CV

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Research and Teaching Experience

September 2014 – present

INRAE, French National Institute for Agricultural Research, **Researcher**. Research on pests and helpers community dynamics in cropping systems relating to agricultural practices and landscape management. Agronomy and Environment Department.

2024-2025

Courses PhD level (ABIES, AgroParisTech)

- Academic writting (1h30)
- Basis of statistical analysis and generalized linear models (1h30)
- Tools to make available research results to the general public (2h)

November 2023 – present

Tutoring of group project M2, University Paris-Est Créteil (UPEC)**.**

November 2021 – present

University Paris-Est Créteil (UPEC), 3h course “Integrated Pest Management”.

November 2015 – present

University Paris-Est Créteil (UPEC), 3h course “Modeling of natural regulations in agriculture”.

September 2010 – August 2014

University of Pennsylvania, Perelman School of Medicine, Philadelphia, USA. **Postdoc**. Research on population dynamics and control of domiciliated triatomine bugs (*Triatoma infestans*) in the city of Arequipa. Mentored by Michael Z. Levy.

Occasional teachings:

2012 Communicable diseases: Chagas disease. Introductory lecture at undergraduate level.
2013 Introduction to data analysis in R. Lecture for graduate students in epidemiology.

September 2006 – August 2010

University of Perpignan, France. **Lecturer/PhD student.** Research on population dynamics and control of non-domiciliated triatomine bugs (*Triatoma dimidiata*). Teaching informatics and mathematics applied to biology. Lecture, creation of exercices, examination.

January – May 2006

University of Perpignan, France. **Research internship**. Modeling insecticide effects on the population dynamics of triatomine bugs.

September – December 2005

University of Rennes, France. **Research internship**. Behavioral experimentation on parasitoids with perspectives of biological control.

February – April 2003

Institut cellule souche et cerveau, Bron, France. **Research internship**. Statistical analysis of extra-cellular neuronal activity.

July – August 2002
University of Perpignan/University of Sussex. **Research internship**. Modeling the effects of mating on epidemiology.

Expertise activity

Comity member, intuitu personae of the « Comité Scientifique et Technique Ecophyto » since june 2021.
Comity member of ANR « AAP générique » CES : CE32 - Dynamique des socio-écosystèmes et de leurs composants en vue de leur gestion durable, 2021, 2022 et 2023.

Expert for the « Expertise collective » « Natural regulation » 2021

External evaluation of project for Ecophyto grants : 2017, 2019, 2020, 2022

Participation in PhD comittees (comités de thèses)

- Marianne Doehler, 2022-2024
- Lucas Etienne, 2020-2022
- Emeric Courson, 2020-2022
- Nirina Ratsimba 2016-2020
- Marie-AnneVedy-Zecchini 2017-2020

Students tutoring

Post-doctorate mentor
2020-2022 Sixtine Cueff
2019-2020 Blanche Collard
2014-2015 Cynthia Bellouin

PhD level official adviser
2014-2016, Amandine Juhel, école doctorale ABIES, UMR Agronomie.

PhD partial supervision leading to publication
2016-2018, Mauricio Zanovello-Schuster, Universidade Federal do Paraná/INRA UR P3F.
2010-2013, Ricardo Castillo-Neyra, John Hopkins University.
2010-2013, Andrew Hong, Wharton school of business, University of Pennsylvania.

Master level
2023, Clément Chevaleyre, stage ingénieur/M2
2022, Abou Cissé, M2, Modelling of annual pressure of bioagressors in metropolitan grain fields.
2021, Mariem Ben Ali, M2, assessment of impact of birds on grain crops at sowing.
2020, Iris Bertin, M2, assessment of impact of non-treated agricultural fields legislation (ZNA)
2020, Elvia Julieth Arellano Ortiz, M2, teledetection of Oil seed rape stages
2020, Chhivchung Lay, M2, big data on yield of grain crops
2020, Katlego Ntwampe, M2, statistical modeling of the presence of grain crop pests
2019, Khalid Bouabdallaoui, M2, device detecting birds in grain crops
2018-2019, Thomas Delaune, stage final ingénieur (niveau M2)
2019, Sahar Abid, stage M2, encadrement 10 %
2018, Jihane Drissi, stage M2
2017, Ryohei Chiyojima, stage M2
2016, Mathilde Chen, ingénieur/M2
2016, Nicolas Guérin, stage M2

2016, Jérôme Pivert, stage M2
2016, Vincent Vivet, stage M2

Other

2022 – Anna Sadaoui, L3, 2 mois, handling of repeated detection of birds or mouvements
2021 – Inès Arif, L3, 3 mois, detection of birds in fields after sowing, evaluation and improvement.
2020 – Lucas Monnier, L3, 3 mois, detection of birds in fields after sowing, modelling.
2020 – Vasilis Cako, M1 5 mois, Realization of a webapp to visualize the impact of climate change: Climate Change Explorer
2019 – Antoine Brasset, M1 3 mois, Satellite imagery based detection of damages in canola fields.
2018 – Simon Kiene, M1 3 mois, analysis of presence of pests of wheat and impact on yields.

