Citizen science and its contribution to controlling acacia forests in Portugal

In recent decades, Portugal has been negatively affected by a growing invasion of exotic forest species adapted to fire-prone regimes, changing native ecosystems and contributing to the loss of biodiversity.

By **ISA - University of Lisbon** - March 29, 2022

Photo: Iryna Skulska & Celina Barroca

Many forest ecosystems worldwide are under threat after the invasion of exotic invasive plant species and Portugal is no exception. One of the most aggressive invaders in Portugal are the species of the genus Acacia, negatively affecting the ecosystem functioning, as well as changing the wildfire regime. Moreover, invasive alien species are one of the main causes of biodiversity loss.

Over the centuries, these plants have been introduced for a variety of purposes, such as timber production, landscape restoration or ornamental use. According to the most recent forestry inventory, around 20 thousand hectares of Portuguese areas is currently occupied by acacias.

The management of these invaded ecosystems is becoming an increasingly complex problem. Based on recent research, it has been recognised that the eradication of invasive species alone is a utopic activity, insufficient to restore affected ecosystems. In this way, strategies and control methods applied in these territories, as well as the duration of their application, are increasingly seen as vital to the solution of this problem. However, implementing effective control strategies is also a challenge.

More than 90% of Portuguese forests are private, owned by thousands of landowners being one of the factors that complicate the process of controlling acacias in forest areas. These land managers do not always have access to information on the subject along with the know-how to solve it or even the financial means.

The **Acacia4FirePrev project**, developed by the School of the Agriculture / University of Lisbon (ISA) and the Biotech Plant Lab of Beira Interior is looking for viable alternatives to help manage these areas more efficiently and with fewer control costs for their owners. One of the project's tasks is the study of social involvement by raising public awareness to the acacia's invasion problem and its relationship with wildfires. For this purpose, within citizen science' framework, a

few activities have been developed, such as protocol signing with schools and the development of educational materials, organization of events to identify invasive species, development of a guidebook, etc.

Acacia dealbata forest. Photo: Acacia4FirePrev project

Nonetheless, the involvement of rural communities and the collection of information about their needs and knowledge gaps in controlling their affected areas is extremely important. To achieve this goal, a conference session was organised on 19 March with the local community of the parish of Silvares (Fundão), located in central Portugal. In close collaboration from scientists and participants, the need for assistance on the following issues was identified: (i) selection of the most appropriate control methods and the frequency of their application; (ii) search for knowledge about possible viable alternatives for the recovery of waste from the management of *Acaciais*; (iii) an attempt to identify possible or existing support programs from local authorities in the fight against acacias and (iv) organisation of voluntary events for the control of invasive species.

Such an innovative approach – integration into the open science paradigm – creates conditions for the inclusion of numerous stakeholders in active participation within scientific processes and in determining research programmes, bringing the results of science in line with expectations, needs and social challenges.

This article was originally published by Iryna Skulska[1] and Celina Barroca.[2]

[1] Centre for Applied Ecology "Prof. Baeta Neves", School of Agriculture, University of Lisbon,

[2] Biotech Plant Lab of Beira Interior /Castelo Branco

ISA - University of Lisbon

https://www.isa.ulisboa.pt/en/presentation/isa-school-of-agronomy

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