

Dr. Julia Clause

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Soil-plant interactions
Inter-/Trans-disciplinary science
Invertebrate-plant interactions
Functional ecology
Agroecosystems

EDUCATION

2011-2014: Ph.D., Ecology, ECODIV EA 1293 Laboratory, Université de Rouen, France

Title: “Seed-earthworm relationships: seed selection and the responses of plant communities”
Supervision: Sébastien Barot (IRD-iEES Paris, ENS, Paris) and Estelle Forey (ECODIV EA 1293 IRSTEA, Rouen)
Degree obtained *Summa Cum Laude*. Thesis defended on 4th Sept 2014
Presentation available at <http://bit.ly/1pthpvF> (in English)
Collaborations: UC Santa Barbara, CA, USA; Millenium Seed Bank, Royal Kew Gardens, UK
International committee: Pr. N. Eisenhauer (Univ. Leipzig, iDiv, Germany); Pr. J.J. Jiménez (IPE-CSIC, Jaca, Spain); Dr. E. Buisson (Univ. Avignon); Dr. P. Kardol (SLU-Umeå, Sweden); Pr. T. Decaëns (CEFE, Univ. Montpellier);

2008-2010: MSc Agroecology, Norwegian University of Life Sciences (NMBU), Ås, Norway.

Semester on sustainable farming and food systems (NMBU, Norway); stakeholder facilitation and conflict management (Swedish University of Agriculture, SLU, Uppsala); soil sciences and ecosystem management (ISARA, Lyon)

2005-2011: Agriculture engineering degree, specialized in rural development and agroecology.

Institut Supérieur d’Agriculture (ISA), Lille, France.
Including 1 year in the USA (Juniata College, PA; GPA: 3.5/4.0), and 1-month summer course on sustainable agriculture (Tamil Nadu, India.)

TEACHING EXPERIENCE

Qualifications: Ranked 3rd at the national competitive examinations for assistant-professorship (IUT Avignon, France); May 2015.

2015-2016: Teaching assistant, Ecole Normale Supérieure, Paris (188h lab equivalent)

- Organizer of the international Summer School « Modelling Environmental Resilience »
- In charge of the *Agroecology* interdisciplinary workshop; assistant on the *Modelling resilience*, *Social resilience*, and *Carbon footprints* workshops (Bachelor, Master students)
- In charge of a 1-week field project on applied ecology (Bachelor, May 2016)

2011-2014: Monitor / Teaching assistant, Université de Rouen, (133 + 63h lab equivalent)

- Initiation to ecology (B1; Lab); Botanic (B1-B2; Lab); Ecological restoration (B2; Lab); Classification (B3; Lab); Plant biology (B3; Lab); Ecosystem Management (M2; Lecture)
- Student project / internship supervisor (B2, B3, M1): field sampling, lab experiments, data collection and analysis, supervision of report writing and presentations

RESEARCH EXPERIENCE

Since September 2015: Research assistant, Modeling the resource use and epidemics of a biotrophic pathogen in a mix of sensitive/resistant wheat cultivars. Ecole Normale Supérieure, Paris. Supervision : D. Claessen (ENS) ; C. Robert (INRA Versailles)

January 2011 – September 2014: PhD student, « Seed-earthworm relationships: seed selection and the responses of plant communities ». Functional ecology of earthworms and impacts on vegetation, from seed to plant communities; semi-natural grasslands. International collaborations. ECODIV Lab, Université de Rouen. Supervision: E. Forey (Univ Rouen); S. Barot (iEES,Paris)

February – July 2010: Intern (M2), Impacts of earthworms on chalk grasslands of Upper Normandy. Seed-earthworm interactions, plant communities. ECODIV Lab, Université de Rouen. Supervision: E. Forey (Univ Rouen) ; Tor Arvid Breland (NMBU, Norway)

July - September 2009: Intern (M1), Use of cover crops in organic agriculture. Soy/rye and corn/vetch; soil parameters, entomology; experimental/farming plots. Department of Agronomy, University of Wisconsin-Madison, USA. Supervision: E. Silva.

