**ALEXANDRU I. MILCU**

Date of birth: 24.09.1976

**Chargé de Recherche (CR1), CNRS, Centre d'Ecologie Fonctionnelle & Evolutive (CEFE) and CNRS Ecotron**

http://www.ecotron.cnrs.fr/index.php/team/alexandru-milcu

Researchgate profile: https://www.researchgate.net/profile/Alexandru_Milcu

## Research career

- Since 2016 – Adjunct Director, CNRS Ecotron.
- Since 2014 – Researcher (Chargé de Recherche - CR1), CNRS, Centre d'Ecologie Fonctionnelle & Evolutive (CEFE) and CNRS Ecotron .
- 2012 – 2014: Research Associate, CNRS Ecotron.
- 2007 – 2012: Ecotron Project Leader, Division of Biology, Imperial College London.
- 2005–2007: Research Officer, Imperial College London.
- 2002–2005 – PhD (*Magna cum laude*) in Ecology, thesis entitled "*The role of earthworms in plant performance and ecosystem functioning in a plant diversity gradient*", sub-project in the Jena Biodiversity Experiment, Institut für Zoologie, Technische Universität Darmstadt, Germany.

## Education

- 2002 – MSc in Systems Ecology, University of Bucharest, Romania.
- 1999 – Diploma in Ecology, University of Bucharest, Romania.

## Research interests

- Biotic feedbacks between above- and belowground components of ecosystems,
- The response of terrestrial C, N and water fluxes to global changes,
- The impact of biodiversity loss (including phylogenetic and functional diversity) for ecosystem functioning,
- Controlled Environment Facilities for Ecosystem Research (Ecotrons).

## Publications summary

- Since 2006 I have an h-index of 18 (over 1200 citations according to Google Scholar and average impact factor of 5.9), published 33 peer-reviewed articles (including in *Nature*, *Nature Climate Change, Ecology Letters, PNAS* and *Ecology*) and 15 peer-reviewed oral and poster contributions.

## Grants

- 2011 – PI for a consultancy research project entitled "*The impact of photoactive greenhouse films on plant performance and productivity*" funded by Photofuel (www.photofuel.fr/). **£10,000.**
- 2010 – Co-PI in Experimentation in Ecosystem Research (EXPEER) EU-FP7 consortium grant, part of the work programme topic: INFRA-2010-1.1.17: "Sites and experimental platforms for long-term ecosystem research". **180,000 €.**
- 2009 – Co-PI in NERC (NE/H003126/1) proof of concept grant entitled "Real-time emulation of field climatic conditions in controlled environment". **£50,000.**
- 2008 – Co-PI in the NERC UKPopNet pump priming project entitled "Can small-scale controlled experiments predict the impacts of landscape scale management changes? **£15,000.**
- 2007 – **£4,000** from NERC Centre for Population Biology for organising the collaborative

workshop entitled "Close ecological systems: black boxes or promising model systems for climate change research".

## Grant reviewing

- Reviewed grant applications for L'Agence Nationale de la Recherche (France), the Netherlands Organisation for Scientific Research (NWO), NERC & The Czech Research Foundation.

## Other academic activities

- Associate Editor for Scientific Reports
- Reviewer for Ecology, Global Change Biology, Journal of Ecology, Oecologia, Oikos, Plant and Soil, Journal of Applied Ecology, Functional Ecology, Soil Biology and Biochemistry, Applied Soil Ecology, Pedobiologia & BMC Ecology.
- Member of European Geoscience Union (EGU)
- Chaired the "Ecosystem processes II" session at the BES 2009, Hertfordshire, UK.
- Involved in multiple school visits, demonstrations and presentation of the Ecotron facility.
- Teaching: contributed to the climate change module for undergraduates (2008-2011) at Imperial College.
- Supervised several projects for placement students.
- Developed and managed the webpage of the Ecotron Facility at Silwood Park (www3.imperial.ac.uk/cpb/ecotron) and currently mange the website of the CNRS Ecotron.(www.ecotron.cnrs.fr)
- Attended Prof Mick Crawley's (the author of "The R book") three weeks R course (2007).

