

## Lucie Aulus-Giacosa

Updated 30<sup>th</sup> of September 2024

### Personal information

13/01/1992  
Nationality: French

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Current professional address: Department of Ecology and Evolution – Biophore  
Office room: 2101  
University of Lausanne 1015  
Lausanne, Switzerland

### Current position

2021 – **Current position: Postdoc, University of Lausanne**, Department of Ecology and Evolution | Advisor: Cleo Bertelsmeier

### Previous employment history and education

- 2017 – 2021 **PhD Biology**, ED211 – Exact Sciences and their application – University of Pau & Pays de l'Adour - E2S -INRAe (UMR 1224, ECOBIOP) | Advisors: *Philippe Gaudin, Matthias Vignon*
- Title: Evolution of anadromy along a colonization front, the case of introduced Brown trout in the Kerguelen Islands  
**Defense: 12 January 2021**  
Jury: *Yan Ropert-Coudert, Marie Nevoux, Thomas Reed, Agnès Bardonnnet, Philippe Gaudin, Matthias Vignon and Benjamin Phillips*
- 2016 – 2017 **Engineer in Apprenticeship**, UMR 1224, ECOBIOP | Advisors: *Jean-Christophe Aymes, Anne Charmentier*
- MSc. Applied Ecology and Biodiversity Management**, University of Montpellier | Supervisor: *Olivier Thaler*
- 2013 – 2017 Graduate School in Agronomy, Montpellier SupAgro / Supervisor: *Elena Kazakou*
- Grade of “General purpose Agronomist engineer”**: 17 November 2017
- 2016 – 2017 MSc. Applied Ecology and Biodiversity Management, University of Montpellier
- 2015 – 2016 Tutored gap year (professionalizing internships), CESA diploma
- Centre d'Ecologie Fonctionnelle et Evolutive (CEFE) - CNRS, Montpellier | Supervisors: *Aurélien Besnard, Charlotte Francesiaz, Paul Acker*
  - Direction du foncier et de l'Aménagement (DFA), Province Sud, Nouméa | Supervisors: *Fabrice Robinet, Muriel Dos Santos*
- 2015 (January to July) Foreign Student in Forest Ecology and Management, ERASMUS Program, University of Helsinki, Faculty of Agriculture and Forestry – METLA | Supervisors: *Sauli Valkonen*
- 2013 – 2014 Graduate School in Agronomy - Common teaching, Montpellier SupAgro
- 2010 – 2013 **BSc. In Biology**: Preparatory school 'BCPST' (Biology– Chemistry – Physics – Sciences of Earth), Lycée Thiers (Marseille, France)
- June 2010 French **baccalaureate in science**, *distinction: Very good.* (16.1/20), Lycée Henri Matisse (Vence, France)

**Board membership and institutional responsibilities**

2021 - 2022	<b>Communication coordinator of Modeling in Ecology and Evolution Meetings</b> , a series of webinars by and for PhDs and postdocs working on models in eco-evo.
2018 – 2020	Unit Board (UMR 1224 ECOBIOP), University of Pau and Pays de l'Adour, committee member, <b>representative of doctoral researchers</b>
2016 - 2017	<b>Communication coordinator of 'Salon de l'Ecologie 2016'</b> , University of Montpellier

**Active memberships in scientific societies, fellowships in renowned academies**

<b>2022 -</b>	<b>International Biogeography Society</b>
<b>2021 -</b>	<b>IUSSI, French section</b>
<b>2017 - 2021</b>	<b>British Ecological Society</b>

**Awards and distinctions**

2022	<b>2<sup>nd</sup> Prize – Best poster presented at the Biology22 Conference</b> , 17-18 February 2022, Basel, Switzerland. “Choosing a beta diversity index to delineate ant species bioregions.”
2019	<b>1st Price – Best Poster presented at “Les journées de l'école doctorale (ED211)”</b> , 20-21 Juin 2019, Pau, France. « Spatio-temporal evolution of life history traits related to dispersal. Brown tout colonization of the sub-antarctic Kerguelen islands. »

**Funding**

2022	<b>Travel grant</b> to attend the international conference of the IUSSI in San Diego, USA, CA, 1800euros.
2022	<b>Grant from the Swiss National Science Foundation – SNSF Swiss Postdoctoral Fellowships 2021 (15.12.2021)</b> (replacement of Marie-Curie) – for the project TMPFP3_209715, “Does human-mediated dispersal redefine global bioregions?”. 24 months. 209'952 CHF
2017	<b>Doctoral grant, from E2S-UPPA</b> , 3-years. (prix)

**Personal skills (e.g. language skills, digital competences)***Research*

Ecology and Evolution, Conservation, Invasive species, Biodiversity monitoring, sampling, variability, life-history traits, migration, dispersal, functional ecology, globalization, population dynamics.

