

Royal Botanic Gardens

Kew

Kew in the 21st Century – How do we
engage the public with biodiversity?

Age of extinction

‘One in five species on Earth now faces extinction, and that will rise to 50% by the end of the century unless urgent action is taken’

View of the world’s leading biologists, ecologists and economists



The smallest waterlily (*Nymphaea thermarum*)

Food security

‘It has been estimated that we need to produce more food in the next 35 years than we have ever produced in human history, given the projected increases in world population, and on the basis that rising incomes will continue to change diets.’

Global Food Security



Urbanisation

‘The total number of individuals living in Africa’s urban areas is expected to rise from 400 million in 2010 to 1.26 billion in 2050’

Brookings
Foresight Africa Report 2016
(www.brookings.edu)



Cairo, Egypt

Botanic Gardens



Botanic gardens must be seen to have contemporary relevance in helping to address these global challenges

Kew's purpose in the 21st century

- **Research and disseminate knowledge of plant and fungal diversity**
- **Conserve plant & fungal diversity**
- **Educate the next generation of scientists and horticulturalists**
- **Build public understanding of the importance of plant and fungal diversity**

Science and conservation

Ensete ventricosum
False banana

Although it resembles its Asian cousin, the banana, *Ensete ventricosum* is not grown for the curved yellow fruit found in most children's lunch boxes. In southern Ethiopia, where it feeds an estimated 20 million people, it is the vegetative parts of this plant that make it a valuable staple.

Ventricosum, Latin for 'swollen on one side', is a reference to the way the base of this species' pseudostem has become enlarged through domestication. Starch can be scraped from it with a blade and made into flour, porridge or soup. The underground part, the corm, is also eaten, either boiled like potatoes, or chopped up with pseudostem starch and fermented before being grilled or steamed in flat loaves.

Science
Feeding the masses

Ensete ventricosum is a staple food in areas with some of the highest population densities in Africa. It is typically grown with other crops in agroforestry, providing year-round food and balanced nutrition. It can be harvested after about 2 years or left for up to 10 years, providing a harvest whenever required, and farmers report that just 15 acres can feed a family of five for a whole year.

How scientists Paul Wilson and James Bonell are working with colleagues from Leicester University, Addis Ababa University and other Ethiopian partners to determine the priorities for enhancing this resilient crop and expanding its cultivation to other parts of Africa.

James Bonell
Research Fellow,
Tropical Crop Ecology

Native distribution

Like other species of the genus *Ensete*, *Ensete ventricosum* is native to Ethiopia, where it is the staple food for millions of people. It is also grown in other parts of the Horn of Africa, including Somalia, Kenya, and Uganda.

Yes! We have no bananas.

You might mistake this plant for a banana, but this is *Ensete ventricosum*, not *Musa sapientum*. Although they look similar, people don't eat *Ensete* fruit. They do make bread, porridge, and soup from this plant's stem and underground parts.

Paul Wilson took a head of *Ensete ventricosum* pseudostem, which is a rich source of starch, and made it into a loaf of *Ensete* bread, which is a staple food in Ethiopia.

