Giobbe Forni

Department of Biological, Geological and Environimental Sciences (BiGeA), University of Bologna
Via Selmi 3, 40124 Bologna (Italy)
forni.giobbe@gmail.com
for-giobbe.github.io
+39 3892907645

EDUCATION

May 2021 — **PhD in Earth, Life and Environimental Sciences**
University of Bologna, Bologna (Italy). Grade: Excelent. Supervisors: B. Mantovani & A. Luchetti.
Thesis title: "Molecular Systematics and Traits Evolution in Phasmatodea Leach, 1815 (Hexapoda; Insecta)".

July 2016 — **MSc in Biodiversity and Evolution**
University of Bologna, Bologna (Italy). Grade: 110/110 *cum laude.* Supervisors: S. Del Duca & P. Christou.
Thesis title: "Genome Editing in Rice: knockout of the AGPase LSU Gene *OsAPL3 via* CRISPR-Cas9".

March 2013 — **BSc in Biotechnology**
University of Bologna, Bologna (Italy) - 103/110. Supervisor: C. Rubies Autonell.
Thesis title: "Cancerogenous micotoxin production in *Fusarium proliferatum*".

RESEARCH EXPERIENCE

March 2023 – present, University of Bologna, Italy — **Post Doc**
I am currently focusing on the biodiversity and evolution of Italian ant species, leveraging low-coverage genome sequencing to generate whole mitochondrial genomes and nuclear conserved genes for multiple species and populations. This approach is expected to unravel the complex patterns of introgression and/or hybridization which concurred to shape ants biodiversity across the Italian peninsula.

February 2021 – February 2023, University of Milan, Italy — **Post Doc**
During two years of Post-Doc I focused on understanding the molecular ground plan of a mutualistic ant-plant interaction. For this purpose, I leveraged an extensive RNA-seq dataset encompassing multiple conditions and tissues of both species, trying to characterize the gene expression changes associated with the establishment of the association.

November 2017 – May 2021, University of Bologna, Italy — **PhD project**
My PhD project focused on the insect Order Phasmida which I leveraged to bring new perspectives on the interplay between the phenotypic and molecular levels in trait evolution. I studied the evolution of wings and sexual strategies in this insect group - especially to test hypothesis on the consequences of trait loss and its reversibility - combining "omics" and phylogenetic comparative approaches.

October 2018 – March 2020, Australian National University, Canberra, Australia — **Visiting PhD student**
I have spent six months at the Australian National University in Canberra (Australia) under the supervision of Sasha Mikheyev. During my stay I worked on transcriptomic data and I gained extensive knowledge on differential expression and gene co-expression networks analyses, which I applied on the molecular processes associated to trait evolution.

October 2015 – May 2016, University of Lleida, Spain — **MSc Thesis**
During six months at the University of Lleida (Spain) - under the supervision of Paul Christ - I applied CRISPR-Cas9 in rice to create two knockout lines relatively to the OsAPL3 gene, a subunit of a key enzyme in the starch pathway. After the transformation, I screened the putative transgenic population and identified two candidate lines, from which I cloned and characterised frequency and structure of the targeted mutation.

PAPERS

first author — G. Forni, B. Mantovani, A. S. Mikheyev, A. Luchetti (2023). *The molecular groundplan of male reproduction is partially preserved in parthenogenetic stick insects.* **Genome Biology and Evolution**, doi:10.1093/gbe/evae073. (**LINK**)

A.M. Mc Cartney … , G. Forni, … C. J. Mazzoni (2023). *The European Reference Genome Atlas: piloting a decentralised approach to equitable biodiversity genomics.* **bioRxiv**, doi:10.1101/2023.09.25.559365. (**LINK**)

co-first author — M. Iannello, G. Forni, G. Piccinini, R. Xu, J. Martelossi, G. Ghiselli, L. Milani (2023). *Signatures of extreme longevity: a perspective from bivalve molecular evolution.* **Genome Biology and Evolution**, doi:10.1093/gbe/evad159. **The paper was featured on the journal cover and recived an editorial piece** (**LINK**)

co-first author — I. Di Lelio, G. Forni, G. Magoga, M. Brunetti, D. Bruno, A. Becchimanzi, M. G. De Luca, M. Sinno, E. Barra, M. Bonelli, S. Frusciante, G. Diretto, M. C Digilio, S. L. Woo, G. Tettamanti, R. Rao, M. Lorito, M. Casartelli, M. Montagna, F. Pennacchio (2023). *A soil fungus confers plant resistance against a phytophagous insect by disrupting the symbiotic role of its gut microbiota.* **Proceedings of the National Academy of Sciences**, doi: 10.1073/pnas.2216922120. (**LINK**)

