

I the undersigned asks to participate in the public selection, for qualifications and examinations, for the awarding of a type B fellowship at **Dipartimento di Scienze e Politiche Ambientali**, Scientist- in - charge **Prof. Gentile Francesco Ficetola**

**Federica Lacasella**

**CURRICULUM VITAE**

PERSONAL INFORMATION

Surname	Lacasella
Name	Federica
Date of birth	14/03/1983

PRESENT OCCUPATION

Appointment	Structure
Fellow	University of Rome "Sapienza" (Macroecology and Conservation Lab, prof. Luigi Maiorano)

EDUCATION AND TRAINING

Degree	Course of studies	University	year of achievement of the degree
Degree	B.Sc. in Ecology	"Tor Vergata"	2005
Degree	M.Sc. in Ecology and Evolution	"Tor Vergata"	2007
PhD	Evolutionary Biology and Ecology	"Tor Vergata"	2012
Master	Learning and Teaching (24 CFU)	"Tor Vergata"	2018

REGISTRATION IN PROFESSIONAL ASSOCIATIONS

Date registration	of Association	City
2015	ESA (Entomological Society of America)	Annapolis
2014	SIe (Società Italiana di Ecologia)	---

FOREIGN LANGUAGES

Languages	level of knowledge
English	C1

AWARDS, ACKNOWLEDGEMENTS, SCHOLARSHIPS

Year	Description of award
2019	Seal of Excellence for MSCA-IF proposal 840056 (BiodivAlp - Understanding eco-evolutionary responses of alpine biota to climate change; score: 87.2%). The Seal of Excellence is a quality label awarded to project proposals which were judged to deserve funding but did not get it due to budget limits.
2014	Winner of "Torno Subito" program, grant for postgraduate experiences supported by Lazio region. Research themes: Spatial analyses of community ecoinformatics data for the evaluation of threats for biodiversity (7364 €).
2011	Grant to support international experiences provided by University of Rome Tor Vergata (2000 €).
2011	Predocctoral Fellowship supported by University of Rome "Tor Vergata" .
2008-2010	Predocctoral Fellowship supported by Observatory for Biodiversity of Lazio (OBL). Research themes: Species diversity and environmental diversity in complex landscapes.
2008	Winner of "Sebastiano and Rita Raeli prize" for the best graduates of the Faculty of Mathematical, Physical and Natural Sciences in the academic year 2006-2007 (5000 €).

TRAINING OR RESEARCH ACTIVITY

Description of activities:
2019: Fellow of the Macroecology and Conservation Lab, University of Rome "Sapienza". Preparation of the proposal for the 2019 ERC-starting grant call (in collaboration with Luigi Maiorano and Wilfred Thuiller), currently under evaluation as BE-FOR-ERC proposal at Sapienza. The project aims at disentangling the role of ecological and evolutionary mechanisms in shaping the current patterns of alpine biodiversity by combining species distribution, trait, phylogenetic, and paleoclimate data. Paleodistribution models of alpine ecosystems encompassing glacial and interglacial periods (last 3.3 Ma) will be developed and used as a background for hypothesis testing to show in which circumstances ecological processes (dispersal and colonization) prevail over evolutionary ones (speciation and adaptation) and vice-versa.
2018: Grant writing for IF-MSCA (BiodivAlp project) in collaboration with Catherine Graham and Niklaus Zimmerman, WSL-Zurich (project awarded with the seal of excellence by the European Commission, although not funded).
2016: Honorary fellow of University of Wisconsin, Madison, USA. Grant writing for IF-MSCA (ABC project) in collaboration with Catherine Graham and Niklaus Zimmerman, WSL-Zurich (not funded). Paper preparation/submission (Lacasella et al. 2017, Marta et al. 2019a and b)
2015: Postdoctoral researcher - Gratton Lab, University of Wisconsin, Madison, USA. Research themes: Alien pest responses to climate and habitat variability explored using Soybean aphid multi-year, ecoinformatics data. As part of the project team I addressed the effects of climate and habitat variability on occurrence and abundance patterns of invasive species, using Aphis glycines as case study. I developed an analytical framework to adapt a spatial prioritization algorithm conceived for natural reserve planning (Zonation algorithm, Moilanen et al. 2014) to alien species/pests monitoring by generating abundance based risk maps and detecting the centres of alien pest outbreak within a given area. This work is significant because it addressed several issues preventing the use of abundance data in noxious species analyses and showed how to cope with low spatio-temporal consistency, a large number of zeros, and a

