

Flora and Vegetation Survey Birdwood Downs

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Introduction

The objectives of this survey are to undertake a targeted survey of the two nominated areas (See Shape File) of Birdwood Downs station to identify and delineate:

- Threatened and Priority flora,
- Threatened Ecological Communities (TECs) and Priority Ecological Communities (PECs),

Threatened and Priority flora with the potential to occur in the survey area are:

Conservation status	Species	Likelihood of occurrence	No. of occurrences 50km	Habitat	Nearest location
3	<i>Corchorus fitzroyensis</i>	Low	3	River floodplains	23 km
3	<i>Eriochloa fatmensis</i>	Medium	2	Grassland on edge of marsh	2.5 km
3	<i>Gomphrena cucullata</i>	Low	6	Grassland on edge of marsh	2.5 km
3	<i>Goodenia sepalosa var glandulosa</i>	Medium	5	Pindan woodland	14 km
3	<i>Nymphoides beaglensis</i>	Low	2	Annual wetlands	2.5 km
2	<i>Schoenoplectiella humillima</i>	Low	2	Annual wetlands	23 km
1	<i>Heliotropium calvariavis</i>	Medium	1	Grassland	32 km
1	<i>Acrostichum aurea</i>	Very low	1	Mound springs	43km
1	<i>Rhynchosia rostrata</i>	Very low	1	Marshland	19km

One Threatened Ecological Communities (TEC) and three Priority Ecological Communities (PECs) are known to occur within 50kms of the survey site:

- **Assemblages of Big Spring mound springs**
Organic mound springs on tidal flat with dominant tree species *Ficus racemosa*, *F. virens* and *Terminalia seriocarpa* with understory of Ferns *Acrostichum aurea*, *Cyclosorus interruptus* and *Lygodium microphyllum*
West Kimberley, Dampierland Bioregion.

Survey Area

The survey area is located on Birdwood Downs Station approximately 18 km east of the Derby townsite. Area 1 in the SE corner of the property is approximately 78 ha and area 2 located about the centre of the property is approximately 327 ha. The survey area is an undulating sand dune system with the highest point 45m above sea level in the SE corner of the property. Despite the natural fall and rises of the dune system the property slopes away to the north and west with the lowest point on the property of 14m being 900m from the SW corner. Adjacent to and inside the western boundary of the property there are seasonal wetlands predominantly in the valleys between the dunes. This area is of the lowest altitude on the property. These areas are not included in the proposed clearing permit.

Survey methodology

A desktop study was carried out reviewing surveys in the general area including requests from DBCA for priority flora database search in the area.

Sampling of 9 standard 50 x 50 m (or equivalent area) floristic survey quadrats and 3 traverses covering an area 10m wide by 200m in length. 9 of 12 samplings occurred in the proposed clearing area whilst the 2 occurred on the margins of the proposed whilst the other targeted an area of similar floristic makeup well out the area.

The first lot of samplings were carried out from the 23rd to the 25th of February 2022. With wet season rainfall being below average (341 mm recorded till the end of February compared to the long-term average of 422mm) it was decided to complete the surveys later with the hope that more rain would fall, and the flora would be in a more advanced stage of flowering. A second lot of samplings were carried out on the 17 and 18th March when an extra 140 mm of rain had fallen bringing the total rainfall to 481mm only 49mm shy of the long-term average of 530mm.

Targeted searches for rare flora and weed species was also carried out.

Identification was carried out on the spot and for those species in doubt, voucher specimens were collected for subsequent identification and confirmation with the assistance of Dr Matthew McDonald Senior ecologist at Environs Kimberley. Flora designated sp. was sterile and was unable to be designated a species type.

