



South East Queensland Horse Trail Network Interim Assessment: D'Aguilar National Park



**Queensland
Government**

Prepared by: Ecological Sciences, Queensland Herbarium and Biodiversity Science, Department of Environment and Science

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Introduction:

The first Europeans to enter the D'Aguilar Range area were farmers and timber getters in the 1840s (QPWS 2022). The earliest timber reserves were gazetted in 1918 and extensive logging of hardwoods took place after World War II. Maijala National Park was the first to be declared a National Park in the D'Aguilar Range in 1930. Other small National Parks were progressively added; Jollys Lookout (1938), Manorina (1949) and Boombana (1950). In 1977 a partnership between the community, Brisbane City Council and the Queensland government established the "park for the people" Brisbane Forest Park. The declaration of D'Aguilar National Park in 2009 consolidated many smaller NPs into the large D'Aguilar NP (QPWS 2022). The Jinibara people are the Traditional Owners for much of this park. A native title determination was made in November 2012 for federal court number QUD 6128/98 which covers the majority of D'Aguilar National Park and an Indigenous Land Use Agreement Q12012/129 has been registered (NPRSR 2013).

Horse riding has long been a part of the Queensland lifestyle, and many southeast Queensland forests are valued by horse riders as safe and scenic places to ride, although the number of riders is low (DERM 2011; Rossi *et al.* 2013). These horse trail tracks are multiple-use tracks and those close to Brisbane suburbs were found to be used by mountain bike cyclists, walkers, joggers, motorised users, dog-walkers, bushwalkers, horse-riders and motorised trail-bikes (in descending order of numbers) (Fairfax *et al.* 2014). The south-east Queensland horse-riding trail network (HTN) includes more than 500km of trails within 29 reserves between Gympie and the State's southern border. The HTN trails link to a broader trail network that includes about 340km of trails in Queensland's forest plantations and at least 470km of trails on other tenures, including several other State Forests (DERM 2010).

Road and trail networks within native forest ecosystems are fundamental in providing access for the purposes of recreational use, extraction of forest products, fire control and routine resource management (Ngugi *et al.* 2014). However disturbance associated with road construction and maintenance, as well as use by vehicles, cyclists, motorbikes, walkers and horses, increase the risk of invasion by non-native (weed) plant species along roads (Potito and Beatty 2005; Ansong and Pickering 2013). Once established in disturbed road verges, some invasive species may colonise adjacent undisturbed native vegetation (Ngugi *et al.* 2014).

Non-native species that become established in natural ecosystems compete with native species for available resources and can replace native species to the detriment of organisms that depend on these native species (Gower 2008). For example, non-native plant species have rapidly invaded and

successfully displaced native species in many conservation areas in Australia (Ngugi and Neldner 2017) and buffel grass (*Cenchrus ciliaris*) forms monocultures in pasture lands of Queensland (Butler and Fairfax 2003).

Multiple vectors including vehicles, machinery, soil movement, animals, wind, water, and humans are involved in the spread of non-native species along forest trails (Ngugi *et al.* 2014). Horses have been implicated as significant vectors in the introduction of plant species observed adjacent to horse trails in nature reserves (Gower 2008). The risks associated with horse riding include seed movements through horse dung, hair, hoof debris, riders, and riding equipment. In a review of world-wide studies analysing the potential dispersal of weeds through horse dung, Ansong and Pickering (2013a) identified 156 naturalised plant species in Australia that germinate from horse dung. Other reported negative impacts from horse use include trampling of vegetation and soils, nutrient addition through urine and dung, introduction of pathogens, as well as enhanced erosion and sediment run-off. All these impacts may trigger changes in species composition of adjacent native ecosystems.

The objective of the Horse Trails Scientific Monitoring Program (DERM 2010) is to monitor horse riding on the Southeast Queensland Horse Riding Trail Network that traverses through Southeast Queensland protected areas, identify any impacts of such use, and recommend management actions to address such impacts. Studies relating to the social, erosional and water quality impacts of horses and horse riding are available on the DES website (Monitoring and managing potential impacts | Parks and forests | Department of Environment and Science, Queensland (des.qld.gov.au)).

This monitoring program was initiated in 2009 and established 52 paired-long-term monitoring sites along designated horse trails located in conservation reserves in seven National Parks in southeast Queensland (Figure 1). These monitoring sites examine (1) the invasion and extent of non-native plant species along the management roads designated as horse trails; and (2) changes in BioCondition over time of vegetation adjacent the horse trails.

Methods:

Study location

D'Aguilar National Park (NP) covers 38 173 hectares and was assessed at 11 sites containing a total of 22 transects in three Regional Ecosystems (REs) shown in Table 1. The monitoring sites for this extensive National Park were distributed across the landscape to sample different conditions. The three RE are 12.11.3, 12.11.5 and 12.11.7 and Technical Descriptions (TDs) for these RE are presented in Appendix

2. The TDs are detailed descriptions of the normal range in structure and floristic composition of remnant regional ecosystems and their component vegetation communities.

Table 1. Summary statistics for monitoring sites at D'Aguilar NP arranged by regional ecosystem.

Regional Ecosystem	Extent (ha)	Proportion of park/reserve (%)	No. of transects examined
12.11.3 Open forest generally with <i>Eucalyptus siderophloia</i> , <i>E. propinqua</i> on metamorphic rocks	11 044	29	3
12.11.5 Open forest complex with <i>Corymbia citriodora</i> , <i>Eucalyptus siderophloia</i> , <i>E. major</i> on metamorphics	9792	26	17
12.11.7 <i>Eucalyptus crebra</i> woodland on metamorphics	86	0.2	2

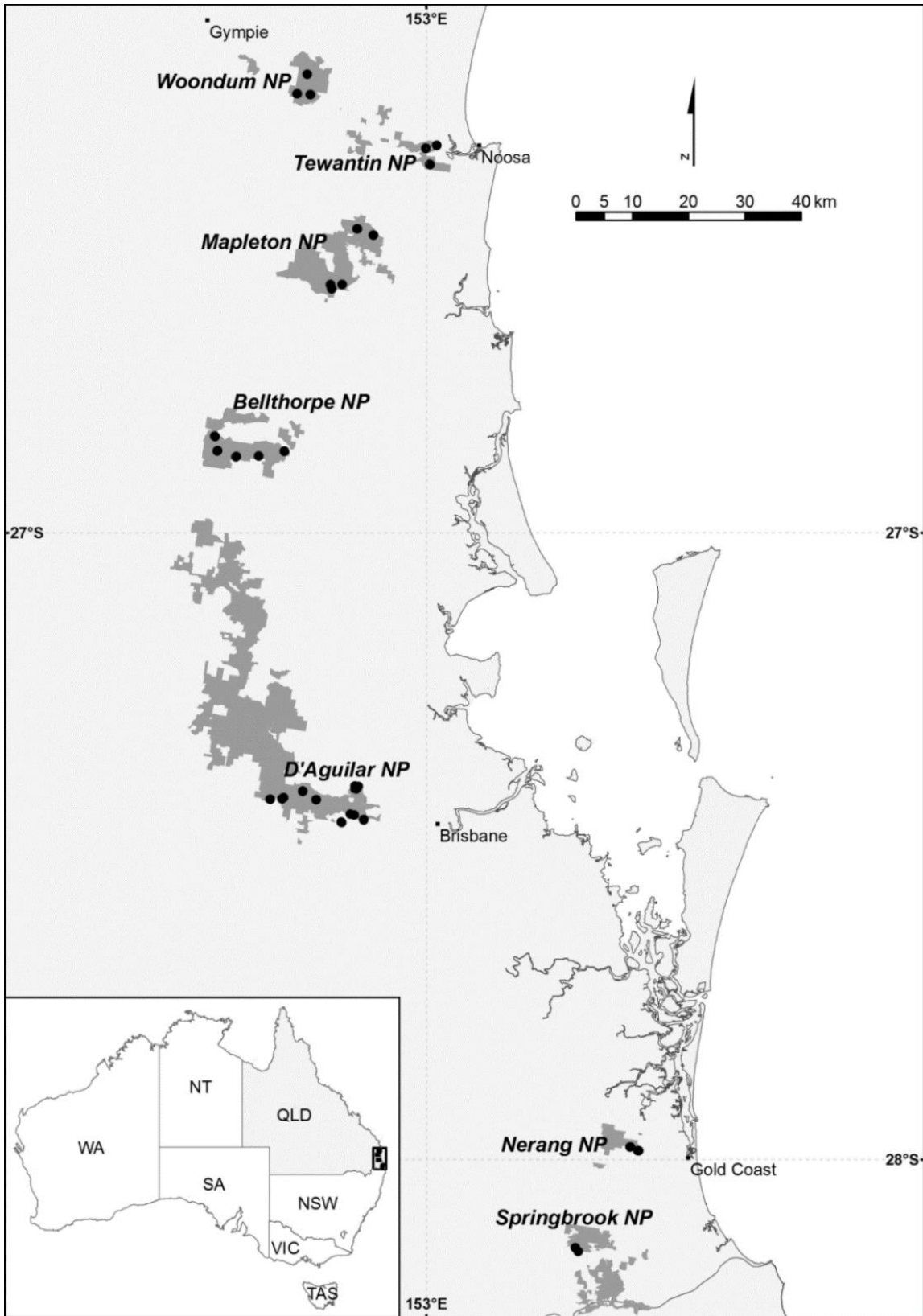


Figure 1. Map of Australia showing Queensland State, location of the seven National Parks (NP) in southeast Queensland that have designated horse trail network, and distribution and location of study sites (Ngugi *et al.* 2014).

Site selection and Sampling

Permanent sites for vegetation monitoring were established in 2010 and 2011 along the horse trail network in D'Aguiar National Park and monitored in 2015 and 2018. Sites were overlaid where possible on existing ecological research plots used for vegetation mapping and classification purposes (Neldner *et al.* 2022), or native forest permanent plots used for long-term monitoring of forest growth (Ngugi *et al.* 2015), allowing surveys to add to existing valuable datasets. The data collection method is described in Ngugi *et al.* (2014) .

1. Assessing impact of non-native species on the vegetation along management roads

Vegetation growing adjacent to the horse trail network was sampled using 20 m transects laid out perpendicular to the trail edge on both sides of the trail. The trail edge was defined as the shoulder edge of the trail surface where vegetation growth is evident, and from which point vegetation cover continues into the adjacent vegetation. Along each transect a total of eight quadrats were sampled. At the start of the transect five contiguous 1 x 1 m quadrats extending from the trail edge to 5 m into the forest were sampled to estimate spread of non-native species. Contiguous plots were used to accurately determine the distance of influence from the trail edge that was impacted by non-native species. In addition, 1x1 m plots were sampled at 10 m, 15 m, and 20 m along the transect line. In each 1x1 m plot, all plant species were recorded, and the projective foliage cover of each ground layer species (less than 1.5 m in height) was estimated. Cover was also assessed for leaf litter, bare-ground and coarse woody debris (> 10 cm diameter) as a percentage of the total area in each quadrat (1 m²) (Ngugi *et al.* 2014). This sampling design is very similar to that used by Potito and Beatty (Potito and Beatty 2005) and Gower (Gower 2008).

2. Assessing the condition of the forest regional ecosystems

To sample the species diversity and cover composition in the relatively less disturbed adjacent native forest at each location, a 50 x 10 m forest transect was established parallel to the horse trail and 25 m from the trail edge. All vascular plant species observed within the transect were recorded and the cover of ground stratum species was assessed in five 1x1 m quadrats along the transect midline. Comprehensive sampling of the structure and floristics of the forests followed the standard Queensland Herbarium vegetation survey methodology (Neldner *et al.* 2022) used for collecting data for the Queensland Biodiversity and Ecology Information System (QBEIS) and allowed each site to be assessed for their BioCondition (Eyre *et al.* 2015).

3. *Plant species identification and categorisation*

All herbaceous and woody vascular species observed within each plot were identified to species in the field where possible. Where necessary specimens were collected and brought to the Queensland Herbarium for identification. Where available material was insufficient to identify species, identity was recorded at genus level. Nomenclature, and native and non-native status follows the Census of Queensland Flora 2021 (Brown 2020). Characterisation of species as environmental weeds, weeds of national significance and/ or declared weeds under State legislation was done using the online facility maintained by the Queensland Department of Agriculture, Fisheries and Forestry (QPWS 2022).

Results:

D'Aguilar National Park was assessed at 11 sites containing a total of 22 transects across three Regional Ecosystems (RE's). Detailed results for the non-native species richness and vegetation cover, and BioCondition scores for the transects at each site are provided in the report cards in Appendix 1.

A summary of weed species richness and cover in the trail-edge transect is presented in Table 2. The highest observed mean cover of non-native species was 15.5%, and the highest non-native species richness count was six species. The highest values of cover recorded at the trail-edge for the three REs ranged from 25.5 to 40%. Within the QBEIS transect, the highest mean cover of non-native species was 27.4% and the highest reported cover in the range was 44.4% which was mainly composed of *Lantana camara* (Table 2). The highest mean of non-native species richness was 12 species with majority of QBEIS sites having four or fewer species (Table 2).

BioCondition score among all the sites ranged from 47 to 95% on a 0 to 100% scale (the higher the score the better the condition) with the lowest mean score of 58%, indicating that most sites were in reasonable condition (Table 3). The highest BioCondition scores were recorded in RE 12.11.5 with the mean ranging from 75 to 82%.

Table 2. Mean and range of non-native cover*, and absolute numbers (richness) of non-native species identified per visit at each sampled regional ecosystem within D'Aguilar National Park. Values for both trail-edge and QBEIS transects are shown.

