

The rise of hyperabundant native generalists threatens both humans and nature

ABSTRACT

In many disturbed terrestrial landscapes, a subset of native generalist vertebrates thrives. The population trends of these disturbance-tolerant species may be driven by multiple factors, including habitat preferences, foraging opportunities (including crop raiding or human refuse), lower mortality when their predators are persecuted (the 'human shield' effect) and reduced competition due to declines of disturbance-sensitive species. A pronounced elevation in the abundance of disturbance-tolerant wildlife can drive numerous cascading impacts on food webs, biodiversity, vegetation structure and people in coupled human–natural systems. There is also concern for increased risk of zoonotic disease transfer to humans and domestic animals from wildlife species with high pathogen loads as their abundance and proximity to humans increases. Here we use field data from 58 landscapes to document a supra-regional phenomenon of the hyperabundance and community dominance of Southeast Asian wild pigs and macaques. These two groups were chosen as prime candidates capable of reaching hyperabundance as they are edge adapted, with gregarious social structure, omnivorous diets, rapid reproduction and high tolerance to human proximity. Compared to intact interior forests, population densities in degraded forests were 148% and 87% higher for wild boar and macaques, respectively. In landscapes with >60% oil palm coverage, wild boar and pig-tailed macaque estimated abundances were 337% and 447% higher than landscapes with <1% oil palm coverage, respectively, suggesting marked demographic benefits accrued by crop raiding on calorie-rich food subsidies. There was extreme community dominance in forest landscapes with >20% oil palm cover where two pig and two macaque species accounted for >80% of independent camera trap detections, leaving <20% for the other 85 mammal species >1 kg considered. Establishing the population trends of pigs and macaques is imperative since they are linked to cascading impacts on the fauna and flora of local forest ecosystems, disease and human health, and economics (i.e., crop losses). The severity of potential negative cascading effects may motivate control efforts to achieve ecosystem integrity, human health and conservation objectives. Our review concludes that the rise of native generalists can be mediated by specific types of degradation, which influences the ecology and conservation of natural areas, creating both positive and detrimental impacts on intact ecosystems and human society.