



BGCI

Plants for the Planet

Botanic gardens: Contributing to the conservation of forest biodiversity and building forest resilience

Shaw, K. and Barham, E.
Botanic Gardens Conservation International

www.bgci.org

info@bgci.org

+44 20 8332 5953

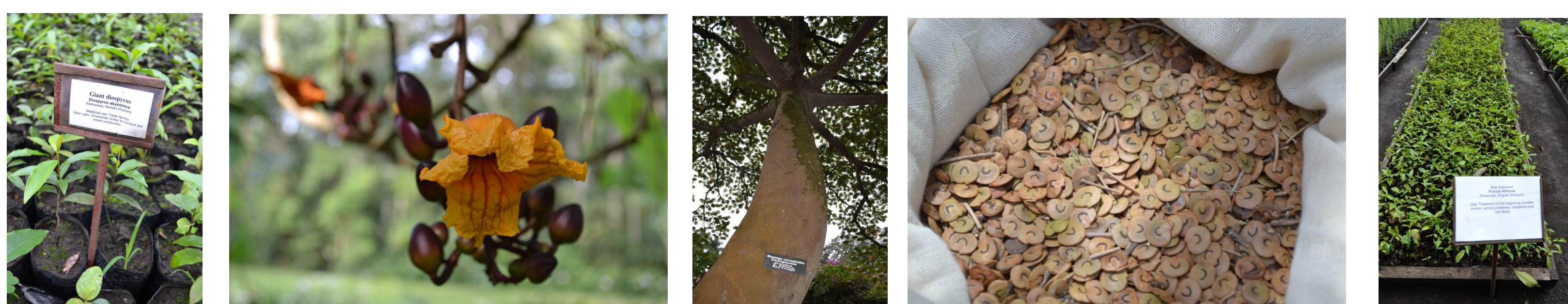
Botanic Gardens Conservation International (BGCI) is a membership organisation established in 1987. Its mission is to mobilise botanic gardens and engage partners in securing plant diversity for the well-being of people and the planet.

Botanic gardens hold *ex situ* collections of living plants and seeds, safeguarding species from extinction, and providing a valuable supply of material for restoration and research.

With over 3,000 botanic gardens around the world, this represents a huge potential resource that can contribute to the conservation of forest biodiversity and building forest resilience.

Enhancing tree conservation and forest restoration in Africa

Harnessing the skills and collections of botanic gardens to scale up and improve forest restoration across Africa



Botanic gardens across Africa hold;

- Collections of threatened and economically important tree species
- Knowledge of propagation techniques and growth rates for a much wider range of tree species than are currently utilised in commercial forestry and the majority of forest restoration initiatives

BGCI is working with botanic gardens in Africa to set up forest restoration demonstration plots that are;

- Testing native tree species performance
- Prioritising species for inclusion in forest restoration
- Providing demonstration, training and outreach

Brackenhurst Botanic Garden in Kenya

Eucalyptus plantation → diverse indigenous forest
40 ha restored over 15 years
>180 species of birds
Mammals, reptiles, fungi returned to the area
365 days of streamflow
Community harvesting of lower plants
Conservation of threatened tree species



Tooro Botanical Gardens in Uganda

Restoration of 3 clear-felled Local Forest Reserves
Propagation protocols for >30 indigenous trees
Indigenous trees to local groups
Community management of forest plots
Intercropping with leguminous vegetables
Engagement with local NGOs and government



Botanic gardens hold essential information for the maintenance and establishment of biodiverse forests that can act as buffers against climate change.

BGCI is helping African botanic gardens to connect with governments and land managers, to ensure a scientific approach to forest restoration, based on a wide mix of indigenous species, is adopted and scaled up.

