

Thibaut Morel-Journal

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POSTDOCS

CIRB (CNRS)

WITH F. BLANQUART
2021 - 2023 | Center for
Interdisciplinary Research in Biology

ISA (INRAE)

WITH E. VERCKEN
2021 | Institut Sophia Agrobiotech

BIOEPAR (INRAE/ONIRIS)

WITH P. EZANNO AND E. VERGU
2018 - 2020 | Unit "Biologie,
Epidémiologie et Analyse des Risques
en santé animale"

ELI (UNIV. CATH. LOUVAIN)

WITH N. SHTICKZELLE
2016 - 2018 | Earth and Life Institute

EDUCATION

PHD IN ECOLOGY

2015 | Univ. Nice
*Thesis: Stratégies d'introduction d'organismes
dans un environnement spatialement structuré*

MASTER'S DEGREE IN BIOLOGY

2012 | Univ. Lyon 1
*Thesis: Agrégation et productivité des chercheurs:
de l'effet Allee aux politiques de la science*

GRANTS

2016 | POST-DOCTORAL FELLOWSHIP

"Move-In-Louvain", co-financed by Marie
Sklodowska-Curie actions

2012 | DOCTORAL FELLOWSHIP

delivered by the graduate school 85 "Sciences
de la Vie et de la Santé"

RESEARCH

THEORETICAL ECOLOGY

Multi-scale population dynamics of various species (esp. bacteria), eco-evolutionary dynamics, invasion biology, phenotypic plasticity

PREDICTIVE EPIDEMIOLOGY

Disease spread through contact and movement networks, bovine cattle diseases, compartmental models

COMPUTATIONAL MODELLING

Stochastic, individual-based, to simulate infection, microbiome and population and eco-evolutionary dynamics in time and space, spatial modelling, explicit and implicit (networks)

STATISTICAL ANALYSES

Multivariate analyzes, regressions (GLM, non-parametric, mixed-effects, survival analyses), variance-covariance matrix analyzes, approximate Bayesian computation

EXPERIMENTAL DESIGN

Design of multivariate experimental plans, and microcosm experiments of meta-population dynamics of insects and protists

PROGRAMMING

in R and python for models, analyses, algorithmics, data visualisation

TEACHING

UNIVERSITE SORBONNE PARIS NORD

Courses: Introduction to computing (2023), Algorithmics and Scratch programming (2024), Using R in practice (2024)

UNIVERSITE PARIS CITE

Courses: Genomics and evolutionary dynamics (2023)

AGROPARISTECH

Courses: Modeling epidemic dynamics in animal and plant populations (2022-2024), Contribution of epidemiology to health risk management (2021, 2022, 2024)

UNIVERSITE CATHOLIQUE DE LOUVAIN

- Courses: Practical integrated work on biogeography ecology: biodiversity of natural environments (2018), Professional project development (2017, 2018), Biometrics (2017)
- Jury: Master's degree "Biologie des Organismes et Écologie" (2017, 2018, Univ. Cath. Louvain)

STUDENTS MENTORING

MASTER'S DEGREE

Naline Ahoyo (2024, Univ. Sorbonne Paris Nord), Suzon Rondeaux (2018, Univ. Cath. Louvain), Marjorie Haond (2015, Univ. Lyon 1), Pierre Girod (2013, Univ. Nice)

ENGINEER DIPLOMA

Claire Rais Assa, Camille Pioniot (2015, AgroParisTech)

DUT

Maud Hautier (2014, Univ. Toulouse III)

