

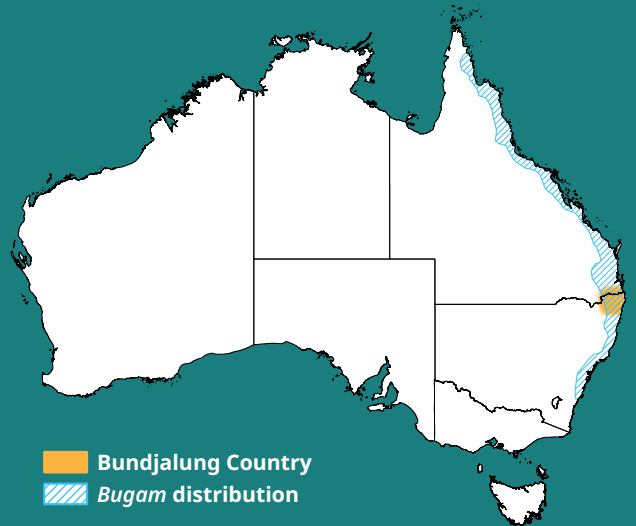
Bugam (Black bean) on Bundjalung Country

© Oliver Costello, Bundjalung

Common names: Bean tree, Moreton Bay chestnut, Black bean

Scientific name: *Castanospermum australe*

Language name: *Bugam*



Status



The species occurs within the nationally-listed, Critically Endangered Ecological Community:

[Lowland Rainforest of Subtropical Australia](#).

On Bundjalung Country in New South Wales, the species also occurs within two state-listed Endangered Ecological Communities: [Lowland Rainforest on Floodplain in the New South Wales North Coast Bioregion](#) and [Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions](#).

Description

Bugam are long-lived rainforest trees with glossy, dark green pinnate leaves, reaching heights of 40 m at maturity. The species produces clusters of large, red and yellow pea-shaped flowers (September to November) that grow directly from older branches and the tree trunk. The nectar produced by the flowers attracts birds, bats and butterflies.

Once pollinated, the flowers develop into large, cylindrical pods up to 20 cm in length. When ripe (February to May), the pods split, revealing three to five large bean-like seeds weighing about 30 g each.



Bugam pods and beans. Photo: Renae/stock.adobe.com

Distribution

Bugam occur along coastal areas and rainforests mainly from around Lismore, New South Wales, to the Iron Range, Queensland, and west to the Bunya Mountains. They also occur on the Pacific Islands of New Caledonia and Vanuatu.

Habitat

Bugam grow in moist, fertile, well-drained soils, on mountain sides, plateaus, floodplains and along riverbanks and streams.

Threats

A number of threats to *Bugam* are also threats to the threatened ecological communities in which they occur, including:

- **Land clearance** and associated edge effects, degradation and further fragmentation
- **Weed encroachment**, reducing habitat quality
- **Climate change**, leading to changes in rainfall and loss of habitat
- **Grazing and trampling by livestock**
- **Biogeographic homogenisation and inbreeding depression**, and/or lack of genetic fitness to survive predicted climate change conditions and emerging pests and diseases.

Cultural Connections

A genetic and anthropological study of *Bugam* confirmed that the seeds had been intentionally dispersed by Bundjalung along the *Nguthungulli* Songline¹.

Nguthungulli is an ancestral creator spirit that resides in the ancient caves below what are now known as Julian Rocks, off the coast of Byron Bay. He is believed to have carried *Bugam* seeds as he travelled from the east coast towards the west - across the ranges.

Bundjalung, Githabul and Yugambah language groups all use the same name '*Bugam*' for the Black bean seed, suggesting a shared ancestral connection to the species.





Cultural Values

Country

For people who know how to read Country, both species and landscapes are really important for navigation and keeping safe.

“The presence of Bugam in the landscape is an indicator of sacred areas. If you find Bugam in places where the seed couldn’t get there on its own, you should be asking questions about whether you should be there. So, it helps you.”

