Soils diversity along a toposequence within intermittently flooded habitats in Gallocanta Lake, Spain

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Intermittent flooding is particularly striking in the eastern portion of Gallocanta Lake, where a mosaic of wet environments forms numerous habitats that host endemic species. Our objective was to characterize the soils in those habitats, particularly, their relationship to flooding and saline conditions. Four pedons, each within one of four CORINE habitats, were sampled along a linear transect: salt-pan (15.12), salt-marsh (15.54), non-saline grassland (15.57), and cropland (87.1). Groundwater salinity ranged from 4.9 dS m⁻¹ to 87 dS m⁻¹ and was slightly alkaline (pH = 7.6). Soil samples (n = 27) were collected from a maximum depth of 3.5 m. Soil salinity, measured as the electrical conductivity of saturated paste extracts, ranged from 0.4 dS m⁻¹ to 60 dS m⁻¹, and soil pH ranged from 7.5 to 8.7. Soils were strongly saline in the root zone (up to 51 dS m⁻¹ in the upper 50 cm), except the cropland and grassland soils. The salt-marsh soil had the maximum organic matter content (3.1%). Calcium carbonate equivalent content ranged between 0.2% and 64%. Loam and sandy-loam soils formed calcium carbonate accumulations in the grassland soil, mostly as soft nodules (5-15 mm), and almost continuous centimeter cemented bands. Gypsum accumulated in the upper horizons (≤ 4%) and, occasionally, deeper (16%, > 2 m). Weathered siliciclastic, fine gravels with carbonate coatings were common in subsurface horizons at the lowest elevations. In the soil profile, the Mg/Ca ratio increased in subsurface horizons, and was highest (18.1) in the soils most frequently flooded. Soils in the toposequence included Calcic Aquisalid, Typic Aquisalid, Aquic Calcixeroll, and Typic Xerorthent. Variation in soil composition along the transect and throughout the soil profile reflected different edaphic and geomorphic processes that are associated with the fluctuations in the water level of Gallocanta Lake.

Study of patterns of movement in Emys orbicularis and connectivity between ponds inside the PAVT

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The increasing fragmentation of habitat is a major consequence of human actions in the landscape and one of most relevant threats to biodiversity; thus, maintaining the connectivity between habitats is essential. The aim of this study is to create means to conserve Emys orbicularis, a turtle species occupying scarce habitat patches, which can only be done through the protection of their habitats. Ponds and wetlands provide shelter to many species and here is where Emys orbicularis finds its perfect habitat. Turtle movements among ponds have been widely reported and recognized as crucial for population’s persistence. In Northern Portugal, specifically in the extreme North of Boticas, some ponds exist with these animals. The area of study belongs to PAVT, Archaeological Park of Terva Valley. We use mark-recapture techniques to understand the composition of this population as well as spa-