

How big animals and trees shaped our world and how we can restore them Andreas Schweiger, Jens Christian Svenning

Large-sized animals (megafauna) and trees (megatrees) are key ecosystem components with high cultural and economic importance going back millennia. Once common, both groups have been massively reduced in pre-historic and historic times, with human-induced downsizing still ongoing. Key ecosystem services provided by megafauna and megatrees are nutrient and seed transfer, carbon allocation and climate regulation as well as biodiversity facilitation. Socio-cultural services include food/timber provisioning and the 'charisma' of large-sized organisms, with its associated high cultural, recreational and nature conservation values. Active restoration of megafauna and -trees in a socio-ecological context is needed to counteract past and ongoing downsizing and, thus, the loss of important services in a human-dominated world.

We propose an integrative restoration framework applicable across the whole range of human land use intensity including assisted recolonization, individual-based protection and facilitation of urban wildlife. Generally, we argue for a pro-active promotion of megafauna and -trees in close-to-natural and novel ecosystems, as large-sized trees and animals are two of the most important factors for enhancing ecosystems biodiversity and societal value.