Education

2013
French national license for Museum teaching and research in populations biology.

2012
French national certificate in Supercomputing (Certificat de Compétence en Calcul Intensif).

2010
French national license for University teaching and research in populations biology

2006-2009
University of Perpignan, Perpignan, France. **Ph.D. in Biology (Population dynamics)**. Study and control of population dynamics of non-domiciliated triatomine bugs. “Très honorable avec félicitations orales du jury” (~ Maxima Cum Laude). Student body President for 2009-2010. Student senator for 2008-2010.

2005-2006
École Normale Supérieure de Lyon, Lyon, France. **M.S. in Molecular and Cellular Biology**, with honors.

2004-2005
“**Agrégation” - Life and geological sciences.** French “outstanding teacher's” licence, a national competitive essay. Selected. Prepared at University of Rennes 1, Rennes, France.

2003-2004
“Certificat d'Aptitude au Professorat de l'Enseignement du Second degré” - Life and geological sciences. French standard teacher's licence, a national competitive essay. Prepared at École Normale Supérieure de Lyon.

2002-2003
École Normale Supérieure de Lyon. **M.S. in Molecular and Cellular Biology**, first year, with honors. Student senator.

2001-2002
École Normale Supérieure de Lyon, Lyon, France. **B.S. in Molecular and Cellular Biology.**

1998-2001
Fénelon High School and Henri IV High School, Paris, France. Preparatory classes for entrance to Grandes Écoles, admitted in Ecole Normale Supérieure de Lyon as “normalien”: exceptional distinction allowing to be paid as a student civil servant.

Funding sources

Regular grants

CERES, Banque des territoires, démonstrateurs territoriaux, des transitions agricoles et alimentaires (5.3 M€) 2024 – 2031

"New agro-ecological practices dedicated to agricultural sectors for the implementation of a sustainable and traced agriculture at the service of the Territory."

Role: **Co-I, task leader "Data intelligence: specifications and algorithms for relative performance"**

Astae-3C, PEPR Agroécologie et Numérique (144 k€) 2024 – 2027

"Assurabilité de la Transition Agro-Ecologique dans un Contexte de Changement Climatique", Role : **PI, PhD Supervisor.**

SEPIM, “plan betterave” call (702 k€) 2021 – 2023

“Surveillance, Évaluation, Prévision, Interpolation et Mitigation des risques relatifs à la jaunisse de la betterave”. Role : **Co-I and steering comity member**, PI : Samuel Soubeyrand.

MoCoRiBA-GC, Ecophyto ANRmaturation (420 k€) 2020– 2022

Modélisation et Communication du Risque lié aux Bio-Agresseurs des grandes cultures
Role: **PI,** ANR-19-ECOM-0009-01

C3PO, institut Carnot Plant2Pro® (150k€) 2019-2021

Compter Cartographier et Caractériser pour mieux Prévenir les dégâts d’Oiseaux, réalisation d’un boitier caméra reconnaissant et cartographiant en temps réel les oiseaux aux semis.
Role: **Co-I**, **Work Package leader** PI: Christophe Sausse

AviNODU (136k€) 2019-2020

AviNODU Analyse des Variations Interannuelles des ventes de produits phytosanitaires et de l’indicateur NODU. Décembre 2020. Financé par l’OFB, en partenariat avec le MTES et le MAA. **Co-I, in practice leader of the investigation**. PI : Thomas Poméon**.**

TOSCA, appel PARCELLE du CNES 2019-2020

Production cartographique par télédétection. Financement de stages de Master. Role **Co-I,** PI : Mathieu Fauvel

R2D2, EcoPhyto DEPHY EXPE (640k€) 2018 – 2024

Restauration de la régulation naturelle et augmentation de la Robustesse des systèmes de culture des plateaux de Bourgogne pour une réduction Durable de la Dépendance aux insecticides
Role: **Co-I**, PI: Nicolas Cerruti

GIS GC HP2E (10k€) 2016– 2017

Analyse des liens entre présence de bio-agresseurs et éléments paysagers en croisant données d'épidémiosurveillance (Vigicultures), données de la PAC (RPG) et données de la végétation (BDTOPO, IGN) et éclairage par de l'élicitation d'experts
Role: **PI**.

API-SMAL, LabEx BASC (268 k€) 2016 – 2019

Agroecology and policy instruments for sustainable multifunctional agricultural landscapes
Role: **Co-I, workpackage leader**, PI: V. Martinet.

