The loss of size diversity in island plants

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Abstract

Animals that evolve on isolated islands break all the rules. Speedy, nervous, little birds repeatedly become plump, tame and flightless. This symposium asks whether plants evolve similar patterns in dispersal ability, size and defence on islands. It also asks whether they display additional evolutionary trends on islands, including differences in gender and floral biology. In the first part of my presentation, I outline the types of repeated patterns in evolution we might expect to observe in island plants, many of which will be considered in detail by the symposium speakers. Next, I test for the loss of size diversity in island plants using a dataset from islands in the Southwest Pacific. I specifically test for evidence of the 'island rule' in leaf area, plant stature and seed size. Results showed that taller plants with bigger leaves repeatedly evolved to become smaller on islands, while shorter plants with smaller leaves evolved to become larger. Therefore, leaf area and plant stature obeyed the 'island rule' and exhibit a loss of size diversity. On the other hand, seeds regularly increased in size on islands, regardless of their size on the mainland, providing a striking example of convergent evolution. By establishing what is currently known about repeated patterns in the evolution of island plants, including the loss of size diversity, this symposium provides a first step towards understanding repeated patterns in the evolution of island plants.

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