

Invasive pests break barriers: first records of *Trabutina mannipara* and *Monoxia obesula* in a botanical garden in the centre of the Iberian Peninsula

A guest post written by Alejandro Santiago González. [Botanical Garden of Castilla-La Mancha](#), Avda de la Mancha S/N 02008, Albacete, Spain (conservador@jardinbotanico-clm.com)

Images by Guillermo García-Saúco Sánchez.

Invasive Pests and Climate Change: A New Threat to Mediterranean Flora

The unique flora of the Mediterranean region, particularly in the heart of the Iberian Peninsula, has long benefited from its distinctive climate. Hot, dry summers and cold winters with frequent frosts have traditionally served as natural barriers against invasive pests. However, recent shifts in climate patterns are altering this delicate balance. Rising winter temperatures and shorter cold seasons are creating opportunities for pests and pathogens to expand their ranges, threatening local ecosystems. Two notable invaders—*Trabutina mannipara* and *Monoxia obesula*—highlight the growing impact of climate change on plant health and biodiversity.

Trabutina mannipara: A New Menace to *Tamarix* Species

Trabutina mannipara, a mealybug native to Egypt, has emerged as a significant threat to species of the *Tamarix* genus. This sap-feeding insect weakens its host plants, often leading to their death. Once restricted to warmer climates, *T. mannipara* has spread across 22 countries, with its first Iberian Peninsula sighting in 2004 on Spain's southern coast.

For years, the pest was confined to coastal areas, unable to survive the harsh winters of the central Iberian Peninsula. This changed in 2017, when technical staff at the Botanical Garden of Castilla-La Mancha detected *T. mannipara* in Albacete. This marked its first appearance in the continental Mediterranean region, a sign that milder winters are enabling its northward and inland migration.



Trabutina mannipara parasitizing *Tamarix gallica* in Albacete, Spain.

Monoxia obesula: A North American Beetle Finds New Ground in Europe

Another invasive species, *Monoxia obesula*, is a small beetle native to North America. It thrives in arid, saline environments, feeding on plants in the *Amaranthaceae* family, such as *Atriplex dioica*. First recorded in Europe in 2013 on the Sardinian coast, the beetle has since spread to other Mediterranean regions.

In Spain, *M. obesula* was first observed in 2017, feeding on *Atriplex halimus* in areas with mild winters. Until recently, colder continental climates had kept its expansion in check. By 2024, however, the beetle was detected in Albacete, where it attacked ornamental *Atriplex halimus* plants, causing visible damage such as white, perforated leaves and dry branches. The pest was also found feeding on a new host, *Chenopodium vulvaria*, a common plant in nutrient-rich soils. This discovery, made by the Botanical Garden of Castilla-La Mancha, represents the first record of *M. obesula* utilizing *C. vulvaria* as a host.



Adult of *Monoxia obesula* on parasitized *Chenopodium vulvaria*.



Atriplex halimus affected by predation by *Monoxia obesula* alongside an image of a *Monoxia obesula* larva feeding on it.

Climate Change: A Catalyst for Pest Proliferation

The spread of *T. manipara* and *M. obesula* into the central Iberian Peninsula underscores the role of climate change in reshaping ecosystems. Warmer winters and reduced frost periods are enabling these pests to move into higher altitudes—exceeding 800 meters for *T. manipara* and 900 meters for *M. obesula*. These conditions also allow them to exploit new host species, further destabilizing local plant communities.

The absence of natural predators and the pests' aggressive feeding behaviours exacerbate the problem, leaving native plants vulnerable. Previously secure regions are now at risk, highlighting the urgency of monitoring and managing these changes.



Atriplex halimus affected in the sampling area of the slopes of the Chinchilla de Montearagón castle, Albacete, Spain.

Botanical Gardens: Frontline Defenders Against Invasive Species

Botanical gardens, such as the Botanical Garden of Castilla-La Mancha, play a crucial role in detecting and documenting the spread of invasive species. Their work provides valuable insights into how pests adapt to changing climates, helping to inform conservation strategies. As climate change continues to drive the globalization of plant pests, these institutions will remain vital in the fight to protect biodiversity and preserve the delicate balance of Mediterranean ecosystems.



Image of Botanical Garden of Castilla-La Mancha collections & curator Alejandro Santiago (the author).



About the Author:

Dr. Alejandro Santiago González holds a Ph.D. in Agricultural Science and Engineering from the University of Castilla-La Mancha (UCLM), a Master's in Environmental and Quality Management, a degree in Biology from the University of Granada, and is a certified senior technician in landscaping. From 2008 to 2011, he actively contributed to research and conservation projects focused on threatened and endemic wild flora species at UCLM. Since 2011, he has served as the sole Curator of the Botanical Garden of Castilla-La Mancha (JBCLM) and its Germplasm Bank, recognized as a regional reference center for wild seed conservation by the Junta de Castilla-La Mancha (JCCM). Under his leadership, the JBCLM achieved the distinction of ecological excellence, becoming the first botanical garden in southern Europe to earn this recognition. Dr. A. Santiago is an active member of various scientific associations and has served on the board of directors of the Ibero-Macaronesian Association of Botanical Gardens. His work also extends to collaborations with the UCLM Botanical Institute, advisory roles for the conservation of Castilla-La Mancha's threatened flora, and teaching responsibilities across multiple academic programs at UCLM.

Botanical Garden of Castilla-La Mancha is a member of BGCI and the IPSN technical network.

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