INDISS, LabEx BASC (280 k€) 2010 – 2011

Innovation and Design In Sociotechnical Systems
Role: **Co-I**, PI: MH Jeuffroy et JM Mayard

1R01AI101229 (Levy), ~ 4 M$ 2013 – 2018

Global Engagement Fund, Upenn, (40 k$) 2011 – 2012
Disrupting Vector-Borne Disease Transmission In Complex Urban Environments
Role: **Co-I/Postdoc**, PI: M.Z. Levy.

Real-Time Control of Re-emerging Chagas Disease Vectors in Arequipa, Peru.
Role: **Co-I/Postdoc**, PI: M. Z. Levy.

3-K01-AI-079162-03S1 (40 k$) 2010 – 2011
Administrative supplement to mathematical techniques for control of epidemic *Trypanosoma cruzi* transmission.
Role: **Postdoctoral Trainee**, PI: M. Z. Levy.

Grants in computation hours

IDRIS i2010032290, i2009032290 and i200882290 2008 – 2011
Contrôle spatialisé d'un vecteur de la maladie de Chagas dans un village réel
Role : **Co-I**, PI S.Gourbière. 1,400,000 hours on BlueGene/P and 90,000 on IBM cluster.

Awards

Editor's choice and Research for "Landscape drivers of pests and pathogens abundance in arable crops" in Ecography, October.

SERdigital 2013 top presentation in Statistical Methods for « Synthetic likelihood approach for quantifying multi-scale epidemic processes from large and complex data sets ». Provides a scholarship to present my project at the 2014 national Society for Epidemiological Research meeting and publication of the abstract in American Journal of Epidemiology.

Skills and techniques

Statistics and modeling
Cellular automata (stochastic and mean field approximation)
Random Markov Gaussian fields
Modeling of imperfect observations
Glm, mixed models
Time series analysis (Cox model, life history tables, Leslie matrices, etc.)
Permutation methods (Random labeling, Bootstrapping, Jack-knife)
Power analyses
Adaptive sampling

Model fitting / Optimization
MCMC: Metropolis-Hasting sampling, Gibbs sampling
Approximate likelihoods (synthetic likelihood, ABC)
Genetic algorithms

Computational skills
Programming languages: R, C(MPI), bash, javascript, php, python, perl, tcl/tk, matlab.
Best programming practices: litterate programming, unit testing, version control (git).
Data management: mySQL, file server administration.
System administration: Linux, Mac desktop, Windows desktop.

Languages
French: native language
English: Fluent
Spanish: Fluent

Editorial activities

Reviewer for Pest Management Science, Agronomy for Sustainable Development, European Journal of Agronomy, Innovations Agronomiques, Landscape and Urban Planning, Journal of Racial and Ethnic Health Disparities, Journal of Epidemiology & Community Health, American Journal of Public Health, PloS Neglected Tropical Diseases, American Journal of Tropical Medicine and Hygiene, Comptes rendus de l'Académie des Sciences section Biologie, PloS ONE, Journal of Theoretical Biology, Pathogens and Global Health.

Membership in professional societies

Association Française d'Agronomie, since 2015

American Society of Tropical Medecine and Hygiene, 2012-2014

Society for Epidemiologic Research, since 2013-2014

Work picked up in industry and services

2024-08 Integration of the CCExplorer calculator in the tool “Territoires d'abondance” by "Les Greniers d'abondances" to offer local authorities climate analogues (https://territoiresfertiles.fr/) among other characteristics concerning the sustainability of their territories.

Presence in the generalist Press

On https://ccexplorer.eu (>40k sessions au 1 novembre 2024):

2024-10-31, Fréquence Protestante, émission Impromptus, A quoi ressemblera le climat dans les prochaines années (45 mn).

2024-08-06, Le Media, Le Media Flash : Nos territoires se réchauffent (6'51-9'11). https://www.youtube.com/watch?v=M7_bxjuS2vo.

2024-08-06, Splann - Lanceur d'enquêtes, https://www.facebook.com/share/p/sR9edwFbmToLfBxX/

2024-08-04, Midi Libre, Montpellier comme au Mexique, Toulouse comme en Australie… l’étonnant visage des villes soumises au changement climatique. https://www.midilibre.fr/2024/08/04/montpellier-comme-au-mexique-toulouse-comme-en-australie-letonnant-visage-des-villes-soumises-au-changement-climatique-12122918.php

2024-08-02, Inès Rochetin, France 3 Occitanie, https://france3-regions.francetvinfo.fr/occitanie/haute-garonne/toulouse/2070-quand-toulouse-aura-le-climat-de-la-tunisie-et-paris-celui-de-l-italie-un-simulateur-devoile-notre-futur-climatique-3012860.html

2024-03-29, Tu Profe de RI, https://youtube.com/live/yHCgmNR9MTQ?feature=share

2024-03-23, Pauline Boullet, L’Info Durable. https://www.linfodurable.fr/climat/une-carte-pour-imaginer-le-climat-des-villes-en-2100-44421, Une de la lettre hebdomadaire du 29/03/2024.