The project is supported by the Ecological Restoration Alliance of Botanic Gardens, an international consortium of botanic gardens with experience leading restoration in a variety of ecosystems: www.erabg.org



Contact: Kirsty Shaw, Conservation Manager, BGCI.
kirsty.shaw@bgci.org

International Plant Sentinel Network (IPSN)

Providing an early warning system for new and emerging plant pests and diseases



Invasive alien pests and diseases pose a prominent threat to plant and forest health worldwide due to;

- The ever increasing globalisation of trade in plants and plant material
- Difficulty in identifying future threats; in recent years the majority of the most damaging invasive organisms effecting temperate forests were not considered significant pests in their native regions or unknown to science before damage was recorded

Sentinel plants offer a unique opportunity to understand and predict potential threats to a country's plant health;

- Sentinels are plant species maintained outside of their natural ranges
- Sentinels can be monitored for damage by pests and diseases that, although native to their current location, are non-native and currently not introduced in the host's country of origin
- Botanic gardens and arboreta with their large global plant collections offer a unique opportunity to monitor sentinels and thus provide valuable information to safeguard plant and forest health

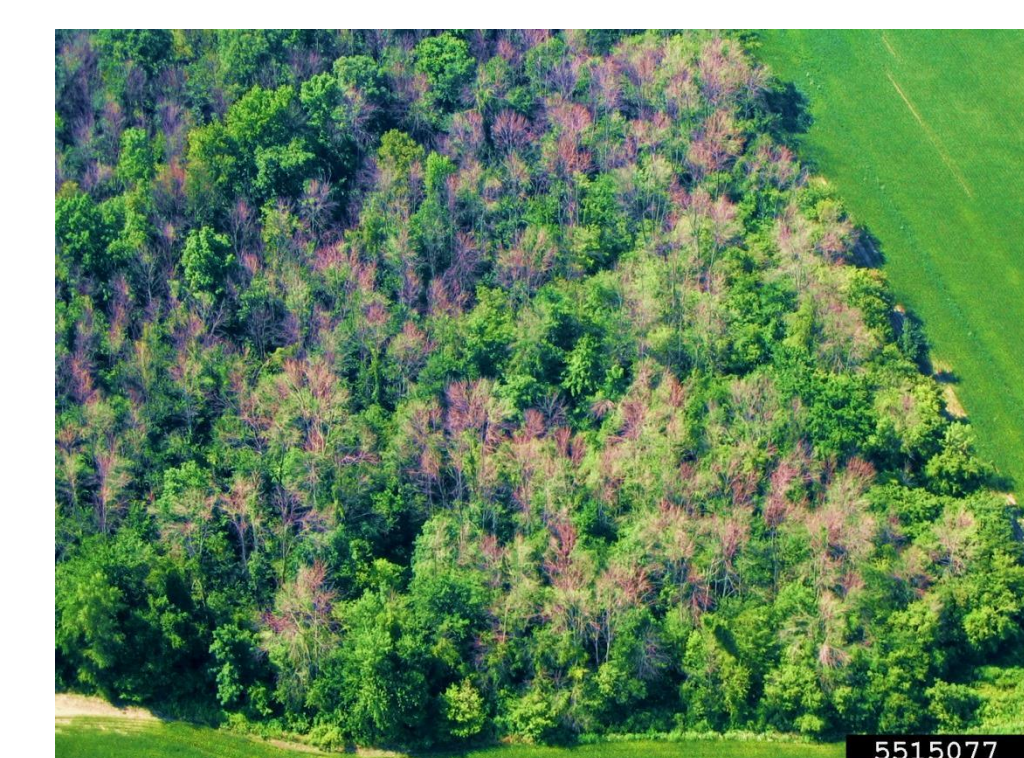
The environmental and economic devastation caused by emerald ash borer (*Agrilus planipennis*) in the U.S. is testament to the potential impact such organisms can have on forests.



Agrilus planipennis

Introduced from Asia where it is not considered a significant plant pest; due in large to population control through natural predators and evolved resistance by native host plants, the pest has devastated ash populations since its identification in the U.S. in 2002.

Surveying native U.S. ash growing in botanic gardens and arboreta in Asia, could have identified the pest as a significant threat which would have greatly increased the chances of control and eradication measures, or prevented its introduction.



Outbreak in Ontario, Canada

The IPSN is a developing network of botanic gardens and arboreta, diagnostic institutes and National Plant Protection Organisations that work in collaboration to carry out sentinel research, identifying and providing valuable information about potential pest risks: www.plantsentinel.org



International Plant
Sentinel Network

Contact: Ellie Barham, IPSN Coordinator, BGCI.
ellie.barham@bgci.org