*Methods*

Geographic Information System (**GIS**), statistical modeling in ecology and conservation biology (univariate and multivariate analyses), descriptive statistics, linear models, generalized additive models (**GAM**), mixed effects models and probabilistic reaction norm (**GLM**), selection of model ( $R^2$ , AIC, BIC) with **R**, individual based model (**IBM**) with **Matlab**, development of Bayesian model (**JAGS**). Scientific articles, reports, and oral presentation (**Latex**, **RMarkdown**), creation and management of **databases**, Experienced with office tools (**Gimp**, **Inkscape**, **ImageJ**, **CellSens**). **Laboratory experiments**, scalimetry, otolithometry (trout), dendrochronology (tree) [binoculars, optical microscopes, scanners], microchemistry analyses on otoliths [Laser Ablation – Inductively coupled plasma mass spectrometer (**LA-ICPMS**)]. **Field studies**, topography, and distance sampling (**GPS**), **capture-mark-recapture** monitoring on birds, bird adults and juvenile banding, **electric fishing** in French metropolis and in sub-antarctic Kerguelen Islands.

*Languages*

French (mother tongue)

English (bilingual)

German (intermediate)

**Career breaks (provide justification for events that might have influenced or delayed research and publication activities such as long absences due to illness, family commitments, etc.)**

For important health reasons, I had a 4-month absence (from 8 July to 1 November 2019) during my PhD. This event followed by covid-19 and covid-20 crisis have largely contributed to the decrease of my scientific publications (2 thesis papers published on the 4 projected, with an additional one that has been submitted and published after my defense).

Additionally in 2024, I benefited from a 5-month maternity leave from the 18<sup>th</sup> of April 2024 to the 17<sup>th</sup> of September 2024.

**Teaching activities (summary information)****Teaching**

2022	Population Biology and Conservation (Bachelor Course), University of Lausanne, supervision of groups projects	64h
2022	Biological invasions (Master course), University of Lausanne, teaching assistant	4h
2022	Zoology practicals (Bachelor Course), University of Lausanne, teaching assistant – and responsible for Fish practicals	20h
2022	Expertise Biologie et Société (Bachelor Course), University of Lausanne, lecture assistant	14h
2021	Scientific Writing (Master Course), University of Lausanne, lecture assistant	18h
2018 - 2019	Evolutionary Biology (Bachelor Course), University of Pau and Pays de l'Adour, practicals *	6h
2018 - 2019	Ecology, Evolution, Environment (Bachelor Course, Informatics and Biology academic Background), University of Pau and Pays de l'Adour, practicals *	30h
2018 - 2019	Management and Analysis of Data (Master Course), University of Pau and Pays de l'Adour, supervision of groups projects *	5h
2017 - 2018	Animal Biology (Bachelor Course), University of Pau and Pays de l'Adour, practicals *	28h
* Teaching assignment link to the PhD, Monitorat		189h

**Master students' supervision**

2021	Riyo Shiga, University of Lausanne. <i>Understanding the role of beta-diversity in the definition of biogeographical regions.</i>
2019	Valentin Santanbien, University of Pau et Pays de l'Adour. <i>Determinants shaping growth trajectories for two brown trout populations introduced in the Kerguelen Islands.</i>
2019	Hervé Rogissart, University of Pau et Pays de l'Adour. <i>Scalimetry and Von Bertalanffy growth models to characterize freshwater and seawater growth of brown trout.</i>
2018	Gautier Magné, University of Pau et Pays de l'Adour. <i>Comparison of growth trajectories for two brown trout populations founded by natural colonization in the Kerguelen Islands.</i>