Vegetation condition was judged according to:

Vegetation Condition Scale (adapted from Keighery 1994 and Trudgen 1988) for the Eramean and Northern Botanical Provinces

Vegetation descriptions were based on description taken from the following section of the NVIS information hierarchy and comparable WA current practice (see below)

Western Australian current practice	National standard
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Hierarchy of terms	Brief description in WA	Indicative scale	NVIS	Level Description	NVIS structural/floristic components required
Vegetation type	Floristic definition by strata with structural detail. Often represented with a code and floristic description.	1:100 000 to 1:10 000	V	Association	Dominant growth form, height, cover and up to 3 species for the three traditional strata. (i.e. Upper, Mid and Ground)

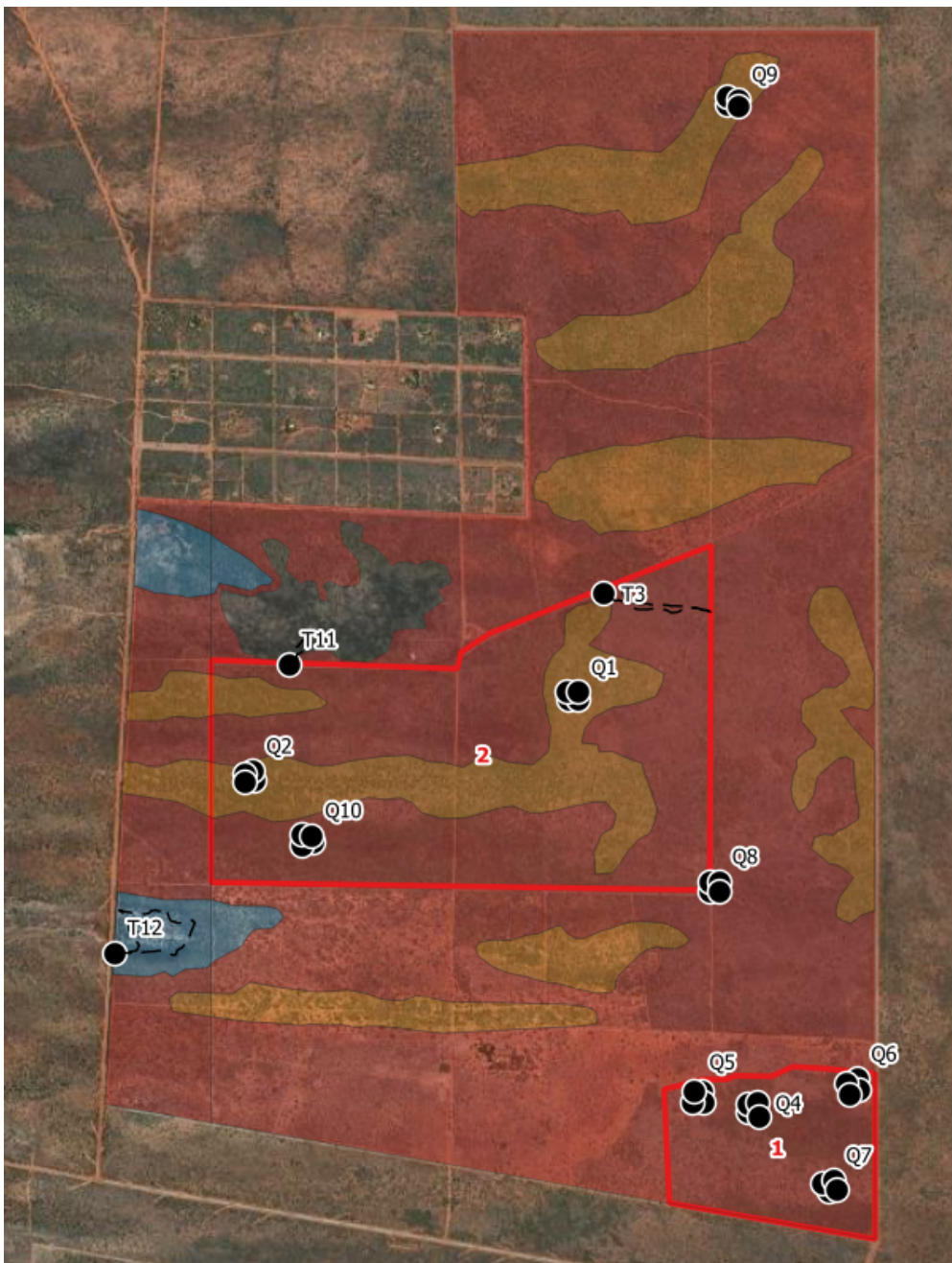
Area conditions

A very hot fire in late November 2021 had burnt through about 50% of the northern section of the proposed clearing area.

