

## PHD FELLOW OFFER IN SOIL FUNGAL COMMUNITIES AND FORESTRY

The Department of Crop and Forest Sciences, University of Lleida (Catalonia, Spain) offers a PhD position. The expected starting date is November 2018, while the application deadline is June 30, 2018.

**Project Title:** *Fungal community dynamics in forest soils in response to disturbances: consequences for Mediterranean forest management*

Fungi inhabiting soils determine many ecological processes that are responsible of ecosystem functioning, such as many biochemical and nutrient cycle processes (e.g. soil organic carbon dynamics). However, belowground fungal communities have been difficult to study due to the inconspicuous nature of these organisms. Nowadays, to circumvent this problem, new molecular technologies such as next generation DNA sequencing platforms or quantitative PCR (qPCR) are used to study fungal community composition, biomass or fungal airborne communities. This open new research line about the processes and filters (drivers) that control fungal communities in Mediterranean forest ecosystems.

Nowadays, there is a growing interest towards disturbance effects responses of forest ecosystems (i.e. silvicultural treatment adequacy or negative effects in a new global change context). It is clear that any disturbance will have an effect on above and belowground heterogeneity producing different environments and microhabitats (e.g. open gaps, underground new niches, biochemistry or spatial heterogeneity) to be occupied by diverse forest communities. However, microbial dynamics in Mediterranean forest soils still remains unknown. Understanding how these communities respond to disturbances is crucial to predict future forests adaptations to environmental changes such as climate change.

The aim of the PhD is to contribute in identifying and understanding the processes and filters that affect fungal communities in forest ecosystems, providing a scientific foundation to develop tools oriented towards sustainable forest management and conservation of ecosystem services associated with fungi.

We are seeking a self-motivating, independent and enthusiastic individual to conduct applied research on soil fungal community dynamics. The PhD candidate will develop these tasks within a consolidated and internationally recognized research group with strong background in Mediterranean fungi. The scientific work may be partly based on the set of long-term permanent plots monitored since 1995 (Catalonia, Spain), which constitutes one of the most valuable datasets worldwide to study fungal diversity and productivity in Mediterranean forest. The candidate should also contribute to data gathering and monitoring in both ours and different long-term designs.

The PhD candidate should develop by itself new experimental set-ups and analyse molecular data obtained from next-generation DNA sequencing platforms using amplified fungal markers, and learn other molecular tools such as qPCR to quantify fungal biomass. The candidate should be able to relate these data with environmental data obtained in the field (e.g. soil biochemistry, thinning intensities). As a consequence, knowledge on data handling and low-medium level programming proficiency (e.g. R-program) would be desirable, but are not essential as full training and support will be given. However, enthusiasm, self-motivation, curiosity and the ability to communicate to a range of audiences would all be distinctly advantageous.

### **Supervision:**

This research project will be developed in the Department of Crop and Forest Sciences at the University of Lleida. The supervisor will be Dr. Josu G Alday

(<https://sites.google.com/view/josugalday>). The PhD will be also co-supervised by some colleagues from <http://www.medforlab.com/>.

**Required qualifications of candidates:**

The applicants must have:

- Master's degree in the field of forestry, biology, environmental sciences, ecology and related disciplines (Master's degree is mandatory at October 2018).
- Fluency in English, written and spoken.
- Driving license.
- Availability to travel.
- Interest in learning multiple techniques.

**Terms of employment:**

The position as a PhD fellow is available for a 3-year period starting in November 2018 (tentative). The selected candidate will have a contract provided by the University of Lleida (gross salary between 14,400 and 15,600 €/year).

**Application procedure:**

The application, in English, must be submitted by e-mail to the address: [jgalday@pvcf.udl.cat](mailto:jgalday@pvcf.udl.cat).

The application must contain:

- Motivation letter (maximum 1 page)
- One recommendation letter signed by academic referees, including contact details
- Short CV (maximum 1 page), including academic performance (Bachelor and MSc degree. It is compulsory to have a qualification above >6.5 out of 10 in both), publications, work experience and other merits and skills (CVs exceeding 1 page will not be considered).