wide range of variability; additionally, the proposed approach is general enough to be applied to other terrestrial species and ecosystems for which extensive detailed species distribution and environmental data are available. My contribution to this project has been to analyse the data in a GIS environment using General Additive Models and write the manuscript Lacasella et al. 2017 in collaboration with the team of the AFRI (Agriculture and Food Research Initiative) project.
2014: research fellow - University of Siena. Research themes: Spatial analyses of large community dataset for the evaluation of threats for biodiversity (supported by Torno Subito, Lazio grant). Collaboration with Migliore Lab University of Rome "Tor Vergata" to a pilot study for the assessment of the ecological status of seagrasses by combining phylogenetic data and microbial community structure with plant morphology and biochemical descriptors. This study provided a new approach to the assessment of seagrasses and represented a further step toward the application of microbial communities as putative markers in a changing environment. My contribution here was to suggest and perform analyses on the microbial community structure aimed to detect relationships with plant descriptors and environmental variables, to implement them in the conceptual frame of the study, as well as to participate to paper writing (Mejia et al. 2016).
2011: Visiting Scholar - Gratton Lab, University of Wisconsin, Madison, USA. Research themes: Multivariate analyses of community data across environmental gradients. During my stay at UW-Madison I attended post-graduate courses in Statistics (Multivariate Analysis of Ecological Community Data, Prof. Gratton) and took part to field activities (AFRI project and native wild bee project).
2008-2012: PhD student - Sbordononi Lab, University of Rome "Tor Vergata". As co-PI of the project "Species diversity and environmental diversity in complex landscape" I set up one of the first studies designed to understand and quantify the mutual influences of adjacent terrestrial habitats on animal species abundances and distributions in complex heterogeneous landscapes. Results from this project are significant for multiple reasons: by using an objective, quantitative approach I identified which community was more affected by edge effect and provided evidence-based management guidelines to support biodiversity persistence in complex landscapes. Additionally, results from this project resulted in an invitation to contribute to the PREDICTS project (Projecting Responses of Ecological Diversity In Changing Terrestrial Systems; www.predicts.org.uk). My contribution to the work was to conceive the idea, to plan the sampling design, to collect field data (in collaboration with S. Marta), to define the analytical frame, and to write the papers Lacasella et al. 2015 and Lacasella & Zapparoli 2015 (in collaboration with the other co-authors). Additionally, I attended post-graduate courses in Statistics: Null models in ecological analyses, Dr. Luca Luiselli, University of Rome "Roma Tre", Multivariate Analysis of Ecological Community Data, Dr. Claudio Gratton, UW-Madison. Finally, I supervised two B.Sc. students.
2008 – 2010: Teaching assistant, Animal Biodiversity and Ecology, Prof. Carchini G., University of Rome "Tor Vergata".
2006 – 2007: Field and Lab assistant - University of Rome "Tor Vergata", Italy. Research themes: River Ecosystem functioning: analysis of macrobenthos responses to flow alterations.
2005 - 2007: Field and Lab assistant - University of Rome "Tor Vergata", Italy. Research themes: Studies on Taxonomy, Ethology and Ecology of Odonata.
2005-2006: Teaching assistant, Systematic Zoology, Dr. Lucarelli M., University of Rome "Tor Vergata"
2005: Field and Lab assistant - University of Rome "Tor Vergata", Italy. Research themes: Pond Biodiversity.

#### PROJECT ACTIVITY

Year	Project
2019	ERC starting grant preparation and submission to BE-FOR-ERC call (PI: F. Lacasella, under evaluation)
2018	BiodivAlp proposal preparation and submission as IF-MSCA (project awarded with the Seal of Excellence by European Commission although not funded)
2016	ABC proposal preparation and submission as IF-MSCA (project not funded)
2016	Preparation and submission of the proposal "Global climate change and the destiny of the

