

IRISE, an experimental multidisciplinary research project to assess the impact of repeated wildfires on biodiversity and the soil

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Abstract

Monitoring biodiversity and the environment dynamics in fire prone ecosystems is difficult due to the lack of proved relevant indicators. Such indicators were developed from studies limited to some families of animals or plants, rarely on soil fauna, microorganisms and microfauna although most of the biodiversity and ecosystem functioning rely on such groups. IRISE is an on going and developing EU funded project to experiment an integrated approach of environmental monitoring and biodiversity assessment in fire prone environments.

The experimental design includes 4 different fire regimes and an unburned control observed in the last 50 years. It takes many biotic and abiotic factors into account. Biodiversity is studied from vegetation to bacteria, along with insects, fungus, worms and microfauna, from the local to landscape scale, while vegetation structure and biomass dynamics, organic matter, nutrients, toxic compounds and soil physical properties are simultaneously thoroughly investigated.

* The integration goals are to bring together many disciplines on the same sites at the same time, to assess biodiversity at several time and space scales, and to study the interaction between biotic and abiotic factors.

* The scientific goals are to understand the role of functional biodiversity and the importance of interaction between biotic and abiotic factors in ecosystems recovery or degradation dynamics after fire.

* The final operational goal is to help managers and scientists choose the most relevant indicators for fire prone ecosystems monitoring and biodiversity management.

IRISE is performed in the Maure Mountains in south-Eastern France. Connections are established with several Australian teams. Our goal is now to develop and improve the concept of IRISE with new international partners, on new sites and in the long term.

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