

# SHORT CURRICULUM VITAE

Updated August, 27<sup>th</sup> 2025

## Personal information

- Name: Carmelo Fruciano

## Higher Education

- April 2010 PhD in Evolutionary Biology at the University of Catania (Italy)
- 2006-October 2009: PhD student in Evolutionary Biology at the University of Catania (Catania, Italy) [Advisor: Venera Ferrito]
- 2006: Summa cum laude degree (equivalent to a combined BSc/MSc) in Scienze Naturali (Natural Sciences) at the University of Catania (Catania, Italy).

## Main positions held

- 2023-current: Associate Professor, University of Catania (Catania, Italy)
- 2020- 2023: Researcher. Italian National Research Council (CNR); IRBIM (Messina, Italy)
- 2020: Lecturer (permanent position). University of Portsmouth (Portsmouth, United Kingdom)
- 2018- 2020: Postdoc. École Normale Supérieure (Paris, France). [Principal Investigator: Helene Morlon]
- 2015- 2017: Postdoctoral fellow. Queensland University of Technology (Brisbane, Australia), School of Earth, Environmental and Biological Sciences [Principal Investigator: Matthew Phillips]
- 2013-2015: Marie Curie IEF Fellow. University of Konstanz (Konstanz, Germany), Department of Biology [Principal Investigator: Axel Meyer]
- 2012- 2013: Post-doc. University of Konstanz (Konstanz, Germany), Department of Biology [Principal Investigator: Axel Meyer]
- 2012: DAAD Postdoctoral Fellow. University of Konstanz (Konstanz, Germany), Department of Biology [Supervisor: Axel Meyer]
- 2011-2012: Post-doc. University of Konstanz (Konstanz, Germany), Department of Biology [Principal Investigator: Axel Meyer]
- 2007: Research Assistant. Stony Brook University (Stony Brook, NY, USA), Department of Ecology and Evolution [Advisor: F.J. Rohlf]

## Other qualifications

- 2020: Habilitation to the rank of Full Professor in Italy for discipline 05/B1 (Zoology and Anthropology)
- 2018: Habilitation to the rank of Professor Lector in Catalunya
- 2017: Habilitation to the rank of Associate Professor in Italy for discipline 05/B2 (Comparative Anatomy and Cytology)
- 2017: Habilitation to the rank of Associate Professor in Italy for discipline 05/B1 (Zoology and Anthropology)
- 2017: Qualification (habilitation) for the position of “Maître de conférences” (Assistant Professor) in France for Section 67 (Population biology and ecology)
- 2017: Qualification (habilitation) for the position of “Maître de conférences” (Assistant Professor) in France for Section 68 (Organismal biology)

**General  
bibliometric  
indicators**  
(source: Google  
Scholar)

- 39 publications in ISI journals
- 1915 total citations
- H-index 23
- i10-index 34

