Modern hunter-gatherers engage in behaviors such as controlled burning that are aimed at maintaining or increasing the productivity of their environments. The intentionality and extent of this niche constructive behavior may arguably represent a unique adaptation of modern *Homo sapiens*. Over long time spans, this may have significant ecological and even geomorphic impacts, which raises an important question: **When should we actually define the start of the Anthropocene?** By combining archaeological, geomorphic, and geochronological data from Middle Stone Age archaeological sites with off-site records of vegetation and charcoal from Lake Malawi, we detect a fundamental shift in human niche constructive behaviors that altered the complexion of vegetative communities in favor of grasslands and woodlands, and facilitated alluvial fan formation in the northern basin. These impacts, starting in the Late Pleistocene, have had a long-term role in shaping the environments and landscapes of northern Malawi, and formed the foundation for late Holocene landscape change catalyzed by the advent of agriculture.

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