PAPERS

PEER-REVIEWED

1. [Morel-Journel T., Haond M., Duan L., Mailleret L., Vercken E. \(2023\) Colonisation debt: when invasion history impacts current range expansion. *Peer Community Journal*. doi:10.24072/pcjournal.293](#)
2. Svendsen N., Radchuck V., [Morel-Journel T.](#), Thuillier V., Schtickzelle N. (2023) Complexity vs linearity: relationships between functional traits in a protist. *BMC Ecology and Evolution* 23(1). doi:10.1186/s12862-022-02102-w
3. [Morel-Journel T.](#), Haond M., Lamy L. Muru D., Vercken E., Mailleret L., Roques L. (2022) When expansion stalls: an extension to the concept of range pinning in ecology. *Ecography* 2022(2). doi:10.1111/ecog.06018
4. Haond M., [Morel-Journel T.](#), Lombaert E., Vercken E., Mailleret L., Roques L. (2021). When higher carrying capacities lead to faster propagation. *Peer Community Journal* 2021(1). doi:10.24072/pcjournal.66
5. [Morel-Journel T.](#), Vergu E., Mercier J-B., Bareille N., Ezanno P. (2021) Selecting sorting centres to avoid long distance transport of weaned beef calves. *Scientific Reports*. 11(1), 1-10. doi:10.1038/s41598-020-79844-4
6. [Morel-Journel T.](#), Assié S., Vergu E., Mercier J-B., Bonnet-Beaugrand F., Ezanno P. (2021) Minimizing the number of origins in batches of weaned calves to reduce their risks of developing bovine respiratory diseases. *Veterinary Research*. 52(1), 1-12. doi:10.1186/s13567-020-00872-z
7. [Morel-Journel T.](#), Herve L., Assie S., Mercier J-B, Vergu E., Ezanno P., Bareille N. (2020) Pourquoi et comment repenser les pratiques d'allotement des brouillards en vue de l'engraissement ? In *Actes des 25emes Rencontres autour des Recherches sur les Ruminants 2020*. Institut de l'élevage (Idele), Ed Technipol, Paris.
8. [Morel-Journel T.](#), Thuillier V. Pennekamp F., Chaine A.S., Legrand D., Laurent E., Schtickzelle N. (2020) A multidimensional approach to the expression of phenotypic plasticity. *Functional Ecology*. 34(11), 2338-2349. doi:10.1111/1365-2435.13667
9. Jacob S., Laurent E., [Morel-Journel T.](#), Schtickzelle N. (2020) Fragmentation and the context-dependence of dispersal syndromes: matrix harshness modifies resident-disperser phenotypic differences in microcosms. *Oikos* 129(2), 158-169. doi:10.1111/oik.06857
10. [Morel-Journel T.](#), Rais Assa C., Mailleret L., Vercken E. (2019) Its all about connections: hubs and invasion in habitat networks. *Ecology Letters*, 22(2), 313-321. doi:10.1111/ele.13192
11. Keryling J., Schweiger A.H., Bahn M., Ineson P., Migliavacca M., [Morel-Journel T.](#), Christiansen J.R., Schtickzelle N., Larsen K.S. (2018) To replicate, or not to replicate? That is the question: how to tackle nonlinear responses in ecological experiments. *Ecology letters*, 21(11), 1629-1638. doi:10.1111/ele.13134
12. [Morel-Journel T.](#), Hautier M., Vercken E., Mailleret L. (2018) Clustered or scattered? The impact of habitat distribution on establishment and early spread. *Ecography*, 41(10), 1675-1683. doi:10.1111/ecog.03397
13. [Morel-Journel T.](#), Pioniot C., Vercken E., Mailleret L. (2016). Evidence for an optimal level of connectivity for establishment and colonization. *Biology letters*, 12(11), 20160704. doi:10.1098/rsbl.2016.0704
14. [Morel-Journel T.](#), Girod P., Mailleret L., Auguste, A., Blin A., Vercken, E. (2016). The highs and lows of dispersal: how connectivity and initial population size jointly shape establishment dynamics in discrete landscapes. *Oikos*, 125(6), 769-777. doi:10.1111/oik.02718
15. [Morel-Journel T.](#), Fauvergue X., Lombaert E., Mailleret L., Malausa T., Ris N., Vercken E. (2015). De l'utilisation de microcosmes pour le test d'hypothèses en biologie de l'invasion. *Revue d'Ecologie*, 70(12), 16-27.
16. Bermond G., Blin A., Vercken E., Ravigné V., Rieux A., Mallez S., [Morel-Journel T.](#), Guillemaud T. (2013). Estimation of the dispersal of a major pest of maize by cline analysis of a temporary contact zone between two invasive outbreaks. *Molecular Ecology*, 22(21), 5368-5381. doi:10.1111/mec.12489

PREPRINTS

17. Allain M., [Morel-Journel T.](#), Condamine B., Gibeaux B., Gachet B., Gschwind R., Houhamdi L., Denamur E., Landraud L (in revision). IncC plasmid genome rearrangements influence the vertical and horizontal transmission tradeoff in *Escherichia coli*. *bioRxiv*. doi:10.1101/2024.04.17.589899
18. Condamine B., [Morel-Journel T.](#), Tesson F., Magnan M., Bernheim A., Denamur E., Blanquart F., Clermont O. (in revision) Lessons from twenty years of the life of commensal *Escherichia coli* populations in a human gut. *bioRxiv*. doi:10.1101/2024.02.21.581337
19. [Morel-Journel T.](#), Lehtinen S., Cotto O., Amia R., Clermont O., Dion S., Figueroa C., Martinson J., Ralaimazava P., Duval X., Nowrouzian F.L., Walk S., Denamur E., Blanquart F. (resubmitted) Residence-colonization trade-off and niche differentiation enable the coexistence of *Escherichia coli* phylogroups in healthy humans. *bioRxiv*. doi:10.1101/2023.08.10. 552787
20. [Morel-Journel T.](#), Ezanno P., Vergu E. (resubmitted) Rewiring cattle movement to limit infection spread. *bioRxiv*. doi:10.1101/2022.08.24.505123
21. Schtickzelle N., Laurent, E., [Morel-Journel T.](#) (preprint) 3D Printing for Ecology and Evolution: A Hands-on Guide to Turn an Idea into Reality. *Preprints*. doi:10.20944/preprints202003.0220.v1