**Bachelor students' supervision**

2018	Jon Levy, University of Pau et Pays de l'Adour. <i>Scalimetry and growth models to characterize freshwater growth of the Brown trout.</i>
2018	Paul Gouzou, University of Pau et Pays de l'Adour. <i>Compensatory growth in the Brown trout.</i>
2017	Lucille Baron, University of Pau et Pays de l'Adour. <i>Brown trout life-history traits characterization in a context of biological invasion in the Kerguelen Islands.</i>

**Evaluation of 1<sup>st</sup> step reports**

2023	Lucibello Louana, University of Lausanne. <i>Melanin-based coloration and dispersal behavior.</i>
2023	Pierre Eléa, University of Lausanne. <i>A longitudinal test of ecosystem decay.</i>

**Evaluation of Master Theses**

- 2022 Soutter Lucas, University of Lausanne. *The effect of altitude, land cover and land use on the sex-ratio of Daubenton's bats.*
- 2022 Membrez Louis, University of Lausanne. *Breeding dispersal of Wrynecks in relation to breeding success and habitat quality.*
- 2022 Spori Carole, University of Lausanne. *What happens around Barn owl nest box in winter? Analysis of RFID detection data during the non-breeding period.*

**Organisation of conferences**

- 2023-2024 European Congress – International Union for the Study of Social Insects (IUSSI) 2024, July 7-11, 2024, Lausanne, Switzerland
- 2022 INTECOL 2022, Session 2.4 – Consequences of biological invasions, August 28 – September 2, 2022, Geneva, Switzerland
- 2018 Annual Scientific Seminar organization, UMR 1224 Ecobiop, St-Pée sur Nivelles, France

**Publications***Publications in peer-reviewed scientific journals*

- (\*) **Aulus-Giacosa, L.**, S. Ollier, C. Bertelsmeier, **2024**. *Non-native ants are breaking down biogeographic boundaries and homogenizing community assemblages.* Nature Communications 15, Article number: 2266. <https://doi.org/10.1038/s41467-024-46359-9>
- (\*) **Aulus-Giacosa, L.**, F. Guéraud, P. Gaudin, M. Buoro, J. C. Aymes, J. Labonne, et M. Vignon, **2021**. *Human influence on brown trout juvenile body size during metapopulation expansion.* Biology Letters 17, n° 10: 20210366. <https://doi.org/10.1098/rsbl.2021.0366>.
- Valkonen, S., Aulus-Giacosa, L., Heikkinen, J., 2020.** *Tree mortality in the dynamics and management of uneven-aged Norway spruce stands in southern Finland.* European Journal of Forest Research. <https://doi.org/10.1007/s10342-020-01301-8>
- (\*) **Aulus-Giacosa, L.**, Aymes, J.-C., Gaudin, P., Vignon, M., **2019**. *Hierarchical variance decomposition of fish scale growth and age to investigate the relative contributions of readers and scales.* Mar. Freshwater Res. 70, 1828. <https://doi.org/10.1071/mf19059>

*Peer-reviewed books/monographs (incl. published doctoral thesis)*

- Labonne, J., Buoro, M., **Aulus-Giacosa, L.**, Vignon, M., Eldøy, S. H., et al.. **(2022)** Evolutionary Ecology of Kerguelen Islands Colonization by Introduced Salmonids: SALMEVOL 1041-2 project. [Research Report] Institut national de recherche pour l'agriculture, l'alimentation et l'environnement (INRAE); Université de Pau et des Pays de l'Adour (UPPA); Institut Polaire Paul-Emile Victor. <https://hal.inrae.fr/hal-03719420>
- (\*) **Aulus-Giacosa, L.** **(2021)** *Spatio-temporal evolution of life history traits related to dispersal. Brown trout (Salmo trutta L.) colonization of the sub-Antarctic Kerguelen Islands.* These de doctorat, Université de Pau et des Pays de l'Adour. <https://www.theses.fr/2021PAUU3003>.