## Languages

Mother tongue(s): **Romanian**

| ***Self-assessment*** *European level (*)* | **Understanding** | | **Speaking** | | **Writing** |
|---|---|---|---|---|---|
| | Listening | Reading | Spoken interaction | Spoken production | |
| **English** | C2 | C2 | C2 | C2 | C2 |
| **German** | B1 | B1 | B2 | B2 | B2 |
| **French** | C1 | C1 | C1 | C1 | B1 |

*(*) Common European Framework of Reference (CEF) level. C1 = Effective Operational Proficiency or advanced; C2 = Mastery or proficiency; B1 = intermediate; B2 = Vantage or upper intermediate;*

## References

- **Dr. Jacques Roy,** Director of Research, CNRS Ecotron, Montferrier-sur-Lez, Tel: 04.67.91.37.06, E-mail: Jacques.ROY@ecotron.cnrs.fr
- **Prof. Mace Georgina CBE FRS**, Darwin Building, University College London (UCL), London, UK, Tel: +44 (0) 20 31081**,** E-mail: g.mace@ucl.ac.uk
- **Prof. Phil Ineson**, University of York, Biology Department, York, UK, Tel: +44 (0) 1904 328551,E-mail: pi2york@gmail.com
- **Prof. Stefan Scheu**, University of Goettingen, Berliner Str. 28, 37073 Goettingen, Germany, Tel: +49 (0) 551 395445, E-mail: sscheu@gwdg.de

## Publications (peer reviewed)

1. **Milcu**, A., Eugster, W., Bachmann, D., Guderle, M., Gockele, A., Landais, D., et al. (2016). Plant functional diversity increase grassland productivity- related water vapor fluxes : a combined Ecotron and modeling approach. Ecology, (accepted), 1–27.
2. Roy, J., Picon-Cochard, C., Augusti, A., Benot, M.-L., Thierry, L., Darsonville, O., et al. (2016). Elevated $CO_2$ maintains grassland net carbon uptake under a future heat and drought extreme. PNAS (Proceedings Natl. Acad. Sci. United States Am., (accepted).
3. Mellado-Vasquez, P.G., Lange, M., Gockele, A., **Milcu**, A., Piel, C., Roscher, C., et al. (2016). Plant diversity generates enhanced soil microbial access to recently photosynthesized carbon in the rhizosphere. Soil Biol. Biochem., 94, 1–33.
4. De Boeck, H.J., Vicca, S., Roy, J., Nijs, I., **Milcu**, A., Kreyling, J., et al. (2015). Global Change Experiments: Challenges and Opportunities. Bioscience.
5. Thakur, M.P., **Milcu**, A., Manning, P., Niklaus, P. a., Roscher, C., Power, S., et al. (2015). Plant diversity drives soil microbial biomass carbon in grasslands irrespective of global environmental change factors. Glob. Chang. Biol., 21, 4076–4085.
6. de Dios, V.R., Roy, J., Ferrio, J.P., Alday, J.G., Landais, D., **Milcu**, A., et al. (2015). Processes driving nocturnal transpiration and implications for estimating land evapotranspiration. Sci. Rep., 5, 10975.
7. **Milcu**, A., Bonkowski, M., Collins, C.M. & Crawley, M.J. (2015). Aphid honeydew-induced changes in soil biota can cascade up to tree crown architecture. Pedobiologia (Jena)., 58, 119–127.
8. **Milcu**, A., Roscher, C., Gessler, A., Bachmann, D., Gockele, A., Guderle, M., et al. (2014). Functional diversity of leaf nitrogen concentrations drives grassland carbon fluxes. Ecol. Lett., 17, 435–444.
9. Allan, E., Weisser, W.W., Fischer, M., Schulze, E.-D.D., Weigelt, A., Roscher, C., et al. (2013). A comparison of the strength of biodiversity effects across multiple functions. Oecologia, 173, 223–37.
10. **Milcu**, A., Allan, E., Roscher, C., Jenkins, T., Meyer, S.T., Flynn, D., et al. (2013). Functionally and phylogenetically diverse plant communities key to soil biota. Ecology, 94, 1878–85.
11. Green, E.R.R., Ellis, R.J.J., Gadsdon, S.R.M.R.M., **Milcu**, A. & Power, S. a. A. (2013). How does N deposition affect belowground heathland recovery following wildfire? Soil Biol. Biochem., 57, 775–783.

