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TREE SPECIES-SPECIFIC EFFECTS ON SOIL PROPERTIES IN DECLINING MIXED OAK FORESTS

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*Under a Global Change scenario, substantial changes in the structure, composition and health of forest communities are expected. Because trees of different species or health status can differ in their impacts on ecosystem function, modifications at the community level could translate into important changes in main biogeochemical cycles. The main objective of our study was to characterize the “footprint” of individual trees on soil properties in forests of Southern Spain affected by the decline of the dominant species, cork oak (*Quercus suber*). Specifically, we explored the variation in the ecosystem effects of cork oaks with different levels of decline, and compared the effects of this dominant species with that of coexisting tree species (*Quercus canariensis* and *Olea europaea* var. *sylvestris*). We established six 60 x 60 m² plots, three in mixed *Quercus suber* – *Quercus canariensis* forest and the other three in mixed *Quercus suber* – *Olea europaea* forest. Each plot was divided in 49 sample points at 10-m intervals. Soil pH, organic matter content and nutrient availability (N, P, Ca, Mg, K) were analyzed in each sample point and related to the composition and health of the tree community using neighborhood models. We found that trees of different species and health status had distinctive “footprints” on soil properties. These results suggest that changes at the community level caused by the decline and death of *Q. suber* could translate into important alterations of main biogeochemical cycles in mixed Mediterranean forests.*