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Original article

Not only size matters: Acorn selection by the European jay (*Garrulus glandarius*)

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Abstract

A strong selection for acorn characteristics is expected to have evolved in the mutualistic relationship between the European jay (*Garrulus glandarius*) and the oak (*Quercus* spp.). Bossema's pioneer work suggested that jays do not select acorns randomly, but rather they preferentially select some size and species. Preference for some seeds over others may have implications on plant community dynamics by conferring advantages (or disadvantages) on the selected (avoided) seed characteristics. In this paper we test to what extent jays select acorns by species and/or by size and the relation between these two traits in Mediterranean oak species. The experiments consist of a set of field tests in which acorns from four different coexisting Mediterranean oak species (*Quercus ilex*, *Quercus faginea*, *Quercus suber*, and *Quercus coccifera*) were placed in artificial feeders accessible to wild jays. The acorns were previously measured to control individual

acorn characteristics. Using video-recording techniques, we followed jay activity and the fate of each acorn (sequence of acorn selection and method of transport). *Q. ilex* acorns were preferred over other acorns, and *Q. coccifera* acorns were avoided when other acorns were available. Preference for *Q. faginea* and *Q. suber* acorns was intermediate, that is, they were preferred over *Q. coccifera* acorns but not over *Q. ilex* acorns. Large acorns were also preferred although acorn species selection was stronger than size selection. Jays selected species and size both by visual means and by using acorn area as an indicator of size. Acorns wider than 17â€“19Â mm were carried in the bill because of throat limitation. Our results confirm Bossema's study on temperate oaks and extend it to Mediterranean oak species, revealing implications on mixed oak forest dynamics.

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Keywords

Acorn selection; *Garrulus glandarius*; Mediterranean oak forests; Mutualism; *Quercus ilex*; *Quercus suber*; *Quercus coccifera*; *Quercus faginea*; Regeneration

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