Regional Ecosystem	Sites	Site Visit	TRAIL-EDGE TRANSECTS				QBEIS TRANSECTS			
			Cover mean (%)	Cover range (%)	Species mean (count)	Species range (count)	Cover mean (%)	Cover range (%)	Species mean (count)	Richness range (count)
12.11.3 <i>Eucalyptus siderophloia</i> , <i>E. propinqua</i> +/- <i>E. microcorys</i> , <i>Lophostemon confertus</i> , <i>Corymbia intermedia</i> , <i>E. acmenoides</i> open forest on metamorphics +/- interbedded volcanics	3B, 5A, 5B	1	15.5	2.5 - 39.8	4	2 - 5	18	0 - 39	4	2 - 5
		2	13.9	5.8 - 29.2	3	2 - 4	27.4	7 - 44.4	2	1 - 2
		3	2.5	1.5 - 3.9	4	2 - 5	9.2	9.2	2	2
12.11.5 <i>Corymbia citriodora</i> subsp. <i>variegata</i> woodland to open forest +/- <i>Eucalyptus siderophloia</i> / <i>E. crebra</i> , <i>E. carnea</i> , <i>E. acmenoides</i> , <i>E. propinqua</i> on metamorphics +/- interbedded volcanics	18A, 18B, 1A, 3A, 45A, 45B, 59A, 59B, 65A, 65B, 68A, 68B, 81A, 81B, 96A, 96B	1	6.8	0 - 36.6	2	0 - 6	1.25	0 - 10.3	4	1 - 9
		2	5.3	0 - 29.5	2	0 - 7	2.25	0 - 25.6	4	1 - 8
		3	4.4	0 - 29.6	3	0 - 9	1.7	0 - 16.4	4	1 - 10
12.11.7 <i>Eucalyptus crebra</i> woodland on metamorphics +/- interbedded volcanics	30A, 30B	1	14.5	3.5 - 25.5	6	5 - 6	0.33	0 - 0.67	12	11 - 12
		2	2.0	1.5 - 2.5	2	1 - 3	0.41	0.3 - 0.48	10	9 - 10
		3	4.8	4.5 - 5.1	5	4 - 6	0.92	0.89 - 0.94	11	10 - 11

*non-native cover is the sum of weeds recorded in the ground and shrub layers (Eyre et al. 2015)

Table 3. Mean and range of BioCondition scores for the QBEIS (forest) sites summarised by regional ecosystem within D'Aguilar National Park.

Regional Ecosystem	Sites	Sampling Visit	BioCondition Mean (%)	BioCondition Range (%)
12.11.3 <i>Eucalyptus siderophloia</i> , <i>E. propinqua</i> +/- <i>E. microcorys</i> , <i>Lophostemon confertus</i> , <i>Corymbia intermedia</i> , <i>E. acmenoides</i> open forest on metamorphics +/- interbedded volcanics	3B, 5A, 5B	1	58	47 - 81
		2	66	55 - 87
		3	83	83 - 83
12.11.5 <i>Corymbia citriodora</i> subsp. <i>variegata</i> woodland to open forest +/- <i>Eucalyptus siderophloia</i> / <i>E. crebra</i> , <i>E. carnea</i> , <i>E. acmenoides</i> , <i>E. propinqua</i> on metamorphics +/- interbedded volcanics	18A, 18B, 1A, 3A, 45A, 45B, 59A, 59B, 65A, 65B, 68A, 68B, 81A, 81B, 96A, 96B	1	75	60 - 87
		2	76	52 - 93
		3	82	67 - 95
12.11.7 <i>Eucalyptus crebra</i> woodland on metamorphics +/- interbedded volcanics	30A, 30B	1	66	57 - 75
		2	80	79 - 81
		3	65	52 - 77

Discussion and Conclusions

This study investigated the impacts of horse riding along horse trails and the risk of horses acting as vectors in the introduction of non-native plant species adjacent protected areas within D'Aguilar National Park in southeast Queensland.

Non-native plant species

The construction, maintenance and use of the road networks that traverse regions of native vegetation may predispose these ecosystems to invasion by non-native plant species (Ngugi *et al.* 2014). Following comprehensive sampling of 11 sites (22 transects) across three sampling time points (2010/2011, 2015 and 2018), the majority of sites along designated horse trails in D'Aguilar National Park showed a moderate to high degree of invasion by non-native species with variable cover.

Throughout this national park, all QBEIS (forest) sites showed some level of incursion by non-native species, with the exception of sites 81B, 96A and 96B. Similarly, all the trail-edge sites showed some degree of non-natives species incursion with the exception of site 1B.

Of all the trail-edge sites that showed non-native species incursion, seven sites were found to increase in non-native cover through time (1A, 3B, 5A, 5B, 18A, 68A, 96A). Only four of the trail-edge sites (3A, 68B, 81A, 81B) were found to improve over time and this was indicated by a decrease in number of non-native species recorded during consecutive site revisits.

Generally, incursion of non-native species within D'Aguilar National Park was variable across the examined sites, with high levels of non-native species richness found in both the forest and trail-edge transects. The presence of large numbers of non-native species at the trail-edge and adjacent forest transects is consistent with the idea of road networks acting as corridors for incursion of non-native species, however other environmental influences cannot be excluded. It is likely that high frequency of fires, historical logging, the millenium drought and subsequent wet years also contributed to the variable levels of non-native plant species incursion within this national park.

BioCondition scores within the forest transects

QBEIS sites 1A, 3A, 3B, 18A 30A, 45A, 45B, 59B, 65A and 68A all showed high BioCondition scores or showed improvement over time. Prescribed burns in 2009, 2012, 2013 and 2014 at several of these sites may have played a role in improving BioCondition scores for sites 1A, 3A, 3B, 18A, 30A, 45A, 45B and 68A, however other factors cannot be excluded given that no fires were recorded at sites 59B and 65A which also had high scores. All remaining forest sites exhibited low to moderate BioCondition scores. Interestingly, these low-moderate scored sites had either no record of fires or had not been burned

for several years, suggesting that fire may play a necessary role in maintaining healthy levels of native species richness and cover.

Conclusions

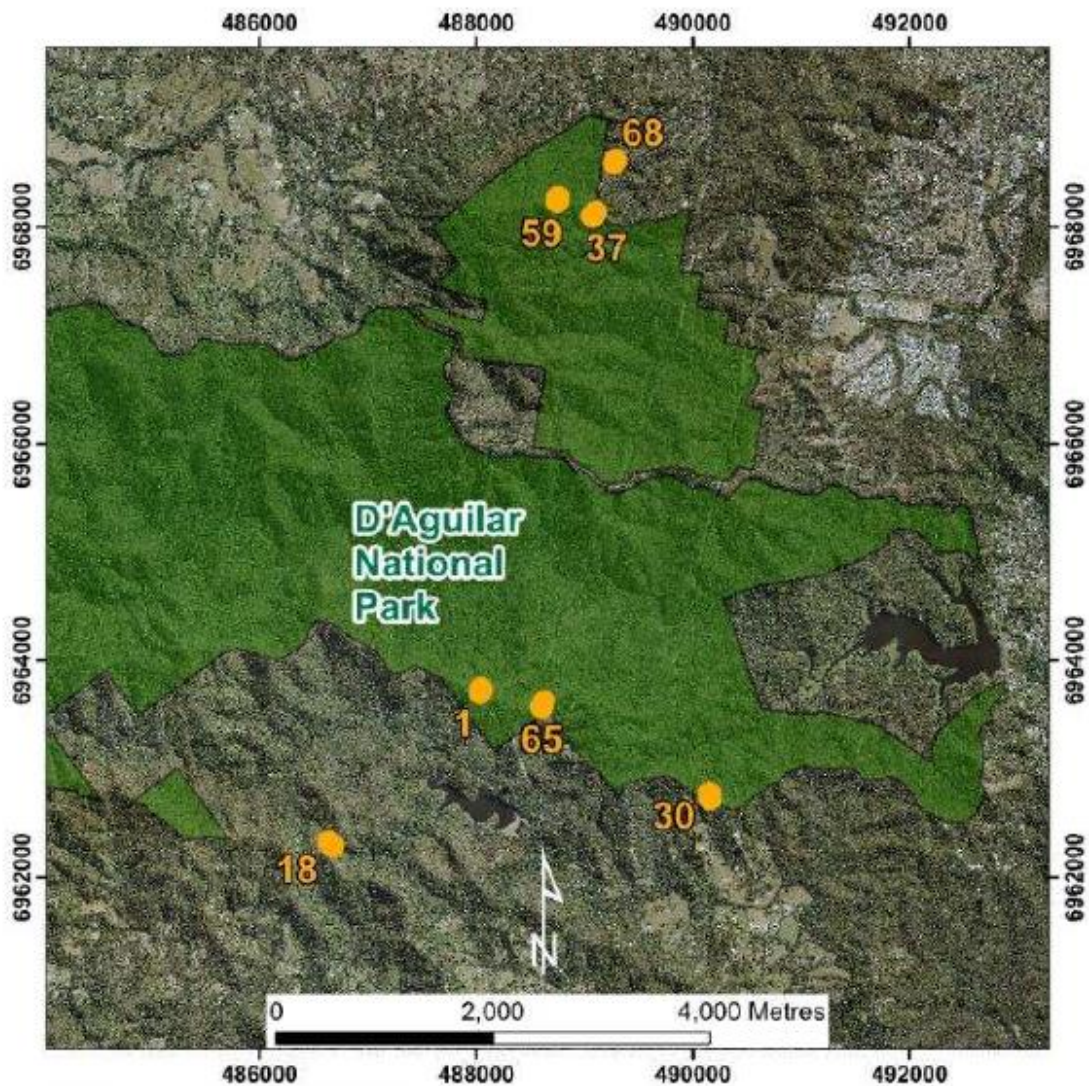
There is a moderate degree of non-native plant species incursion in D'Aguilar National Park along the forest trails. This is likely because of continued and active usage of trails for recreation and essential maintenance of the trails. For few sites, the proximity of freehold properties along Boundary road to the national park may be a source of non-native species as many of the species were similar to weeds found on cultivated farms. QPWS&P weed management which is often localised along the trail edges has had positive effect but may be required to extend further to the adjacent vegetation to limit and control incursion and spread of non-native species in D'Aguilar National Park. The BioCondition scores of the forest were generally high with an improving trend. The monitoring should continue in order to inform long-term non-native species (pests) incursion and management.

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Appendix I. Site report cards



SEQ Monitoring Report Card

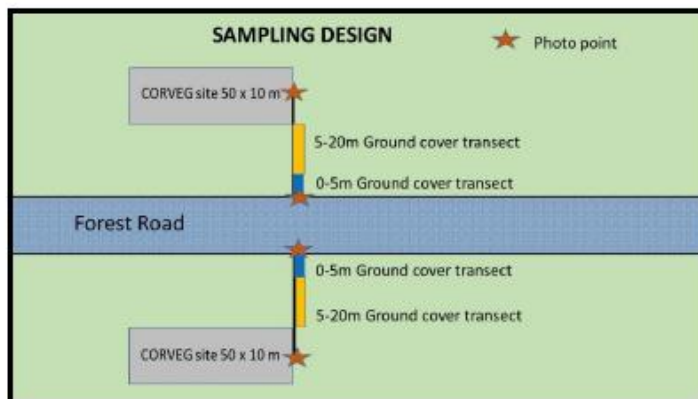
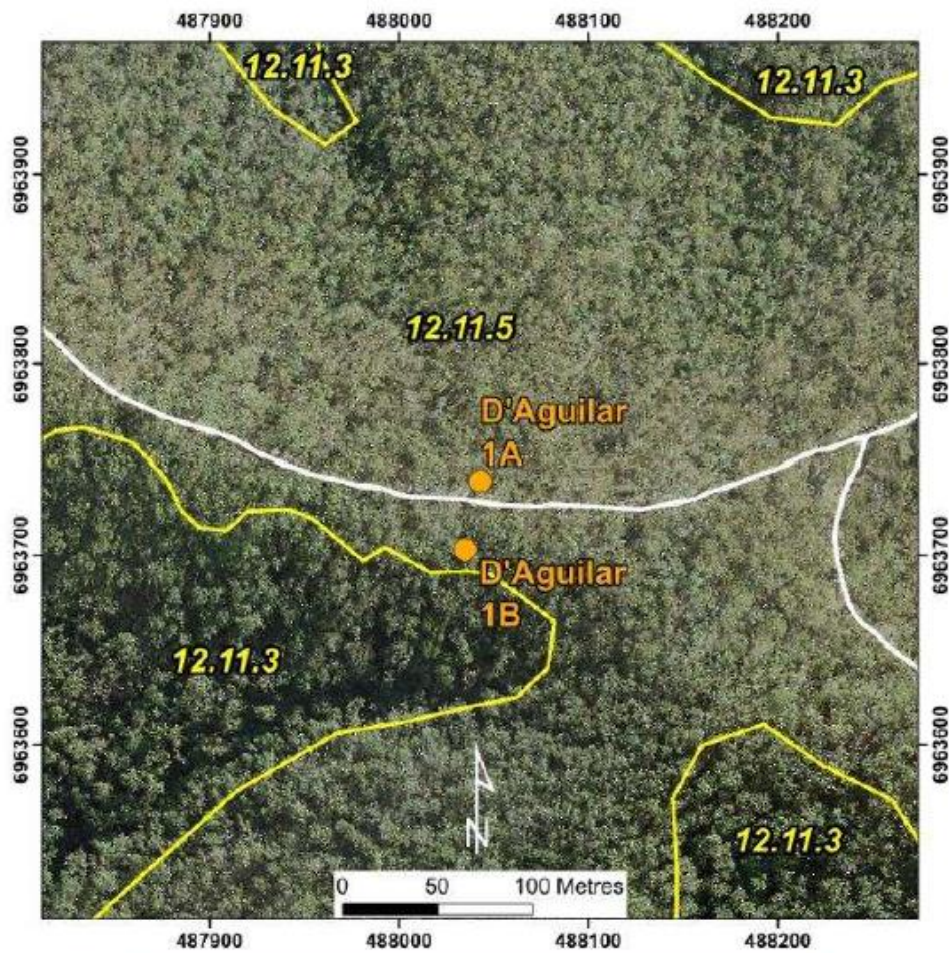
D'Aguilar 1A