- F. Nicolini, J. Martelossi, G. Forni, C. Savojardo, B. Mantovani, A. Luchetti (2023). *Comparative genomics of Hox and ParaHox genes among major lineages of Branchiopoda with emphasis on tadpole shrimps.* **Frontiers in Ecology and Evolution** (2023), doi:10.3389/fevo.2023.1046960. (**LINK**)

first author — G. Forni, A. S. Mikheyev, A. Luchetti, B. Mantovani (2022). *Gene transcriptional profiles in gonads of Bacillus taxa (Phasmida) with different cytological mechanisms of automictic parthenogenesis.* ***Zoological Letters***, doi:10.1186/s40851-022-00197-z. (**LINK**)

- J. Martelossi, G. Forni, M. Iannello, C. Savojardo, P. L. Martelli, R. Casadio, B. Mantovani, A. Luchetti and O. Rota-Stabelli (2023). *Wood feeding and social living: draft genome of the subterranean termite Reticulitermes lucifugus (Blattodea; Termitoidae).* **Insect Molecular Biology**, doi:10.1111/imb.12818. (**LINK**)

first author — G. Forni, A. Cussigh, P. D. Brock, B. R. Jones, F. Nicolini, J. Martelossi, A. Luchetti and B. Mantovani (2022). *Taxonomic revision of the Australian stick insect genus Candovia (Phasmida, Necrosciinae): insight from molecular systematics and species delimitation approaches.* **Zoological Journal of the Linnean Society**, doi:10.1093/zoolinnean/zlac074. (**LINK**)

co-first author — G. Forni, J. Martelossi, P. Valero, F. Hennemann, O. Conle, A. Luchetti and B. Mantovani (2022). Macroevolutionary analyses provide new evidences of phasmids wings evolution as a reversible process. **Systematic Biology**, doi:https://doi.org/10.1093/sysbio/syac038. (**LINK**)

- G. Magoga, G. Forni, M. Brunetti, A. Meral, A. Spada , A. De Biase and M. Montagna (2022). *Curation of a reference database of COI sequences for insect identification through DNA metabarcoding: COins.* **Database**, doi: https://doi.org/10.1093/database/baac055. (**LINK**)

- A. Luchetti, G. Forni, J. Martelossi, C. Savojardo, PL. Martelli, R. Casadio, AM. Skaist, SJ. Wheelan and B. Mantovani (2021). *Comparative genomics of tadpole shrimps (Crustacea, Branchiopoda, Notostraca): dynamic genome evolution against the backdrop of morphological stasis.* **Genomics**, doi:https://doi.org/10.1016/j.ygeno.2021.11.001. (**LINK**)

first author — G. Forni, A. A. Ruggeri, G. Piccinini and A. Luchetti. (2021). *BASE: A novel workflow to integrate nonubiquitous genes in comparative genomics analyses for selection.* **Ecology and Evolution**, doi:https://doi.org/10.1002/ece3.7959. (**LINK**)

first author — G. Forni, F. Plazzi, A. Cussigh, O. Conle, F. Hennemann, A. Luchetti and B. Mantovani (2021). *Phylomitogenomics provides new perspectives on the Euphasmatodea radiation (Insecta: Phasmatodea).* **Molecular Phylogenetics and Evolution**, doi:https://doi.org/10.1016/j.ympev.2020.106983. (**LINK**)

- A. Bordoni, G. Mocilnik, G. Forni, M. Bercigli, C. D. V. Giove, A. Luchetti, S. Turillazzi, L. Dapporto and M. Marconi (2019). *Two aggressive neighbours living peacefully: the nesting association between a stingless bee and the bullet ant.* **Insectes Sociaux**, doi:https://doi.org/10.1007/s00040-019-00733-9. (**LINK**)

first author — G. Forni, G. Puccio, T. Bourguignon, T. Evans, B. Mantovani, O. R. Stabelli and A. Luchetti (2019). *Complete mitochondrial genomes from transcriptomes: assessing pros and cons of data mining for assembling new mitogenomes.* **Scientific Reports**, doi:https://doi.org/10.1038/s41598-019-51313-7. (**LINK**)

- A. Luchetti, G. Forni, A. M. Skaist, S. J. Wheelan, and B. Mantovani. (2019). *Mitochondrial genome diversity and evolution in Branchiopoda (Crustacea).* **Zoological Letters**, doi:https://doi.org/10.1186/s40851-019-0131-5. (**LINK**)

- L. Bortesi, C. Zhu, J. Zischewski, L. Perez, L. Bassié, R. Nadi, G. Forni, S. Lade, E. Soto, X. Jin, V. Medina, G. Villorbina, P. Munoz, G. Farré, R. Fischer, R. Twyman, T. Capell, P. Christou, S. Schillberg (2016). Patterns of CRISPR/Cas9 activity in plants, animals and microbes. **Plant Biotechnology Journal**, doi:https://doi.org/10.1111/pbi.12634. (**LINK**)

