

## BAC Seed and Germplasm Collection and Storage on K'gari

By Matilda Davis, Biosecurity Officer, Butchulla Aboriginal Corporation's Land and Sea Program, 2021



Above: Participating in the Seed and Germplasm Collection workshop, Coffs Harbour.

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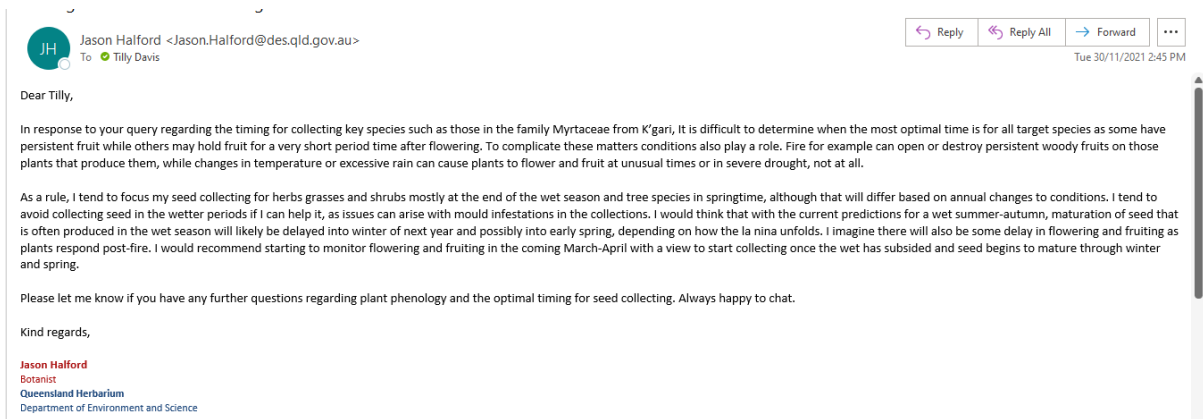
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## 2 Objective:

The Butchulla Aboriginal Corporation aims to collect and store seed and germplasm on K'gari for research, revegetation, and conservation purposes. These efforts will be focused on species that are ecologically and culturally significant and are threatened by pests and pathogens. This project is strongly focussed on the Myrtaceae family as this family is susceptible to myrtle rust. Myrtle rust has devastating impacts on country and can impede our ability to practise culture. The Butchulla people value the Myrtaceae family greatly as many Myrtaceae species are edible, medicinal and/or cultural resources. Such resources could be utilised for ceremony, constructing shelters, utensils, tools, and weapons. Some Myrtaceae species also serve as seasonal indicators, and/or contain spiritual connections to sacred stories. The Butchulla Aboriginal Corporation has developed positive partnerships with the Queensland Herbarium and forest pathologists, Dr. Geoff Pegg and Dr. Louise Shuey, from the Department of Agriculture and Fisheries; with these partnerships, research using seed and germplasm collected from K'gari can be conducted. Seed and germplasm from individual trees on K'gari that are exhibiting resistance to myrtle rust will be collected, stored, and propagated for revegetation and preservation projects. Such projects using seed and germplasm from other ecologically and culturally significant species, like bilay (Casuarina) and winnam (pandanus), that have been devastated by the 2020 wildfires on K'gari will also be a priority. Additionally, much of the winnam (pandanus) populations on K'gari are also deteriorating due to the pest insect, *Jamella australiae* (Jamella leafhopper).

## 3 Delayed Seed and Germplasm Collection K'gari:

Unfortunately, due to the timing and severity of the 2020 wildfires, seed and germplasm collection was not possible during the term of my Australian Heritage Grant and Plant Biosecurity Science Foundation contracts, with many Myrtaceae species on K'gari severely impacted. However, in this time we have established positive partnerships and with the Australian Heritage Grant and Plant Biosecurity Science Foundation funding, we have purchased resources and equipment to collect and store seed and germplasm on K'gari. I will continue my work with the Butchulla Aboriginal Corporation's Land and Sea Rangers in 2022. In 2022, we will collect and store seed and germplasm from flora on K'gari, with a strong focus on Myrtaceae species and other species that are threatened by pests and pathogens.



Above: Advice regarding conducting seed collections (timing and seasons) from Jason Halford, Queensland Herbarium.