Regional Ecosystem 12.11.5

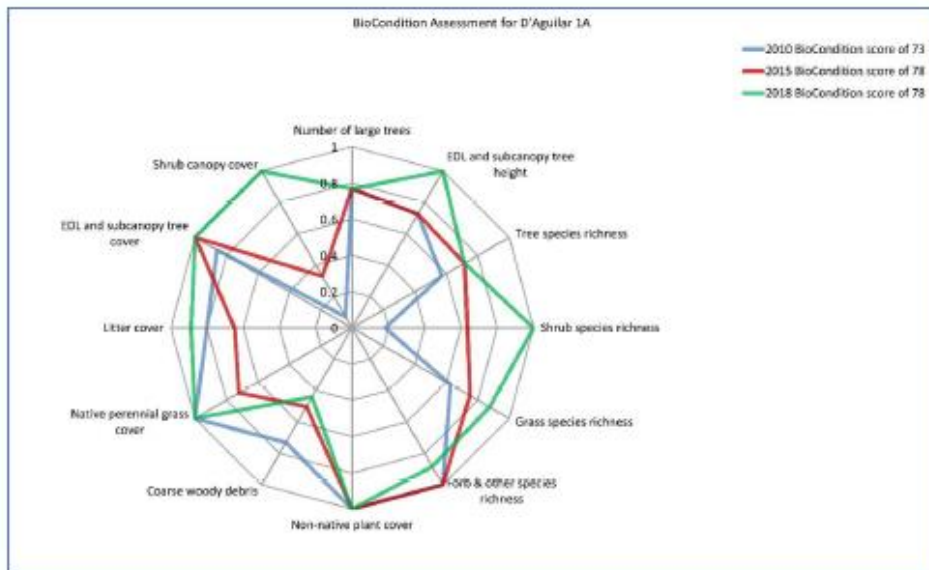
Corymbia citriodora subsp. *variegata*,
Eucalyptus crebra, *Eucalyptus*
microcorys, *Eucalyptus carnea* open
forest to woodland

Queensland Herbarium, October 2021

D'Aguilar National Park: Site 1A



QBEIS Site BioCondition monitoring



Radar diagram of BioCondition Scores by attribute and year sampled
 BioCondition scores: 2010 – 73 2015 – 78 2018 – 78
 Fire history: Burnt June 2014



Forest monitoring transect April 2010

Forest monitoring transect April 2018

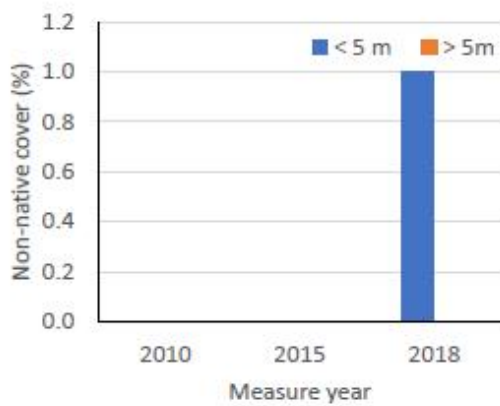
General Comments: Since the controlled burn in 2014, the site has had a consistent increase in shrub species richness, grass species richness, tree species richness and shrub canopy cover. Non-native species recorded in the QBEIS BioCondition monitoring site with low covers were: spear thistle (*Cirsium vulgare*), flat-leaved fleabane (*Erigeron bonariensis*), red Natal grass (*Melinis repens*), common sowthistle (*Sonchus oleraceus*) and perennial horse gram (*Macrotyloma axillare* var. *axillare*).

Trail-edge ground cover transect at D'Aguilar 1A

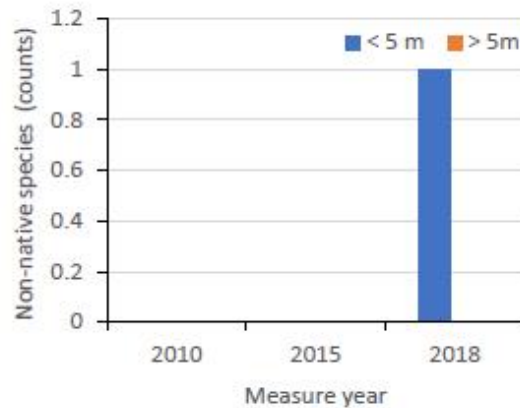


Trail-edge transect March 2015

Trail-edge transect April 2018

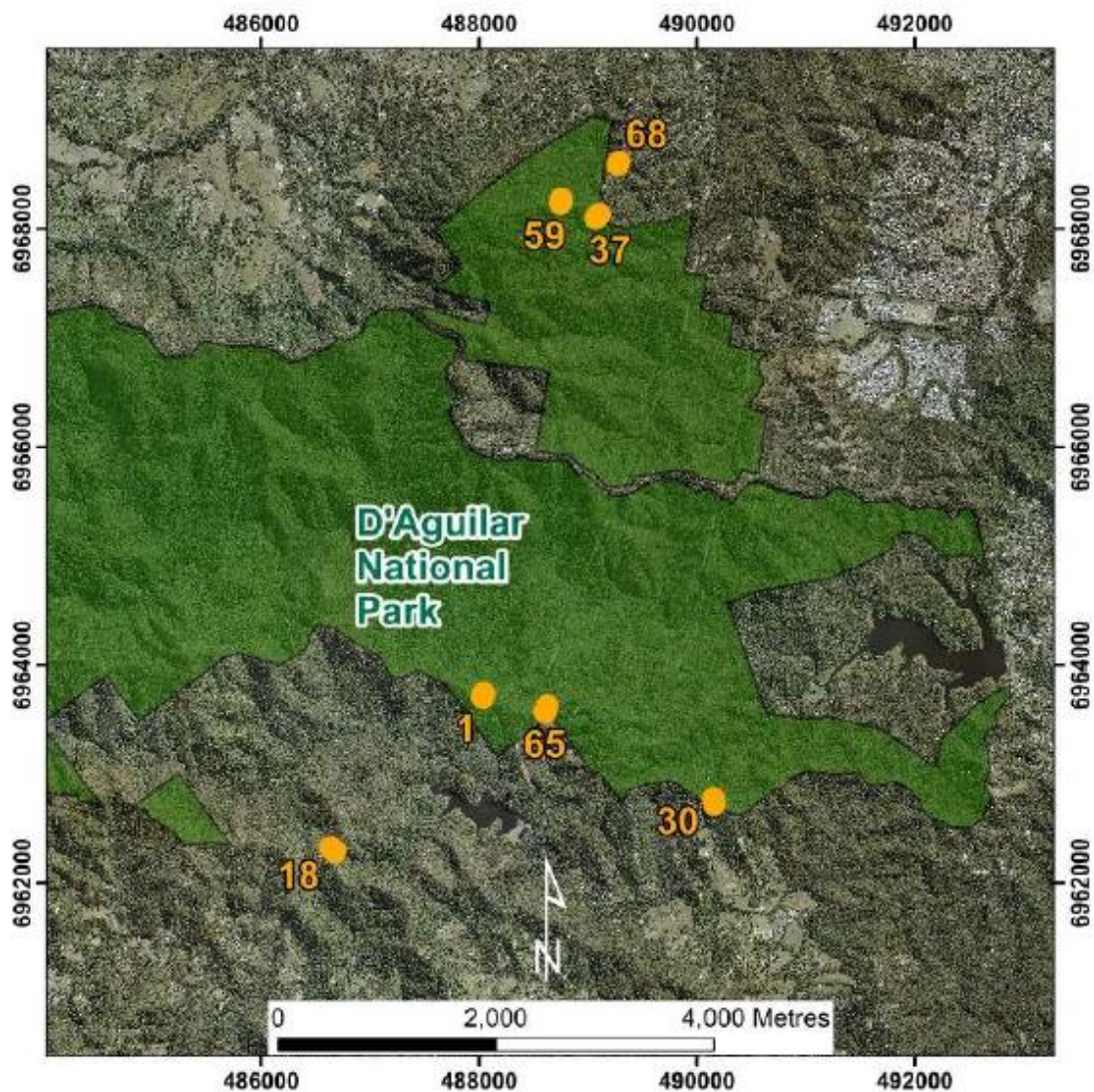


Non-native species cover



Number of non-native species

General comments: No non-native species were recorded in the ground cover transect during 2010 and 2015 monitoring. In 2018, incursion of non-native grass species red Natal grass (*Melinis repens*) was recorded at a low cover percentage.



SEQ Monitoring Report Card

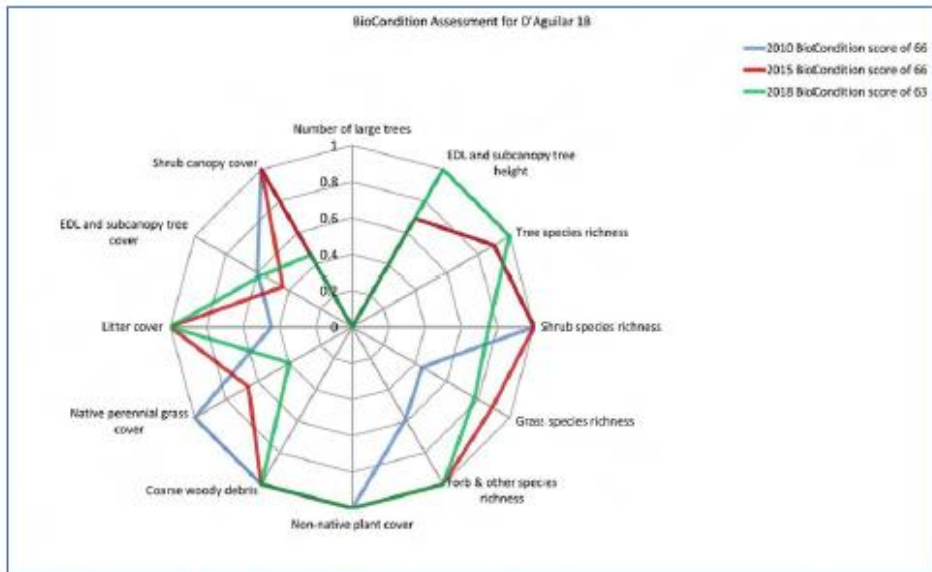
D'Aguilar 1B

Regional Ecosystem 12.11.5

Eucalyptus tereticornis, *Eucalyptus carnea* open forest to woodland

Queensland Herbarium, October 2021

QBEIS Site BioCondition monitoring



Radar diagram of BioCondition Scores by attribute and year sampled
 BioCondition scores: 2010 – 66 2015 – 66 2020 – 63
 Fire History: Burnt September 2004



Forest monitoring transect April 2010



Forest monitoring transect April 2018

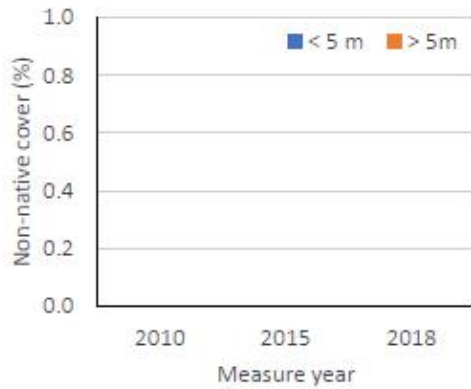
General Comments: This site has not been burnt since 2004 and the BioCondition Score has remained consistent in the context of expected seasonal changes. There were no large trees > 46 cm diameter on this site, hence poor score for number of large trees. Non-native species recorded in the QBEIS BioCondition monitoring site with low covers were: corky passion vine (*Passiflora suberosa*), perennial horse gram (*Macrotyloma axillare* var. *axillare*), cobbler's pegs (*Bidens pilosa*) and *Lantana camara*.

Trail-edge ground cover transect at D'Aguilar 1B

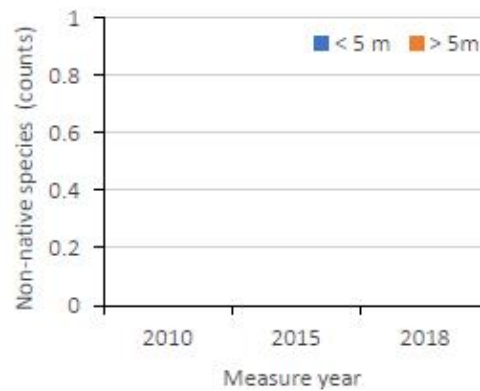


Trail-edge transect March 2015

Trail-edge transect April 2018

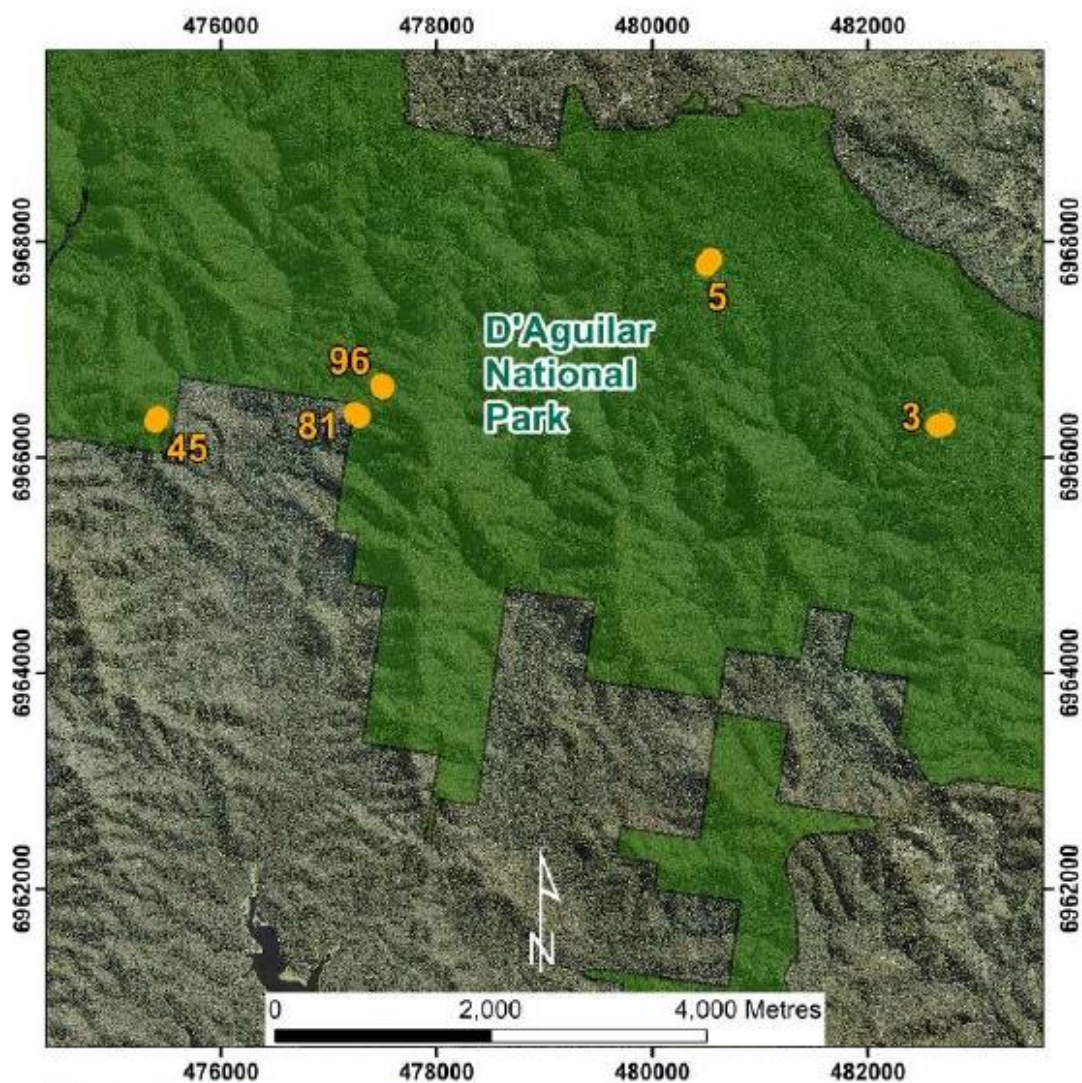


Non-native species cover



Number of non-native species

General comments: No non-native species were recorded adjacent the forest trail on this upper side of the slope for this site.



