Byron Bay diuris

Diuris byronensis

Endangered

Target: population monitoring, threat management and ex situ conservation

The *Saving our Species* (SoS) Byron Bay diuris (*Diuris byronensis*) conservation project has focused on monitoring the population, conducting weed control and ecological burning, collecting seeds for ex situ conservation and attempting cross-pollination.

The species has only ever been recorded in two locations. One is a small remnant patch of heath in Arakwal National Park, which is itself a threatened ecological community, namely Byron Bay Dwarf Graminoid Clay Heath Endangered Ecological Community (EEC). The other location is in Broken Head Nature Reserve where there are a few isolated records in a small patch of *Lomandra* grassland. At the start of the project, the most significant threat to Byron Bay diuris, and the EEC, was the long unburnt state of much of the heath community. It is believed that fire is important, possibly essential, in stimulating flowering. The absence of fire also resulted in threatening changes to the EEC, including continued encroachment of taller shrubs and trees modifying the habitat, and continued invasion and proliferation of both native and introduced tree and weed species, particularly rainforest species.

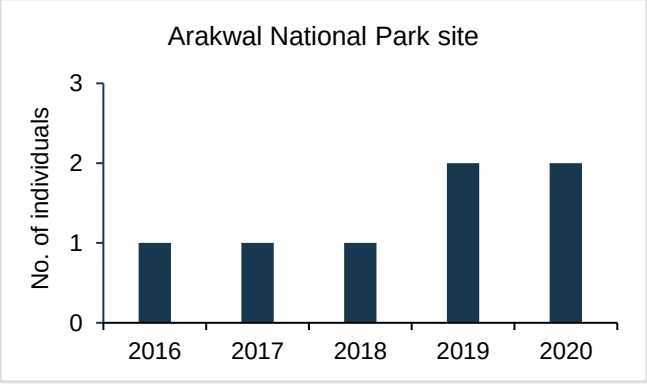
Notable outcomes of this project include:

- annual weed control, maintaining low weed density for Byron Bay diuris habitat and the EEC.

Trajectory: stable

Only one or two individuals have been recorded annually at the Arakwal National Park SoS site over the duration of the SoS project.

No Bryon Bay diuris have been recorded at the Broken Head SoS site over the period 2016-2020.



Partners

The SoS conservation project for Byron Bay diuris is led by the SoS program in partnership with NSW National Parks and Wildlife Service, especially with a local Aboriginal ranger and traditional owner, and with external species experts. Collaboration with the Royal Botanic Garden Sydney and NSW PlantBank has also been crucial in attempts to obtain germplasm material for ex situ conservation and possible propagation.

The local community is also crucial to the success of the project. Their involvement is necessary for the conservation of this species, such as through understanding the need for burns to manage the health of the endangered heath community.

What did we find?

Annual monitoring since 2016 has recorded only one or two plants each year. Monitoring is complicated by the combination of the dense habitat the species occupies, the small number of plants present, and that the species only emerges for a short period (August–September). Byron Bay diuris is difficult to detect when not in full flower; plants are potentially present as immature seedlings, non-flowering specimens or dormant below-ground tubers, which remain undetected.

Unfortunately, the ecological burns conducted in 2018 have not resulted in an increase in individual flowering *Diuris*, and of the individuals recorded subsequent to the burns, none has been recorded in the area subject to the burns.

The failure to see a response to the ecological burns that were conducted is both disappointing and concerning. We remain uncertain of the requirements of the species, particularly the fire frequency and intensity that the species requires.

However, the timing of the burns in late autumn was probably not optimum for a flowering response. It is thought that hot summer fires are more likely to induce a flowering response. Additionally, the summer following the burns fell within a period of continued below-average rainfall.

Given the lack of response to the burns that have been conducted and the extremely low numbers recorded over the period 2016-2020, listing as critically endangered is probably warranted.

A Byron Bay diurus; only two were found last year. Photo: Norman Graham/DPIE

Working with PlantBank

- There is no fertile germplasm material for this species held ex situ.
- Since 2018, in collaboration with the Royal Botanic Garden's PlantBank, we have attempted hand cross-pollination of the one or two plants that have been found annually, bagging the developing seed pods and then collecting seed.
- To date, we have not managed to obtain fertile seed.

Cross-pollination has been trialled for in situ conservation. Photo: Gavin Phillips/DPIE

Saving our Species is a NSW Government flagship program delivered by the Environment, Energy and Science Group in the Department of Planning, Industry and Environment. To find out more about threatened species in New South Wales and the *Saving our Species* program, visit the Saving our Species Program webpage.

Department of Planning, Industry and Environment, www.environment.nsw.gov.au. Cover photo: Norman Graham/DPIE
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