	montane biota: rethinking the biodiversity hotspots in an eco-evolutionary perspective” to Carlsberg Foundation (PI: F. Lacasella; Supervisor Prof. Nathan J. Sanders, CMEC-KU, Denmark; project not funded)
2016	Data provider for PREDICTS project (Principal investigator: Andy Purvis, Natural History Museum, London).
2015	Research assistant to US Department of Agriculture National Institute of Food and Agriculture grant number 2011-67009-30022 (AFRI project, Principal investigator: Claudio Gratton, UW-Madison, Wisconsin). Research themes: Alien pest responses to climate and habitat variability explored using Soybean aphid multi-year, ecoinformatics data.
2015	Preparation and submission of the proposal “Global climate change and the fate of the alpine biota: rethinking the biodiversity hotspots from an eco-evolutionary perspective” to Swiss Government Excellence Scholarships for Foreign Scholars and Artists - FCS (non finanziato): “Analyzing global-scale drivers of the persistence of biological diversity in alpine ecosystems” (PI: F. Lacasella; Supervisor Prof. Niklaus E. Zimmermann, ETH-WSL, Switzerland; project not funded)
2014	Research fellow - University of Siena and UW-Madison. Research project: Spatial analyses of large community datasets for the evaluation of threats for biodiversity (PI: F- Lacasella; project funded by Lazio region).
2011	Field assistant in native wild bee project - PI: Dr. Hannah Gaines, University of Wisconsin, Madison (USA). Research themes: Analysis of the effects of landscape composition and configuration on wild bee communities.
2008-2012	PhD student and co-PI - University of Rome “Tor Vergata”, Italy. Research project: Species diversity and environmental diversity in complex landscape (co-PI: F. Lacasella; project funded by Osservatorio della Biodiversità del Lazio)
2006 -2007	Field and Lab assistant - University of Rome “Tor Vergata”, Italy. Research themes: River Ecosystem functioning: analysis of macrobenthos responses to flow alterations (PI: prof. G. Carchini, University of Rome “Tor Vergata”).
2005 - 2007	Field and Lab assistant - University of Rome “Tor Vergata”, Italy. Research themes: Studies on Taxonomy, Ethology and Ecology of Odonata (PI: prof. G. Carchini, University of Rome “Tor Vergata”).
2005	Field and Lab assistant - University of Rome “Tor Vergata”, Italy. Research themes: Pond Biodiversity (PI: prof. G. Carchini, University of Rome “Tor Vergata”).

#### PATENTS

Patent

#### CONGRESSES AND SEMINARS

Date	Title	Place
February - March 2013	ADVANCED LECTURES: Introduction to R environment, Dr. Tommaso Russo (University of Rome “Tor Vergata”)	Department of Biology, University of Rome “Tor Vergata”, Italy
September-December 2011	ADVANCED LECTURES: Multivariate Analysis of Ecological Community Data, Prof. Claudio Gratton (University of Wisconsin-Madison)	Department of Entomology, University of Wisconsin - Madison, USA

1-17/02/2010	ADVANCED LECTURES: Null models in ecological analyses, Dr. Luca Luiselli	Department of Environmental Biology, University of Rome tre.
5/10/2012	SEMINAR: Exploring the genetic consequences of climate-induced distributional shift. Prof. Lacey Knowles (University of Michigan)	Department of Biology, University of Rome "Tor Vergata", Italy
3/10/2012	SEMINAR: Diversification Caribbean crickets and test of the causes of species divergence, Prof. Lacey Knowles (University of Michigan)	Department of Environmental Biology, University of Rome tre.
November 2011	SEMINAR: Integrated crop pollination - Bees, Blueberries and Biofuel, Prof. Rufus Isaac (Michigan State University)	Department of Entomology, University of Wisconsin - Madison, USA
November 2011	SEMINAR: Indirect effect of humans on native species, Prof. Peter Arcese (The University of British Columbia)	Department of Entomology, University of Wisconsin - Madison, USA
11/11/2010	SEMINAR: On Archetypes and Origins The Legacy of Goethe, Owen and Darwin, Prof. Sandro Minelli (University of Padova)	Department of Environmental Biology, University of Rome tre.

#### PUBLICATIONS

Articles in reviews
<b>F. Lacasella</b> , C. Gratton, S. De Felici, M. Isaia, M. Zapparoli, S. Marta and V. Sbordoni. 2015. Asymmetrical responses of forest and "beyond edge" arthropod communities across a forest-grassland ecotone. <i>Biodiversity and Conservation</i> , 24, 447-465. Springer, Berlin (DE).
<b>F. Lacasella</b> & M. Zapparoli. 2015. Effects of grasslands and conifer reforestations on centipedes (Chilopoda): barriers, semi-permeable matrices or secondary habitats? <i>Insect Conservation and Diversity</i> , 8(6), 525-537. John Wiley & Sons, Hoboken (NJ, USA)
S. Marta, <b>F. Lacasella</b> , P. Gratton, D. Cesaroni and V. Sbordoni. 2016. Deciphering range dynamics: effects of niche stability areas and post-glacial colonization on alpine species distribution. <i>Journal of Biogeography</i> , 43, 2186-2198. John Wiley & Sons, Hoboken (NJ, USA).
A.Y. Mejia, A. Rotini, <b>F. Lacasella</b> , R. Bookman, M.C. Thaller, R. Shem-Tov, G. Winters & L. Migliore. 2016. Assessing the ecological status of seagrasses using morphology, biochemical descriptors and microbial community analyses. A study in <i>Halophila stipulacea</i> (Forsk.) Aschers meadows in the northern Red Sea. <i>Ecological Indicators</i> , 1150-1163. Elsevier, Amsterdam (NL).
<b>F. Lacasella</b> , S. Marta, A. Singh, K. Stack-Whitney, K. Hamilton, P. Townsend, C. Kucharik, T.D. Meehan and C. Gratton. 2017. From pest data to abundance-based risk maps combining eco-physiological knowledge, weather and habitat variability. <i>Ecological Applications</i> , 27(2), 575-588. John Wiley & Sons, Hoboken (NJ, USA).
S. Marta, <b>F. Lacasella</b> , A. Romano, G.F. Ficetola. 2019. Cost-effective spatial sampling designs for field surveys of species distribution. <i>Biodiversity and Conservation</i> , 1-18. Springer, Berlin (DE).
S. Marta, <b>F. Lacasella</b> , D. Cesaroni, V. Sbordoni. 2019. Effects of Holocene climate changes on alpine ecosystems: Nonequilibrium dynamics drive insect species richness on alpine islands. <i>Journal of Biogeography</i> , early view. John Wiley & Sons, Hoboken (NJ, USA).

