

LETTERS

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Fauna in decline: Meek shall inherit

ALTHOUGH LARGE ANIMALS capture our attention and directly or indirectly play essential ecological and ecosystem functions (1), it is the sheer diversity and abundance of invertebrates that make them “run the world” (2). A recent Review presented evidence of human-induced pervasive defaunation in terrestrial ecosystems (“Defaunation in the Anthropocene,” R. Dirzo *et al.*, special section on Vanishing Fauna, 25 July, p. 401). Given that larger animals are more likely to go extinct [Dirzo *et al.* and (3)], invertebrates may soon play even more important roles in the dynamics of ecosystems than they already do (1, 4).

Many of the vertebrate species that have been locally extirpated or are in decline are herbivores, seed dispersers, or granivores



[Dirzo *et al.* and (1, 3)]. Therefore, as the Anthropocene progresses, invertebrates—and notably ants—will be the prospective heirs of these plant-animal interactions.

Although human disturbances affect ants, the effect is frequently much less pronounced than on vertebrates or on other insects such as Lepidoptera and bees (3, 5). Ants are remarkably abundant across most terrestrial ecosystems, interacting with many other species of insects, plants, and vertebrates. There is increasing evidence that ants benefit fleshy-fruited plants adapted for vertebrate seed-dispersal; indeed, they can be quantitatively as important as birds as seed removers (6). The dominant herbivore in the Neotropics—leaf-cutter ants (*Atta spp.*)—actually increases in abundance after ecosystem disturbance, which could profoundly alter plant regeneration and ecosystem processes (7). As invasive ant species continue to change the composition of local biota across the globe, there could be further cascading effects on plant and

animal communities (8). With continued Anthropocene extinctions, it will become increasingly critical to elucidate the myriad ways through which this dominant group of invertebrates influences ecosystem functions across continents and biomes.

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