#### 4 Partnerships:

Queensland Herbarium –

Jason Halford has provided many seed and germplasm collection and storage resources, advice regarding seed and germplasm collection and storage equipment (what is required, where to source it and how to use it). Contact Jason for any additional information. I would also like to have Jason participate in our initial seed and germplasm collections on K'gari to train the Butchulla Aboriginal Corporation's Land and Sea Rangers and assist us in this project.

Queensland Herbarium	Jason Halford	<a href="mailto:jason.halford@des.qld.gov.au">jason.halford@des.qld.gov.au</a>	(07) 3896 9325 - Queensland Herbarium
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Department of Agriculture and Fisheries –

I successfully completed seed and germplasm collection, storage, and propagation training with DAF in Gympie.

Gavin Phillips –

Gavin Phillips conducted seed collection workshops with the Indigenous Rangers at Coffs Harbour, on Gumbaynggirr country, and the Minyumai Rangers, on Bandjalang country. The Butchulla Aboriginal Corporation's Chantel Van Wamelen, Jodie Rainbow, Shania Spross and I participated in these workshops. The remaining Butchulla Aboriginal Corporation's Land and Sea Rangers would benefit greatly from participating in this workshop.

Seedbank Officer, Australian Plant	Gavin Phillips	<a href="mailto:gavin.phillips@rbgsyd.nsw.gov.au">gavin.phillips@rbgsyd.nsw.gov.au</a>	T (02) 4634 7918 M 0437 929 655
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Bank, Australian Institute of Botanical Science, Royal Botanic Gardens and Domain Trust			
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Butchulla Aboriginal Corporation's Land and Sea Program Coordinator, Chantel Van Wamelen, has consulted with environmental Scientist, Christopher Deane regarding the equipment required for seed and germplasm collection and storage, as well as aspirations for establishing our own nursery on K'gari. Christopher compiled a list of equipment required for seed and germplasm collection and storage and establishing a nursery. Contact Christopher for any additional information. BAC's Land and Sea Rangers are to cooperate with FIDO nursery volunteers and Christopher Deane to transport and assemble the Butchulla Aboriginal Corporation's seed and germplasm collection and storage equipment at the Eurong nursery facility.

Environmental Scientist and Botanist	Christopher Deane	<a href="mailto:advanceded2020@hotmail.com">advanceded2020@hotmail.com</a>	0409 870 877
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Queensland Parks and Wildlife Service –

QPWS has provided a greenhouse for BAC's use.

Fraser Island Defenders Organisation (FIDO) Eurong Nursery –

There is an opportunity to work collaboratively with FIDO at the Eurong nursery to conduct seed and germplasm propagation, nursery management and transplanting for regeneration projects. Suzanne Wilson and Peter Shooter from FIDO have expressed their enthusiasm to collaborate with BAC, however further consultation is required. Seed and germplasm collection training was also conducted with Butchulla Aboriginal Corporation staff, Rachel Killer and Aunty Josey Bonner, along with 4 of the Butchulla Aboriginal Corporation's Land and Sea Ranger Trainees and their Supervisor. Training was delivered by horticulturalist and Eurong nursery coordinator, Suzanne Wilson, from (FIDO). The 4 Ranger Trainees were undertaking (and completed) a Certificate I in Conservation and Land Management (CALM).

FIDO Nursery Coordinator and Horticulturalist	Suzanne Wilson	<a href="mailto:coolumgypsy@yahoo.com.au">coolumgypsy@yahoo.com.au</a>	0414517251
President of FIDO	Peter Shooter	<a href="mailto:peter.shooter@gmail.com">peter.shooter@gmail.com</a>	0417 649 158

Gidarjil Development Corporation –

GDC has established successful seed and germplasm collection and storage projects. Perhaps, BAC should collaborate with GDC to conduct a seed and germplasm collection workshop with BAC's Land and Sea Rangers and GAC's Land and Sea Rangers.

Gidarjil Development Corporation			4130 7700
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5 Butchulla Aboriginal Corporation's Seed and Germplasm Collection and Storage Equipment

#### Books:

1x Plant Germplasm Conservation in Australia (Second Edition)

1x Growing Australian Native Plants from Seed (Second Edition) by Murray Ralph

1x Vegetation on Fraser Island / K'gari by Grahame Applegate

1x Mangroves to Mountains Second Edition by Glenn Leiper, Denis Cox, Jan Glazebrook and Kerry Rathie

The 'Seed and Germplasm Resources' folder contains many more resources about seed and germplasm collection, storage, and propagation.

