

The boab: Australia's isolated *Adansonia*

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Photographs 1.

Boabs form an integral part of the scenery of the Kimberley Region. During the “dry season” months of May till October they are usually leafless (a) but quickly regain a full leaf canopy in around November, preceding the “wet season” proper (b). The bare branches of the dry season seem to have inspired an aboriginal legend indicating that the tree had been planted upside down.

Photograph C. Done.

ABSTRACT

LE BOAB : SEUL REPRÉSENTANT DES *ADANSONIA* EN AUSTRALIE

Le boab (baobab australien) est un arbre emblématique de la région de Kimberley en Australie du Nord-Ouest. La présence dans cette région du seul représentant australien des *Adansonia*, largement représentés en Afrique et à Madagascar par plusieurs espèces, a souvent suscité l'intérêt des scientifiques, entre autres. Tant sur le plan spirituel que pratique, l'arbre revêt une grande importance pour les peuples autochtones de la région, et la récente commercialisation de ses fruits (sous forme d'objets gravés pour le marché touristique) et ses jeunes racines pivotantes (en spécialité culinaire) le rendent encore plus prisé. Cet article présente brièvement l'environnement du Kimberley, les théories visant à expliquer la présence du baobab, sa découverte par les scientifiques et un certain nombre de ses caractéristiques botaniques. Nous évoquons également la signification du baobab dans la culture des peuples autochtones.

Mots-clés : *Adansonia gregorii*, baobab australien, bombacacées, Australie.

ABSTRACT

THE BOAB: AUSTRALIA'S ISOLATED *ADANSONIA*

The boab is regarded as an icon of the Kimberley region in north Western Australia. Its presence there, as Australia's only representative of the genus *Adansonia*, which is widely-represented in Africa-Madagascar by several species, has often aroused scientific and other interest. Spiritually and practically the tree is of great importance to the indigenous people of the area and recent commercialisation of both fruits (as carved souvenirs) and young tap roots (for a gourmet food item) add to its status. This article includes a brief description of the environment of the Kimberley, theories about how the boab became established there and its scientific discovery, naming and some of its botanical features. Also mentioned is the significance of the boab in the culture of the indigenous people.

Keywords: *Adansonia gregorii*, baob, bombacaceae/Malvaceae, Australia.

RESUMEN

EL BOAB: ÚNICO REPRESENTANTE LOS *ADANSONIA* EN AUSTRALIA

El boab (baobab australiano) es un árbol emblemático de la región de Kimberley, en el noroeste de Australia. La presencia en esta región del único representante australiano del género *Adansonia*, ampliamente extendido en África y Madagascar con varias especies, ha suscitado a menudo el interés de la comunidad científica, entre otras. Tanto desde un punto de vista espiritual como práctico, el árbol reviste una gran importancia para los pueblos autóctonos. La reciente comercialización de sus frutos (en forma de objetos grabados para el mercado turístico) y de sus jóvenes raíces pivotantes (en una especialidad culinaria) lo hacen aún más atractivo. Este artículo presenta brevemente el medio ambiente de Kimberley, las teorías que intentan explicar la presencia del baobab australiano, su descubrimiento por los científicos y algunos de sus rasgos botánicos. Se evoca asimismo el significado del baobab en la cultura de los pueblos autóctonos.

Palabras clave: *Adansonia gregorii*, baobab australiano, bombacáceas/Malvaceae, Australia.

Introduction

In the far north west of Australia lies Western Australia's vast Kimberley Region (map 1). Though much larger than the United Kingdom or Japan, it has a population of less than 40,000 residents. It is a land of climatic extremes with average temperatures in the hottest months approaching 40 °C and monsoonal rainfall during the "wet season" revitalising innumerable waterfalls as well as causing massive broad-scale flooding. The months of May to November, on the other hand, are the core of the "dry season" and rain is rare during that period while mean maxima and minima temperatures for the coolest month in the central part of the region (Fitzroy Crossing) are around 32 °C and 16 °C respectively.

Tourism to the area is one of its major industries and attractions include the spectacular scenery, the area's isolation, the wildlife, its Aboriginal culture and the weather. Also on that list many visitors would include the iconic boab [(*Adansonia gregorii* F. Muell. Family Bombacaceae (classical) or Malvaceae (phylogenetic) (photographs 1)], the only species of the genus occurring outside Africa and Madagascar. It is sometimes called the "baobab", "bottle tree" or "dead rat tree". Kimberley people, however, invariably refer to it as the boab. This article outlines theories about its presence in Australia, its discovery scientifically, some features of the species and its significance in Aboriginal culture.