PRESENTATIONS IN SCIENTIFIC CONGRESSES

1. [Morel-Journal T.](#), Blanquart F. (2022) Trade-offs between colonization and survival enable E. coli. coexistence. *Workshop 'Mathematical Modelling of Microbiomes'*, Plön, Allemagne
2. [Morel-Journal T.](#), Haond M., Lamy L., Muru D., Vercken E., Mailleret L., Roques L. (2021) When expansion flounders: an extension of the concept of range pinning in ecology. *Stochastic Models and Experiments in Ecology and Biology*, Venise, Italie
3. [Morel-Journal T.](#) (2019) Un algorithme de réallocation de mouvements appliqué à la propagation d'épidémies chez les bovins. *Réunion du Réseau Modélisation et Statistique en Santé des Animaux et des Plantes (ModStatSAP)*, Paris, France
4. [Morel-Journal T.](#), Thuillier V., Chaîne A.S., Legrand D., Laurent E., Schtickzelle N. (2018) The expression of phenotypic plasticity of different fitness related traits in multi-dimensional environments. *International Conference on Ecological Sciences 2018*, Rennes, France
5. [Morel-Journal T.](#), Thuillier V., Chaîne A.S., Legrand D., Laurent E., Schtickzelle N. (2017) Reaction norms in 3D: phenotypic plasticity of Tetrahymena ciliates according to combined temperature and nutrient levels. *BES-GFÖ-NecoV-EEF Joint Annual Meeting 2017*, Gand, Belgique
6. [Morel-Journal T.](#), Schtickzelle N. (2017) Metapopulation dynamics under environmental change: models and experiments. *FEEDING Network conference*, Louvain-la-Neuve, Belgique
7. Fauvergue X., [Morel-Journal T.](#), Vercken E., Calcagno V., Courchamp F. (2016) Fitness consequence of small population size in academia. *International Conference on Ecological Sciences 2016*, Marseille, France
8. [Morel-Journal T.](#), Martinez-Rodriguez P., Berger C., Groussier-Bout G., Dumbardon-Martial T., Lepilleur T., Maignet P., Malausa T., Ris N., Sanchez-Martin V., Seguret J., Vergès V., Warot S., Zaviero T. (2016) Exploring and exploiting intraspecific diversity in the genus Trichogramma. *2016 International Congress of Entomology*, Orlando, Floride, USA
9. [Morel-Journal T.](#), Rais Assa C., Vercken E., Mailleret L. (2015). It's all about connections: hubs and invasions in habitat networks. *100th ESA Annual Meeting*, Baltimore, Maryland, USA
10. [Morel-Journal T.](#), Hautier M., Vercken E., Mailleret L. (2014). Clustered or scattered? The impact of habitat distribution on establishment dynamics. *BES/SFE Joint 2014 Annual Meeting*, Lille, France
11. [Morel-Journal T.](#), Girod P., Mailleret L., Vercken E. (2014). Trichogrammas surf on pushed waves: effect of propagule pressure and connectivity of the introduction site on the invasion of an experimental discrete landscape. *Entomophagistes 2014*, Louvain-la-Neuve, Belgique
12. [Morel-Journal T.](#), Girod P., Mailleret L., Vercken E. (2013). Effets de la pression de propagule et de la connectivité du site d'introduction sur l'invasion d'un paysage expérimental par une espèce de trichogramme, *35ème réunion annuelle du groupe d'Etude de Biologie et Génétique des Populations*, Marseille, France

OTHER PRESENTATIONS

13. [Morel-Journal T.](#), Mailleret L., Vercken E. (2024) Modelling invasions waves in relation with the carrying capacity. *Invited seminar at Laboratoire Jacques Louis Lion*, Paris, France
14. [Morel-Journal T.](#), Mailleret L., Vercken E. (2024) Pushed invasion fronts and the role of the environment. *Invited seminar at Laboratoire de Physique de l'ENS*, Paris, France
15. [Morel-Journal T.](#), Picot A., Blanquart F. (2024) Trade-off and niche differentiation underpin coexistence among *Escherichia coli* in the human gut. *Invited seminar at the BIOEPAR research unit*, Nantes, France
16. [Morel-Journal T.](#), Picot A., Blanquart F. (2023) Investigating trade-offs in the colonization dynamics of commensal bacteria. *Invited seminar at the IAME research unit*, Paris, France
17. [Morel-Journal T.](#), Vergu E., Ezanno P. (2021) Management of cattle movements to prevent infections. *Invited seminar at the Earth and Life Institute*, Louvain-la-Neuve, Belgique
18. [Morel-Journal T.](#) (2020) Les leviers de réduction d'usage d'antibiotiques en élevage au niveau de la filière. *Journée de formation Sant'Innov pour les enseignants de lycées agricoles*, Nantes, France
19. [Morel-Journal T.](#), Hervé L., Vergu E., Bareille N., Assié S., Ezanno P. (2019) Des algorithmes pour gérer les flux d'approvisionnement des broutards en France. *SPACE 2019*, Rennes, France

SOFTWARES

1. Algorithme de réallocation de mouvements bovins, disponible sur sourcesup.renater.fr/projects/pub-rewir-algo
2. Algorithme d'optimisation de lots d'animaux, disponible sur sourcesup.renater.fr/projects/pub-youngb-algo
3. Algorithme d'optimisation de distances, disponible sur sourcesup.renater.fr/projects/pub-dist-algo