CONFERENCES

poster — G. Forni, J. Martelossi, D. Pistone, M. Montagna. Shared signatures of the shifts to endosymbiosis across Enterobacterales evolutionary history. **Society for Molecular Biology and Evolution (SMBE) Congress**, Ferrara, Italy (2023).

oral presentation — G. Forni, J. Martelossi, D. Pistone, M. Montagna. Shared signatures of the shifts to endosymbiosis across Enterobacterales evolutionary history. **Evolution**, Online, (2023).

oral presentation — G. Forni, J. Martelossi, D. Pistone, G. Magoga and M. Montagna. Genome evolution in Enterobacteriaceae endosymbionts. **FISV Congress** (2022).

oral presentation — G. Forni, I. Di Lelio, G. Magoga, M. Brunetti, D. Bruno, A. Becchimanzi, G. De Luca, M. Sinno, S. Frusciante, G. Diretto, M. C. Digilio, S. L. Woo, G. Tettamanti, R. Rao, M. Lorito, M. Casartelli, M. Montagna, F. Pennacchio. A hidden inter-kingdom interaction: plant root microbiota can induce dysbiosis in Lepidoptera. **Società Italiana di Biologia Evoluzionistica (SIBE) Congress**, Ancona, Italy (2022).

oral presentation — Giobbe Forni, Jacopo Martelossi, Pablo Valero, Frank Hennemann, Oskar Conle, Andrea Luchetti, Barbara Mantovani. Macroevolutionary analyses provide new evidences of phasmids wings evolution as a reversible process. **Unione Zoologica Italiana Congress**, online (2021); **winner of the Unione Zoologica Italiana young investigators award.**

oral presentation	Giobbe Forni, Jacopo Martelossi, Pablo Valero, Frank Hennemann, Oskar Conle, Andrea Luchetti, Barbara Mantovani. Macroevolutionary analyses provide new evidences of phasmids wings evolution as a reversible process. **Evolution**, online (2021); **candidate for the Ernest Mayr award.**
oral presentation	G. Forni, A. A. Ruggeri, F. Plazzi, B. Mantovani and A. Luchetti. BASE: overcoming constraints & limitations of the ω in a phylogenomic framework. **Società Italiana di Biologia Evoluzionistica (SIBE) Congress**, Padova, Italy (2019).
poster	G. Forni, F. Plazzi, M. Iannnello, G. Piccinini, A. Cussigh, A. Luchetti, B. Mantovani. Mito-nuclear interaction in the OXPHOS pathway genes during the Euphasmatodea radiation. **Society for Molecular Biology and Evolution (SMBE) Congress**, Manchester, United Kingdom (2019).
poster	G. Forni, G. Puccio, T. Bourguignon, T. Evans, O. R. Stabelli, B. Mantovani, A. Luchetti. Testing the robustness of mitochondrial genomes recovered from transcriptomes: an insight from Reticulitermes termites mitogenomics. **Society for Molecular Biology and Evolution (SMBE) Congress**, Yokohama, Japan (2018).
poster	G. Forni, A. Cussigh, P. Valero, F. Seow-Choen, J. C. von Sydow, J. Bresseel, J. Constant, Y. Gutiérrez, B. Kneubühler, A. S. Ortiz, P. Brock, F. Hennemann, O. Conle, A. Luchetti, B. Mantovani. New perspective on phasmids systematics: molecular data reveals pervasive taxonomic inconsistency. **Evolution**, Montpellier, France (2018).
poster	G. Forni, A. Cussigh, P. Valero, F. Seow-Choen, J. C. von Sydow, J. Bresseel, J. Constant, Y. Gutiérrez, B. Kneubühler, A. S. Ortiz, P. Brock, F. Hennemann, O. Conle, B. Mantovani. Turning chaos into Order: the phylogeny of Phasmida. **Società Italiana di Biologia Evoluzionistica (SIBE) Congress**, Rome, Italy (2017).

ADDITIONAL COURSES

February 2021	**Genome sequencing, assembly, and downstream analyses.** Organized by EMBO, Valencia (28/01/24 - 03/02/24).
Febbruary 2023	**Single-cell Transcriptomics.** Organized by SIB, Swiss Institute of Bioinformatics (06-09/03/22).
October 2021	**Version Control with Git.** Organized by SIB, Swiss Institute of Bioinformatics (06-09/10/22).
May 2021	**First step with Python in life science.** Organized by SIB, Swiss Institute of Bioinformatics (04-06/05/21).
May 2020	**Metagenomics and metatranscriptomics for microbial community studies.** Organized by Physalia, Online (24-28/05/21).
August 2019	**IRSAE-SIBE PhyloPop course.** Fondazione Edmund Mach, Italy (27/08/19 - 01/09/19).
July 2019	**Using Computational Tools to Study Macroevolution on Phylogenies.** Organized by Transmitting Science, Crete (15-18/07/19).
August 2018	**DrosEU/ ESEB Summer School on Adaptation Genomics.** CNRS Montpellier, France (23-24/08/18).
June 2018	**Transcriptome analysis.** Organized by Physalia, at Botanischer Garten und Botanisches Mueum of Berlin, Germany (11-15/06/18).
June 2018	**Phylogenomics** Organized by Physalia, at Botanischer Garten und Botanisches Mueum of Berlin, Germany (04-08/06/18).
March 2017	**Integrative Taxonomy and Taxonomic Expertise: Barcodes in the Genomic Era.** MNHN Muséum National d'Histoire Naturelle, Paris (13-17/03/17).