October 2007: Intern, potential use of woodlice as bioindicators of soils polluted by heavy metals in forests. Description of woodlice environmental conditions in non-polluted soils (climate, arthropods, trees). Laboratoire Sols et Environnement, ISA, Lille. Supervision: C. Pruvot

RELEVANT SKILLS AND RESEARCH INTERESTS

Research interests: agroecology, inter-/trans-disciplinary research, ecosystem services, biodiversity management, project management and facilitation, functional ecology, biotic-abiotic interactions, aboveground-belowground interactions, soil biodiversity, community ecology, invertebrate ecology, invasion biology, conservation ecology, citizen science.

Languages: French (native); English (bilingual); German (good); Swedish (beginner)

Communication and project management: good knowledge of different audiences and scientific popularization; use of platforms for the creation of websites (Wordpress, Weebly) and presentations (Prezi; see thesis presentation at: <http://bit.ly/1pthpvF>); use of filmmaking softwares (iMovie, FinalCutPro); use of participatory tools for group project facilitation (Open Space, World Café); excellent writing skills both in English and French (participation to a writing contest in February 2015).

Field and lab work: study site surveying; soil, vegetation, earthworm and earthworm cast sampling; sampling coordination in grasslands; *in situ* experimental study with inoculation of earthworms; microcosm and mesocosm experiments under controlled temperature or in greenhouse.

Entomology: invertebrate identification (Lumbricida, insects, arachnids, isopods); knowledge of the BOLD (Barcode of Life) referencing system

Plant ecology: vegetation sampling and identification, quantification of functional traits (LDMC, SLA, LNC, shoot-root, RGR)

Soil: soil analyses (C:N, NH₄⁺/NO₃⁻, cations, pH)

Reviewer: Applied Soil Ecology (3) - Journal of Plant Chemistry and Ecophysiology (1)

Data analysis and IT:

- Expertise in the statistical software R (univariate: linear regression, GLM, mixed models; multivariate: PCA, CA, db-RDA; Structural Equation Modelling (SEM)), Office Suite and Zotero. Knowledge of Matlab.
- Use of platforms for website creations (Wordpress, Weebly); film-making softwares (iMovie, FinalCutPro) and presentations (Prezi)

National and international collaborations:

- Dr. M. Chauvat, Dr. E. Langlois, Dr. F. Bureau – ECODIV Lab, Université de Rouen, France
- Dr. M. Hedde - Unité Pessac, INRA-Versailles, France
- Dr. C. Seal - Millenium Seed Bank, Kew Royal Botanic Gardens, UK
- Pr. N. Eisenhauer - University of Leipzig, iDiv, Germany
- Dr. E. Silva - Dept. of Plant Pathology, UW, Madison, WI, USA
- Pr. C. Lortie - York University, Dept. of Biology, Toronto, ON, Canada
- Dr. A. Lambert - UCSB Marine Science Institute, Santa Barbara, CA, USA
- Carla D'Antonio's Lab - Ecology, Evolution and Marine Biology Department, University of California Santa Barbara, CA, USA

Participation to the European ALTER-Net Summer School on ecosystem services, Peyresq, 2015

Activities in non-profit organizations and ecological societies:

Since February 2015: Member of the working group of the International Network of Next-Generation Ecologists (INNGE).

Since December 2014: On the governing board of French Ecological Society (SFE) - social networks, early-career scientist. Collaboration with the British Ecological Society (BES) to organize workshops at international annual meetings (BES Annual Meeting, Dec. 2015).

Since December 2014: 'Young scientist' of the Global Soil Biodiversity Initiative (GSBI). Contribution to a video for a broad audience « on the importance of a living soil » during the 1st GSBI conference (Dijon, Dec. 2014). My contribution (<2min) is available at: juliaclause.weebly.com/films.

2012-2014: Founding member and administrator of the Agglo Rouen en Transition group (Transition Town movement) and administrator of the non-profit Effet-de-Serre Toi-Même!.