2024-03-05, Ingrid Pilard, Journal Du Net, https://www.journaldunet.com/ebusiness/le-net/1528613-ip1-rechauffement-climatique/

2024-02-18, Kayobipi, Reddit r/ecologie, https://www.reddit.com/r/ecologie/comments/1atq2k1/climate_change_explorer/?rdt=49232

2024-02-18, Korben, https://korben.info/climat-futur-ville-20-ans-predictions.html

On pesticide use :

2024-07-11, Virginie Montmartin, Est-ce que le plan Ecophyto réduit la consommation des pesticides ?, Agriquoi? https://smartlink.ausha.co/agriquoi/est-ce-que-le-plan-ecophyto-reduit-la-consommation-des-pesticides

2024-05-14, Chloé Richard, Plan Écophyto : vers une réduction « cosmétique » des produits phytopharmaceutiques, La Vie. https://www.lavie.fr/actualite/ecologie/plan-ecophyto-vers-une-reduction-cosmetique-des-produits-phytopharmaceutiques-94528.php

2024-05-07, *Emilie Torgement, Réduction des pesticides, pourquoi le changement de l’indicateur de suivi des quantités pose question. Le Parisien.* https://www.leparisien.fr/environnement/reduction-des-pesticides-pourquoi-le-changement-de-lindicateur-de-suivi-des-quantites-pose-question-07-05-2024-ET2EZ22LDZAMBOA2YORPQ5G2RQ.php

2024-05-07, Zoé Pillier, La matinale. Radio Classique.

2024-05-06, Camille Adaoust, Que contient le nouveau plan Ecophyto 2030 présenté par le gouvernement ? *France info:. https://www.francetvinfo.fr/monde/environnement/pesticides/que-*

contient-le-nouveau-plan-ecophyto-2030-presente-par-le-gouvernement_6528398.html#xtor=CS2-765-%5Bautres%5D-

2024-05-03, Romain Imbach, Pesticides : comment le changement d'indicateur permet artificiellement d'atteindre les objectifs du plan Ecophyto. Le Monde. https://www.lemonde.fr/les-decodeurs/article/2024/05/03/pesticides-comment-le-changement-d-indicateur-permet-artificiellement-d-atteindre-les-objectifs-du-plan-ecophyto_6231374_4355770.html?lmd_medium=al&lmd_campaign=envoye-par-appli&lmd_creation=ios&lmd_source=default

2024-03-08, Marina Mekaoui. Les oiseaux victimes de l'intensification agricole. Arte, https://www.arte.tv/fr/videos/118080-024-A/les-oiseaux-victimes-de-l-intensification-agricole/

2024-02-27, Imène Hamchiche, *brief.science*, *https://app.brief.science/edition/2024-03-01-158-comment-mesure-t-on-lusage-des-pesticides?access=4b7ac47c-cbad-11ec-9d64-0242ac120002*

2024-02-26, Loïc Chauveau, *Sciences et Avenir.*

2024-02-23, Floriane Finet, *Context.*

2024-02-24, Stéphane Foucart, *Le Monde*, https://www.lemonde.fr/planete/article/2024/02/22/pesticides-pourquoi-l-indicateur-d-usage-choisi-par-le-gouvernement-est-conteste_6217868_3244.html.

2024-02-24, Anne-Laure de Chalup, *La dépêche*, https://www.ladepeche.fr/2024/02/24/pesticides-agricoles-labandon-du-nodu-une-regression-ou-un-progres-on-vous-explique-le-debat-qui-met-les-chercheurs-en-colere-11780720.php.

2024-02-14, Anne-Laure Fremont, *Le Figaro*,

2024-02-08, Anne Feitz, *Les Échos*, https://www.lesechos.fr/politique-societe/societe/plan-ecophyto-les-indicateurs-au-coeur-du-debat-2075393.

2024-02-08, Guilietta Gamberini, *La Tribune*, https://www.latribune.fr/economie/france/pesticides-les-ong-et-la-confederation-paysanne-vent-debout-contre-la-revision-d-ecophyto-voulue-par-l-executif-990732.html.

2024-02-05, Sofia Bouderbala, *Agence France Presse*.

Other citations:

2024-02-21, J.C, *L'express*, https://www.lexpress.fr/environnement/pesticides-le-nodu-lindicateur-controverse-abandonne-par-le-gouvernement-Y424OM3MRFFAHGH2KJ5L4XIM7Y/.