SEQ Monitoring Report Card

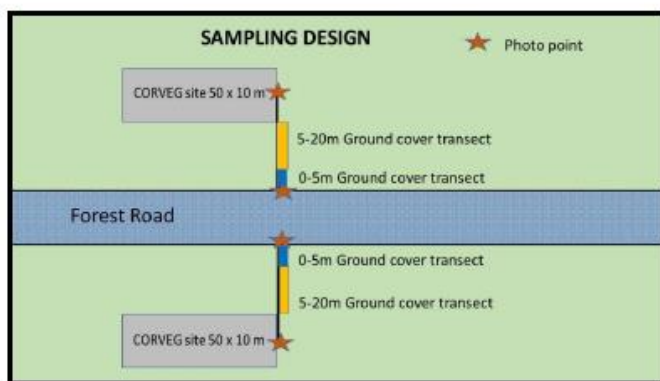
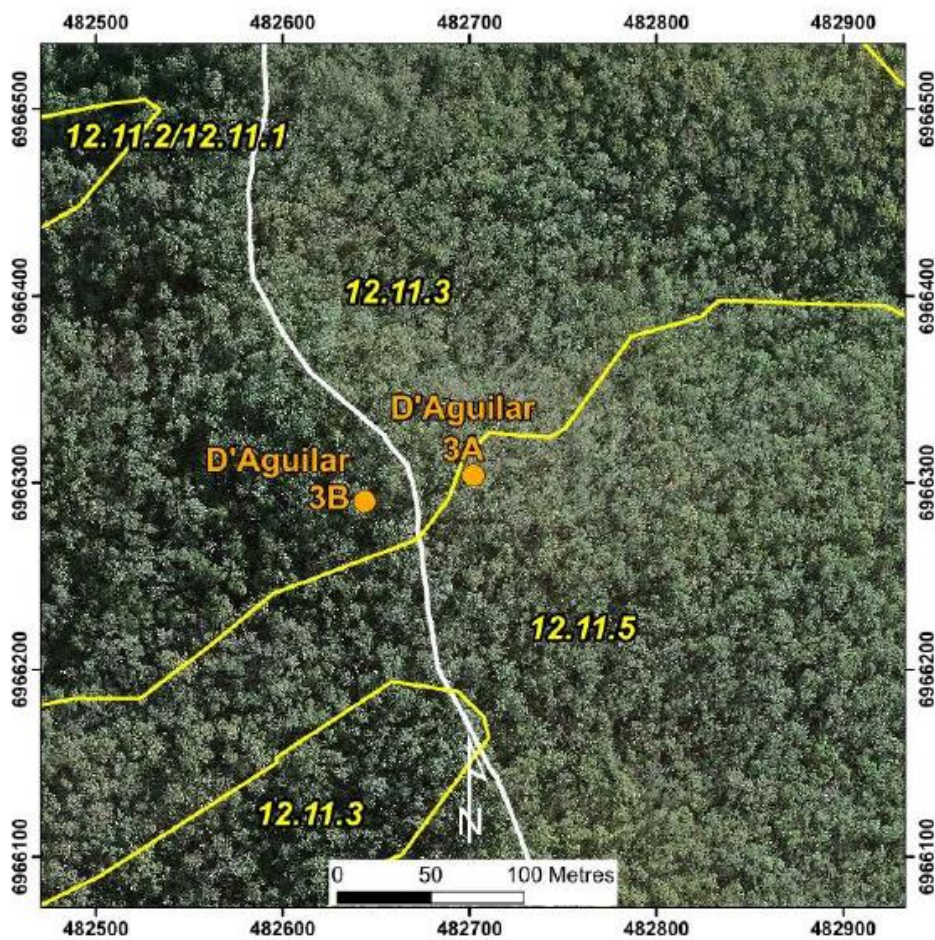
D'Aguilar 3A

Regional Ecosystem 12.11.5

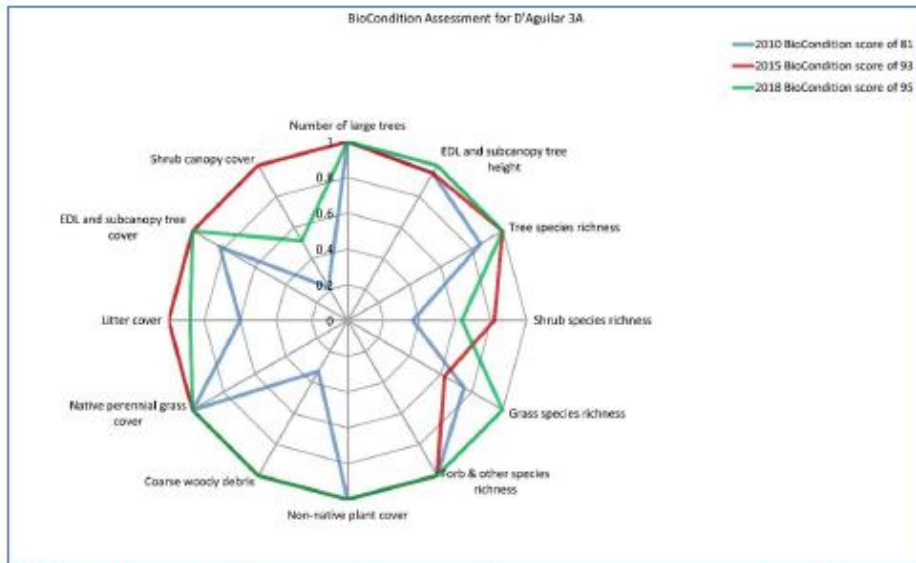
Corymbia citriodora subsp. *variegata*,
Eucalyptus siderophloia, *Eucalyptus*
carnea open forest

Queensland Herbarium, October 2021

D'Aguilar National Park: Site 3A



QBEIS Site BioCondition monitoring



Radar diagram of BioCondition Scores by attribute and year sampled
 BioCondition scores: 2010 – 81 2015 – 93 2018 – 95
 Fire History: Burnt August 2009



Forest monitoring transect April 2010

Forest monitoring transect May 2018

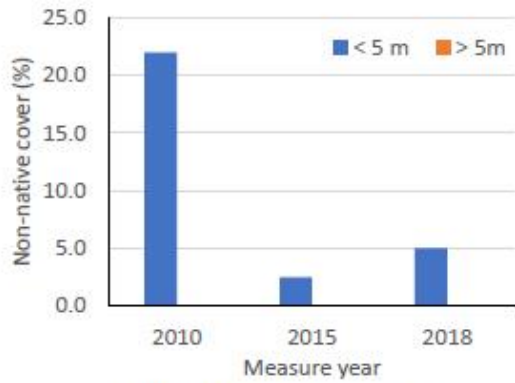
General Comments: This site was last burnt in 2009 before the start of the monitoring. It consistently had a high BioCondition score. Non-native species recorded in the QBEIS BioCondition monitoring site with very low foliage covers were: corky passion vine (*Passiflora suberosa*), cobbler's pegs (*Bidens pilosa*), *Lantana camara* and thickhead (*Crassocephalum crepidioides*).

Trail-edge cover transect at D'Aguilar 3A

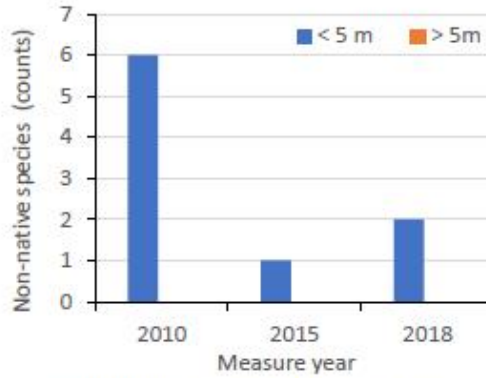


Trail-edge transect March 2015

Trail-edge transect May 2018

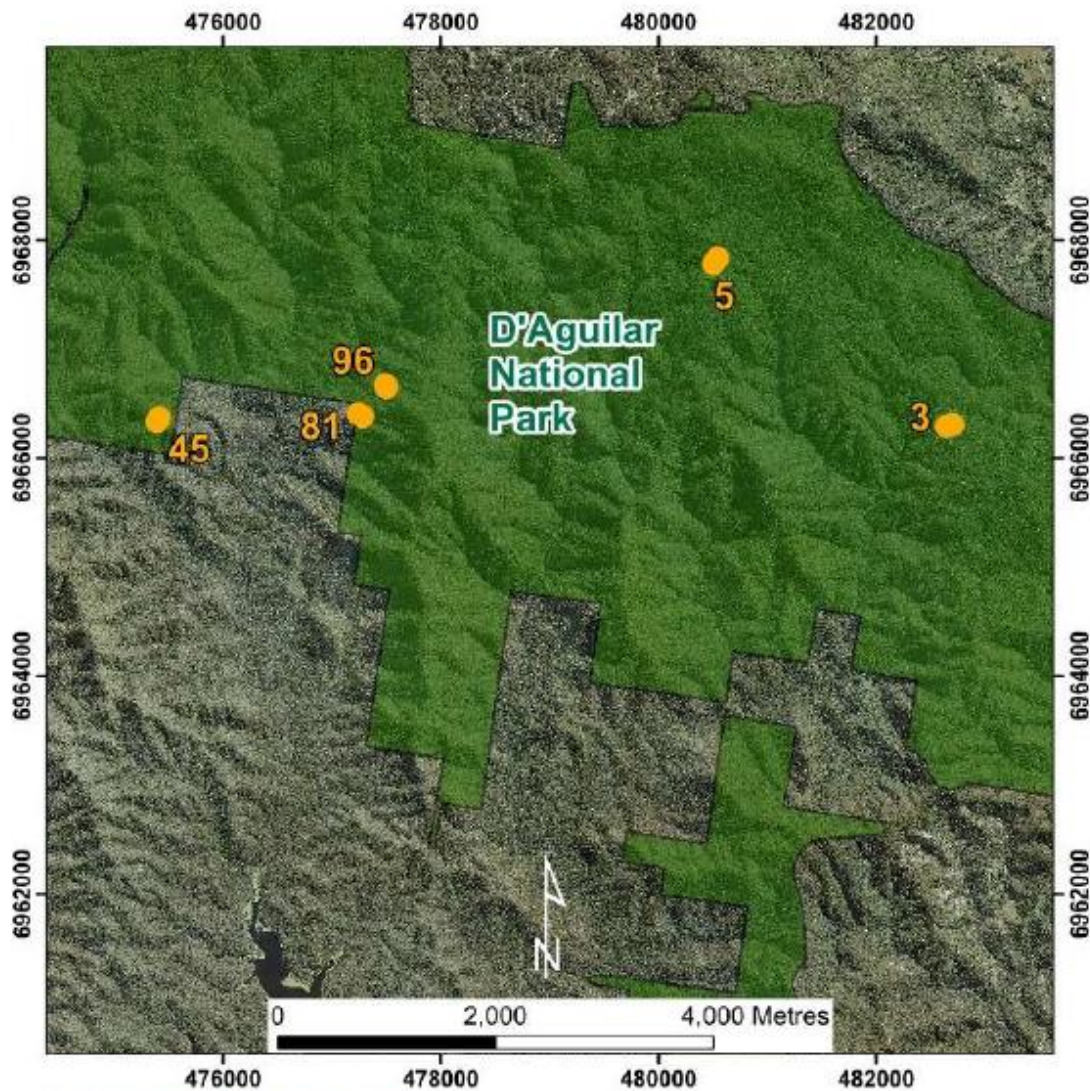


Non-native species cover



Number of non-native species

General comments: The edge of trail zone had the highest cover and richness of non-native species in 2010. This was a regenerations response following a hazard reduction burn in 2009. The most significant non-native species adjacent the forest trail were cobbler's pegs (*Bidens pilosa*) and slender vervain (*Verbena rigida*). The non-native foliage cover reduced significantly over time since last fire event.



