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The Pitfalls of Short-Range Endemism: High Vulnerability to Ecological and Landscape Traps

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Abstract : Ecological traps attract biota to low-quality habitats. Landscape traps are zones caught in a vortex of spiraling degradation. Here, we demonstrate how short-range endemic traits may make such taxa vulnerable to ecological and landscape traps. Three short-range endemic mygalomorph spider species were used in this study. Mygalomorphs can be long-lived (> 40 years) and select sites for permanent burrows in their early dispersal phase. Spiderlings from two species demonstrated choice for microhabitats that correspond to where adults typically occur. An invasive veldt grass microhabitat was selected almost exclusively by spiderlings of the third species. Habitat dominated by veldt grass has lower prey diversity and abundance than undisturbed habitats and therefore acts as an ecological trap for this species. Furthermore, as a homogenising force, veldt grass can spread to form a landscape trap in naturally heterogeneous ecosystems. Selection of specialised microhabitats of short-range endemics may explain high extinction rates in old, stable landscapes undergoing (human-induced) rapid change.

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