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Identification of endemic vascular plant species hotspots and the effectiveness of the Protected Areas for their conservation in Sierra Madre Oriental, Mexico

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Abstract

More than 50% of the Mexican flora is represented by 11,001 species of endemic vascular plants. These high levels of endemisms should be a primal criterion for the recognition of areas for conservation. However, it is unknown whether the current network of protected areas guarantees the conservation of endemic vascular plant species. We focused in the Sierra Madre Oriental (SMOr), a mountain chain along Eastern Mexico that is recognized as one of the most important hotspots of vascular plant endemism in the country. At present, SMOr includes 73 protected areas, but their effectiveness for conservation of endemic species has not been evaluated. We aimed to calculate the number of endemic species that are currently considered in protection areas and propose the recognition of new areas that may include a greater endemic species diversity. Hotspots of endemism in SMOr were identified using herbaria information of 734 endemic species. The location of hotspots were identified from distribution patterns generated in the program MaxEnt. Also, Marxan program to reconstruct a map to propose new protected areas that include