

Australian Flora Foundation

Grant Project – Progress Report, January 2020

Research Project Title: A determination of the horticultural potential of the endangered *Persoonia hirsuta*.



Photo of a *Persoonia hirsuta* subsp. 'Yengo' plant propagated from a vegetative cutting (Photo: Nathan Emery)

The aims of this project are (1) to investigate the propagation potential of *Persoonia hirsuta* subsp. 'Yengo NP' for the development of a horticultural cultivar by identifying the factors affecting seed germination, rooting ability of vegetative cuttings, and its initiation into tissue culture, and; (2) to compare the growth and vigour of juvenile plants from the different propagation methods.

Vegetative cuttings were collected in May 2019 from the nine known extant plants in Yengo National Park, NSW. A total of 350 cuttings were processed from the collection in the nursery at the Australian Botanic Garden Mount Annan. Four hormone treatments were trialled:

1. Water soak (control)	2. EsiRoot soak
3. EsiRoot soak + Clonex green	4. EsiRoot soak + Clonex purple

It takes up to 12 months for cuttings to strike. As of January 2020, 26 cuttings have struck with root development across the four treatments (7.5% total strike rate). Currently, strike rate is variable across treatments, ranging from 1% to 16%. The survival rate of cuttings treated with Clonex purple is very low (18%), indicating a possible toxic effect of indole-butyric acid (IBA). Cuttings will continue to be monitored and struck plants will be measured for growth over the next twelve months.

In August 2019, 34 stem tips were collected from cutting-propagated plants and initiated into tissue culture. Plantlets will continue to be sub-sampled to increase replicates for ex-flasking out of tissue culture.

Fruit collection was not possible due to the unfortunate timing of fruit drop and the Gospers Mountain bushfire. This fire burnt through the area where the wild *P. hirsuta* subsp. 'Yengo NP' plants occur. Although site access may not occur for some time, it is possible that this sub-species is extinct in the wild if there is no recruitment and no new unaffected adult plants are found. Consequently, the proposed methodology to assess the germination of this species will be amended to use a smaller fruit collection (approximately 230 seeds) made in 2018 and stored at the NSW Seedbank. It is proposed to remove the heat shock treatment as it has been recently shown to have no effect on the germination of other *P. hirsuta* sub-species. Two germination pre-treatments (smoke-water and GA₃) will be applied to the seeds and compared with a control treatment.