

Pliocene vegetation and palaeoenvironment of Laetoli, Tanzania; evidence from fossil woods

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Laetoli, a Pliocene site in northern Tanzania, is renowned for its record of early hominins, fauna and footprints. Previous interpretations of the fossil mammals, geology and palynology indicated that the palaeoenvironment was dry savanna, much as it is today. However, new paleobotanical evidence indicates that it was more complex. Noiti 1 and 2, 10 km south of the main localities, have produced an abundance of silicified fossil woods associated with a volcanic debris flow. The precise age of the sediments is uncertain, but they appear to be correlative with the Yellow Marker Tuff of the Upper Laetolil Beds, with an estimated age of 3.0-3.5 Ma. Of the 140 specimens sectioned, eight are described here. They represent six families. The Dichapetalaceae are mostly lianas or shrubs. The subfamily of Euphorbiaceae represented includes the large genera *Euphorbia* and *Croton*, which occur in the region today. The Guttiferae (Clusiaceae) mostly inhabit riverine forest, moist forest margins or dry woodland margins. Several members of the Mimosaceae are represented, including *Acacia tortilis*, a common tree in the area today. Members of the Oleaceae are trees of drier climates, as are the Sterculiaceae. Although the absence of particular taxa in the fossil record is not necessarily an absence in the palaeo-vegetation, it is interesting to note that only the Mimosaceae and Euphorbiaceae are common in both the fossil and modern vegetation. Missing from the fossil record, thus far, are the Burseraceae and Combretaceae. The Noiti fossil woods show that there were several different vegetation types during the Pliocene, i.e., moist, dry and riverine, and that these had a different species composition from the modern assemblages. This provides additional support for recent reinterpretations of the paleoecology at Laetoli that indicate a mosaic of vegetation types, with a greater representation of bushland, woodland and forested habitats.

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