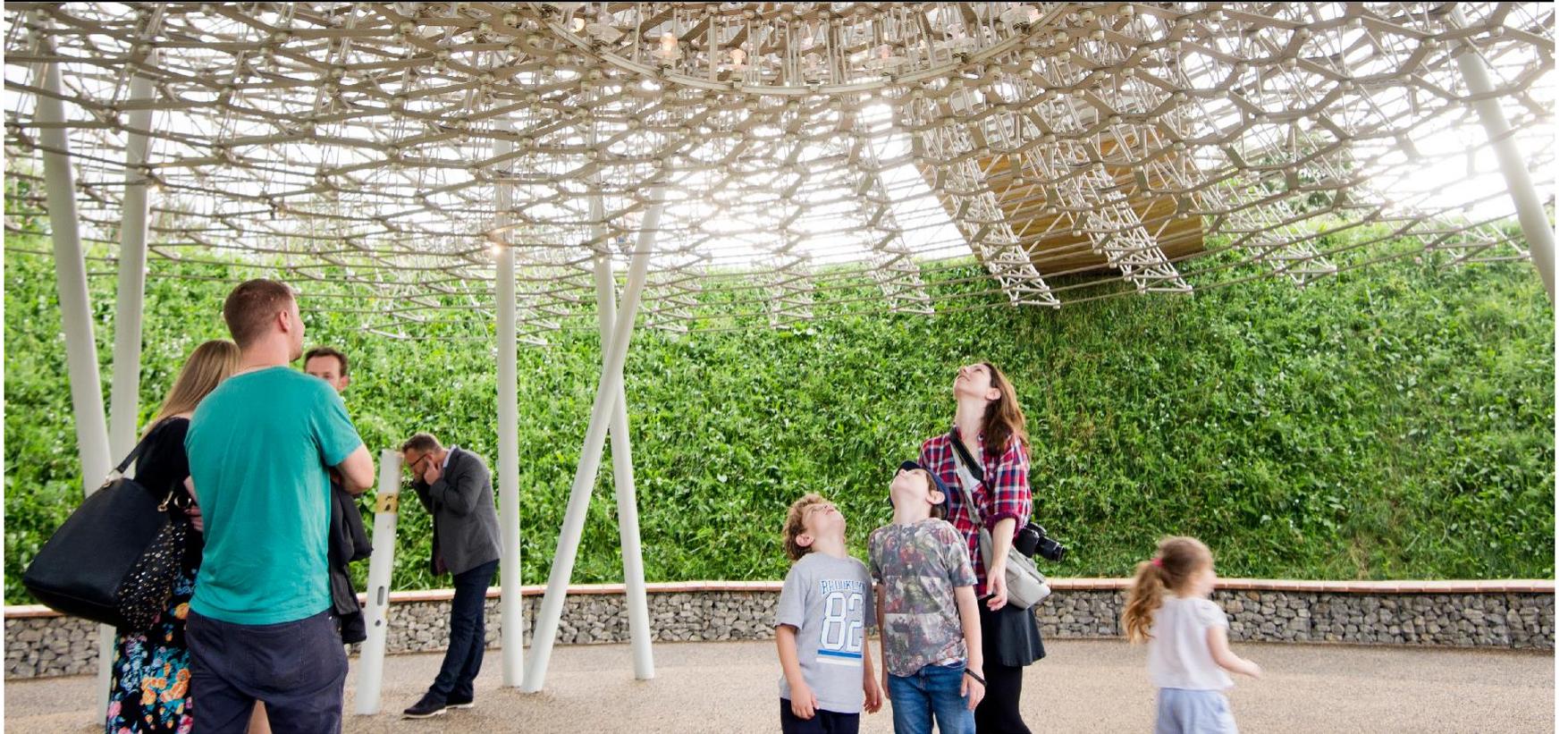
Temperate House interpretation on false banana *Ensete ventricosum*

