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Evaluating risks from sea-level rise on metapopulations of *Brachytrupes megacephalus* on the island of Malta

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Brachytrupes megacephalus (Lefèbvre, 1827) is a relatively large cricket with predominant but not exclusive distribution across northern Africa. It favours sandy habitats in coastal and Saharan hyper-arid regions. The crepuscular species is also known to occur within locations on Europe's central Mediterranean littoral. As a result of evident scant European distribution, the species has a designated protection status through the EU Habitats Directive (92/43/EEC) and the Bern Convention, and is currently afforded protection in 21 Natura 2000 sites in Italy and Malta. Moreover, the IUCN lists its threat status in Europe as ‘vulnerable’. The species' distribution in the Maltese Islands is restricted to fragmented populations on northern coastal sites in Malta and one site in Gozo.

The present contribution seeks to evaluate the level of vulnerability of populations of this stenoeious species occurring on Malta to sea-level rise. Following ground-truthing during stridulation activity, drone survey technologies were used to identify and cartographically delineate the spatial extent of sub-populations. Sea-level rise visualisation, through an island-wide contour dataset, was utilised to provide topographical information. Three contour heights above current sea-level, each with a five-metre interval, were selected. The vector lines, at five, ten and fifteen metres, respectively, represented three projected scenarios of sea-level rise due to climate change and storm surges over known *B. megacephalus* population areas. High-resolution satellite imagery is used as a basemap to facilitate visualisation of spatial impact, while landmarks and road networks were vectorised to enable area recognition. Results showing spatial impact on the sub-populations of *Brachytrupes megacephalus* serve to explore linkages within the landscape to ensure connectivity with suitable habitat on elevated terrain.

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