

**A prototype interactive identification tool  
to fragmentary wood from eastern central Australia,  
and its application to  
Aboriginal Australian ethnographic artefacts**

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## **Declaration**

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution. To the best of my knowledge and belief, this thesis contains no material previously published or written by another person, except where due reference has been made in the text.

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## **Abstract**

Wood identification can serve a role wherever wood has been separated from other diagnostic plant structures as a result of cultural or taphonomic processing. In disciplines that study material culture, such as museum anthropology and art history, it may serve to augment and verify existing knowledge, whilst in fields like palaeobotany, zoology and archaeology, wood identification may test existing paradigms of ecology and human behaviour. However, resources to aid wood identification, particularly of non-commercial species, are sorely lacking and, in Australia, there are only a handful of xylotomists, most of whom are attached to Forestry organisations. In addition, wood fragments are commonly the limit of material available for identification. They may be the physical remains of a wider matrix – as may often appear in biological, archaeological, palaeobotanical or forensic contexts – or a splinter removed from an ethnographic artefact or antique.

This research involved the development of an updateable, interactive, computer-based identification tool to the wood of 58 arid Australian species. The identification tool comprises a series of keys and sub-keys to reflect the taxonomic hierarchies and the difficulty of separating wood beyond family or genus. The central *Sub-key to Arid Australian Hardwood Taxa* is comprised of 20 angiosperm taxa which include families and single representatives of genera. The treated taxa in this key are defined by 57 separate characters. They are split into sets of like characters including four sets based upon method of examination: anatomical (scanning electron microscopy), anatomical (light microscopy), chemical observations and physical properties. These character sets follow a logical progression, in recognition of the variability in available sample size and that non-invasive techniques are often desirable, if not essential. The use of character sets also reflects that this variability in sample size can affect the range of available characters and the available method of identification, and their diagnostic potential tends to increase with the complexity of the identification method.

As part of the research, the identification tool is tested against wood fragments removed from several Aboriginal Australian artefacts from central Australia and case studies are provided.

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