The genus *Adansonia* and establishment in Australia

Adansonia appears to have evolved on the African mainland (one species extant) and from there dispersed to Madagascar (six distinct species) and to Australia where one species is found. The African species, *A. digitata*, is very widespread in its distribution both on the continent and off-shore islands. It is known as the "baobab" and the Australian common name of "boab" for *A. gregorii* is almost certainly derived from this.

How the boab became established in Australia, with its natural distribution as shown in map 1 has been the subject of much discussion over many years. Several theories have been expounded including the relative proximity of the landmasses on the ancient Gondwana continent, oceanic drift of seed pods and thirdly, human distribution of seed or pods.

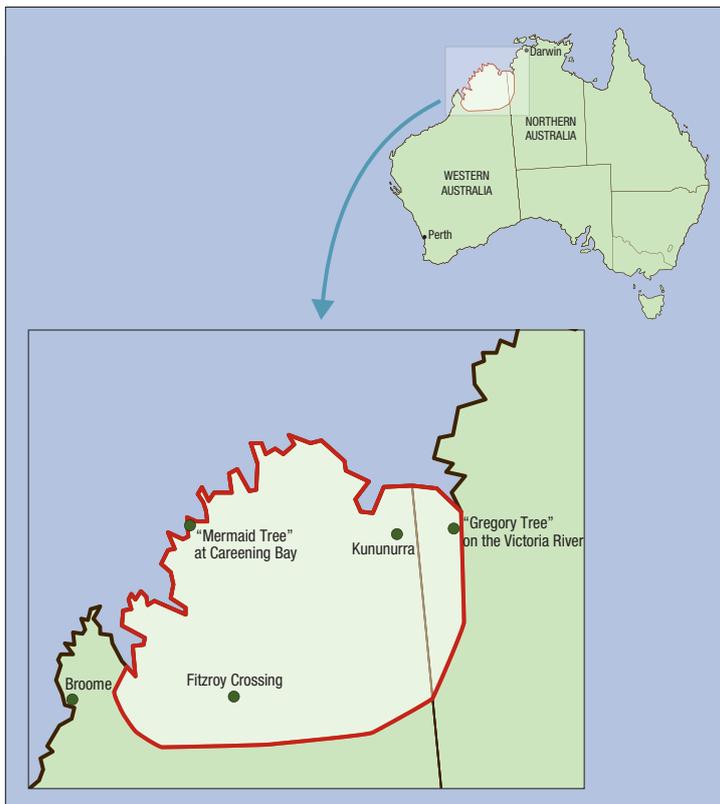
It is widely accepted that humans migrated from Africa along the coast of the southern Asian landmass and eventually to Australia. This journey involved humankind's first long distance, deliberate sea crossings because of the several wide water bodies which then, as now, separated Australia from Southeast Asia. The timing of this migration (at the earliest some 70,000 years ago), however, precludes man as being the vector of the spread of *Adansonia* to Australia as this would imply impossibly rapid speciation from either African or Madagascan species.

David Baum's groundbreaking taxonomic work of 1995, and subsequent molecular research of LEONG POCK TSY *et al.* of 2009 on related neotropical species from Africa, Madagascar and Australia, indicate that a precursor of the species possibly arrived in Australia 17-7 million years ago when Australia became drier. This timing precludes both the hypothesised Gondwanan and human distribution options, leaving the oceanic drift theory as the most likely explanation.

Scientific collection and naming

The first scientific collection of the tree was by Alan Cunningham at Careening Bay, Western Australia in 1820. At the time, Cunningham was a member of a British naval party led by Lt. Phillip Parker King (RN), charged with charting previously unsurveyed stretches of Australia's vast northern and western coasts. Cunningham actually thought the tree was of the genus *Capparis* based on the limited material he had from which to determine its genus.

What is sometimes regarded as one of Australia's oldest items of graffiti was left by King's expedition at Careening Bay. The men were camped ashore there for nearly three weeks during which time they were carrying out repairs to their vessel, the "Mermaid". Their visit was recorded by carving the vessel's name and the year (1820) on a large boab tree (photograph 2). Yesteryear's "graffiti" is now recognised as an important historic record of this visit. The "Mermaid" tree was about 8 meters (m) in circumference when inscribed in 1820; it now measures about 11 m so has grown some 3 m in circumference in the last 190 years. It is quite likely that some of the larger boabs such as this one exceed 1000 years in age.



Map 1.

Approximate natural distribution of boabs in the Kimberley region.
Produced by M. Pattison.



Photograph 2.

Early european explorers found the bark of the trees easy on which to carve a record of their passage. In this case the inscription reads “HMC Mermaid 1820” and was carved by the crew of His Majesty’s Cutter during their enforced stay at Careening Bay.
Photograph C. Done.



Photograph 3.

Several extremely significant trees have had totems such as this crocodile carved on them. They have been re-grooved by generations of Aboriginal people moving through the area.
Photograph K. Coate.



