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Non-native Tree Species for European Forests - Experiences, Risks and Opportunities (FP1403)

Aliens & Flames: exploring the relationships between an aggressive non-native tree species and fire

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Acacia dealbata Link., native to Southeast Australia and Tasmania, is one of the most aggressive non-native tree invaders of southern Europe. *Acacia dealbata* is a fire-adapted species, which is able to resprout and germinate after fire. Burned areas are often invaded by a dense mat of new recruits, resulting from a long-lasting fire-stimulated soil seed bank. These dense, monospecific stands have high fuel loads and are prone to new wildfires, eventually leading to a sustained fire-invasion loop. Although fire can be a facilitator of invasion, it may be also a cost-effective tool aimed at controlling *A. dealbata* populations through consecutive burns under adequate prescriptions. It is thus important to better understand the fire ecology of *A. dealbata* in order to define efficient strategies for its control.

This work presents the Aliens & Flames project, a new research initiative aimed at understanding the fire ecology of *A. dealbata* and the two-way interaction between this species and fire. This knowledge will allow producing a guide for prescribed burning in areas occupied by *A. dealbata*, aiming to control its expansion. This five-year project also includes other non-native plant species currently spread in southern Europe. A network of experimental plots will be established in invaded areas of Central Portugal, featuring different slash and burn treatments. The dataset to be collected will allow the establishment of relationships between fire behaviour parameters and an array of plant and soil characteristics. Aliens & Flames is an innovative research initiative that gathers two branches of science that have been following separate paths and have never been explored together in fire-adapted, non-native trees in Europe: fire behaviour and invasion ecology.