#### Equipment:

BAC tablets – use to record data

BAC Seed and Germplasm Collection and Storage notebook and stationery – use to record data

1x BAC camera – use to photograph collection sites, plants and collected fruit, seeds, and germplasm

4x Helmets – use when collecting fruit and seed from branches above

4x Safety glasses – use where necessary

Gardening glove – use when handling prickly, stinging, or toxic plants

2x gaiters – use to protect from snake bites in the field

2x gaiters – use to protect from snake bites in the field

2x GPS – use to record site locations and safety

2x UHF handhelds – use for field communications and safety

2x Binoculars – use for search for fruit and seed up in branches above

4x Headlamps

4x Land lens – use for examining tiny seeds

1x Multitool Leatherman knife – use for collecting fruit, seed, and germplasm

1x Pruning saw – use for collecting fruit and seed

1x Secateurs – use for collecting fruit, seed, and germplasm

1x Pole pruner – use for collecting fruit and seed in branches above

Fruit and seed out of reach even with the pole pruner can be collected from windfall post storm or similar event.

Permanent markers and herbarium labels – use to label bags, containers, and samples, write the contents, date and location collected

Paper bags – use to store germplasm

Resealable plastic bags – use to store fruit

Paper towel – use to absorb moisture by placing in plastic bags containing fruit

Plastic storage containers – use to store

1x Electronic kitchen scale – use to weigh fruit, seed, and germplasm

1x Plant press – use to press plant samples (germplasm) to store for the herbarium

Cardboard and newspaper are required for plant pressing.

1x Small sieve – use to separate seeds from their fruits and chaff

1x Medium sieve – use to separate seeds from their fruits and chaff

1x Large sieve – use to separate seeds from their fruits and chaff

3x Extra-large sieves – use to separate seeds from fruits and chaff

1x Desiccator – use to dry fruits and seeds

1x Full plant dissection kit – use to dissect fruit to retrieve seeds and dissect plants for germplasm

1x Magnifying lens and light – use when dissecting small fruit, seed, and germplasm

Airtight plastic containers (small) – use to store seeds

Moisture absorbers – place in seed storage containers and filing cabinets

2x Filing cabinets – use for herbarium storage

1x Dehumidifier – use to dehumidify the seed and germplasm storage facility

1x Freezer with dehumidifier – use to store seed

1x Refrigerator – use to store seed and germplasm

## 6 Aspirations for a Nursery on K'gari led by the Butchulla Aboriginal Corporation

Perhaps, the Butchulla Aboriginal Corporation should apply for a grant to purchase the necessary equipment and train the Corporation's Land and Sea Rangers to establish and operate a nursery on K'gari. Environmental Scientist and Botanist, Christopher Deane, has recommended Fernland Agencies at Yandina for nursery equipment and supplies. Fernland Agencies offers greenhouses, galvanised benches, irrigation equipment, organic fertilisers, organic insecticides and fungicides and monitoring equipment such as pH and conductivity meters.

## 7 Acknowledgements

I acknowledge the following people and organisations for their contributions to this project. Galangoor nyin (thank you).

Australian Heritage Grant

Plant Biosecurity Science Foundation

Suzanne Wilson, Nursery Manager, Fraser Island Defenders Organisation (FIDO)

Peter Shooter, President of Fraser Island Defenders Organisation (FIDO)

Jason Halford, Queensland Herbarium

Christopher Deane, Environmental Scientist and Botanist

Gavin Philips, Seedbank Officer, Australian Plant Bank, Australian Institute of Botanical Science, Royal Botanic Gardens and Domain Trust

Shedwest Community Men's Shed Inc. Brisbane Western Suburbs

Gidarjil Development Corporation

Queensland Parks and Wildlife

Aunty Jeanie Bell, community linguist – providing the Butchulla translations

Aunty Josey Bonner, Butchulla community linguist and Program Coordinator, Butchulla Aboriginal Corporation – providing the Butchulla translations

Chantel Van Wamelen, Butchulla Aboriginal Corporation's Land and Sea Ranger Program Coordinator