SEQ Monitoring Report Card

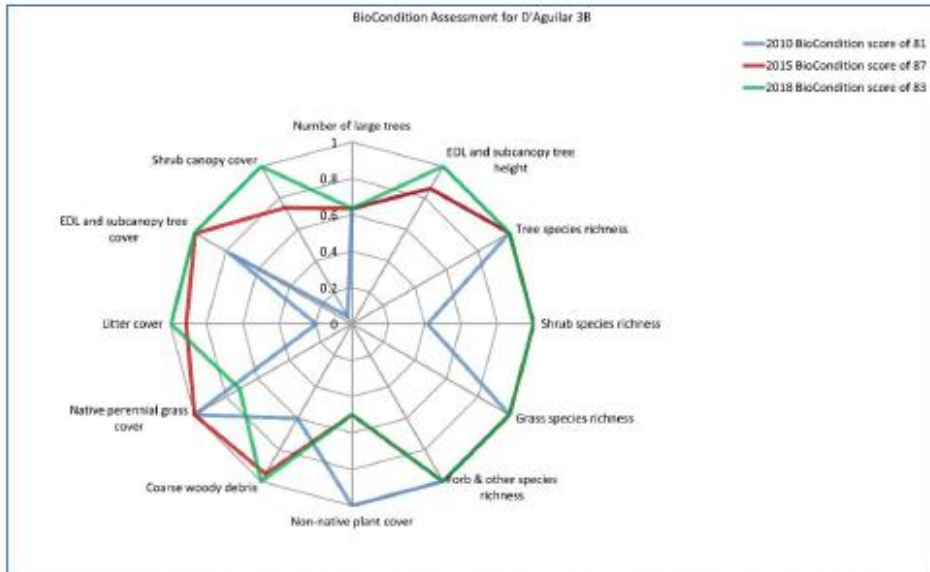
D'Aguilar 3B

Regional Ecosystem 12.11.3

Eucalyptus siderophloia, *Eucalyptus microcorys*, *Corymbia intermedia*, *Eucalyptus carnea* open forest

Queensland Herbarium, October 2021

QBEIS Site BioCondition monitoring



Radar diagram of BioCondition Scores by attribute and year sampled
 BioCondition scores: 2010 – 81 2015 – 87 2018 – 83
 Fire History: Burnt August 2009



Forest monitoring transect April 2010

Forest monitoring transect May 2018

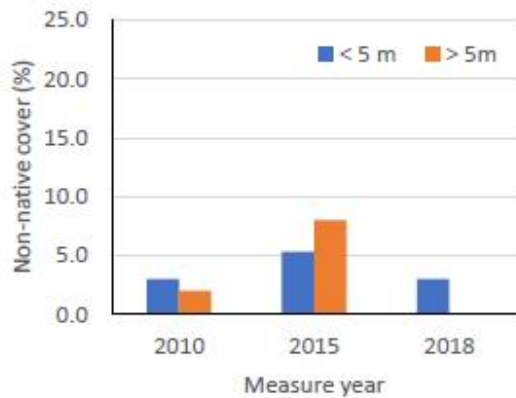
General Comments: This site was last burnt in 2009 months before the start of the monitoring. The fire reduced litter cover, shrub cover and shrub species which has recovered, and the site has a high BioCondition score. Non-native species cover has increased over time. The recorded non-native species were: thickhead (*Crassocephalum crepidioides*), balloon cotton-bush (*Gomphocarpus physocarpus*), cobbler's pegs (*Bidens pilosa*), American black nightshade (*Solanum americanum*), *Lantana camara* and common sowthistle (*Sonchus oleraceus*).

Trail-edge ground cover transect at D'Aguilar 3B

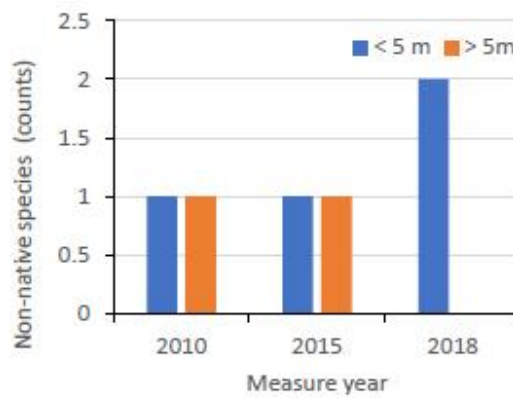


Trail-edge transect March 2015

Trail-edge transect May 2018



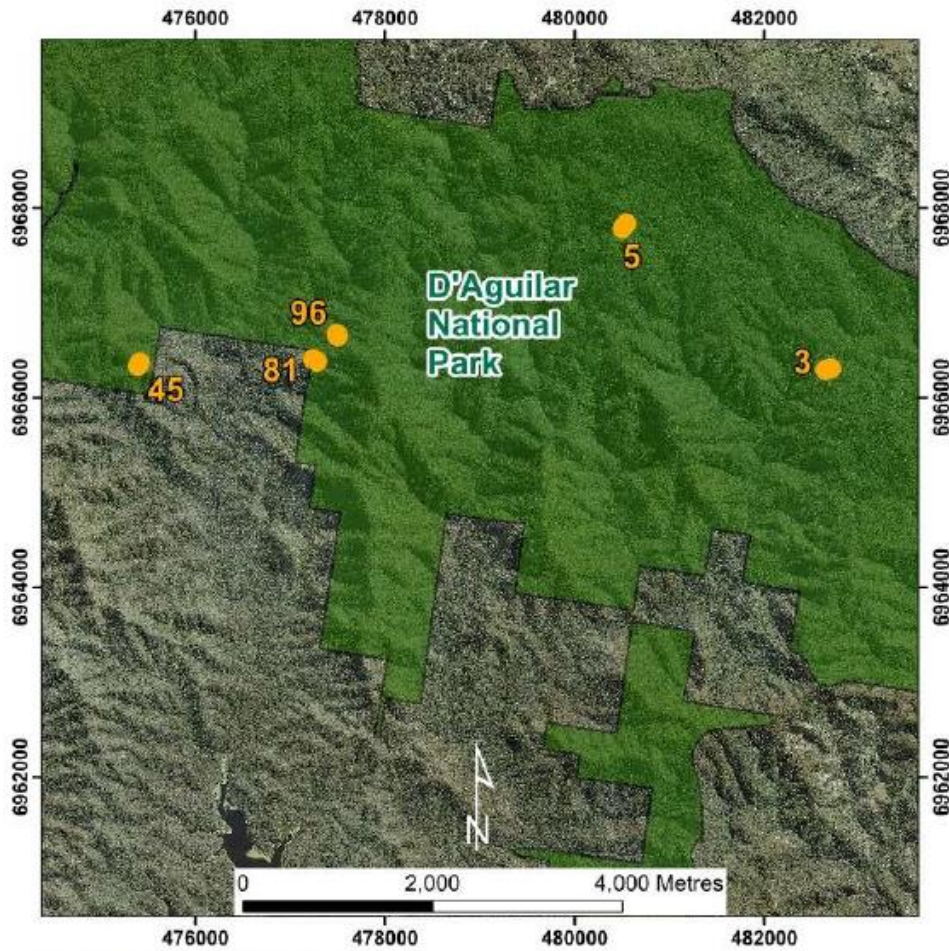
Non-native species cover



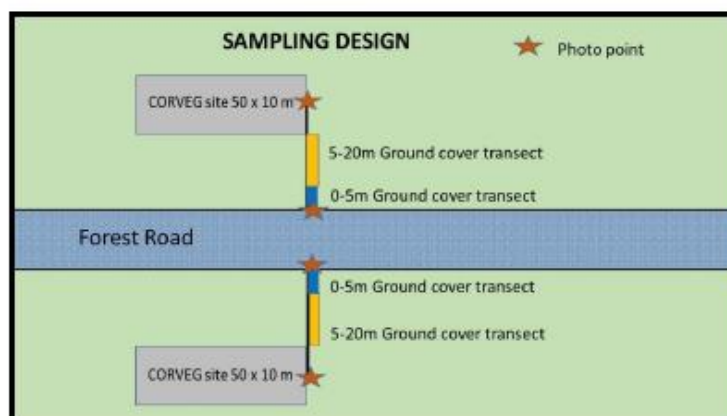
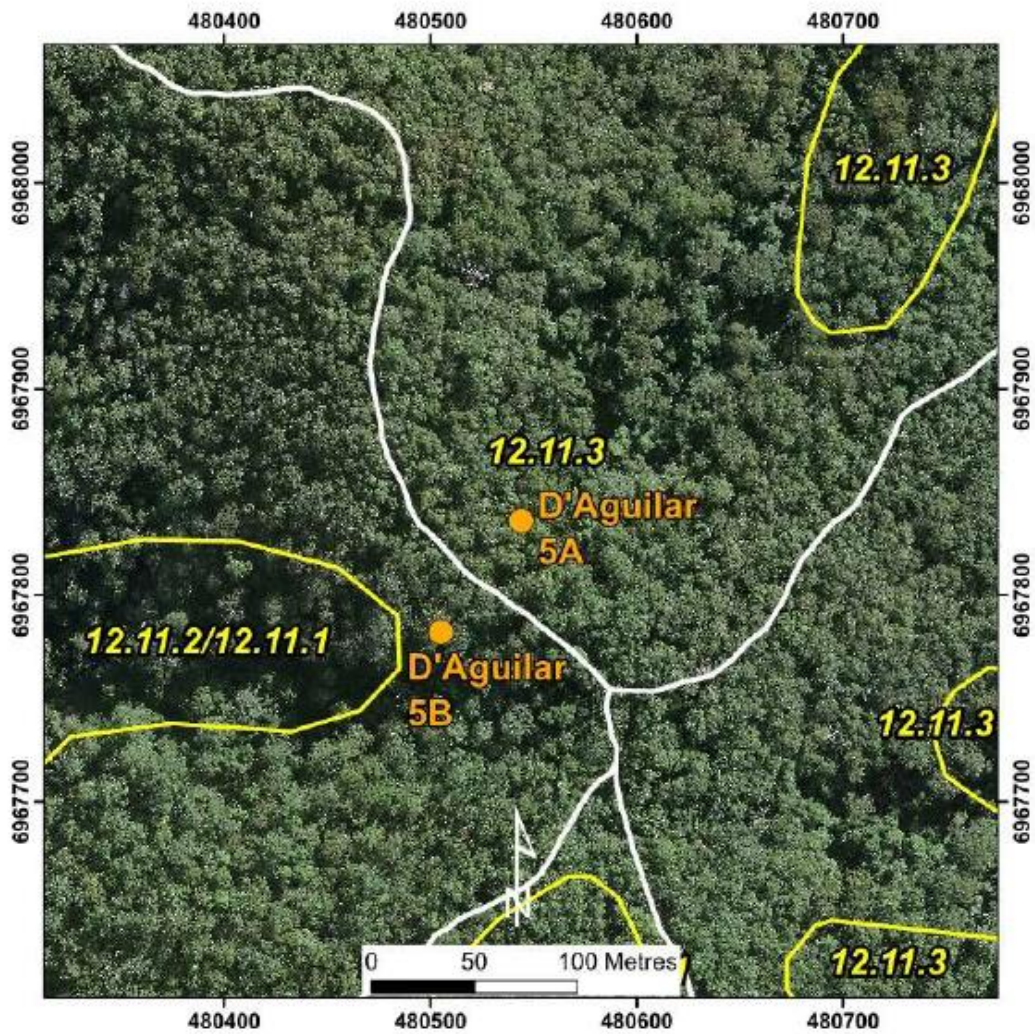
Number of non-native species

General comments: The track zone has the highest cover and richness of non-native species, and the influence of non-native species increased over the time of sampling. The most significant non-native species were: corky passion vine (*Passiflora suberosa* subsp. *litoralis*), cobbler's pegs (*Bidens pilosa*) and common sowthistle (*Sonchus oleraceus*).

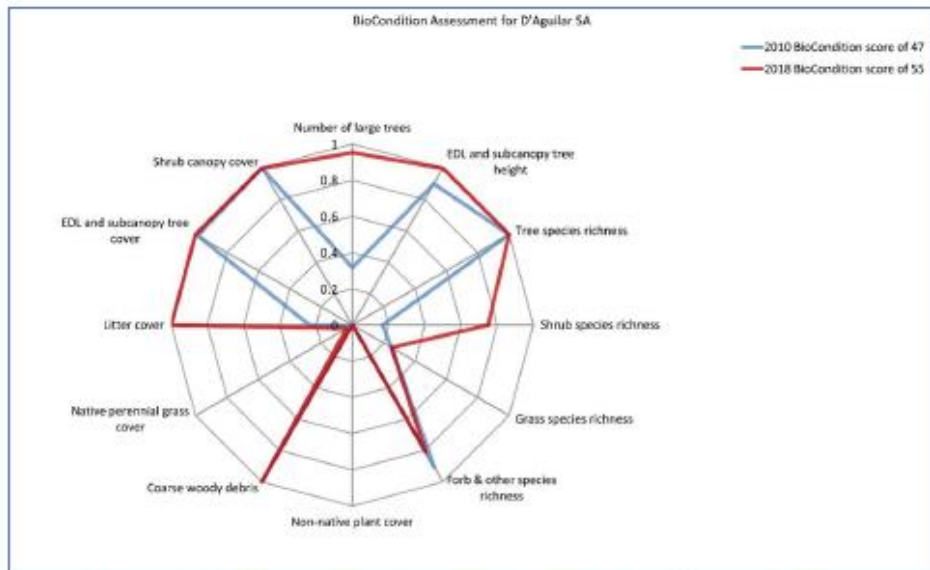
D'Aguilar National Park: Site 5



SEQ Monitoring Report Card
D'Aguilar 5A
Regional Ecosystem 12.11.3
Eucalyptus microcorys, *Corymbia intermedia*, *Eucalyptus propinqua* open forest
Queensland Herbarium, October 2021



QBEIS Site BioCondition monitoring



Radar diagram of BioCondition Scores by attribute and year sampled
 BioCondition scores: 2010 – 47 2018 – 55
 Fire History: Burnt September 1986



Forest monitoring transect April 2010

Forest monitoring transect May 2018

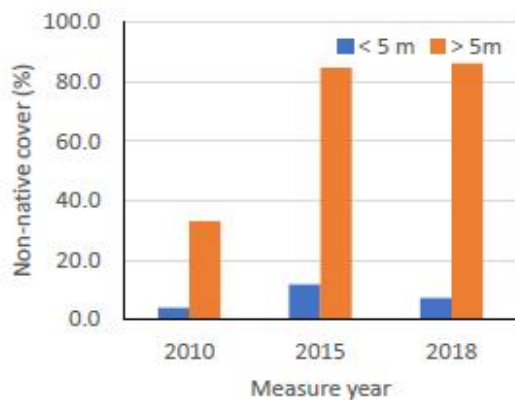
General Comments: This site has only been sampled twice, and had only a moderate BioCondition score. This site had not had a burn since 1986 and has a very high cover of *Lantana camara*. Other non-native species on the site include mallow (*Malva sylvestris*) and cassia (*Senna pendula* var. *glabrata*). The low grass species richness and native perennial grass cover may be associated with the dense cover of *Lantana camara*.