**Scientific  
publications**

*Papers – published and accepted for publication*

\* =equal contribution

- De-Kayne, R., Schley, R., Barth, J.M.I., Campillo, L.C., Chaparro-Pedraza C., Joshi, J., Salzburger, W., Van Bocxlaer, B., Cotoras, D.D., Fruciano, C., Geneva, A.J., Gillespie, R., Heras, J., Koblmüller, S., Matthews, B., Meszéna, G., Onstein, R.E., Seehausen, O., Singh, P., Svensson, E.I., Salazar-Valenzuela, D., Vanhove, M.P.M., Wogan, G.O.U., Yamaguchi R., Yoder, A.D., Cerca, J. *in press*. Why Do Some Lineages Radiate While Others Do Not? Perspectives for Future Research on Adaptive Radiations. *Cold Spring Harbor Perspectives in Biology* 17 (2), a041448
- Sansalone, C., Wroe, S., Coates, G., Attard, M.R.G., Fruciano, C. 2024. Unexpectedly uneven distribution of functional trade-offs explains cranial morphological diversity in carnivores. *Nature Communications* 15, 3275
- Pecoraro, C., Papetti, C., Fruciano, C. 2024. Hidden in the ocean: the importance of detecting hybridization in pelagic and deep-water fishes. *Fish and Fisheries* 25(1), 97-113
- Franchini, P., Fruciano, C., Wood, T.J., Shastry, V., Goulson, D., Hughes, W.O.H., Jones, J.C. 2023. Limited introgression from non-native commercial strains and signatures of adaptation in the key pollinator *Bombus terrestris*. *Molecular Ecology* 32(21), 5709-5723
- Mammola, S., Fukushima, C.S., Biondo, G., Bongiorno, L., Cianferoni, F., Domenici, P., Fruciano, C., Lo Giudice, A., Macías-Hernández, N., Malumbres-Olarte, J., Miličić, M. Morganti, M., Mori, E., Munévar, A., Pollegioni, P., Rosati, I., Tenan, S., Urbano-Tenorio, F., Fontaneto, D., Cardoso, P. 2023. How much biodiversity is concealed in the word “biodiversity”? *Current Biology* 33(2), R59-R60
- Fruciano, C., Franchini, P., Jones, J. 2021. Capturing the rapidly evolving study of adaptation. *Journal of Evolutionary Biology* 34, 856-865.
- Xiong, P., Hulsey, C. D., Fruciano, C., Wong, W.Y., Nater, A., Kautt, A.F., Simakov, O., Pippel, M., Kuraku, S., Meyer, A., Franchini, P. 2021. The Comparative Genomic Landscape of Adaptive Radiation in Crater Lake Cichlid Fishes. *Molecular Ecology* 30, 955-972
- Fruciano, C., Colangelo, P., Castiglia, R., Franchini, P. 2020. Does divergence from normal patterns of integration increase as chromosomal fusions increase in number? A test on a house mouse hybrid zone. *Current Zoology* 66, 527–538
- Pecoraro, C., Zudaire, I., Galiberti, G., Romeo, M., Murua, H., Fruciano, C., Scherer, C., Tinti, F., Diaha, N., Bodin, N., Chassot, E. 2020. When size matters: The gonads of larger female yellowfin tuna (*Thunnus albacares*) have different fatty acid profiles compared to smaller individuals. *Fisheries Research* 232, 105726
- Fruciano, C., Schmidt, D., Ramirez Sanchez, M.M., Morek, W., Avila Valle, Z.A., Talijancic, I., Pecoraro, C., Schermann, A. 2020. Tissue preservation can affect geometric morphometric analyses: a case

study using fish body shape. *Zoological Journal of the Linnean Society* 188, 148-162