*Peer-reviewed conference proceedings**Contributions to books*

- Aulus-Giacosa, L.**, Bates, O. K., Bonnamour, A., Bujan, J., Gippet, J., Fenn-Moltu, G., Klafthenberger, T., & Bertelsmeier, C. 'Effects on distribution and biological invasions' in González-Tokman, D., and Dáttilo, W. (ed) *Effects of climate change on insects: physiological, evolutionary, and ecological responses.* Oxford, 2024; online edn, Oxford Academic, 21 Mar. 2024),

<https://doi.org/10.1093/oso/9780192864161.003.0011>

*Patents and licenses*

*Contributions to conferences (oral presentation or poster)*

National and international conferences

**Aulus Giacosa L.**, Ollier S., Bertelsmeier C., Les fourmis exotiques brisent les frontières biogéographiques et homogénéisent les assemblages de communautés au cours de l'Anthropocène. 31e Colloque de la section française de l'Union Internationale pour l'Étude des Insectes Sociaux (UIEIS), Toulouse, France (August 23-30, 2023)

**Aulus Giacosa L.**, Ollier S., Bertelsmeier C., Consequences of human-mediated dispersal on ant species biogeography, Intecol2022, Geneva, Switzerland (August 28 - September 2, 2022)

**Aulus Giacosa L.**, Ollier S., Bertelsmeier C., Does human-mediated ant species dispersal redefine global bioregions?, International Union for the Study of Social Insects (IUSSI), San Diego, California – United States (July 3-7, 2022)

**Aulus Giacosa L.**, Vignon M., Gaudin P., Spatio-temporal evolution of life history traits: Brown trout colonization of the sub-Antarctic Kerguelen Islands, Colloque de la Société Française de l'Ecologie, Rennes, FRANCE (October 23-25, 2018)

Oral communications in seminars and working groups

**Aulus-Giacosa L.**, Alien ants break down biogeographic boundaries and homogenize community assemblages in the Anthropocene, PLECO lunch seminar, University of Antwerp (October 24 2023).

**Aulus Giacosa L.**, Vignon M., Gaudin P., Shifting threshold: Is there an evolution of migratory life histories in Brown trout (*Salmo trutta*)?, Young Modellers in Ecology (YOMOS), online Workshop 2020 (May 25-2, 2020)

**Aulus Giacosa L.**, Vignon M., Gaudin P., Evolution of anadromy and its impact on invasion dynamics: the case of long term monitored introduced brown trout (*Salmo trutta* L.) in the Kerguelen Islands - GDR Invasions biologiques, Rennes, FRANCE (October 22, 2018)

**Aulus Giacosa L.**, Vignon M., Gaudin P., Evolution of anadromy and its impact on invasion dynamics: the case of long term monitored introduced brown trout (*Salmo trutta* L.) in the Kerguelen Islands - Zone Ateliers des Territoires Antarctiques (ZATA), Saint-Pée sur Nivelle, FRANCE (October 2-4, 2018)

**Aulus-Giacosa L.** Growth estimation methods to characterize *Salmo trutta* probabilistic reaction norm for age and size at migration in Kerguelen Islands. [Online]. 'Salmonidés et Poissons Amphihalins Migrateurs' meeting, Aquapôle INRA – St-Pée sur Nivelle (May 9-11, 2017)

Posters

**Aulus-Giacosa L.**, Ollier S., Bertelsmeier C., Alien ants break down biogeographic boundaries and homogenize community assemblages in the Anthropocene, International Biogeography Society, General poster session, Prague, Czech Republic (January 7-11, 2024).

**Aulus Giacosa L.**, Ollier S., Bertelsmeier C., Choosing a beta diversity index to delineate ant bioregions, Biology22, General poster session, Basel, Switzerland (February 17-18, 2022).

**Aulus Giacosa L.**, Gaudin P., Buoro M., Aymes J-C., Vignon M., Guéraud F., Labonne J., The evolution of body size over the course of a metapopulation expansion in the partial migratory brown trout,

General poster session, Ecological and Evolutionary Ethology of Fishes, Virtual conference (July 12-14, 2021).

**Aulus Giacosa L., Vignon M.,** Gaudin P., Aymes J-C., Guéraud F., The effect of ageing errors on Von Bertalanffy parameters estimation using a Bayesian sensitivity analysis approach, International Otolith Symposium, General poster session, Statistics and modelling, Keelung, TAIWAN (April 15-20, 2018).