2024-02-15, Dusan-Kostic-Fotolia, *infonature.media*, https://infonature.media/actus/on-en-parle/2024/15/mesurer-lusage-des-pesticides-la-jungle-des-indicateurs/

2024-02-13, Nicolas Arzur, *Le Telegram*, https://www.letelegramme.fr/economie/ecophyto-nodu-cinq-points-pour-comprendre-le-debat-sur-les-pesticides-entre-le-gouvernement-les-agriculteurs-et-les-ong-6525577.php

2025-02-12, Maëlane Loaëc, *Le Parisien*, https://www.leparisien.fr/environnement/agriculteurs-en-colere-quest-ce-que-le-nodu-lindicateur-au-coeur-du-bras-de-fer-avec-les-ong-environnementales-12-02-2024-BTH5NXO64JDBXKWZND2ONVOL3Y.php

2025-02-12, Victor Tribot Laspière et Boris Hallier, Ici par France bleu https://www.francebleu.fr/infos/agriculture-peche/plan-ecophyto-les-indicateurs-pour-mesurer-l-usage-des-pesticides-au-coeur-d-une-bataille-8911773

2024-02-08, *Terres-net.fr*, https://www.terre-net.fr/produits-phytos/article/862601/mesurer-l-usage-des-phytos-la-jungle-des-indicateurs

*Interview on the early dynamic of the **COVID-19*** :

2020/04/21, Tu Profe de RI, https://www.youtube.com/watch?v=zjbSsApQquA

2020/04/04, Aurore Malval, Nice Matin.

Other activities

April 2009. Martin Luther King's Thinking. A multimedia presentation of the principles leading Martin Luther King's action through the reading of extracts of its speeches and letters. **Coordinator and speaker**, University of Perpignan, France.

November 2007. Stakes and perspectives for renewable energy resources. **Speaker**. Energaïa, Montpellier. An international Forum in renewable energy.

Publications

Peer-reviewed publications

1. Sohbi Y., Teulé J.-M., Morisseau A., Serrée L., **Barbu C.**, Gardarin A. (2024)A dataset of ground-dwelling nocturnal fauna for object detection and classification. Elsevier Data in Brief. https://doi.org/10.1016/j.dib.2024.110537
2. Bellone D.✉, Jeuffroy M.H., Bertrand M., Mistou M.N., **Barbu C.**, Ballini E., Morison-Valantin M., Gauffreteau A., Pashalidou F.G. (2023) Are innovative cropping systems less dependent on synthetic pesticides to treat Septoria leaf blotch (*Zymoseptoria tritici*) than conventional systems? *Crop Protection* 170, 106266.
3. Guilpart, N.✉, Bertin, I., Valantin-Morison, M., **Barbu C**. (2022) How much agricultural land is there close to residential areas? An assessment at the national scale in France. *Building and Environment* vol 226, December 2022, 109662. https://www.sciencedirect.com/science/article/pii/S0360132322008927?via%3Dihub
4. Delaune, T., Ouattara M.S. , Ballot R., Sausse C., Felix I., Maupas F., Chen M., Morison M., Makowski D., **Barbu C.M**✉**.** (2021). Landscape drivers of pests and pathogens abundance in arable crops. Ecography vol. 44 (10) 1429-1442 https://doi.org/10.1111/ecog.05433. Editor's Choice.
5. Ouattara, M.S.✉, Laurent, A., **Barbu, C. M.**, Berthou, M., Borujerdi, E., Butier, A., Malvoisin, P., Romelot, D. and Loyce, C. (2020), Effects of several establishment modes of Miscanthus x giganteus and Miscanthus sinensis on yields and yield trends. GCB Bioenergy. Vol 12-7 July. http://dx.doi.org/10.1111/gcbb.12692
6. Schuster MZ, Gastal F, Doisy D, Charrier X, de Moraes A, Médiène S✉, **Barbu CM**. Weed regulation by crop and grassland competition: critical biomass level and persistence rate. *European Journal of Agronomy 113 (2020) 125963*. https://doi.org/10.1016/j.eja.2019.125963
7. Juhel, AS✉; **Barbu, CM**; Valantin-Morison, M; Gauffre, B; Leblois, R.; Olivares, J; Franck, P. Limited genetic structure and demographic expansion of the Brassicogethes aeneus populations in France and in Europe. *Pest management science*. https://doi.org/10.1002/ps.5162
8. Beillouin D.✉, Leclere M., **Barbu C. M.**, Benezit M.,Trepos R., Gauffreteau A., Jeuffroy M-H. (2018) Azodyn-Barley, a winter-barley crop model for predicting and ranking genotypic yield, grain protein and grain size in contrasting pedoclimatic conditions. *Agricultural and Forest Meteorology* 262, 237-248
9. **Barbu, C. M.**✉, Sethuraman, K., Billig, E. M. W. and Levy, M. Z. (2018), Two-scale dispersal estimation for biological invasions via synthetic likelihood. *Ecography, **2018**, 41, 661-672*
10. Juhel, A.S.✉, **Barbu, C.M.**, Franck, P., Roger-Estrade, J., Butier, A., Bazot, M. and Valantin-Morison, M. (2017) Characterization of pollen beetles, Brassicogethes aeneus, dispersal from woodlands to winter oilseed rape fields. *PlosOne*, DOI:10.1371/journal.pone.0183878
11. Seymour, J. W., Polsky, D. E., Brown, E. J., **Barbu, C. M.**, & Grande, D.✉ (2017). The Role of Community Health Centers in Reducing Racial Disparities in Spatial Access to Primary Care. *Journal of Primary Care & Community Health*, 2017, 8 (3), 147-152.
12. Brown, E. J.✉; Polsky, D.; **Barbu, C. M.**; Seymour, J. W. & Grande, D. Racial Disparities In Geographic Access To Primary Care In Philadelphia Health Affairs, *Health Affairs*, 2016, 35, 1374-1381
13. Sentana-Lledo, D.; **Barbu, C. M.**; Ngo, M. N.; Wu, Y.; Sethuraman, K. & Levy, M. Z.✉ Seasons, Searches, and Intentions: What The Internet Can Tell Us About The Bed Bug