Congress proceedings
G. Carchini, F. Chiarotti and <b>F. Lacasella</b> . Relationship between morphological characters and fitness components in three close populations of <i>Lestes barbarus</i> (Odonata: Lestidae). Oral communication: 3rd

European Pond Conservation Network Workshop, Valencia, May 14 <sup>th</sup> 2008
G. Carchini, F. Chiarotti and <b>F. Lacasella</b> . Relationship between morphological characters and fitness components in three close populations of <i>Lestes barbarus</i> (Odonata: Lestidae). Oral communication: II Convegno sulle Libellule in Italia, Cameri, May 31 <sup>st</sup> - June 2 <sup>nd</sup> , 2008.
<b>F. Lacasella</b> , M. Zapparoli, C. Gratton and V. Sbordoni. L'eterogeneità ambientale può essere la chiave per la conservazione? Risposte di taxocenosi a Chilopodi in aree ecotonali nell'Appennino centrale - Poster: The 72nd meeting of Unione Zoologica Italiana, Bologna, 5 <sup>th</sup> - 8 <sup>th</sup> September 2011
<b>F. Lacasella</b> and V. Sbordoni. Biodiversity conservation in complex landscapes: the need for a multi-perspective approach. Oral communication: IX Meeting of PhD in Ecology and Environmental Science, Milano, 15 <sup>th</sup> -18 <sup>th</sup> April 2013, p. 21 Abstract Book.
<b>F. Lacasella</b> , S. Marta, C. Gratton, S. De Felici, M. Isaia, M. Zapparoli, M. Luciani, L. Middei and A. Vigna Taglianti. Quanto è importante l'area del frammento? Risposte della comunità di artropodi forestali alla frammentazione dell'habitat. Poster: the 24th meeting of the Società Italiana di Ecologia, Ferrara, Italy, 2014. Abstract book, 54.
S. Marta, <b>F. Lacasella</b> , D. Cesaroni and V. Sbordoni. Mountain biogeography: does the temporal evolution in "sky island" area matter?. Oral communication: the 13th conference of the European Ecological Federation, Rome, Italy, 2015,. Abstract book, 449.
<b>F. Lacasella</b> , S. Marta, S. De Felici, M. Isaia, M. Zapparoli and C. Gratton. Relative effects of habitat amount and patch size on ground-dwelling arthropod communities in small forest remnants. Oral communication: the 63rd meeting of the Entomological Society of America, Minneapolis, MN, Unites States of America, 2015.
<b>F. Lacasella</b> , K. Stack-Whitney, K. Hamilton, A. Singh, P. Townsend, C. Kucharik, T.D. Meehan and C. Gratton. Soybean aphid responses to climate and habitat variability explored using multi-year, ecoinformatics data. Poster: annual meeting of the Entomological Society of America, 15th-18th November 2015 Minneapolis, Minnesota

#### OTHER INFORMATION

Engaged with three children: Aurora (12 years old); Damiano (7 years old) and Dafne (1 month old)
Responsibilities: PLOS ONE, reviewer (2016 - ongoing); Biological Conservation, reviewer (2016 - ongoing); National Research, Development and Innovation Office (NKFIH), grant reviewer (2015); Biodiversity and Conservation, reviewer (2014 - ongoing).
Computing abilities: R 3.4.3 (frequently used packages: mgcv, nlme, stat, lattice, vegan, raster, rgdal, SDMTools, rgeos, MASS, splines, segmented, fANCOVA, features), EstimateS, Ecosim, PAST, PRIMER, PC-ORD, Zonation.

Declarations given in the present curriculum must be considered released according to art. 46 and 47 of DPR n. 445/2000.

The present curriculum does not contain confidential and legal information according to art. 4, paragraph 1, points d) and e) of D.Lgs. 30.06.2003 n. 196.

Place and date: Rome, 09/09/2019