METRICS

source: Google Scholar

Papers in i.f. journals: 16
Total citations: 321
H-index: 8
Percentage of paper with main author: 56%;
Mean number of co-author: 6.
Cumulative Impact factor:

GRANTS AND PRIZES

September 2023	European Reference Genome Atlas (ERGA) sequencing of *Embia Thyrrenica*.
September 2022	Società Italiana di Biologia Evoluzionistica (SIBE) prize for the best evolutionary biology paper.
September 2021	Unione Zoologica Italiana (UZI) young investigators award.
September 2019	Marco Polo funding for international mobility.

TEACHING EXPERIENCES

June 2023	Instructor and Organizer of the workshop "Evolution of genes and species at a large-scale: a practical approach to novel phylogenetic methods in the postgenomic era." at the University of Trento.
2023	Teaching assistantship for the xourse "Animal Diversity and Distribution in a changing climate" in the MSc in "Sciences and Management of Nature" at the University of Bologna.
2018-2020, 2024	Teaching assistantship for the course "Molecular Phylogenetics" in the MSc in "Bioinformatics" at the University of Bologna.
2017-2019, 2023	Teaching assistantship for the course "Molecular Phylogenetics" in the MSc in "Biodiversity and Evolution" at the University of Bologna.
2017 - present	Member of the Examination Commitee for the Molecular Phylogenetics courses in the MSc in "Biodiversity and Evolution" and "Bioinformatics" at the University of Bologna.
-	Co-supervision of sixteen BSc and MSc theses: Tommaso Mortarino (BSc in Biological Sciences - 2018); Lisa pollini (BSc in Biological Sciences - 2019); Eleonora Rovegno (BSc in Biological Sciences - 2019); Filippo Nicolini (BSc in Biological Sciences - 2019); Lorenzo Anceschi (BSc in Natural Sciences - 2023); Matteo Lambertini (BSc in Natural Sciences - 2023) Tuna Ozsoy (BSc in Genomics - 2024); Alessandra Cervellera (BSc in Biological Sciences - 2024); Maria Benuzzi (BSc in Biological Sciences - 2024); Alex Cussigh (MSc in Biodiversity and Evolution - 2018); Angelo Alberto Ruggieri (MSc in Biodiversity and Evolution - 2019); Jacopo Martelossi (MSc in Biodiversity and Evolution - 2020); Lorenzo Cocchi (MSc in Biodiversity and Evolution - 2020); Filippo Nicolini (MSc in Biodiversity and Evolution - 2021); Michele Albertini (MSc in Biodiversity and Evolution - 2024); Martina Gennari (MSc in Biodiversity and Evolution - 2024).

MAIN COLLABORATIONS

Heather Bruce	MBL, University of Chicago, USA. "Cryptic persistence of wings development in stick insects".
Sasha Mikheyev	Division of Ecology and Evolution, Australian National University, Australia. "Molecular groundplan of automictic parthenogenesis in stick insects".
Matteo Montagna	Federico II University, Italy "Metatranscriptomic approaches in non-model insects species".
Kevin Nota	Max Planck of Evolutionary Antropology, Germany. "Development of an ancestral state reconstruction approach for ancient eDNA capture probe desing".

DISSEMINATION

2017-2020	Member of the communication committee of the BiGEA department (University of Bologna).
2023 - ongoing	Organizer of a montly seminar series at University of Bologna.

EDITORIAL DUTIES

-	Reviewer for Systematic Entomology, Scientific Reports, Scientific Data, Genome Biology and Evolution, Ecology and Evolution, ZooKeys.
2024	Editor of Scientific Report

SCIENTIFIC SOCIETIES

2017 – present	Member of the Italian Society for Evolutionasy Biology (SIBE).
2020 – present	Member of the Society of Systematic Biologists (SSB).
2021 – present	Member of the Society for the Study of Evolution (SSE).
2018 – present	Member of the European Society for Evolutionary Biology (ESEB).
2018 – present	Member of the Society for Molecular Biology and Evolution (SMBE).