (selected)

Chaturvedi A., Zhou J., Raeymaekers J.A.M., Czypionka T., Orsini L., Jackson C.E., Spanier K.I., Shaw J.R., Colbourne J.K. & **De Meester L.** (2021). Extensive standing genetic variation from a small number of founders enables rapid adaptation in *Daphnia*. *Nature Communications* 12 article nr 4306. (IF 2020: 14.92)

Urban M.C., Strauss S.Y., Pelletier F., Palkovacs E.P., Leibold M.A., Hendry A.P., **De Meester L.**, Carlson S.M., Angert A.L. & Giery S.T. (2020). Evolutionary origins for ecological patterns in space. *Proceedings National Academy of Sciences USA* 117: 17482-17490. (IF 2020: 12.29)

Dakos V., Matthews B., Hendry A., Levine J., Loeuille N., Norberg J., Nosil P., Scheffer M. & **De Meester L.** (2019). Ecosystem tipping points in an evolving world. *Nature Ecology and Evolution* 3: 355-362 (IF 2020: 15.46)

Schaffner L.R., Govaert L., **De Meester L.**, Ellner S.P., Fairchild E., Miner B.E, Rudstam L.G., Spaak P., Hairston N.G. (2019). Consumer-resource dynamics is an eco-evolutionary process in a natural plankton community. *Nature Ecology and Evolution* 3, 1351-1358. (IF 2020: 15.46)

Merckx T., Souffreau C., Kaiser A., Baardsen L.F., Backeljau T., Bonte D., Brans K.I., Cours M., Dahirel M., Debortoli N., De Wolf K., Engelen J.M.T., Fontaneto D., Gianuca A.T., Govaert L., Hendrickx F., Higuti J., Lens L., Martens K., Matheve H., Matthysen E., Piano E., Sablon R., Schön I., Van Doninck K., **De Meester L.**, Van Dyck, H. (2018). Body size shifts in aquatic and terrestrial urban communities. *Nature* 558: 113+ (IF 2020: 49.96)

Other Scientific Input

Member of several international networks and working groups on evolutionary ecology, eco-evolutionary dynamics and metacommunity ecology.

50+ keynote, invited lectures and invited seminars