Choose your oak wisely: drivers of tree selection by acorn-harvesting jays

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The role of dispersal by granivorous and omnivorous waterbirds in MTEs

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Whereas most attention is paid to frugivory, we must not overlook the importance of omnivorous, granivorous and herbivorous waterbirds as vectors of a broad range of native and alien plants in natural and artificial Mediterranean ecosystems. We exemplify their importance by illustrating the role of ducks, geese, shorebirds and gulls in dispersing terrestrial and aquatic plants within and between ricefields, salinas and natural wetlands. Endozoochory is more important than epizoochory, and is a dispersal mechanism for plants classically assumed to have no or other means of dispersal (i.e. for plants not assigned to the "endozoochory syndrome"). Hence the capacity for long-distance dispersal is widely underestimated for these plants. The role of migratory granivorous waterbirds is likely to be extremely important both in the spread of alien plants within MTEs and in allowing native plants to keep pace with climate change. Seed dispersal disruptions are occurring in MTEs through the loss of natural wetlands, declines of vector populations and short-stopping (contraction of migration routes) in response to global change.

Sp.20-6-Oral

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Seed-dispersing animals can strongly influence plant reproductive success and resulting population structures. Few studies have disentangled different drivers of disperser foraging behaviour in natural settings and their actual relevance for plant fitness. Here we adopt a novel approach to investigate which tree features guide foraging decisions of the principal disperser of acorns in a mixed oak stand and resulting tree reproductive success. We genotyped a seedling cohort (n = 825) and performed Bayesian parentage analysis to estimate the acorn dispersal success of all trees in the stand (n = 254). We then modelled this estimate as a function of several tree characteristics. Individual dispersal success was best predicted by fruit crop size and to a lesser extent by the abundance of adult oaks in the neighbourhood, whereas neither the oak species nor acorn size or shape played a role. Our findings contrast with results from experimental studies and suggest that jays, despite being scatter-hoarders, behave much like frugivores of fleshy-fruited species. Their foraging behaviour should exacerbate the relevance of large, prolific trees for the dynamics and genetic composition of naturally regenerating oak stands.