Oliver Costello, Bundjalung

Outside of the seeds’ provision as a reliable carbohydrate, the uses of **Bugam** trees include bark fibre for fish and animal traps, nets and baskets; wood for spear throwers; seed pods as toy boats; unripe seeds (containing saponin) for stunning fish; and as a seasonal cue for jungle fowl hunting.



Marcus Ferguson, Kobi Stewart and Andrew Johnston (left to right) processing Bugam in a creek. Photo: Michele Lockwood.

Knowledge

Different stories from different parts of Bundjalung tell us about **Daragan**, a lady from the water. **Daragan** stories teach us about our responsibility to look after water places.

“Bugam flows with the water, it moves with the water, it keeps the water clean, it holds the banks together, it looks after Bundjalung. Its nature and practice tell us how to follow the Lore. The Daragan is the keeper, the custodian of that Lore.”

Oliver Costello, Bundjalung

When Bundjalung see **Bugam** they often think of **Daragan** stories and talk about what the different stories mean and the different layers of knowledge and associated meaning each story has.

Kin

Bundjalung used the highly nutritious seeds of **Bugam** as a staple food source. The beans are toxic and require careful processing using water and fire before being made into damper.

“Bugam was a big ceremonial food.”

Oliver Costello, Bundjalung

Before the swamps were drained for agriculture, there were large ceremonial areas with a lot of **Bugam** where people would gather. There would be other species too, such as fish and birds. **Bugam** would provide the bread. It has similar symbolism to Bundjalung as bread does to other cultures and religions.

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Results of Poor Management

Agricultural practices

Bundjalung have witnessed the removal of *Bugam* and declines in riparian health and resilience associated with Western agricultural practices. Many dairy and beef farmers have removed *Bugam* from riparian zones because cows get sick after eating the beans. This leads to increased erosion and exacerbates the impacts of flooding.

Altered water flows, including the damming and draining of waters, also disrupt the movement of *Bugam* seeds and associated cultural pathways.

Loss of knowledge

Some species, like the *Bugam*, are inherently good at teaching Bundjalung Lore. *Bugam* seeds are dispersed by water, so in degraded riparian zones, *Bugam* can often be seen reestablishing itself. They then hold the bank together with strong roots and help other species become reestablished by creating a protective canopy and increasing shady areas. They teach Bundjalung about adaptation, resilience and interconnectedness.

There is also a right way to prepare the seeds and a right way to share the bread, so *Bugam* teach Bundjalung about the responsibilities that come with that. When feeding *Bugam* to your own family, and all the mobs from all around, care is required, as it could kill them if not prepared correctly. There is a protocol. These lessons can be taken and applied to other aspects of life.



National Environmental Science Program



¹ Rossetto M, Ens EJ, Honings T, Wilson PD, Yap J-YS, Costello O, et al. From Songline to genomes: Prehistoric assisted migration of a rain forest tree by Australian Aboriginal people. *PLOS ONE*. 2017;12(11):e0186663.

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Bundjalung Vision

Improved recognition of the significance of the species

Bundjalung want to be included in management decisions related to *Bugam* and better respected for our Indigenous knowledge of the species. This includes greater recognition of the link between Bundjalung health and *Bugam* health.

Greater involvement in water policy

Bundjalung want to be included in the development of water policy, including the allocation of cultural flows, to improve critical cultural pathways associated with *Bugam* and its stories.

Increased protection of riparian and wetland areas

Bundjalung want to see greater protections for *Bugam* and other riparian species. This includes removing cattle from creek lines.

“Taking care of these areas requires Bundjalung knowledge, as Bugam needs us to look after it.”

Oliver Costello, Bundjalung

In some cases, it may be important to remove weeds or introduce other species, as *Bugam* needs balance too. Jagun Alliance’s ‘[Heal the Rivers](#)’ Project was developed to continue this work.

Empowerment to protect sacred places

Bundjalung want to be better empowered to ensure the *Bugam* seeds are not taken from closed, sacred sites. *Bugam* seeds must not be taken from trees growing on the ridges, where there are springs, as this is where the sacred areas are. Seeds can, however, be collected from trees down on the floodplains.