

Marie Skłodowska Curie Individual Fellowship 2020

Expression of Interest for hosting Marie Curie Fellows

1. Supervisor (name and e-mail address)

Prof. Gianni Gilioli – gianni.gilioli@unibs.it

2. Department (name and address)

Department of Molecular and Translational Medicine (DMMT)
AgroFood Lab
University of Brescia
Viale Europa, 11 - 25121 Brescia, Italy

3. Panel (choose one)

- Chemistry (CHEM)
- Social Sciences and Humanities (SOC)
- Economic Sciences (ECO)
- Information Science and Engineering (ENG)
- Environment and Geosciences (ENV)
- Life Sciences (LIF)
- Mathematics (MAT)
- Physics (PHY)

4. Description of your research activities (max 10 lines)*

1) Development of quantitative methodologies in applied population ecology for pest, vector and disease management: optimal sampling design for the analysis of population spatial and temporal pattern of variation, structured population modeling, eco-epidemiological model development and analysis; 2) Agro-ecosystem and social-ecological system analyses and modeling for the design of management schemes based on sustainability and optimization of ecosystem services; 3) Development and implementation of methodologies and models for quantitative risk assessment for: a) introduction, spread, impact and management of invasive species, b) holistic assessment of honey bee health status, c) environmental risk assessment based on ecosystem services and biodiversity components; 4) Development of quantitative tools for the assessment of the functional biodiversity of agro-ecosystems by definition of composite indicators synthesizing the functional traits of the species (single or communities) and their role in the maintaining of ecosystem services.

5. Key-words

Risk assessment; sustainability in agriculture; pest management; invasive alien species; functional biodiversity; social-ecological system; agro-ecosystems; quantitative modelling;

6. Short CV of the supervisor (max 5 lines)

Gianni Gilioli is Professor in General and Applied Entomology at the University of Brescia and Head of the Agrofood Lab, a multidisciplinary laboratory performing research on risk/benefit assessment and sustainability related to food. At UNIBS, he is in charge of teaching Ecology, Sustainability, Food science, Agricultural biotechnology. He has almost 30 years of experience in development of quantitative methodologies supporting decision making for population, ecosystem and social-ecological system management.

7. List of 5 main publications of the supervisor

Pasquali, S., Soresina, C., Gilioli, G. The effects of fecundity, mortality and distribution of the initial condition in phenological models (2019) *Ecological Modelling*, 402, pp. 45-58, doi: 10.1016/j.ecolmodel.2019.03.019

Jeger, M., Bragard, C., ... Gilioli, G., EFSA Panel on Plant Health (PLH) Guidance on quantitative pest risk assessment (2018) *EFSA Journal*, 16 (8), art. no. e05350, doi: 10.2903/j.efsa.2018.5350

Jeger, M., Caffier, D., ... Gilioli, G., ... Bragard, C., EFSA Panel on Plant Health (EFSA PLH Panel) Updated pest categorisation of *Xylella fastidiosa* (2018) *EFSA Journal*, 16 (7), art. no. e05357, doi: 10.2903/j.efsa.2018.5357

Gilioli, G. et al. Environmental risk assessment for invasive alien species: A case study of apple snails affecting ecosystem services in Europe (2017) *Environmental Impact Assessment Review*, 65, pp. 1-11, doi: 10.1016/j.eiar.2017.03.008

Gilioli, G., Pasquali, S., Marchesini, E. A modelling framework for pest population dynamics and management: An application to the grape berry moth (2016) *Ecological Modelling*, 320, pp. 348-357, doi: 10.1016/j.ecolmodel.2015.10.018

*Please consider that the preparation of a Marie Curie proposal requires some time. Fellow and supervisor have to agree on a project and training opportunities for the fellow.