TITLE

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1 ABSTRACT

Anthropogenic climate change, and particularly increased temperature, affects many natural systems at the global scale. The most frequently observed biological impact of climate change over the past decades are major changes on spring and autumn phenology—the timing of recurring life history events. These shifts extend the growing season and a long-standing assumption was that this led to incresed growth. However, recent work shows an absence of growth despite longer seasons with potential major consequences on forest carbon sequestration dynamics. Therefore, we address this paradox by leveraging two unique datasets of phenological data from a common garden and a citizen science program in an urban arboretum. These are unique because they discard drought as a potential growth inhibitor as the trees were watered during low precipitation periods and of several consequitive years of data for the same individuals. By deriving the growing season length from these phenological observations and relating them to yearly growth with tree rings, we showed no increased growth despite apparent better seasonal conditions. Our results support the paradox of a non-positive growth trend with longer seasons, unlikely driven by drought.