

Dendrochronology Reveals Planting Dates of Historic Apple Trees in the Southwestern United States

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Abstract:

Historic apple orchards grow throughout the United States (5). Reconstructing histories of these orchards can offer valuable insights into local agricultural history and can be important documentation for historically significant landscapes. By applying standard dendrochronology techniques to historic apple orchards in central Arizona and southern Colorado, we successfully cross-dated ring growth between trees in the orchards, compared annual tree growth with local climate conditions, and determined minimum planting dates of the historic orchards. Our results indicate 1903 and late 1940s planting dates for two historic orchards in Arizona. An orchard near Ignacio, Colorado was planted prior to the late 1920s, though heart rot precluded finding the actual planting date. Tree ring dates from apple trees in the historic Pendley Orchard, Slide Rock State Park, Arizona generally compared closely with planting dates described in an oral history of the property, but showed some discrepancies with the older trees, most likely stemming from replanting events in the orchard. Climate response within historic orchards was less evident. One historic orchard showed moderate correlation with precipitation, but orchard growth appears more strongly controlled by local factors including irrigation and orchard maintenance. Our results indicate that if heart rot is absent from historic apple trees, dendrochronology is a useful tool for determining historic orchard planting dates.