Science and conservation



Temperate House interpretation on Wood's cycad *Encephalartos woodii*

The Hive



The Hive video

Science Festival Wakehurst



Youth Explainers



Grow Wild



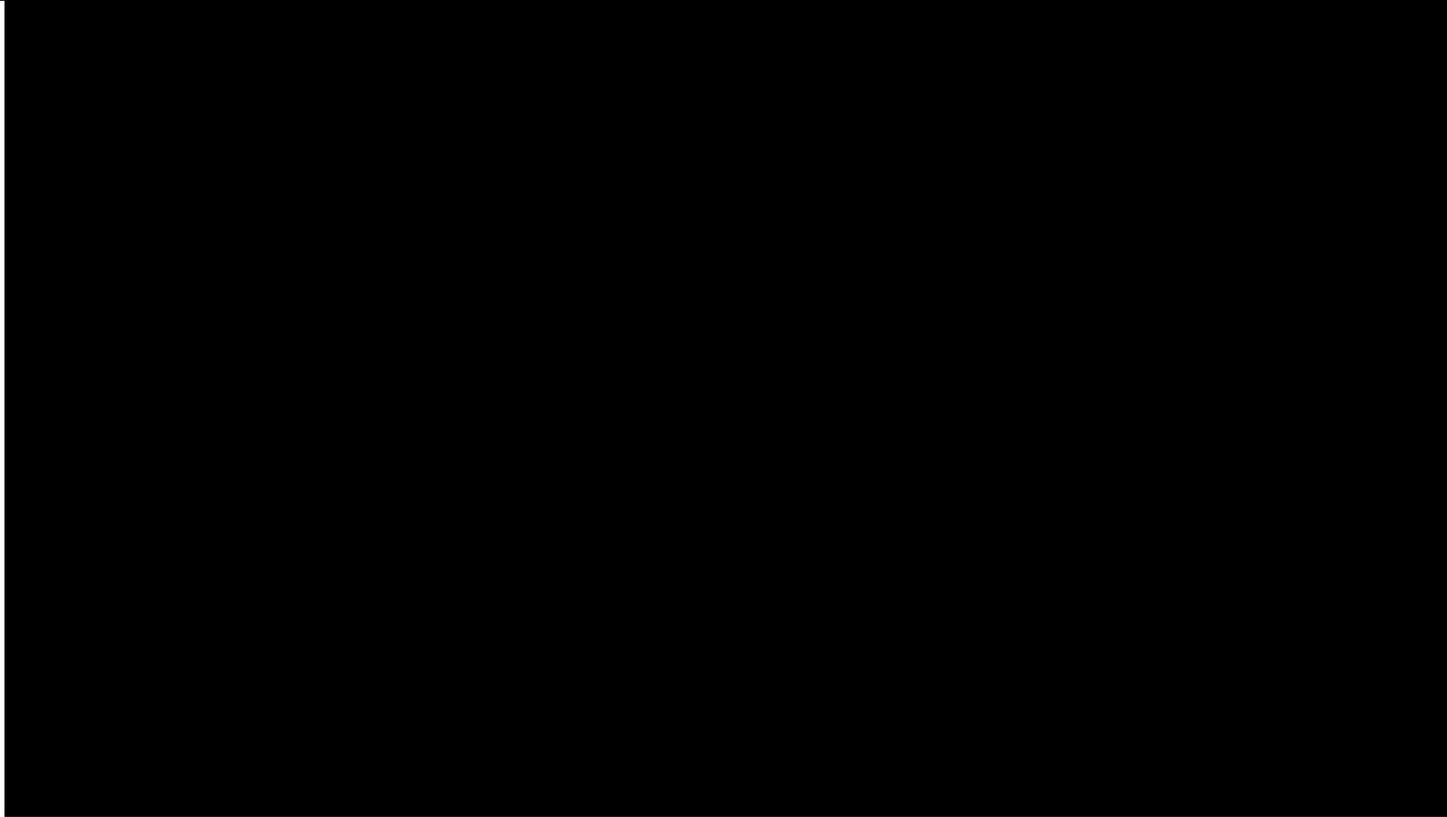
Grow wild giant fungus



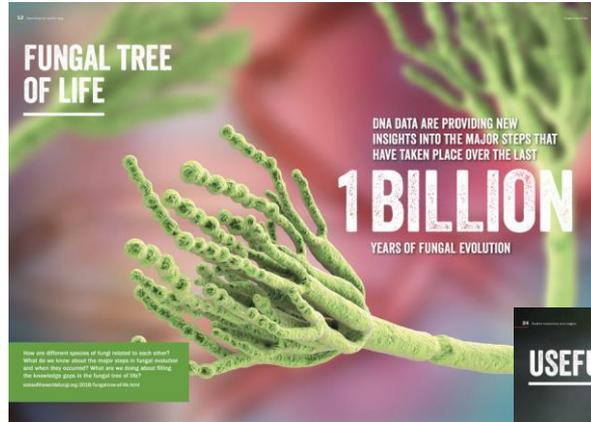
My Passion for Trees – Dame Judi Dench



My Passion for Trees video clip



State of the World's Plants / Fungi



School visits



Plant meat



Impossible burger

Crop wild relatives and GM



Flood tolerant rice

Crop wild relatives and GM



Wikimedia Commons/International Rice Research Institute (IRRI)

Golden rice

Bio-fuels



Wikimedia Commons/U.S. federal government

Buddy Alder, a Leon County farmer, stands in a rye grass field intended for biofuel production

Urban forestry



Bosque Milan building

Sugar



Pink Floyd exhibition at V&A



Pink Floyd exhibition at V&A



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Kew

Crop wild relatives and GM

GPS on GMOs

The papaya ringspot virus threatened more than **50%** of Hawaii's second most important fruit crop.



Meet Joni Kamiya, who grew up on a Hawaiian papaya farm & has seen it thrive again thanks to disease-resistant GM papayas.

LEARN WHY THIS WAS A SWEET SUCCESS AT GMOANSWERS.COM.