(Hemiptera: Cimicidae) Epidemic. *Journal of medical entomology, The Oxford University Press,* 2016, 53(1) 116--121.

14. Salles, O. C.✉; Maynard, J. A.; Joannides, M.; **Barbu, C. M.**; Saenz-Agudelo, P.; Almany, G. R.; Berumen, M. L.; Thorrold, S. R.; Jones, G. P. & Planes, S. Coral reef fish populations can persist without immigration *Proc. R. Soc. B, Proc. R. Soc. B,* 2015, 282, 20151311
15. Levy, M. Z.✉; Tustin, A.; Castillo-Neyra, R.; Mabud, T. S.; Levy, K.; **Barbu, C. M.**; Quispe-Machaca, V. R.; Ancca-Juarez, J.; Borrini-Mayori, K.; Naquira-Velarde, C. & others Bottlenecks in domestic animal populations can facilitate the emergence of Trypanosoma cruzi, the aetiological agent of Chagas disease. *Proc. R. Soc. B,* 2015, 282, 20142807
16. Khatchikian C, Foley E, **Barbu CM**, Hwang J, Ancca Juarez J, Borrini-Mayori K, Quispe-Machaca V, Brisson D, Levy M Z✉. Population Structure of the Chagas Disease Vector *Triatoma infestans* in an Urban Environment. *PloS Neglected Tropical Diseases,* 2015, 9(2): e0003425.
17. Castillo Neyra R✉, **Barbu CM**, Salazar R, Borrini K, Naquira C, Levy MZ. Host-seeking behavior and dispersal of Triatoma infestans, a vector of Chagas disease, under semi-field conditions. *PLOS Neglected Tropical Diseases 2015, 9 (1), e3433*
18. Hong A✉, **Barbu CM**, Small DS, Levy MZ and The Chagas Disease Working Group in Arequipa. *Mapping the Spatial Distribution of a Disease Transmitting Insect in the Presence of Surveillance Error and Missing Data. Proceedings of The Royal Statistical Society Series A. 2015, 178, 641-658*
19. **Barbu CM**✉, Buttenheim A, Hancco Pumahuanca ML , Quintanilla Calderón JE, Salazar R, Niemierko M, Catacora Rospigliossi A, Malaga Chavez FS, Oppe Alvarez K, Cornejo del Carpio J, Náquira C, Levy MZ. Residual infestation and redispersal in an urban Triatoma infestans control campaign. *Emerging infectious disease. 2014, 20, 12, 2055-2063*
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31. Quantification of bioagressors induced yield gap for grain crops in France. Devaud Nathan G.F. , **Barbu CM**. Pre-print bioRxiv 641563; doi: https://doi.org/10.1101/641563.
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35. **Barbu CM**, Papaïx J, Fabre F, Aviron S, Lavigne C, Alignier A, Ernoult A, Poggi S. Chapitre 5 - Analyses statistiques des relations entre mosaïque paysagère et processus écologiques. In *Paysage, biodiversité fonctionnelle et santé des cultures*, Ed. Sandrine Petit, Claire Lavigne, Adrien Rusch, Stéphanie Aviron, Muriel Tichit. In: Paysage, biodiversité fonctionnelle et santé des plantes.
36. Fabre F, **Barbu CM**, Boussard H, Papaïx J. Chapitre 10 - Aménagement de paysages pour la santé des plantes basé sur des modèles. In *Paysage, biodiversité fonctionnelle et santé des cultures*, Ed. Sandrine Petit, Claire Lavigne, Adrien Rusch, Stéphanie Aviron, Muriel Tichit. In: Paysage, biodiversité fonctionnelle et santé des plantes.