Vegetation types

- Open woodland of *Eucalyptus miniata* with *Ethrophleum chlorostachys*, or *Planchonia careya* over scattered tussock grassland on sand dune ridges.
- Pindan shrubland with isolated trees including *Corymbia greeniana* and *Petalostigma pubescens* over a dense shrubland of predominantly *Calytrix exstipulata* and *Dodonea hispidulus* in sand dunes interdunes and flats.
- Seasonal wetlands dominated by grassland and sedges with a fringing border of *Melaleuca alsophila*, *M. viridiflorus* and *Eucalyptus tectifica*.*
- Open shrubland of *Acacia monticola* with isolated trees including *Adansonia gregorii* and *Corymbia flavescens*.*

* Both vegetation types outside of proposed clearing permit area



Quadrat 1 24/02/2022



Fire Age The area burnt in the last 6 months; very hot fire **Veg Condition** Very Good

Upper storey includes isolated *Eucalyptus miniata*, *Erythrophleum chlorostachys* and *Corymbia greeniana*

Very sparse middle layer badly affected by fire included *Acacia platycalyx*, *Calytrix exstipulata* and *Dodonaea hispidulus*.

Ground layer included annual herbs *Spermacoce auriculata*, *Trianthema pilosa* and *Solanum cunninghamii*

Soil On a ridge line with red sandy soil

Quadrat 2 17/03/2022



Fire Age The area burnt in the last 6 months **Veg Condition** Very Good

Upper layer dominated by *Eucalyptus miniata* with *Planchonia careya* and *Corymbia greeniana*

Middle layer included coppicing *Dodonaea hispidulus*, *Persoonia falcata* and *Acacia platycarpa*

Ground layer included herbs *Arivela (Cleome) viscosa*, *Calandrinia strophiolata* and *Sebastiania chamaelea*. Grasses sparse.

Soil Quadrat on ridge line with creamy grey sand

Traverse 3 17/03/2022



Fire Age Three quarters of the area burnt in the last 6 months **Veg Condition** Very Good

Upper story included isolated *Adansonia gregorii* and *Corymbia greeniana* with *Petalostigma pubescens* dominant at western end.

Cochlospermum fraseri was found though out middle layer.

Ground layer consisted of isolated herbs, forbs and grasses including *Chrysopogon pallidus*, *Spermacoce auriculatus* and *Eragrostis species*

Soil Red sand

Quadrat 4 25/02/2022



Fire Age 5 years plus **Veg Condition** Good

Upper layer of isolated mature trees *Planchonia careya*, *Corymbia greeniana* and *Petalostigma pubescens*

Mid layer predominantly *Calytrix exstipulata* in the northern section with *Flueggea virosa* and *Dodonaea hispidulus* dominating rest of the area

Ground layer included prostrate herbs *Zornia prostrata* and *Trianthema pilosa* interspersed with *Chrysopogon pallidus*

Weeds *Citrullus lanatus* and two *Azadirachta indica* **Soil** Reddish brown sand

Quadrat 5 25/02/2022



Fire Age 5 years plus **Veg Condition** Very Good

Open upper storey, isolated *Petalostigma pubescens*, *Acacia tumida* and *Persoonia falcata*

Closed mid layer of *Calytrix exstipulata* in NE corner, other shrubs include *Dodonaea hispidulus* and *Flueggea virosa*

Ground layer includes isolated grasses including *Aristida hygrometrica* and *Eriachne* with the annual herb *Trianthema pilosa*

Soil Brown sand

Quadrat 6 24/02/2022



Fire Age 5 years plus **Veg Condition** Very Good

Upper layer of isolated trees *Planchonia careya*, *Corymbia greeniana* and *Gyrocarpus americanus*