PUBLICATIONS

Clause J, Barot S, Forey E (2016) Earthworms promote greater richness and abundance in the emergence of plant species across a grassland-forest ecotone. *Journal of Plant Ecology*. In press.

Clause J, Barot S, Forey E (2015) Effects of cast properties and passage through the earthworm gut on seed germination and seedling growth. *Applied Soil Ecology* 96 :108-113

Clause J, Forey E, Lortie CL, Lambert AM, Barot S (2015) Exotic earthworms promote plant invasion by ingesting seeds and modifying soil properties. *Acta Oecologica* 64:10-20.

Clause J, Barot S, Richard B, Decaëns T, Forey E (2014) The interactions between soil type and earthworm species determine the properties of earthworm casts. *Applied Soil Ecology* 83:149-158

Clause J, Margerie P, Langlois E, Decaëns T, Forey E (2011) Fat but slim: criteria of seed attractiveness for earthworms. *Pedobiologia* S159–S165

Submitted or in preparation

Clause J, Forey E, Eisenhauer N, Colville L, Seal C, Barot S (in prep) Seed selection by earthworms: inner seed properties matter more than the outside. *Soil Biology and Biochemistry*

Clause J, Coulibaly S, Barot S, Langlois E, Chauvat M, Forey E (submitted) Earthworms (*Lumbricus terrestris*) as a potential tool for grassland restoration: impacts on vegetation and springtail communities. *Ecological engineering*

RECENT COMMUNICATIONS

Oral presentations

Clause J, Barot S, Seal C, Colville L, Forey E. Seed selection by earthworms: does the inside matter more than the outside? BES-SFE Joint Annual Meeting. Lille, December 2014.

Clause J, Lortie CL, Lambert AM, Vincent V, D'Antonio CM, Canestro D, Reid AM, Barot S, Forey E. Earthworms affect plant communities through seed ingestion: do exotic seed species benefit from it? INTECOL, London, UK, August 2013

Clause J, Barot S, Margerie P, Forey E. Les vers de terre modifient les caractéristiques de la banque de graines au cours d'une succession végétale secondaire. ECOVEG 9. Tours, April 2013.

Clause J, Richard B, Decaëns T, Barot S, Forey E. Do seed performances depend on earthworm species and soil types? Ecological Society of America 97th Annual Meeting. Portland, OR, USA, August 2012.

Invited communications

Clause J Relations graines-vers de terre: selection de la graine et réponse des communautés végétales. INRA-UR251 PESSAC, INRA-Versailles (France), February 2015.

Clause J How to manage a modern ecological career? BES Undergraduate Ecological Careers Conference 2014. Charles Darwin House, London (UK), February 2014 (<http://bit.ly/11aR1At>).

Forey E, Barot S, **Clause J**. Importances des interactions vers de terre-graines et conséquences sur les communautés végétales. MNHN-Brunoy Lab Seminar Series, Brunoy (France), 2013

Clause J Earthworms and impacts on plant communities. Ecology, Evolution, and Marine Biology Lab Seminar Series. Santa Barbara, CA (USA), November 2011.

Posters (partial list)

Clause J, A PhD on seed-earthworm interactions: my transition from agroecology to soil and ecosystem services. ALTER-Net Summer School. Peyresq (France), September 2015

Clause J, Barot S, Forey E. Interactions directes plantes--vers: de la sélection de la graine à la modification de la communauté végétale. Grands Réseaux de Recherche- Sciences de l'Environnement, gestion et maîtrise des Risques Seminar Series. Rouen (France), February 2014.

Clause J, Margerie P, Barot S, Langlois E, Forey E. Do earthworms influence seed bank dynamics and plant succession? IAVS 56th Annual Symposium, Tartu (Estonia), June 2013

Clause J, Richard B, Barot S, Decaëns T, Forey E. Do seed performances depend on earthworm species and soil types? XVI International Colloquium on Soil Zoology, Coimbra (Portugal), August 2012.