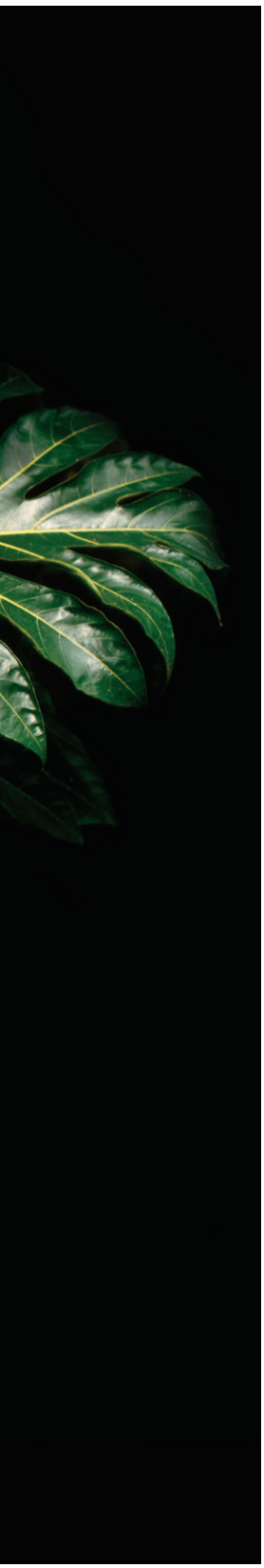
Wonder food



There are hundreds of varieties of breadfruit, most of which lack seeds. This has proved the key to tracking their origins

You may not even recognise this fruit, but it has the potential to feed the world, finds **Laura Spinney**

IN APRIL 1789, Lieutenant William Bligh set off from the Pacific island of Tahiti to sail halfway round the world to Jamaica. Twenty-three days into the voyage, his crew mutinied. They set him adrift in the Bounty's launch, along with 18 men who were loyal to him, and dumped the ship's cargo overboard. That cargo included 1000 breadfruit plants destined for the Jamaican sugar plantations, whose owners were clamouring for a cheap and reliable source of food for their slaves.

But Bligh was a stubborn man. In 1792, by now promoted to captain, he set out again from Tahiti and successfully shipped 2000 breadfruit plants to Jamaica, 678 of which bore fruit. The slaves initially turned their noses up at the green, lumpy fruit with its potato-like flesh, but within 50 years *Artocarpus altilis* had become a staple on the island.

There are no more slaves in the West Indies but there is, once again, a problem of food insecurity, and global warming is aggravating it. Breadfruit fell out of favour long ago, eclipsed by cheap imports based on wheat, rice and maize. Today Jamaica imports more than half its food – including, ironically, sugar. Now, with the island facing the prospect of rising seas and rising debt, the government has embarked on a campaign to cut its crippling food bill by encouraging local production. Once again, breadfruit is being touted as the solution – but not the varieties Bligh introduced. This time, the plants are being carefully selected to suit Jamaica's needs and tastes. And they are not coming by boat but by FedEx.

LEFT: DOUGLAS PEEBLES/CORBIS RIGHT: HEINRICH VAN DEN BERG/GALLO/GETTY

A resurgence of interest in breadfruit, not just in Jamaica but around the world, is thanks in large part to one woman, Diane Ragone of the National Tropical Botanical Garden (NTBG) in Hawaii. When she began studying the plant in the early 1980s, even basics such as where it originated and the identity of its ancestor were unknown. The majority of Bligh's 678 plants belonged to just two varieties or cultivars, known in the Caribbean as white and yellow breadfruit. They are dense, starchy and, some might say, bland-tasting. But there are hundreds of varieties in the Pacific islands, with differing flavours, textures and fruiting seasons. Ragone spent the 1980s collecting and documenting more than 200 of these, and has propagated 125 varieties from 34 countries.

By the early 2000s, Ragone was working with Nyree Zerega of Northwestern University in Chicago to tease out the history of the plant. Their first task was to identify the common ancestor of all today's breadfruit varieties. The plant had undergone so many changes on different Pacific islands at different times, with growers selecting for traits according to local conditions and tastes, that the tracks leading back to the breadfruit "Eve" had become confused. One broad pattern was immediately clear, however: the further east you go, the more the genetic diversity of cultivars shrinks, and the less likely they are to have seeds.

A sterile plant cannot reproduce without human intervention, and by virtue of that intervention humans must have transformed a fertile ancestor into the sterile breadfruit. To find that ancestor, Zerega needed a powerful forensic tool. She found it in DNA fingerprinting. Analysing the DNA of all the cultivars in the collection, she found that most included fingerprints of a seeded plant called the breadnut that grows on New Guinea. Zerega had found the elusive ancestor.

Her discovery fit with what was emerging from archaeological work at the time about how the Pacific was colonised. It was thought that Austronesians, who make up the populations of islands across the Pacific, originated in Taiwan, reaching New Guinea about 4000 years ago. From there they island-hopped eastward, through Melanesia to Polynesia – with a sidestep north to Micronesia – until they reached Tahiti. En route they fanned out north to Hawaii and south to New Zealand, both of which they ›