

## PROJECT INFORMATION

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**Project title:** Evaluation of past changes in ecosystem services and biodiversity in forests and restoration priorities under global change impacts (GREEN-RISK)

**Project ID:** 292

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## PROJECT DESCRIPTION

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Our research group has worked comparing ecosystem services and forest biodiversity between ecosystems from different continents. It has also been possible to create an accepted international framework (Lecina et al., 2021) to assess the risk of losing them by four key climate-change-related hazards such as wildfires, drought, pests, and windstorms using IPCC components adapted to forest ecosystems in different biomes. This framework in the first assessing of the risk and vulnerability of forests to climate change hazards in a comprehensive manner, providing a predefined set of general indicators that could be used to quantify the different components of forest vulnerability and risk to wildfires, drought, pests and windstorms.

We want to apply this framework in the study of forest vulnerability and risk to the main climate change related hazard of pests forest that incorporate the components defined by the IPCC and that can be applied to forest ecosystems in different biomes. This framework have applied previously with wildfires in a Spanish region (Lecina et al., 2021). For them, we want to study the forest pest to European scale using the ICP Forests database. We will include climate data (Moreno and Hasenauer, 2016) and we will quantify the risk and vulnerability of European forests to pest hazards together European data (derived of remote sensing, national forest inventories and modelization) for wildfires, droughts and windstorms (Lecina et al., 2021; Senf and Seidl, 2021).

Then, we will evaluate the different components of hazards in European forests and their relative importance in the different forest ecosystems and biomes. We will use sensitivity analysis based on a fully Bayesian Monte Carlo sensitivity analysis to analyse the effect of the components of risk and vulnerability to every hazard (Lecina et al., 2021).

### References

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Moreno, Adam, and Hubert Hasenauer. "Spatial downscaling of European climate data." *International Journal of Climatology* 36, no. 3 (2016): 1444-1458

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