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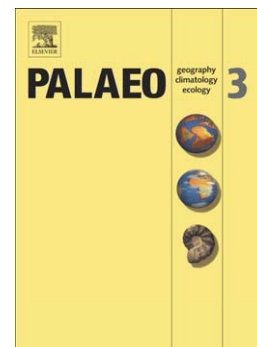
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**First known fire scar on a fossil tree trunk provides evidence of Late Triassic wildfire**

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**Abstract**

Fire scars are well known to fire ecologists and dendrochronologists worldwide, and are used in dating fires and reconstructing the fire histories of modern forests. Evidence of fires in ancient forests, such as fossil charcoal (fusain), is well known to paleontologists and has been reported in geologic formations dating back to the Late Devonian. We describe what we conclude is a fire scar on a fossil tree trunk from the Late Triassic Chinle Formation of southeastern Utah (~200-225 Ma). The external features of the prehistoric scar match those of modern fire scars better than those of scars created by other kinds of wounding events. The fossil specimen also exhibits a number of changes in wood anatomy similar to those reported in modern fire-scarred trees, including a band of very small tracheids that indicate growth suppression immediately associated with the scarring event; an area with a tangential row of probable traumatic resin ducts; and a significant increase in tracheid size following the scarring event that indicates a growth release. No fire scar resembling those in modern trees has previously been described in petrified wood as far as we can determine. The presence of a fire scar not only provides further evidence of ancient fires, but shows that at least some individual trees survived them, indicating that fire could have been an ecological and evolutionary force in forests at least as early as the Late Triassic.

*Keywords:* fire scar; Late Triassic; wood anatomy; palaeoecology; Chinle Formation

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