

Anticipating the Global Expansion of the Monk Parakeet Invasion

Antonio-Román Muñoz
Adrián Martín-Taboada
David Romero

¹ Grupo de Biogeografía, Diversidad y Conservación. Dpto. Biología Animal. Universidad de Málaga.

adrian.martin@uma.es; davidrp@uma.es; roman@uma.es

ABSTRACT

Biological invasions pose a significant threat to the environment and the economy, having acquired global proportions due to human activities such as trade and tourism. The Monk Parakeet (*Myiopsitta monachus*), a highly social parrot native to South America, has effectively colonized numerous regions across the globe, with significant prevalence in North America and the Mediterranean basin over the last decade. Recognizing the invasive potential of this species, identifying unoccupied regions with optimal environmental conditions for their establishment becomes an essential tool to predict the spread of this invasive process. By using known presences and a set of environmental variables (including topography, climate, and human activity), we applied the Favourability Function to generate a potential global distribution model for the Monk Parakeet. The model's accuracy was assessed, revealing good discrimination and classification capacity. It predicted highly favorable areas for potential invasion in regions where the species has not yet been detected, such as Australia, New Zealand, Myanmar, Ireland, or South Africa. Additionally, potential expansion areas were identified in places where the species has recently been detected, such as Morocco. The generated cartographic data could provide guidance for decision-making in managing this biological invasion, identifying territories already invaded where mitigation and control measures should be implemented, as well as unoccupied but favorable territories where preventive measures can be applied to prevent the spread of the Monk Parakeet.