Articles in the professional press

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38. Baptiste Labeyrie, Jean-Noël Aubertot, **Corentin Barbu**, Maxime Garnault. Quel(s) indicateur(s) pour le suivi d'Ecophyto ? NoDU / HRI-1 : enjeux du changement d'indicateur de

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39. Eugénie Roy, Alexis Aulagnier, Marc Gallien, Véronique Gouy-Boussada, Baptiste Labeyrie, **Corentin Barbu** et al. Utilisation de produits phytopharmaceutiques : quelle influence des cahiers des charges des filières agroalimentaires ?. *Biodiversité, des clés pour agir*, 2024, 6, pp.39-39. ⟨hal-04685344⟩
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42. Mouly Manon, Maxime Garnault, Alexis Aulagnier, Corentin Barbu, Marc Gallien, et al.. Éléments d'analyse de l'évolution des indicateurs de ventes des produits phytopharmaceutiques en France. Données 2021 non consolidées. Inrae. 2022, 4 p. ⟨hal-04954414⟩
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Software package and other publications

47. **Barbu CM. 2023** MoCoRiBA Vis, a webapp to explore agricultural practices and results in DEPHY farms. *https://mocoriba.fr/*
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50. *Main figure of* ***Barbu 2010 et al.*** *(new version) is the cover picture of the special issue of Advances in Parasitology, Mathematical Models for Neglected Tropical Diseases: Essential Tools for Control and Elimination, Part A. As a part of Nouvellet, P., Cucunubá, Z.M., Gourbière, S., 2015. Ecology, Evolution and Control of Chagas Disease: A Century of Neglected Modelling and a Promising Future. In: Anderson, R., Basáñez M.G. (Eds.), pp.135–191.*
51. package R "polygonLandscapeMetrics" 2016, allowing to computer landscape metrics on shapefiles, https://bitbucket.org/cmbce/r-package-polygonlandscapemetrics/overview

52. CompEl (2016): comparative elicitation tool. https://ecosys.versailles-grignon.inra.fr/SpatialAgronomy/compel/index.php)
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Oral communications

Invited talks

1. Comment valoriser les données DEPHY pour massifier les progrès de ce réseau. Journée Arupvico. 13/03/2025. Ministère de l'agriculture.
2. Grandes tendances sur les bioagresseurs et paysages. Journée SEMAE/FNAMS luzernes porte-graines, 14/11/2024
3. Bioagresseurs et paysages, Etude des données d'épidémiosurveillance françaises en grandes cultures. Wébinaire RMT Regulations Naturelles, 11/09/2024, https://www.youtube.com/watch?v=17-4__AUVew
4. Les analogues climatiques, un outil pour mieux comprendre notre futur et s'y préparer ? 9/08/2024 Présenté par Nathalie de Noblet-Ducoudré. Collège des bernardins.
5. MoCoRiBAViz. Les OAD produits par les laboratoires des instituts Carnot. LFDAY. 21/05/2024
6. Changement Climatique : Découverte et perspectives d'évolution de CCExplorer. VivAgriLab Terres et cités. Versailles, 12/12/2023.
7. Reconnaissance optique et ouverture vers des dispositifs d'alerte et d'effarouchement réactifs. Colloque Dégâts d'oiseaux aux cultures : quelles solutions ? Paris, 24/11/2022.
8. Paysage, bioagresseurs et risques en grandes cultures. Journée Science & Partenariat « Epidémiosurveillance » de l'institut Carnont Plant2Pro. 09/11/2023 – Paris, Le Hub BpiFrance.
9. From human to plant diseases, robust and transposable approaches in the big data era to control pests. Invited keynote speaker, 7th International Congress of nematology (ICN2022). Antibes Jean-les-pins. France
10. Eléments paysagers, bio-agresseurs des grandes cultures et agro-écologie. Journée nationale des animateurs du réseau d'épidémiosurveillance en grandes cultures, ministère de l'agriculture. 13 février 2018.
11. Paysage et jeux de données nationaux, après-midi de travail Mardi 18 juillet 2017, INRA de Toulouse.
12. Peerless project 2015 annual meeting, INRA Angers. Utilisation de la vraisemblance synthétique pour estimer des paramètres de dynamique des populations à partir de données spatio-temporelles. [Use of synthetic likelihood to estimate population dynamique parameters using spatio-temporal data].
13. SER National meeting June, 2014. *Synthetic likelihood approaches for quantifying multi-scale epidemic processes from large and complex data sets*.
14. Princeton University. RAPIDD Epidemiological Dynamics workshop invited by Brian Grenfell. October 2013. *Synthetic-likelihood Inference for individual-based models.*
15. Temple University, Philadelphia, PA. Job talk, invited by Jody Hey. October 2013. *Understanding insect population dynamics through imperfectly observed presence/absence patterns*.
16. Ministère de la santé de la province d'Arequipa, journée des promoteurs de santé du printemps 2013, présentation de mes travaux de recherche et de leurs implications pour la gestion des vecteurs de la maladie de Chagas dans la ville d'Arequipa.
17. University Lyon 1, France. Job talk, April 2012. *Quantitative modeling and predictive analytics applied to eco-toxicology.*