Middle layer more open with *Calytrix exstipulata* and *Acacia tumida*

Ground cover includes more grasses including *Chrysopogon pallidus*, and *Aristida hygrometrica* also *Zornia prostrata*

Cattle tracks observed

Soil Brown sand

Quadrat 7 23/02/2022



Fire Age The area burnt in the last 12 months; cool burn **Veg Condition** Very Good

Upper layer of isolated *Corymbia greeniana*, *Gyrocarpus americanus*, *Planchonia careya*

Closed mid-level in NE corner dominated by *Calytrix exstipulata* with *Acacia tumida* and *Dodonaea hispidulus*

Ground layer *Boerhavia coccinea*, *Zornia prostrata* and *Triodia schinzii*

Some sign of cattle path dung.

Soil Brown sand **Weeds** *Stylosanthes hamata* and *Citrullus lanata*

Quadrat 8 17/03/2022



Fire Age The area burnt in the last 6 months; hot fire **Veg Condition** Very Good

Upper storey contains isolated *Eucalyptus miniata*, *Corymbia greeniana* and *Bauhinia cunninghamii*

Middle storey included isolated *Dodonaea hispidulus*, *Ehretia saligna* and coppicing *Persoonia falcata*

Ground layer was dominated by tussock grasses especially *Aristida hygrometrica* with a layer of herbs including *Arivela (Cleome) tetrandra* and *Goodenia sepalosa*

Soil brown sand

Quadrat 9 24/02/2022



Fire Age The area burnt in the last 6 months **Veg Condition** Very Good

Upper storey *Petalostigma pubescens*, *Persoonia falcata* and coppicing *Planchonia careya*

Mid level predominantly *Dodonaea hispidulus* and *Acacia tumida*

Ground layer covered in annual herbs and forbs including *Tribulopsis Boerhavia coccinea* and *Goodenia sepalosa*.

Dominant grasses were *Aristida hygrometrica* and *Chrysopogon pallidus*

Soil Red sand

Quadrat 10 24/02/2022



Fire Age 5 years plus **Veg Condition** Very Good

Unburnt with a great deal of dead wood lying on the ground

Upper layer *Corymbia greeniana*, *Petalostigma pubescens* and *Acacia tumida*

Middle layer dominated by thick stands of *Calytrix extipulata* and *Dodonea hispidulus*, with isolated *Flueggea virosa*.

Shaded ground included *Triodia schinzii*, *Eragrostis sp* and *Evolvulus alsinoidies*

Soil Red sand

Traverse 11 17/03/2022



Fire Age No recent fire activity with a great deal of dead scrub lying on the ground

Veg Condition Very Good

. Outside the Clearing application area

Upper storey contained isolated *Adansonia gregorii*, *Terminalia volucris* and *Eucalyptus tectifica*

Mid storey open shrubland dominated by *Acacia monticola* dominant with isolated *Dodonaea hispidulus* and *Santalum album*.

Ground layer open with isolated *Sida cordifolia* *Calandrinia strophiolata* and *Solanum cunninghamii*

Soil Lower in the landscape with grey/cream sand

Traverse 12 18/03/2022



Fire Age Burnt in the last 12-24 months

Veg Condition Very Good

Upper storey isolated *Adansonia gregorii*, *Eucalyptus tectifica* and *Melaleuca alsophila*

Mid storey absent and replaced by tussock grassland dominated by *Aristida hygrometrica*, *Eriachne sp.* and *Dactyloctenium radulans*

Ground layer dominated by annual herbs *Mimulus uvedeliae var lutea*, *Gomphrena* and *Ptilotus lanatus*

One of the lowest points on the property with the possibility of inundation during the wet season

Soil Creamy grey sand Weeds Grass weeds observed include *Cenchrus ciliaris* and *C. setiger*

Conclusions

- The vegetation contained in the two areas of Birdwood Downs Station designated for a clearing application are in very good condition and relatively free of weeds.
- 128 species of plant were sampled from 42 families.
- No Threatened or priority species were found in any of the sampling sites.
- No TEC or PEC were observed in the areas designated for clearing