

FOSSIL HAIR IN AUSTRALIAN CAPE YORK AMBER

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Australia's first fossiliferous amber was discovered in 2003 on Cape York Peninsula, far north Queensland. Although its precise age is not yet known, the amber is interpreted to be probably middle Miocene in age based on geological and botanical evidence. Preliminary study of the Cape York amber indicates that c.20% of pieces have multiple inclusions such as insects, spiders, feathers, plants, fungi, air and water bubbles. At least one piece of translucent Cape York amber includes several strands of mammalian hair, complete with tip and follicle (root). Hair is exceptionally rare in amber but has been reported previously from other Tertiary outcrops such as Baltic, Dominican and French Oise ambers. Phase contrast x-ray synchrotron imaging of the Cape York hair at the European Synchrotron Radiation Facility (ESRF), Grenoble, reveals excellent preservation of its external and internal structure. Cuticle, scale pattern and medulla are all preserved. The hair exhibits the following characteristics: cross section oval, diameter 35 μ m; scale pattern imbricate, with regular wave; scale margins smooth and distant; scales perpendicular to shaft and slightly divergent from filament; medulla present, representing c.45% shaft diameter, with mid-shaft pattern uniserial ladder. Although the preservation of the Cape York hair is exceptional and its characteristics clear, identification of any hair is complicated by the variety of hair types found in an individual mammal as well as the different patterns found within individual hairs. Nevertheless, the Cape York hair has been compared to that of modern mammals known to have inhabited northern Queensland in the Cenozoic, that is, monotremes, marsupials, bats, rodents and the dingo. Our preliminary comparisons indicate that the hair probably did not belong to a monotreme, bat, rodent or canid (all of which have distinctively different characteristics) and probably did belong to a small marsupial, the first to be preserved in amber.