- Fruciano, C., Meyer, A., Franchini, P. 2019. Divergent allometric trajectories in gene expression and coexpression produce species differences in sympatrically speciating Midas cichlid fish. *Genome Biology and Evolution* 11, 1644-1657
- Franchini, P.\*, Xiong, P.\*, Fruciano, C., Schneider, R., Woltering, J., Hulsey, C.D., Meyer, A. 2019. MicroRNA gene regulation in extremely young and parallel adaptive radiations of crater lake cichlid fish. *Molecular Biology and Evolution* 36(11), 2498-2511
- Celik, M., Dodt, W., Cascini, M., Haouchar, D., Evans, A.R., Bunce, M., Fruciano, C., Phillips, M.J. 2019. A molecular and morphometric assessment of the systematics of the *Macropus* complex clarifies the tempo and mode of kangaroo evolution. *Zoological Journal of the Linnean Society* 186, 793-812.
- Phillips, M.J., Fruciano, C. 2018. The soft explosive model of placental mammal evolution. *BMC Evolutionary Biology* 18, 104
- Raffini, F.\*, Fruciano, C.\*, Meyer, A. 2018. Morphological and genetic correlates in the left-right asymmetric scale-eating cichlid fish of Lake Tanganyika. *Biological Journal of the Linnean Society* 124(1), 67-84.
- Chiozzi, G., Stiassny, M.L.J., De Marchi, G., Lamboj, A., Fasola, M., Fruciano, C. 2018. A diversified kettle of fish: phenotypic variation in the endemic cichlid genus *Danakilia* of the Danakil Depression of northeastern Africa. *Biological Journal of the Linnean Society* 124(4), 690-705
- Jones, J.C., Fruciano, C., Marchant, J., Hildebrand, F., Bork, P., Engel, P., Hughes, W.O.H. 2018. The gut microbiome is associated with behavioural task in honey bees. *Insectes Sociaux* 65(3), 419-429. [This paper has been covered by a perspective by Breed (2018 – *Insectes Sociaux* 65, 357-358)]
- Raffini, F., Fruciano, C., Meyer, A. 2018. Gene(s) and individual feeding behavior: exploring eco-evolutionary dynamics underlying left-right asymmetry in the scale-eating cichlid fish *Perissodus microlepis*. *Ecology and Evolution* 8(11), 5495-5507.
- Marcy, A., Fruciano, C., Phillips, M., Mardon, K., Weisbecker, V. 2018. Low resolution scans can provide a sufficiently accurate, cost- and time-effective alternative to high resolution scans for 3D shape analyses. *PeerJ* 6:e5032
- Jones, J.C., Fruciano, C., Hildebrand, F., Al Toufaily, H., Balfour, N., Bork, P., Engel, P., Ratnieks, F., Hughes, W.O.H. 2018. Gut bacterial community composition is associated with environmental exposure in honey bees. *Ecology and Evolution* 8(1), 441-451.
- Fruciano, C., Celik, M.A., Butler, K., Dooley, T., Weisbecker, V., Phillips, M.J. 2017. Sharing is caring? Measurement error and the issues arising from sharing 3D morphometric datasets. *Ecology and Evolution* 7, 7034-7046.
- Raffini, F., Fruciano, C., Franchini, P., Meyer, A. 2017. Towards understanding the genetic basis of mouth asymmetry in the scale - eating cichlid *Perissodus microlepis*. *Molecular Ecology* 26(1), 77-91. [Best Student Paper Award – Max Planck IMPRS]
- Pappalardo, A.M., Francisco, S.M., , Fruciano, C., Lima, C.S.,

Pulvirenti, V., Tigano, C., Robalo, J.I., Ferrito, V. 2017. Phylogeographic pattern and glacial refugia of the Rusty blenny (*Parablennius sanguinolentus*, Blenniidae). *Hydrobiologia* 802, 141-154.

