

POSTDOCTORAL CONTRACTS

FOR THE PROMOTION OF EXCELLENCE

iuFOR offers 5 postdoctoral contracts under the recognition as a Unit of Excellence in the framework of the Regional Strategy for Research and Innovation for Smart Specialization (RIS3) of Castilla y León 2014-2020, co-financed by the European Regional Development Fund.

- The incorporation will take place in May-June 2021, with a contract for work and service that will have a duration of one year, extendable up to three years.

REQUIREMENTS

- PhD degree (PhD graduates from universities outside the European Higher Education Area must have their degree validated before signing the contract).
- A postdoctoral stay of at least one year in a center different from the one where the doctoral thesis was carried out.
- Fluent written and spoken English
- Demonstrated ability to write scientific proposals and articles.
- Programming skills in R or other statistical and computing languages

Additional information

- Contracts will be carried out at the Palencia campus, except for the *Risk: evaluation, modeling and simulation contract*, which will be carried out at the Soria campus.
- For further information on the iuFOR, please visit <http://sostenible.palencia.uva.es>

Documentation and application

Send your CV, specifying "iuFOR-RIS3 postdoc" in the subject line, before March 31 to the address of the contact researcher for each position.

RESEARCH TOPICS

- **Forest ecosystem services: evaluation, modeling and simulation**

Forest management and planning must consider the wide variety of ecosystem services (ESs) that forest systems provide, as well as how climate change can modify this ESs delivering. With this position we want to advance in the evaluation of several ESs in Iberian forest systems at different spatial scales, from stand to landscape; to identify synergies and trade-offs among different ESs; to simulate the impact of global change on ESs provision, including both climate change and changes in land uses; and to decipher how forest management can increase the resilience of ESs provision. The approach will include modelling and optimization of forest management by use of artificial intelligence and will consider the integration of forest biodiversity and soil properties in the evaluation of forest ESs.

Candidate profile: experience on Forest ESs evaluation; knowledge on Forest modelling and data management at different spatial scales.

Contact researcher: Felipe Bravo Oviedo (fbravo@pvs.uva.es)

- **Species distribution and global change**

Climate change is triggering important modifications in the growing conditions of tree forest species, which can alter species distribution areas. Species distribution models or niche models are a powerful tool for evaluating the potential climate change impact of species distribution areas. Although the use of species distribution models experienced an important development during the last decade, there are still some challenges concerning tree Forest species. Among others, it is important to advance on: integration of species provenances, as well as species local adaptation and plasticity; inclusion of soil information and new climate scenarios; how species interactions can cause changes in species distributions; how climate change can modify the distribution of specific species mixtures; potential impacts of the expansion of new pest and diseases, etc.

Candidate profile: experience on species distribution and Forest dynamic models; broad knowledge on forest ecology; experience on managing large databases.

Contact researcher: Miren del Río Gaztelurrutia (delrio@inia.es)

- **Globalization, climate change and forest pathologies**

Globalization has not only caused the movement of people, but of all kinds of resources. Among them, the trade with animals, plants, seeds, wood, substrate, etc. it entails an exponential increase in invasive alien species, which are a serious threat to human, animal and plant health, including forestry. On the other hand, climate change is causing a great deal of disturbance in the forest systems by weakening their defenses, which are favoring the invasion by organisms in balance with them until this time. This change in environmental conditions is causing a high number of declines (i.e.: Holm oak decline, maritime pine decline, alder decline ...) that might be the beginning of the end of some of these forests.

Candidate profile: experience in entomology and forest pathology, extensive knowledge in molecular biology, experience in bioinformatics.

Contact researcher: Julio J. Díez Casero (jdcasero@pvs.uva.es)

- **Large-scale long-term wildlife population dynamics**

Wildlife populations constitute an essential component of ecosystems worldwide. The changes in distribution and abundance of wildlife strongly influence functional and structural parameters of biological communities, which in turn modulate processes of pivotal relevance to human populations. Such biological processes can range from disease emergence and zoonotic risk dynamics to periodic plant damage episodes, thereby affecting the two most essential global milestones for humankind in the near future: guaranteeing food security and public health. Achieving effective wildlife management actions rely on the implementation of large-scale and long-term adaptive monitoring schemes. Applying an ecologically-based-management paradigm requires state-of-the-art tracking and analysing methodologies as well as large and trustable biological datasets. We propose to address collation and analyses of large-scale public databases on wildlife in NW Spain (Castilla-y-León region) as to: (i) understand patterns and drivers of variation in their distribution and abundance, (ii) identify the consequences of such variation upon the functioning of natural systems in which wildlife are integrated, and (iii) analyse the socio-economic impacts of wildlife variations in abundance to local human populations.

Candidate profile: proven experience (i.e. published work) in time series analyses of biological data as well as in data modelling of complex systems; beyond state-of-the-art analytical skills we seek a researcher with a clear understanding on how biological organisms and systems work.

Contact researcher: Juan José Luque Larena (j.luque@agro.uva.es)

- Risks: evaluation, modeling and simulation

Global warming, the increase in carbon dioxide in the atmosphere and the uneven rainfall distribution are causing appreciable alterations in forests, such as phenological changes, increasing productivity, accelerated life cycles and altitudinal and latitudinal expansion. Climate change is also altering the vulnerability of forests to factors such as extreme weather events, fire, pests and pathogens. Since the beginning of the 21st century, a generalized warming has caused increasing incidence of forest pests. In particular, forests in hot and dry environments at the inner Iberian Peninsula have experienced an intensification of their vulnerability to pests and extreme events due to climate change. We should carry out spatio-temporal monitoring of the biotic and abiotic risks to which these forests are subjected and modeling their effects on the vitality and productivity of these forests to anticipate the future incidence of risks and adopt optimal mitigation policies.

Candidate profile: experience in analysis of time series of ecological data, risk assessment of extreme climatic events and their interaction with biotic factors, and ecological systems modeling.

Contact researcher: Vicente F. Rozas Ortíz (vicentefernando.rozas@uva.es)