**Aulus Giacosa L.,** Vignon M., Buoro M., Gaudin P., Gueraud F., Aymes J.C.: Growth models and estimation of migratory reaction norm for invasive brown trout (*Salmo Trutta L.*) in Kerguelen Islands - International Long Term Ecological Research Network & LTER-France (Zones Ateliers Network & Critical Zone Observatories) joint conference, Nantes, FRANCE (October 2-5, 2017)

*Submitted but not yet accepted/published publications.*

*Unpublished work (publications in preparation or thesis work (MSc, PhD))*

Publications under revision

Publications in preparation

**Aulus-Giacosa L.,** Buoro M., Labonne J., Vignon M. *Shifting threshold size at first migration in a context of species expansion range.* **Evolution**

**Aulus-Giacosa L.,** Guéraud F., Gaudin P., Labonne J., Vignon M. A comparative study on growth over the course of a metapopulation expansion in a partial migratory species.

**Outreach activities (e.g. public engagement in science, technology and knowledge transfer activities, scientific art performances, etc.)**

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|-------------|--|
| 2024        | <b>Public communication: Behind the Paper – Blog.</b> Lucie Aulus-Giacosa, (18.03.24) Non-native ants are breaking down biogeographic boundaries and homogenizing community assemblages. Earth & Environment, Ecology and Evolution. <a href="https://communities.springernature.com/">https://communities.springernature.com/</a> |
| 2024        | <b>Public communication: Press release.</b> Mélanie Affentranger, (20.03.2024) Ces fourmis qui abattent les frontières... et la biodiversité. <a href="https://news.unil.ch/display/1710868510783">https://news.unil.ch/display/1710868510783</a>  |
| 2022        | <b>Public communication: Interview for Heidi.news.</b> Sophie Gremaud, (10.08.2022) Zoom sur trois projets pour la biodiversité soutenus par le Fonds national suisse. <a href="https://www.heidi.news/sciences/sujet-fns-titre">https://www.heidi.news/sciences/sujet-fns-titre</a>   |
| 2019        | <b>Science workshop facilitator</b> for Inrae-UMR ECOBIOP Public Open days. Popularising Science.  |
| 2018        | <b>Science workshop facilitator</b> for school classes. Association du Flocon à la vague. How to rebuild the history of fish from calcified structure?   |
| 2016 - 2017 | <b>Communication coordinator</b> of ‘Salon de l’Ecologie 2016’, University of Montpellier  |

**General contributions to science (e.g. spokesperson for experiments, leader of expeditions, founder of networks and training programmes, etc.)**

- (\* 2018 - 2019 **Expedition in the sub-Antarctic Kerguelen Islands – Mission SALMEVOL 2019**
- Team member for collecting ocean acoustic receivers

- Team leader for brown trout electric fishing in the context of data collection for my PhD (long-term monitoring)
- Team member for Salvelinus net fishing

**Other artefacts with documented use (e.g. maps, methods, prototype demos, software, databases, design, arXiv-articles, contributions to big data collaborations, etc.)**

- (\* 2017 - 2021 Contribution to data collaborations and collection, long-term monitoring in the Kerguelen Islands. *UMR 1224- Ecobiop*.
- Scalimetry and otolithometry of the brown trout
  - Sampling in the field
  - Laboratory analysis
  - Collaboration with IPREM PAU (LA-ICPMS analysis)
  - Database's implementation
  - Database's versioning
  - Map production of fish distribution along the colonization front

- 2020 Map production for:  
 Davidsen, Jan Grimsrud, Xavier Bordeleau, Sindre Håvarstein Eldøy, Frederick Whoriskey, Michael Power, Glenn T. Crossin, Colin Buhariwalla, et Philippe Gaudin. (2021) Marine habitat use and feeding ecology of introduced anadromous brown trout at the colonization front of the sub-Antarctic Kerguelen archipelago ». *Scientific Reports* 11, n°1: 11917.  
<https://doi.org/10.1038/s41598-021-91405-x>.

- 2015 Collaboration in a long-term monitoring on larids, plaine du Forez. Bird banding in the field. *Aurélien Besnard, Charlotte Francesiaz*.

**Manuscripts reviewed for:**

**Biological Invasions (1)**

**Pest Science (1)**

**Nature Communications (1)**