- Ferrante, M., Pappalardo, A.M., Pulvirenti, V., Ferrito, V., Fruciano, C., Grasso, A., Sciacca, S., Tigano, C., Copat, C. 2017. Bioaccumulation of metals in *Parablennius sanguinolentus* (Pallas, 1814) sampled along Italian coast and biomarker of environmental stress. *Marine Pollution Bulletin* 122, 288-296
- Fruciano, C.\*, Franchini, P.\*, Kovacova, V., Elmer, K., Henning, F., Meyer, A. 2016. Genetic linkage of distinct adaptive traits in sympatrically speciating crater lake cichlid fish. *Nature Communications* 7, 12736
- Fruciano, C., Franchini, P., Raffini, F., Fan, S., Meyer, A. 2016. Are sympatrically speciating Midas cichlid fish special? Patterns of morphological and genetic variation in the closely related species *Archocentrus centrarchus*. *Ecology and Evolution* 6(12), 4102-4114
- Fruciano, C. 2016. Measurement error in geometric morphometrics. *Development Genes and Evolution* 226(3), 139-158. doi: 10.1007/s00427-016-0537-4
- Jones, J.C., Fruciano, C., Keller, A., Scharl, M., Meyer, A. 2016. Evolution of the elaborate male intromittent organ of *Xiphophorus* fishes. *Ecology and Evolution* 6, 7207-7220.
- Franchini, P., Xiong, P., Fruciano, C., Meyer, A. 2016. The role of microRNAs in the repeated parallel diversification of lineages of Midas cichlid fish from Nicaragua. *Genome Biology and Evolution* 8(5), 1543-1555.
- Franchini, P., Colangelo, P., Meyer, A., Fruciano, C. 2016. Chromosomal rearrangements, phenotypic variation and modularity: a case study from a contact zone between house mouse Robertsonian races in Central Italy. *Ecology and Evolution* 6(5), 1353-1362 doi: 10.1002/ece3.1912
- Schmieder, D.A., Borissov, I.M., Benitez, H.A., Fruciano, C. 2015. Bat species comparisons based on external morphology: a test of traditional versus geometric morphometric approaches. *PLoS One* 10, e0127043.
- Fruciano, C., Pappalardo, A.M., Tigano, C., Ferrito, V. 2014. Phylogeographic relationships of Sicilian brown trout and the effects of genetic introgression on morphospace occupation. *Biological Journal of the Linnean Society* 112, 387-398.
- Franchini, P.\*, Fruciano, C.\*, Frickey, T., Jones, J.C., Meyer, A. 2014. The gut microbial community of Midas cichlid fish in repeatedly evolved limnetic-benthic species pairs. *PLoS ONE* 9, e95027.
- Franchini, P.\*, Fruciano, C.\*, Spreitzer, M.L., Jones, J.C., Elmer, K., Henning, F., Meyer, A. 2014. Genomic architecture of ecologically divergent body shape in a pair of sympatric crater lake cichlid fishes. *Molecular Ecology* 23, 1828-1845. [This paper has been covered by a perspective by Rogers & Jamniczky (2014 – Molecular Ecology 23, 1650-1652)]
- Gunter, H., Xiong, F., Fan, S., Franchini, P., Fruciano, C., Meyer, A. 2013. Shaping development through mechanical strain: the transcriptional basis of diet-induced phenotypic plasticity in a cichlid

fish. *Molecular Ecology* 22, 4516-4531. [This paper has been covered by a perspective by Young (2013 – *Molecular Ecology* 22, 4363-4365)]

- Fruciano, C., Franchini, P., Meyer, A. 2013. Resampling-based approaches to study variation in morphological modularity. *PLoS ONE* 8(7), e69376.
- Fruciano, C., Tigano, C., Ferrito, V. 2012. Body shape variation and colour change during growth in a protogynous fish. *Environmental Biology of Fishes* 94(4), 615-622.
- Fruciano, C., Tigano, C., Ferrito, V. 2011. Geographic and morphological variation within and between colour phases in *Coris julis* (L. 1758), a protogynous marine fish *Biological Journal of the Linnean Society* 104, 148-162.
- Fruciano, C., Hanel, R., Debes, P.V., Tigano, C., Ferrito, V. 2011. Atlantic-Mediterranean and within-Mediterranean molecular variation in *Coris julis* (L. 1758) (Teleostei, Labridae) *Marine Biology* 158(6), 1271-1286.
- Fruciano, C., Tigano, C., Ferrito, V. 2011. Traditional and geometric morphometrics detect morphological variation of lower pharyngeal jaw in *Coris julis* (Teleostei, Labridae) *Italian Journal of Zoology* 78(3), 320-327.
- Ferrito, V., Pappalardo, A.M., Fruciano, C., Tigano, C. 2009. Morphology of scale lepidonts in the genus *Aphanius* (Teleostei, Cyprinodontidae) using SEM. *Italian Journal of Zoology* 76(2), 173-178.