Trail-edge transect at D'Aguilar 5A

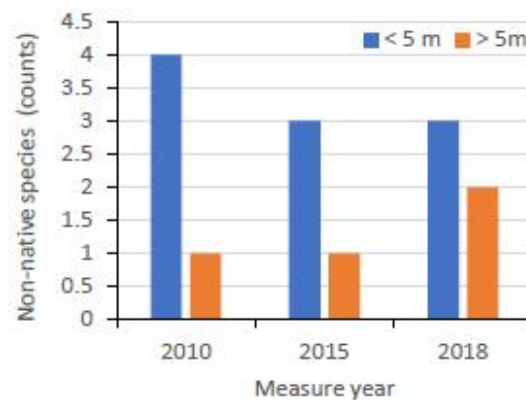


Trail-edge transect March 2015

Trail-edge transect May 2018

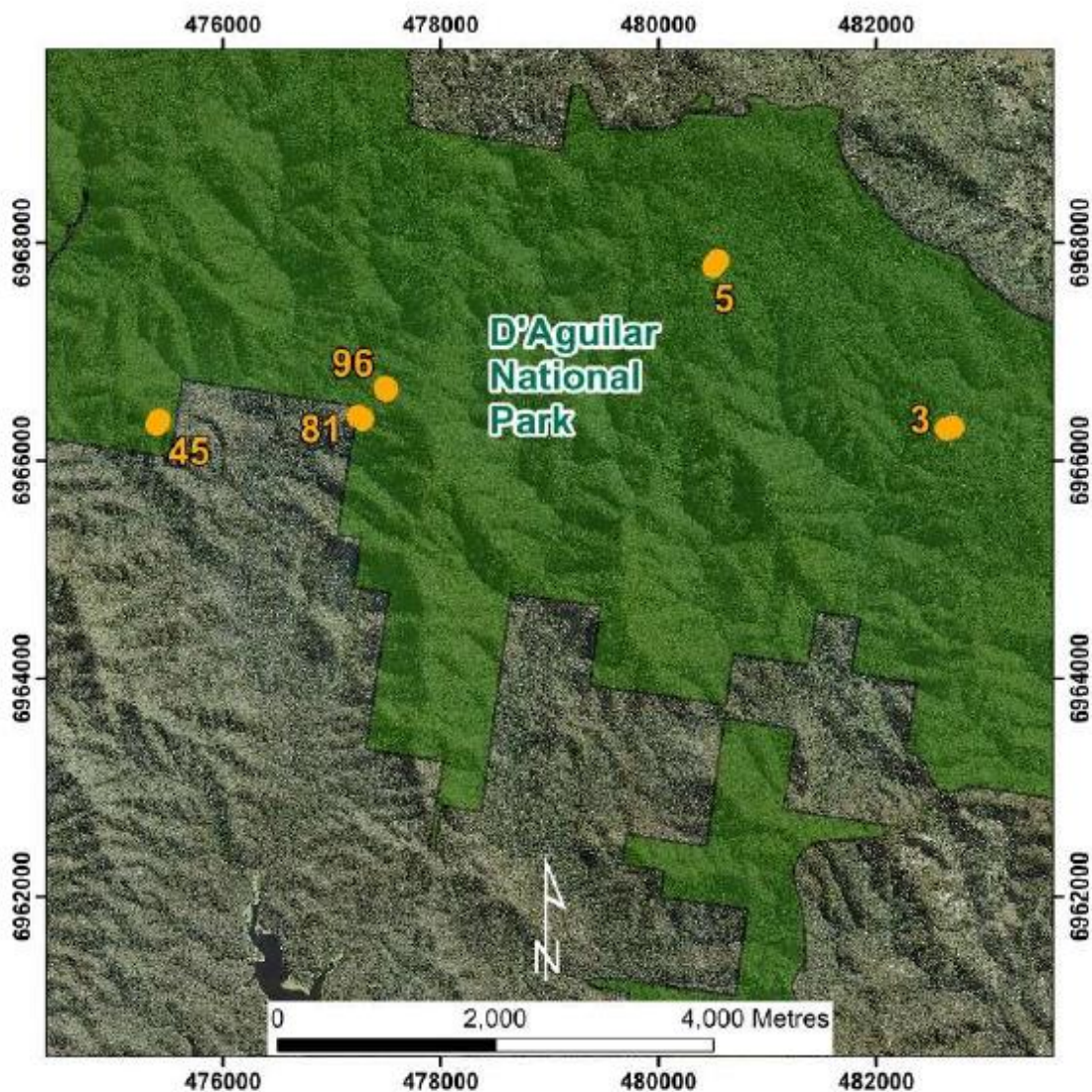


Non-native species cover



Number of non-native species

General comments: The track zone had the highest richness of non-native species, and the influence of non-native species increased over the time of sampling. The most significant non-native species were: blue billygoat weed (*Ageratum houstonianum*), flax-leaved fleabane (*Erigeron bonariensis*), *Lantana camara*, Cape gooseberry (*Physalis peruviana*), arrowleaf Sida (*Sida rhombifolia*), corky passion vine (*Passiflora suberosa* subsp. *litoralis*), cobbler's pegs (*Bidens pilosa*), asparagus fern (*Asparagus africanus*) and white passionflower (*Passiflora subpeltata*). *Lantana camara* was the dominant weed cover beyond 5 m from track edge.



SEQ Monitoring Report Card

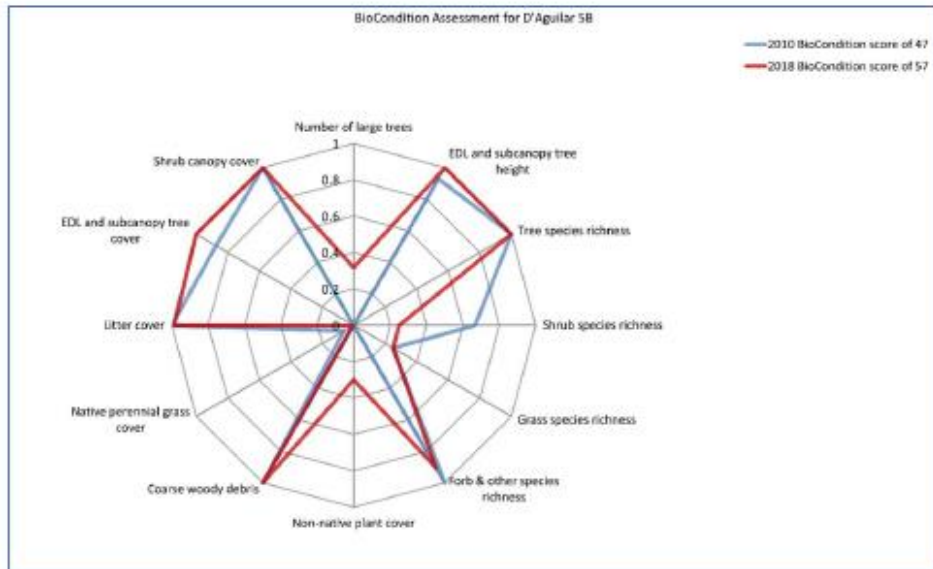
D'Aguilar 5B

Regional Ecosystem 12.11.3

Corymbia intermedia, Eucalyptus acmenoides, Lophostemon confertus
open forest

Queensland Herbarium, October 2021

QBEIS Site BioCondition monitoring



Radar diagram of BioCondition Scores by attribute and year sampled

BioCondition scores: 2010 – 47 2018 – 57

Fire History: No signs of fire, possibly burnt 1996



Forest monitoring transect April 2010

Forest monitoring transect May 2018

General Comments: This site was only recorded twice with a relatively low BioCondition score. It had not had a burn since 1986 and is over grown with very high cover of lantana (*Lantana camara*). Other non-native species on the site include passion fruit (*Passiflora edulis*), corky stem passion flower (*Passiflora suberosa*) and Easter cassia (*Senna pendula* var. *glabrata*). The low grass species richness and native perennial grass cover may be associated with the dense cover of *Lantana camara*.

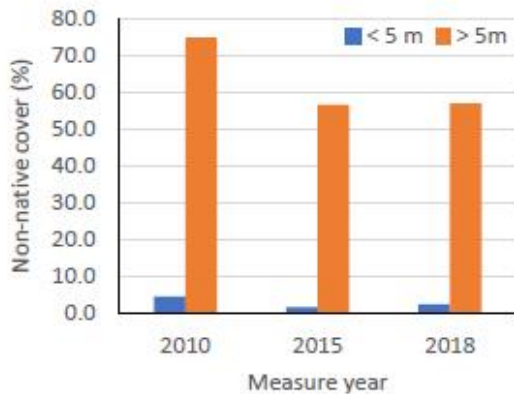
Trail-edge transect at D'Aguilar 5B



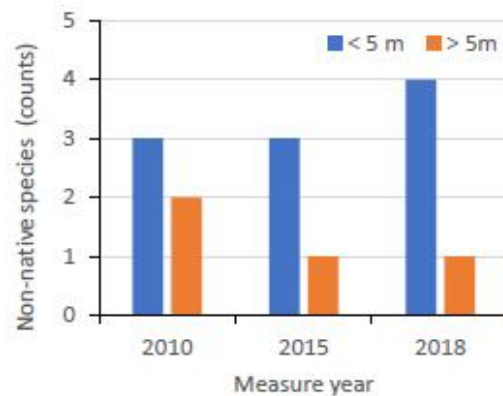
Trail-edge transect March 2015



Trail-edge transect May 2018

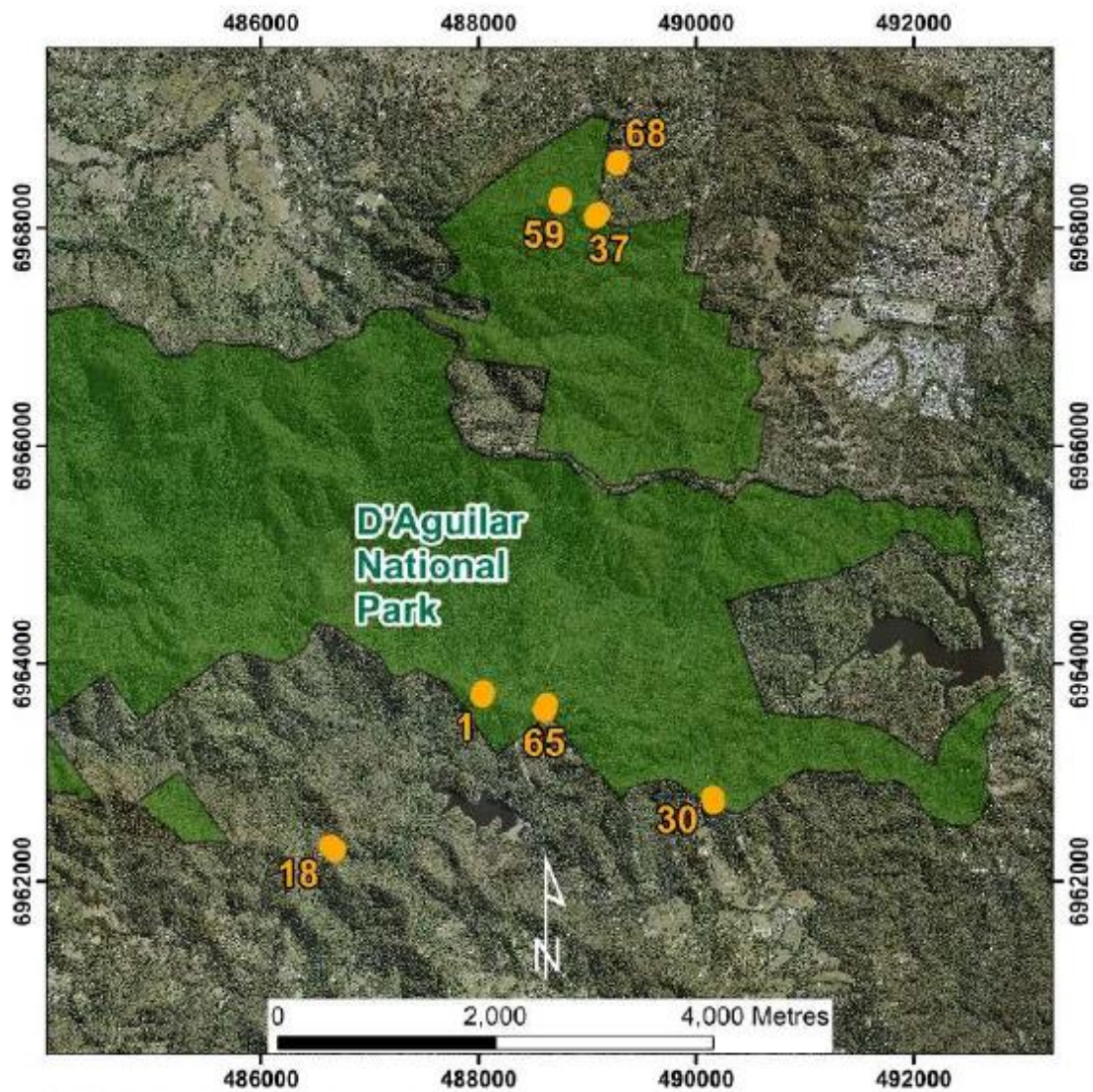


Non-native species cover



Number of non-native species

General comments: The area >5 m from trail-edge had the highest cover of non-native species, and the richness of non-native species at trail-edge increased over the time of sampling. The most significant non-native species were lantana (*Lantana camara*), cobbler's pegs (*Bidens pilosa*), arrowleaf sida (*Sida rhombifolia*), blue billygoat weed (*Ageratum houstonianum*), passion fruit (*Passiflora edulis*) and corky stem passionflower (*Passiflora suberosa*).



