Biodiversity conservation needs on European overseas islands: lessons from Macaronesia

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Abstract

In the middle of the double crisis of global warming and mass extinctions, the effectiveness of measures to conserve Earth's biodiversity must be permanently assessed. This is particularly true on islands, given their known features of high endemism and ecological frailty. With about 5,300 terrestrial and nearly 400 marine endemic species, the Atlantic islands of Macaronesia are an ideal place to focus conservation efforts- and to check the effectiveness of existing ones. In the framework of the BEST Initiative, we compiled information on the distribution of threatened species in the Azores, Madeira and the Canaries, using IUCN's Red List criteria. With this geographic information we proposed Key Biodiversity Areas (KBA) and compared them with the existing network of protected areas, including Natura 2000. Our list of threatened species totaled 656, most of them plants and molluscs. The Canaries hosted more than half of these species, reflecting its higher endemism density. Almost all species (90%) are endemic to Macaronesia, often to a particular island, and nearly one third are critically endangered. There was a knowledge bias against smaller, less mobile, species, like insects. The number of threatened species is therefore underestimated. A lack of data on the geographic distribution was also noted, affecting e.g. two thirds of the fish species and 40% of the reptiles. Even so we proposed 194 KBAs (of which 46 designated as priority because they represented the only known site of at least one endangered species) covering nearly a quarter of the land area. Surprisingly, after decades of conservation efforts, we found that 16 of the priority KBAs are only partially enclosed in protected areas, while 8 enjoy no protection whatsoever. Our study revealed important gaps in the knowledge of Macaronesian biodiversity and of its conservation status. It also showed the insufficiency of existing legislation and practices, from the regional level up to the European Directives, which do not list as prioritary many globally threatened species. If the objective of stopping biodiversity loss in Europe is to be reached, investments in basic science and monitoring must increase, and conservation actions must follow the resulting knowledge.

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