Photograph 4.

The “Gregory” boab on the Victoria River was inscribed in 1856. It marks the depot site of the overland exploration party led by Augustus Gregory after whom the tree and species was named by Ferdinand von Mueller who was the botanist on the expedition.
Photograph D. Evans.



Photograph 5.

Some of the largest boabs reach nearly 20 metres in height and perhaps a similar girth. Whilst not quite as large, this huge matriarch (centre) is surrounded by her family of much younger, smaller trees.
Photograph C. Done.

Other explorers also found the bark of boab tree durable and easily carved giving a great medium on which to leave a record of their presence and route. Indigenous people also made carvings on the expansive lower trunk (photograph 3).

In 1857, Ferdinand von Mueller collected and named the tree *Adansonia gregorii* after Augustus Gregory who was the leader of his party of land based explorers. Gregory’s Boab (photograph 4) was near the group’s base camp on the Victoria River and a message carved on it in 1856 is still legible.

For a time in the 1990s there was some confusion about the correct scientific name for the Australian boab when researchers realised there was an earlier manuscript name. However, the earlier name was rejected by the international botanical community in favour of Mueller’s very well accepted and established *Adansonia gregorii*.

Some characteristics of boabs

Boabs can be quite large and are very varied in their form but tend to have quite bulbous stems (photographs 1, 3). They can be up to 20 m tall and of similar circumference but in most cases their height does not exceed about 15 m (photograph 5). The bark of the trunk is smooth and grey or bronze in colour.

The large and showy, creamy-white flowers (photograph 6) occur in the very early wet season (often before any rains have fallen in November-December) through till the end of the wet season (usually in April-May). Individual flowers are short lived and are pollinated at night, mainly by hawk moths. Fruit bats, possibly other bats and birds also visit the flowers but seem to have little involvement in pollination.

Fruits pods are often held on the tree in large numbers and vary from small and spherical to much larger elongated ones perhaps 150-180 mm long and 100 mm in diameter (photographs 7, 8). Within the strong, velvety brown outer casing are up to several dozen kidney shaped seeds embedded in white, powdery pith. The pith is edible and can also be mixed with water to make a refreshing drink. The seeds too maybe eaten either raw or roasted and can be ground to make flour. As well, tap roots of young seedlings (photograph 9) are edible.

Within its range the boab is widely distributed along creek beds, on plains and even high up on cliff faces. Whilst flowing water and gravity play a role in dispersal of the fruits and seeds throughout the range, wallabies (small kangaroos) are known to eat the pith and, perhaps inadvertently, the seeds as well, the latter thus being transported widely and deposited in dung pellets.

Significance in the culture of the indigenous people

Aboriginal people from different groups have different names for the tree. For example, the Bardi people of the Dampier Peninsula know it as "*larrgid*" whereas some people of the east Kimberley call it "*gerdewoon*" (Mirima Dawang Woorlab-gerring – Kununurra) and "*jungari*" (Woolah). Boabs provide food from the fruit (which is rich in protein and vitamins), the edible young tap roots and gum. Moisture can be obtained from crevices and hollows in the trunk or crown as well as by chewing the fibrous wood of stems and roots. Strong rope can be made from the fibrous bark of the roots. Stomach ache can be treated with an infusion made from tree sap or other parts.

Some groups have a high spiritual regard for the tree and this seems to be more so for the women of those groups.

There are several well known instances of aboriginal art being carved into the bark leaving a long lasting impression (photograph 3). Some such carvings are thought to be very old and in many cases appear to have been "re-grooved" by subsequent generations moving through the same area their ancestors occupied before them.

Over recent years the value of boab roots as a "bush tucker" (indigenous local food item) has become recognised and a small enterprise has begun selling these and other boab products to the gourmet market in the cities and to tourists.

The boab is indeed an outstanding icon of the Kimberley.

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Photograph 6.

Boab flowers can occur on almost leafless trees before the start of the wet season or on fully leaved trees such as this one later in the season. Individual flowers last only a few days and are pollinated mainly by hawk moths with probisci in excess of 10 cm in length.

Photograph C. Done.



Photograph 7.

Velvety brown fruits may persist on the tree for many months but are also collected by indigenous people as a food source or for carving of souvenirs.

Photograph C. Done.



Photograph 8.

A "wandjina" is featured on this carved boab fruit. The fruit itself is about 140 mm long in this case. Aboriginal art typically portrays aspects of the artist's mythology and/or culture.

Photograph G. Darby.

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Photograph 9.

A gourmet market has been developed for baobab “bush tucker” products. Baobabs are farmed under irrigation to produce a carrot like taproot which can be eaten raw in, for example, salads or cooked as a vegetable. Photographs C. Done.