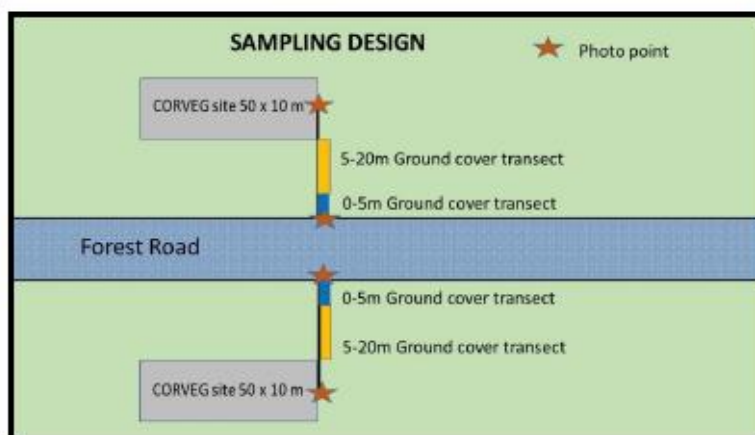
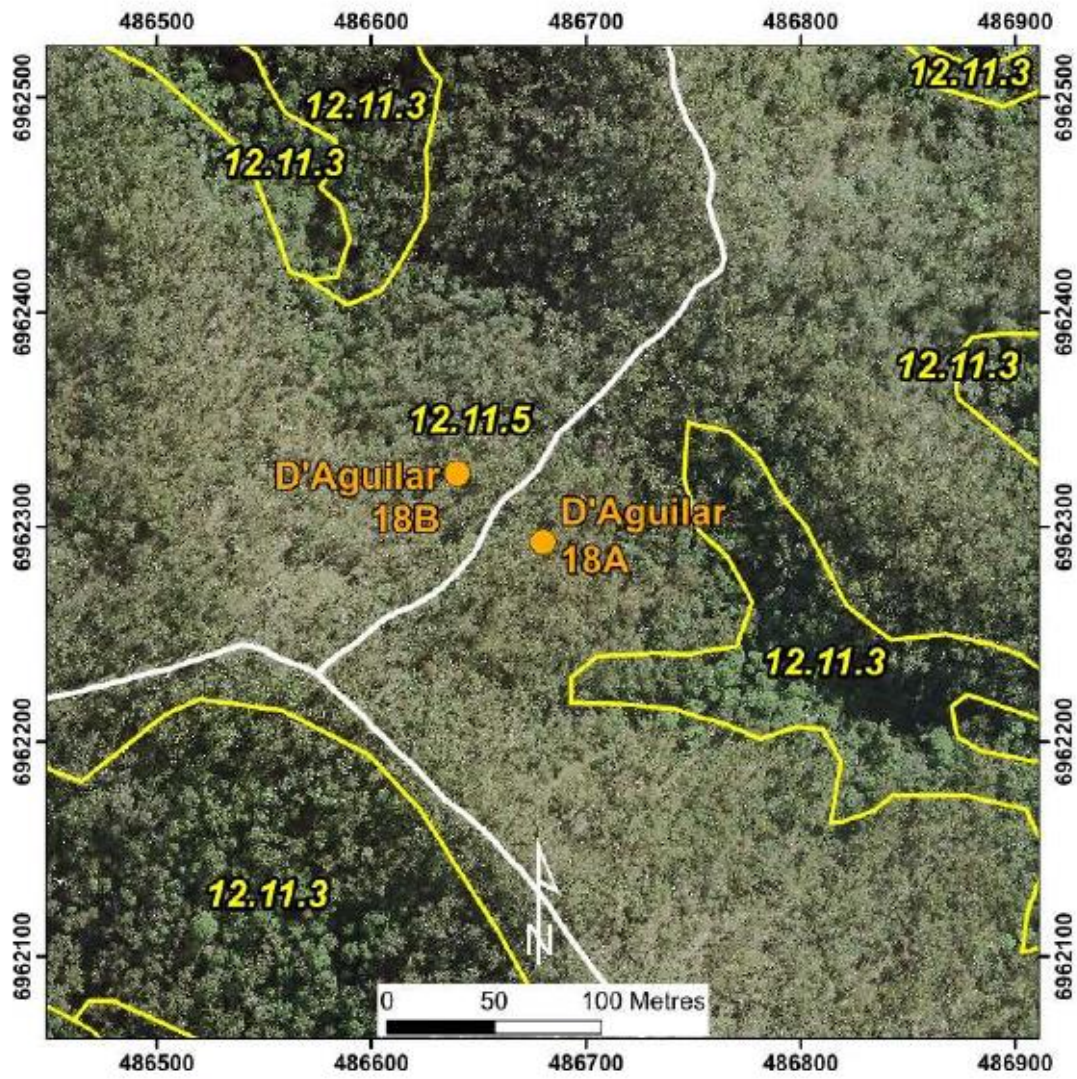
SEQ Monitoring Report Card

D'Aguilar 18A

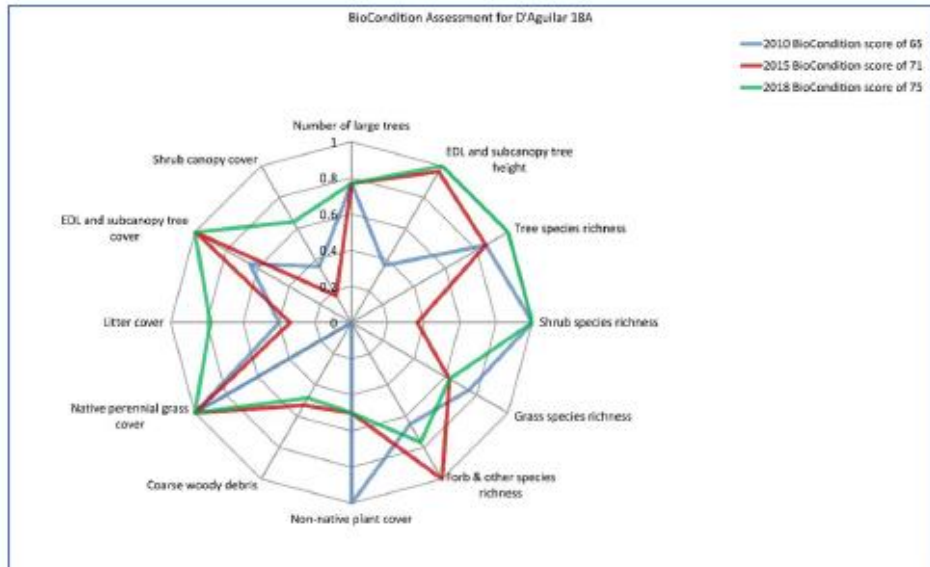
Regional Ecosystem 12.11.5

Corymbia citriodora subsp. *variegata*,
Eucalyptus carnea, *Corymbia*
intermedia, *Eucalyptus propinqua* open
forest to woodland

Queensland Herbarium, October 2021



QBEIS Site BioCondition monitoring



Radar diagram of BioCondition Scores by attribute and year sampled
 BioCondition scores: 2010 – 65 2015 – 71 2018 – 75
 Fire History: Burnt September 2012



Forest monitoring transect April 2010

Forest monitoring transect April 2018

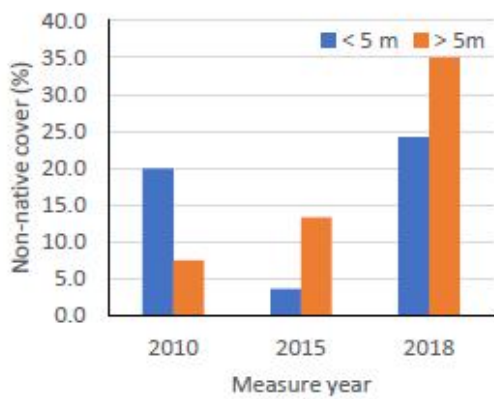
General Comments: This site had a consistently moderate BioCondition score. There has been a good improvement of Condition since the controlled burn in 2012 but non-native species are taking hold. These include: siratro (*Macroptilium atropurpureum*), lance-leaved rattlepod (*Crotalaria lanceolata* subsp. *Lanceolata*), cobbler's pegs (*Melinis repens*), perennial horse gram (*Macrotyloma axillare*) and parramatta grass (*Sporobolus africanus*).

Trail-edge ground cover transect at D'Aguilar 18A

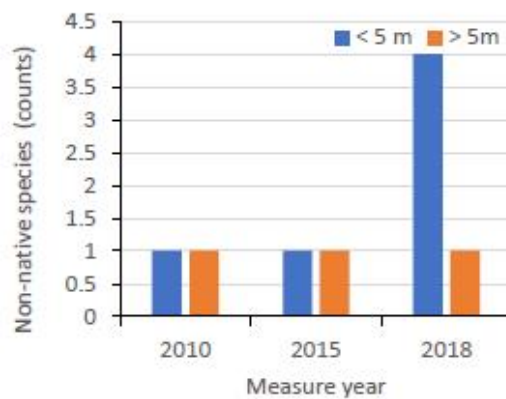


Trail-edge transect March 2015

Trail-edge transect April 2018

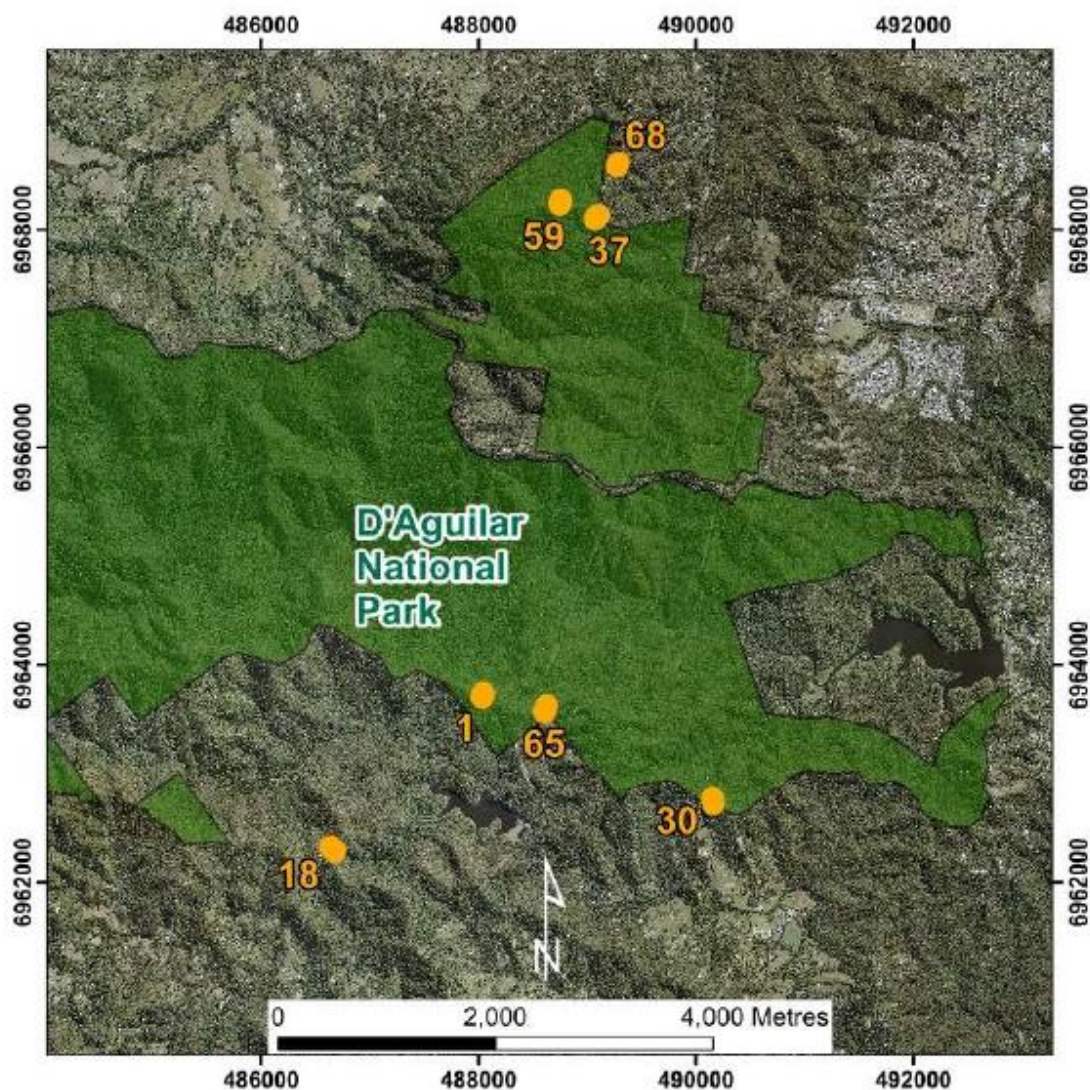


Non-native species cover



Number of non-native species

General comments: This site had a moderate weed cover (> 30 %) of siratro (*Macroptilium atropurpureum*) dominating the < 5 m section of the transect and perennial horse gram (*Macrotyloma axillare*) dominating the > 5 m section. There has been an increase in the cover of these two non-native species at the site and new non-native species recorded in the < 5 m with low covers. These were cobbler's pegs (*Melinis repens*), lance-leaved rattlepod (*Crotalaria lanceolata* subsp. *Lanceolata*) and parramatta grass (*Sporobolus africanus*).



SEQ Monitoring Report Card

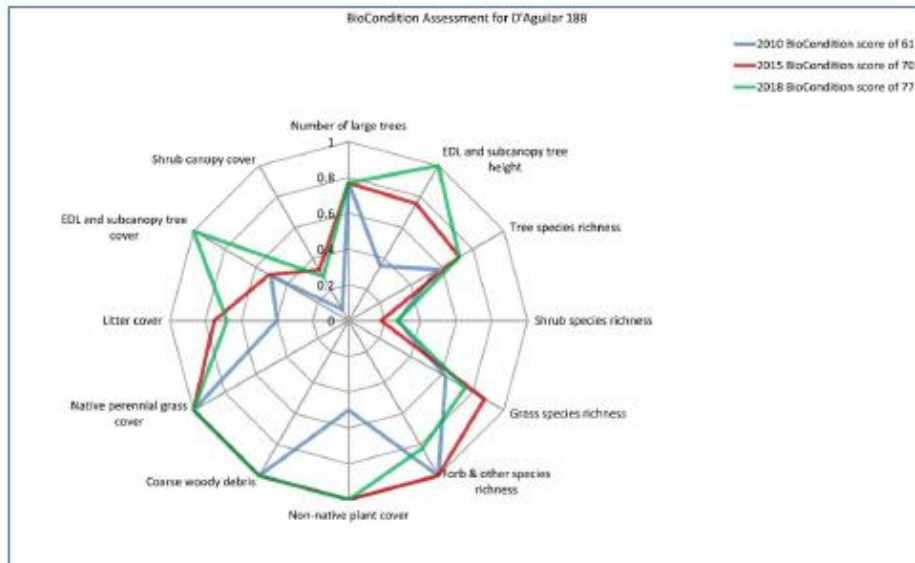
D'Aguilar 18B

Regional Ecosystem 12.11.5

Corymbia citriodora subsp. *variegata*,
Corymbia intermedia, *Eucalyptus crebra*, *Eucalyptus carnea* open forest to woodland

Queensland Herbarium, October 2021

QBEIS Site BioCondition monitoring



Radar diagram of BioCondition Scores by attribute and year sampled

BioCondition scores: 2010 – 61 2015 – 70 2018 – 77

Fire History: Burnt September 2012



Trail-edge transect April 2010

Trail-edge transect April 2018

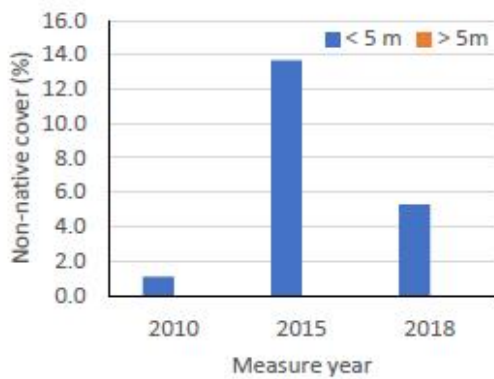
General Comments: This site had a moderate BioCondition score. Although many non-native species were recorded their covers were relatively low. Shrub species richness and cover were consistently low. The list of non-native species recorded at the site included: cobbler's pegs (*Bidens pilosa*), thicthead (*Crassocephalum crepidioides*), *Crotalaria lanceolata* subsp. *Lanceolata*, *Erigeron bonariensis*, *Erigeron sumatrensis*, *Melinis repens*, *Passiflora foetida*, *Pueraria montana* var. *lobata*, *Solanum americanum* and *Sonchus oleraceus*.