12. **Milcu**, A., Lukac, M. & Ineson, P. (2012). The role of closed ecological systems in carbon cycle modelling. Clim. Change, 112, 1–8.
13. **Milcu**, A., Lukac, M., Subke, J., Manning, P., Heinemeyer, A., Wildman, D., et al. (2012). Biotic carbon feedbacks in a materially closed soil – vegetation – atmosphere system. Nat. Clim. Chang., 2, 281–284.
14. Eisenhauer, N., **Milcu**, A., Sabais, A.C., Bessler, H., Brenner, J., Engels, C., et al. (2011). Plant diversity surpasses plant functional groups and plant productivity as driver of soil biota in the long term. PLoS One, 6, e16055.
15. **Milcu**, A., Paul, S. & Lukac, M. (2011). Belowground interactive effects of elevated CO2, plant diversity and earthworms in grassland microcosms. Basic Appl. Ecol., doi:10.101.
16. Staaden, S., Rohlfs, M., Scheu, S. & **Milcu**, A. (2011). Olfactory cues associated with fungal grazing intensity and secondary metabolite pathway modulate Collembola foraging behaviour. Soil Biol. Biochem.
17. **Milcu**, A. & Manning, P. (2011). All size classes of soil fauna and litter quality control the acceleration of litter decay in its home environment. Oikos, 120, 1366–1370.
18. Eisenhauer, N., **Milcu**, A., Allan, E., Nitschke, N., Scherber, C., Temperton, V., et al. (2011). Impact of above and below ground invertebrates on temporal and spatial stability of grassland of different diversity. J. Ecol., 99, 572–582.
19. Lukac, M., **Milcu**, A., Wildman, D., Anderson, R., Sloan, T. & Ineson, P. (2011). Non-intrusive monitoring of atmospheric CO2 in analogue models of terrestrial carbon cycle. Methods Ecol. Evol., 2, 103–109.
20. **Milcu**, A., Heim, A., Ellis, R.J., Scheu, S. & Manning, P. (2011). Identification of General Patterns of Nutrient and Labile Carbon Control on Soil Carbon Dynamics Across a Successional Gradient. Ecosystems, 14, 710–719.
21. Proulx, R., Wirth, C., Voigt, W., Weigelt, A., Roscher, C., Attinger, S., et al. (2010). Diversity promotes temporal stability across levels of ecosystem organization in experimental grasslands. PLoS One, 5, e13382.
22. **Milcu**, A., Eisenhauer, N., Scheu, S. & Thebault, E. (2010). Plant diversity enhances the reliability of belowground processes. Soil Biol. Biochem., 42, 2102–2110.
23. Scherber, C., Eisenhauer, N., Weisser, W.W., Schmid, B., Voigt, W., Fischer, M., et al. (2010). Bottom-up effects of plant diversity on multitrophic interactions in a biodiversity experiment. Nature, 468, 553–556.

24. Eisenhauer, N., Beßler, H., Engels, C., Gleixner, G., Habekost, M., **Milcu**, a, et al. (2010). Plant diversity effects on soil microorganisms support the singular hypothesis. Ecology, 91, 485–496.
25. Staaden, S., Rohlfs, M., Scheu, S. & **Milcu**, A. (2010). Fungal toxins affect the fitness and stable isotope fractionation of Collembola. Soil Biol. Biochem., 42, 1766–1773.
26. Eisenhauer, N., **Milcu**, A., Sabais, A.C.W. & Scheu, S. (2009). Earthworms enhance plant regrowth in a grassland plant diversity gradient. Eur. J. Soil Biol., 45, 455–458.
27. Eisenhauer, N., **Milcu**, A., Nitschke, N., Sabais, A.C.W., Scherber, C. & Scheu, S. (2009). Earthworm and belowground competition effects on plant productivity in a plant diversity gradient. Oecologia, 161, 291–301.
28. Eisenhauer, N., **Milcu**, A., Sabais, A.C.W., Bessler, H., Weigelt, A., Engels, C., et al. (2009). Plant community impacts on the structure of earthworm communities depend on season and change with time. Soil Biol. Biochem., 41, 2430–2443.
29. Eisenhauer, N., **Milcu**, A., Sabais, A.C. & Scheu, S. (2008). Animal ecosystem engineers modulate the diversity-invasibility relationship. PLoS One, 3, e3489.
30. **Milcu**, A., Schumacher, J. & Scheu, S. (2006). Earthworms (Lumbricus terrestris) affect plant seedling recruitment and microhabitat heterogeneity. Funct. Ecol., 20, 261–268.
31. Scherber, C., **Milcu**, A., Partsch, S., Scheu, S. & Weisser, W.W. (2006). The effects of plant diversity and insect herbivory on performance of individual plant species in experimental grassland. J. Ecol., 94, 922–931.
32. Partsch, S., **Milcu**, A. & Scheu, S. (2006). Decomposers (Lumbricidae, Collembola) affect plant performance in model grasslands of different diversity. Ecology, 87, 2548–58.
33. **Milcu**, A., Partsch, S., Langel, R. & Scheu, S. (2006). The response of decomposers (earthworms, springtails and microorganisms) to variations in species and functional group diversity of plants. Oikos.

