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“Did the climate of the late 20th Century mask mechanisms for rapid, large-scale change in eastern US forests?”

ABSTRACT: There is a wide range of forecasts on how eastern US forests will respond to 21st Century climatic change. Understanding how these diverse forests change is crucial because of the ecosystem services they provide for 58% percent of the US population. Perhaps the most common model forecast is of rapid change at regional to subcontinental scales during this century. The dominant disturbance regimes observed in these forests, however, are generally asynchronous and often occur at small spatial scales. From this model of forest dynamics, it is not clear how eastern US forests could change in a rapid fashion at large spatial scales. Based upon this model of forest dynamics and presumptions (and models) that these forests are rather insensitive to climate, there is a substantial set of forecast suggesting these forests will be resistant to climatic change. The disparity in the response of these forests to climate does not provide guidance on how to manage these systems as we move deeper into the 21st Century. I will lay out evidence for the hypothesis that climate of the late-20th Century may have lulled us into a false sense of security in the stability of the forests in the eastern US.