#### **Editorial boards**

- Evolution
- Journal of Evolutionary Biology (2019-2021 Guest Editor for the special issue “Genetics and Genomics of Adaptation”; 2023- Associate Editor)
- Current Zoology (2019-2020 Guest Editor for the special issue “Evolution of gene regulation in rapid divergence”)
- Zoomorphology (2015-2020, Editorial Board member; 2020- Subject Editor for Morphometrics)
- BMC Bioinformatics
- BMC Ecology and Evolution
- Evolutionary Journal of the Linnean Society
- Frontiers in Marine Science (2015-2022 Review Editor; 2022- Associate Editor)
- Frontiers in Ecology and Evolution (Review Editor)

#### **Prizes and awards**

- 2013: Doctoral dissertation prize – Accademia Gioenia di Catania – for the best doctoral dissertation on the topic “Studies on the evolution of marine organisms”

#### **Selected fellowships and grants**

- 2022: ARC (Australian Research Council) Discovery Project; Partner Investigator; total amount 475 000 AU\$
- 2015: DFG (German Science Foundation) Research Grant; sole PI; total amount 292 156 euro [Declined]
- 2012: Marie Curie Intra-European Fellowship for Career Development; sole beneficiary; total amount 161 968.80 euro [March 2013-February

2015]

- 2012: Short-Term Research Fellowship (awarded by DAAD; 5 000 euro)
- 2006-2009: Doctoral fellowship (Italian Ministry of University; total amount 35 000 euro)

**PhD  
Committee  
membership  
and evaluator**

- 2024: Alessandro Foti, Davide Calio', Natale Maria D'Andrea, Eloise Pulvirenti (4 PhD candidates). University of Catania (chair of the committee)
- 2023: Heethaka Krishantha Sameera De Zoysa, Università' di Napoli "Federico II" (external reviewer)
- 2023: Gerardo Petrosino, Università' di Roma "La Sapienza" (external reviewer)
- 2020: Salvatore Vaiasicca. Università' Politecnica delle Marche (external reviewer)
- 2019: Javier Santos Santos. University of Barcelona (committee member)

**Membership  
in other  
committees**

- 2024-: Member of the Technical and Scientific Committee for the Park of Alcantara River
- 2023: Member of the committee for the assignment of contracts for teaching (adjuncting) selected subject in the Biology BSc

**Other  
"service"  
activities**

- 2024-: Departmental delegate for Safety, Department of Biological, Geological and Environmental Sciences, University of Catania
- 2021-: Member of the Working Group on Biodiversity ("Gruppo di Lavoro Biodiversita'") of the Italian National Research Council (CNR)
- 2022-2023: Member of CNR-IRBIM working group for the execution of the activities of the National Biodiversity Future Center – Spoke 2
- 2021-2023: Member of CNR-IRBIM working groups on seminars and social media

**Software**

*Publicly available R packages*

- GeometricMorphometricsMix (for advanced morphometrics)
- resampleWGCNA (for transcriptomics)

**Society  
memberships  
(current and  
past)**

- European Society for Evolutionary Biology
- Society for the Study of Evolution
- Fisheries Society of the British Isles
- German Zoological Society
- ForBio – Research School in Biosystematics
- Society for Molecular Biology and Evolution

## **Courses and workshops organized**

- 08-12 April 2024: Geometric morphometrics (Physalia courses). Online.
- 17-21 April 2023: Geometric morphometrics (Physalia courses). Online.
- 04-08 April 2022: Geometric morphometrics (Physalia courses). Online.
- 12-16 April 2021: Geometric morphometrics (Physalia courses). Online.
- 30 March-3 April 2020: Geometric morphometrics (Physalia courses). Online.
- 18-22 March 2019: Geometric morphometrics (Physalia courses). Berlin.
- 05-09 March 2018: Geometric morphometrics (Physalia courses). Berlin.

## **Language**

- Italian: native
- English: fluent
- German: sufficient (A2)
- French: beginner (A1)
- Russian: beginner (A1)