## Posters and oral contributions (peer reviewed)

1. **Milcu A** & Roy J (2016). Plant diversity effects on ecosystem evapotranspiration and carbon uptake: a controlled environment (Ecotron) and modeling approach – poster contribution at EGU 2016 (Vienne, Austria).
2. Resco de Dios V, Gessler A, Ferrio J P, Bahn M, **Milcu A**, Tissue D, Voltas J & Roy J. (2016). Is optimality in stomatal conductance an endogenous process or anemergent

property arising from interactions with the environment? – oral contribution EGU 2016 (Vienne, Austria).

3. **Milcu A** & Roy J (2014). Partitioning ecosystem evapotranspiration in a biodiversity experiment: a controlled environment (Ecotron) and modeling approach – oral contribution at joint SFE and BES meeting (Lille, France)
4. **Milcu A** & Roy J (2013). Plant diversity and carbon fluxes: new insights from the CNRS Ecotron facility – oral contribution at INTECOL 2013, (London, UK).
5. Mellado-Vázquez P. G., Lange M., Landais D, Piel C, Escape C, Devidal S, Ravel O, **Milcu A**, Roy J & Gleixner G (2013). Effects of biodiversity on the flow of carbon from aboveground to belowground systems - poster at INTECOL 2013, (London, UK).
6. Guderle M, Roy J, **Milcu A**, Landais D, & Hildebrandt A (2013). Using soil water content for calculation of ecosystem root water uptake – poster at LYSIMETERTAGUNG (Gumpenstein Austria).
7. Weisser WW, Allan E, Scherber C, Eisenhauer N, Nitschke N, Meyer ST, **Milcu A**, Sabais A & Scheu S (2012). Effects of exclusion of above- and belowground insects along with molluscs in a biodiversity experiment – oral contribution at ESA, (Portland, USA).
8. **Milcu A**, Allan E, Scheu S & Eisenhauer N (2011). Assessing the predictive power of plant phylogenetic and functional diversity metrics on soil communities – oral contribution at BES (Sheffield, UK).
9. Ineson P, **Milcu A**, **et al.** (2010). The Global Carbon Cycle: It's a Small World *Geophysical Research Abstracts*, **12**, 13257. (http://meetingorganizer.copernicus.org/EGU2010/EGU2010-13257.pdf.)
10. Lukac M, **Milcu A** et al. (2009). Greenhouse gas emission from UK upland is changed by water level restoration – oral contribution at BIOGEOMON (Helsinki, Finland).
11. **Milcu A**, Lukac M, Subke A, Heinemeyer A & Ineson P (2009). Anthropogenic emissions and feedbacks in a terrestrial carbon cycle analogue – oral contribution at BES (Hertfordshire, UK).
12. **Milcu A**, Lukac M, Heinemeyer A & Ineson P (2008). $CO_2$ temperature feedbacks in a terrestrial carbon cycle analogue – oral contribution at ESA (Milwaukee, USA, http://esameetings.allenpress.com/2008/P11510.HTM) and BES (London, UK).
13. **Milcu A**, Manning P, Heinemeyer A, Vallack H & Ineson P (2006). Sealing Carbon And Life in the Ecotron. Poster, BES 2006, Oxford, UK (http://www3.imperial.ac.uk/portal/pls/portallive/docs/1/12985700.PDF).

14. **Milcu A**, Partsch S & Scheu S (2006) Earthworms and litter decomposition in "The Jena Experiment" – oral contribution at BES (Oxford, UK) and GfÖ (Bremen, Germany).
15. **Milcu A**, Partsch S & Scheu S (2004). Effects of grassland plant species diversity on soil animal food web components. Poster, 14. International Conference of Soil Zoology and Ecology (ICSZ), Rouen, France.