

PRESS RELEASE

Prescribed burning in Doñana favours rabbit populations, the main prey of the Iberian lynx and the imperial eagle

- The ICTS Doñana is hosting the ECOFIRE research project, in collaboration with INFOCA, aimed at improving the National Park's habitats



Prescribed burning in the Doñana Biological Reserve / Photo: José Manuel Vidal Cordero

Sevilla, 12th December 2024. The Doñana Biological Reserve has been the scene of prescribed burning conducted at the Doñana Singular Scientific-Technical Infrastructure (ICTS-Doñana) of the Spanish National Research Council (CSIC). This activity is part of the ECOFIRE National Plan research project, aimed at improving the habitat by eliminating senescent, i.e. aged, scrubland. This practice promotes the growth of

high-quality grasses, favoring rabbit populations. Rabbits, in decline in Doñana, are the main prey of two iconic predators in the area: the Iberian lynx and the imperial eagle.

Xim Cerdá, a CSIC research scientist at the Doñana Biological Station (EBD), explains that, while rabbit conservation is the ultimate goal, these controlled burns also serve as an opportunity to study ecosystem responses. 'We use the plots as experimental areas where we measure how biodiversity changes compared to unburned plots. Arthropods are sampled with soil traps, mammals with camera traps and micromammals with Sherman traps, rabbits by counting droppings and bats with ultrasound recorders,' he says.

These prescribed burnings are conducted in Doñana every year between late October and early December, due to two key constraints. First, the conservation of various bird species, such as the imperial eagle and the red kite, requires maintaining exclusion zones around their nests during the breeding season, which restricts access. Second, administrative regulations necessitate waiting until the high fire-risk period has officially ended.



Prescribed burning in the Doñana Biological Reserve / Photo: José Manuel Vidal Cordero

Meteorological conditions play a crucial role in prescribed burning, as the activity must take place within a narrow window under specific conditions to prevent it from spreading uncontrollably and turning into a wildfire. Researcher Xim Cerdá explains, "This window is determined by temperature, wind, and humidity, all of which must fall within defined ranges."

Burning scrubland areas, locally referred to as white or intermediate woodland (monte blanco o monte intermedio), significantly reduces the fuel available for wildfires. These burned plots are key to preventing fire spread in Doñana National Park. In fact, the Andalusian Regional Government's Forest Fire Emergency

Plan (INFOCA) highlights the importance of a mosaic of burned and unburned plots. This pattern serves as an effective firebreak in this natural environment.

Xim Cerdá highlights the general benefits of prescribed burns for the Park, noting that, "Although we are still analysing the data from previous burns, we believe there are benefits for the conservation of fauna." Regarding the flora, he explains, "We expected a more evident improvement in the pastures, but the response has been less than expected, possibly due to the fact that these last four years have been extremely dry."

History of fire in the ecosystem

While prescribed burning is a well-justified research practice, the collective memory of society often recalls devastating events such as the 2017 fire in Doñana, caused by negligence, which had a significant destructive impact on the Park. However, as ecologist Xim Cerdá explains, "Prescribed burning is a controlled technical fire that benefits the ecosystem. Essentially, these burns replicate the natural fire events that have always occurred in the Mediterranean basin, which historically served to 'rejuvenate' vegetation."

The research project highlights that prescribed burning has roots in ancient practices, such as those of Australian Aboriginal communities, who used fire to enhance hunting opportunities. Similarly, in Doñana, traditional methods included periodically slashing and burning scrub to encourage vegetation renewal. These practices were supposed to support rabbit populations, which thrive in areas with grass and low to medium vegetation cover.

However, the traditional management system was abandoned in favor of stricter conservation measures following the establishment of the Reserve and the National Park. This shift has resulted in the scrubland becoming older and much denser. While this change appears to have benefited certain micromammals and their predators—leading to the emergence of species that were previously rare or absent, such as the genet or tawny owl—it has created challenges for other wildlife.

In particular, the current state of the dense scrubland is highly unfavorable for predators that rely heavily on hunting rabbits, such as the Iberian lynx and the imperial eagle.

With the participation of INFOCA

This project is the natural continuation of previous initiatives carried out under the Spain-Portugal Interreg Poptep program (CILIFO and FIREPOCTEP), in which burns were also conducted in Doñana. The involvement of the Andalusian Regional Government's Forest Fire Emergency Plan (INFOCA) is essential for its development. INFOCA handles the planning of the prescribed burns through the Andalusian Regional Prescribed Burn Team (ERQUA).

This service, from which government authorisation is requested, prepares the Burning Plan and visits the selected plots together with the ICTS-Doñana team.



INFOCA personnel at the Doñana Biological Reserve / Photo: José Manuel Vidal Cordero

Xim Cerdá is a scientific researcher at the CSIC in the Doñana Biological Station, where he has been for over 25 years. He is an evolutionary and community ecologist and uses ants as a model system. He completed his doctoral thesis at the Autonomous University of Barcelona on ant behavior and has worked as a postdoctoral researcher and visiting professor at the University of Paris 13, the University of Tours, and Paris 11.

Currently, his research focuses on studying the ecology and evolution of heat resistance in desert ants and the effects of fire on these species.