18. Université de Reims, France. Job talk, Mai 2012. *Modeling in animal éco-toxicologie.*

Oral communications in peer-reviewed conferences

19. Eugénie Roy, Laura Humbert, Mélina Roditis, Maxime Garnault, Jean-Noël Aubertot, et al.. Analyse des déterminants à la massification de pratiques alternatives aux produits phytopharmaceutiques. *52e congrès du Groupe Français de recherches sur les Pesticides*, May 2024, Lyon, France. pp.35-36
20. Devaud, N and **Barbu, CM**. *Quantification de l'efficacité des pratiques de contrôle des maladies en grandes cultures en France*. Végéphyl – 12e Conférence internationale sur les maladies des plantes. Tours – 11 ET 12 décembre 2018, Tours.
21. **Barbu, C. M.**; Chen, M.; Guérin, N.; Simmoneau, D.; Valentin-Morison, M.; Sausse, C. & Félix, I. (2017), 'Regards croisés sur l'effet des espaces semi-naturels et de l'assolement sur les bio-agresseurs de grandes cultures", AFPP – 6e conférence sur les moyens alternatifs de protection pour une production intégrée.
22. **Barbu CM,** Chen M, Guérin N, Simonneau D, Valentin-Morison M, Sausse C, Felix I. Assessing the ecosystem services of pests and diseases regulation to inform landscape planning. European Ecosystem Services Conference, Septembre 2016, Anvers, Belgique.
23. Gidoin C, Babin R, Bagny Beilhé L, **Barbu CM**, Gosme M, Jeuffroy MH, Ngo Bieng M-A, Valantin-Morison M & ten Hoopen GM. Multi-scale studies of the relationships between cropping structure and pest and disease regulation services. Farming System Design 2015.
24. **Barbu CM**, Sethuraman K, Manne J, Quintanilla Calderón J E, Levy M Z. Synthetic likelihood approach for quantifying multi-scale epidemic processes from large and complex data sets. SERdigital November 2013.
25. **Barbu CM**, Sethuraman K, Manne J, Quintanilla Calderón JE, Levy MZ. Multi-scale dispersal patterns of Triatoma infestans in an urban environment and implications for long term prevention of Chagas disease. *Proceedings of the American Society of Tropical Medicine and Hygiene 2013 & University of Pennsylvania Biomedical Post-doc Research Symposium.*
26. **Barbu CM**, Small DS, Hong A, Quispe-Machaca V, Ancca-Juárez J, Borrini-Mayori K, Cornejo del Carpio JG, Málaga Chavez FS, Náquira C, Levy MZ. The influence of streets on the spatial distribution of the Chagas diseases vector, Triatoma infestans, in the city of Arequipa, Peru. *Proceedings of the American Society of Tropical Medicine and Hygiene 2011, 457.*
27. **Barbu CM**, El Yacoubi S and Gourbière S. 2009. Mixed strategies to control non-domiciliated Chagas disease vectors in a cost-efficient way. *Proceedings of the FES2009 Conference ,* ISBN 978-2-35412-043-6, A El Jaï, L.Afifi & E Zerrik Eds, Fes (Morocco) May 25-28(2009)507,513.

Posters in peer-reviewed conferences

28. A. Juhel, **C. Barbu**, P. Franck, V. Vivet, A. Butier, J. Roger-Estrade, M. Valantin-Morison. Flowers: when, where and which are important for pollen beetles? SF Ecologie 2016. October 24-28 2016, Marseille (France).
29. Manne J, **Barbu, CM**, Castillo Neyra R, Levy MZ. 2013 Evaluating the Interruption of Trypanosoma cruzi Transmission in Communities with Reemerging Vector Populations. *ASTMH annual meeting.*
30. **Barbu CM**, Sethuraman K, Levy MZ. 2013. Fast and Precise Parameterization of Spatio-Temporal Spread Models. *11Th Ecology and Evolution of Infectious Disease conference.*

31. Sethuraman K, **Barbu CM**, Niemierko M, Quispe-Machaca V, Quintanilla Calderón JE, Barbarin A, Mollesaca Rivera L, Cornejo Ale J O, Levy M Z. 2013. Characterization of short and long range insect dispersal through cities using spatial synthetic likelihoods. *11Th Ecology and Evolution of Infectious Disease conference.*
32. Bech N, **Barbu CM**, Quemere E, Novoa C & Boissier J. 2010. Impact de l'augmentation de la température sur le paysage et la génétique des populations d'altitude. *Ecology 2010 Montpellier.*