

# Stand age not important in predicting forest biomass from lidar

Healey, S.P.; Menlove, J. The Stability of Mean Wood Specific Gravity across Stand Age in US Forests Despite Species Turnover. *Forests* 2019, 10, 114.

## Science Question

Empirical equations allow prediction of biomass from tree sizes measured by active remote sensing. If wood is systematically denser in old forests, stand age must be explicitly considered in biomass models.

## Analysis

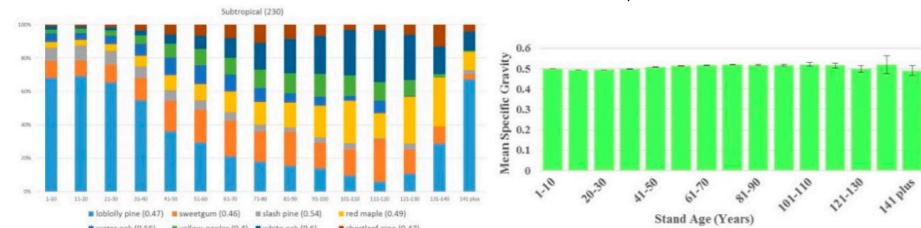
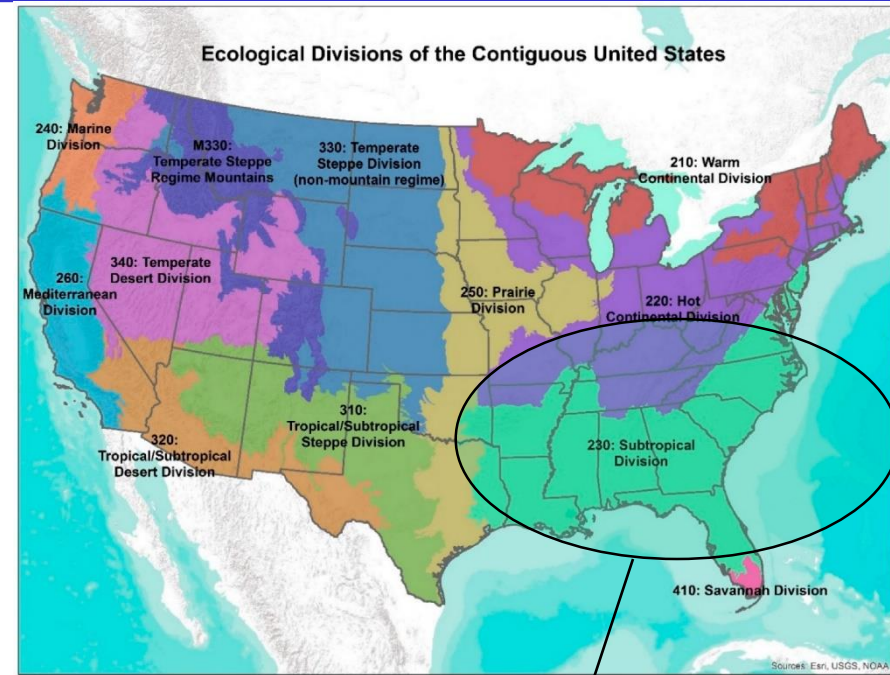
This study uses the Forest Service's large forest inventory (6 million trees measured, 132,000 plots) to determine the relationship between age and density in the US.

## Results

Across the diverse ecosystems of the US, mean wood density doesn't change much as stands get older, even though species composition shifts substantially due to succession, disturbance, and management (see Figure).

## Significance

There are certainly stand-level cases where changing forest composition changes average wood density. However, no systematic changes were detected across a large area. This greatly simplifies the task of modeling biomass from spaceborne lidar or radar data.



**Average species composition changes in older forests. In this ecozone, loblolly pine drops out as maple and sweetgum become more common (left graph). Despite these changes, average basal area-weighted wood density stays relatively constant.**