Trail-edge ground cover transect at D'Aguilar 18B

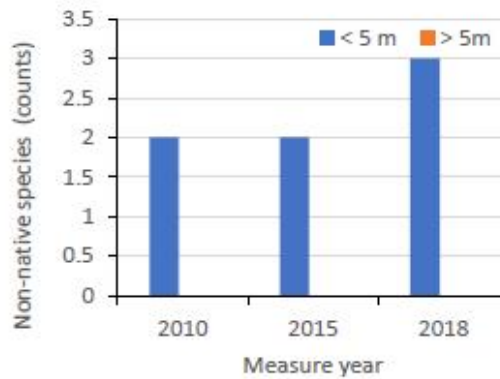


Trail-edge transect March 2015

Trail-edge transect April 2018

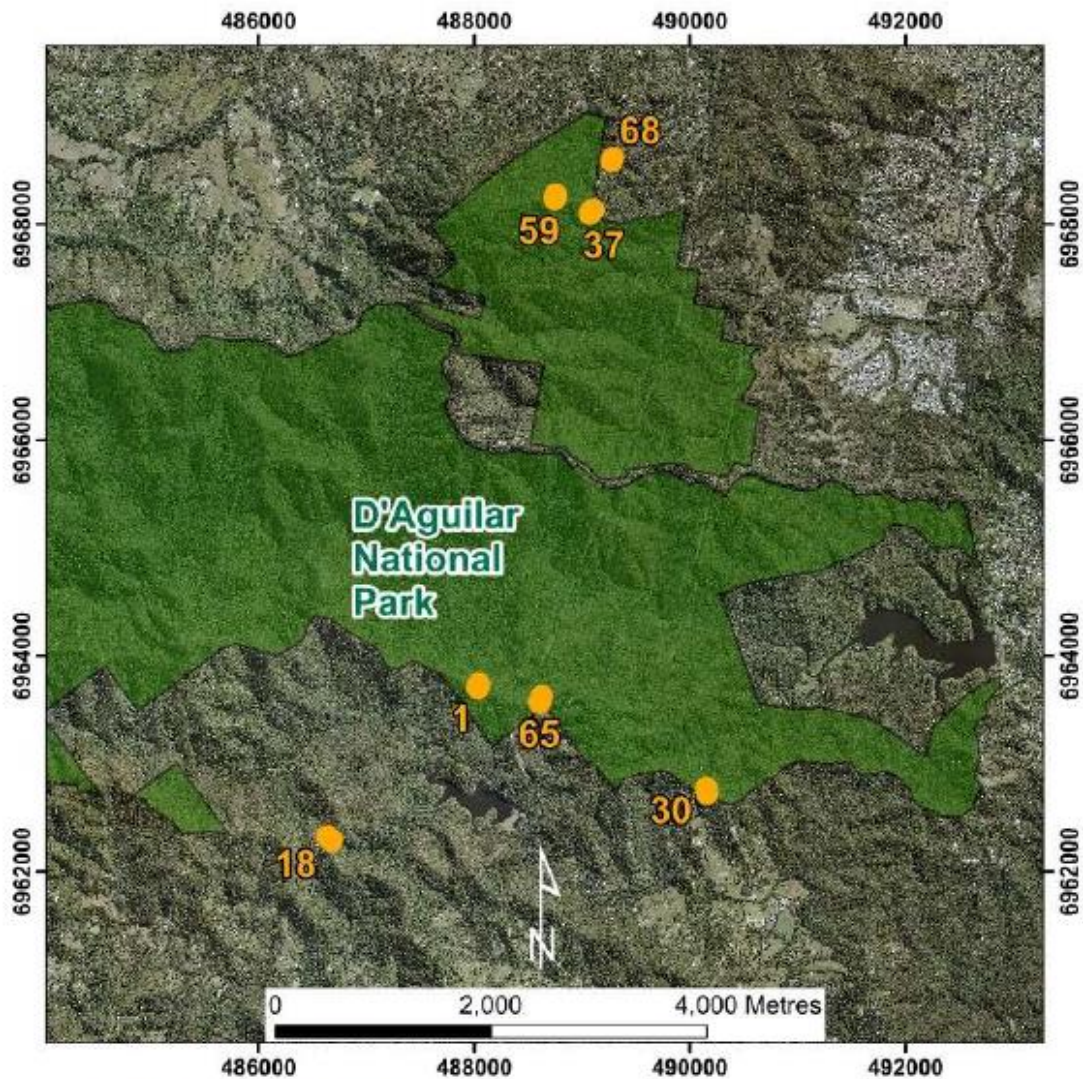


Non-native species cover



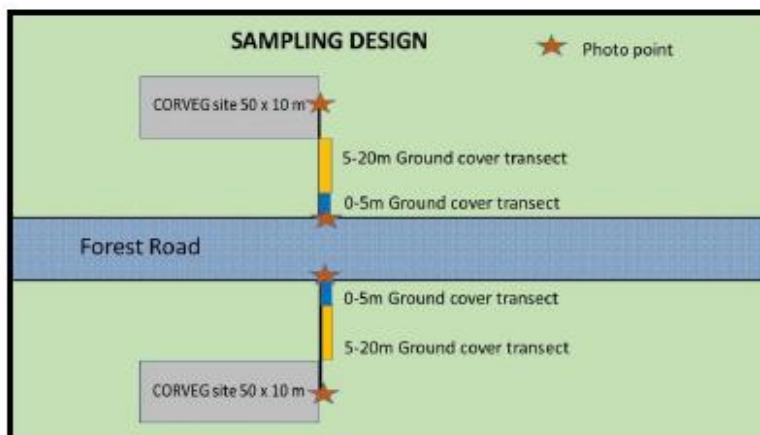
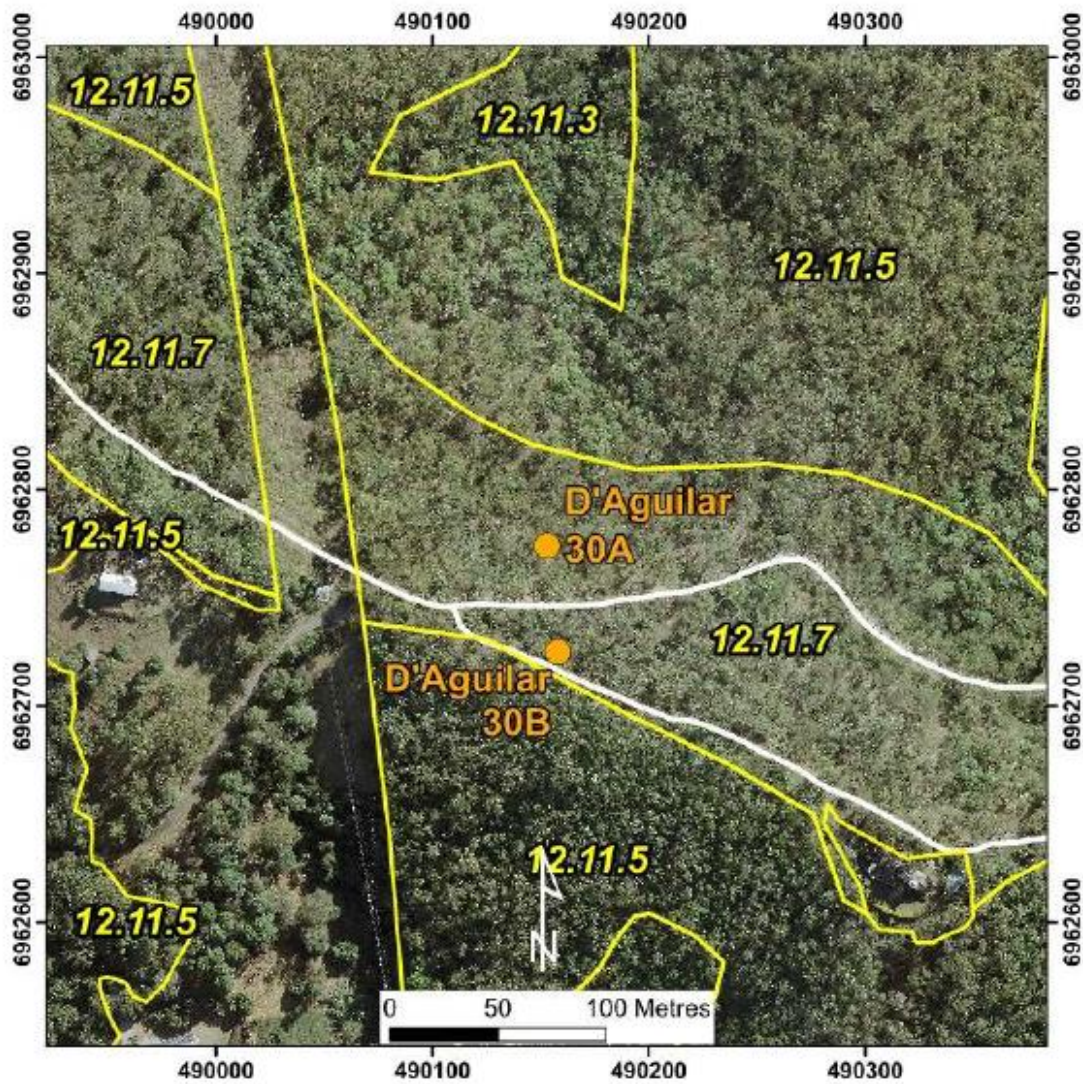
Number of non-native species

General comments: The trail-edge zone had the highest cover and richness of non-native species and these were mainly siratro (*Macroptilium atropurpureum*) and perennial horse gram (*Macrotyloma axillare*). Other non-native species with low cover were red Natal grass (*Melinis repens*), slender vervain (*Verbena rigida*) and lance-leaved rattlepod (*Crotalaria lanceolata* subsp. *Lanceolata*).

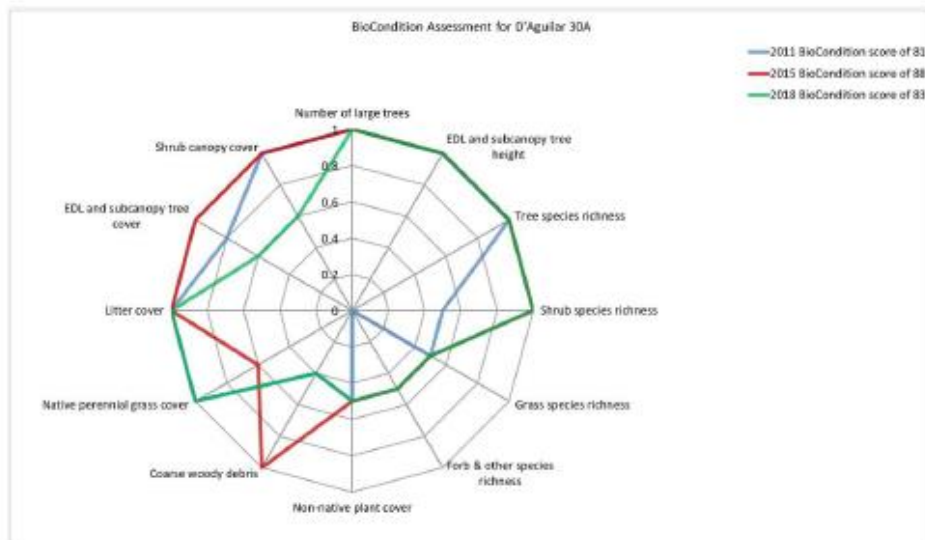


SEQ Monitoring Report Card
D'Aguilar 30A
Regional Ecosystem 12.11.7
Eucalyptus crebra, *Corymbia citriodora*
subsp. *variegata* woodland
Queensland Herbarium, October 2021

D'Aguilar National Park: Site 30A



QBEIS Site BioCondition monitoring



Radar diagram of BioCondition Scores by attribute and year sampled
 BioCondition scores: 2011 – 81 2015 – 88 2018 – 83
 Fire History: Burnt July 2014



Forest monitoring transect March 2015

Forest monitoring transect April 2018

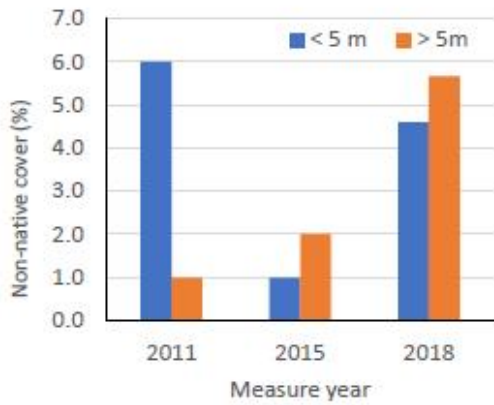
General Comments: This site was last burnt in 2014 and showed slight improvement of the BioCondition score. The site had consistently low score for grass, and for forb and other species richness. The site has a long list of non-native species which include: *Baccharis halimifolia*, *Cirsium vulgare*, *Crassocephalum crepidioides*, *Erigeron sumatrensis*, *Gomphocarpus fruticosus*, *Lantana camara*, *Macrotyloma axillare* var. *axillare*, *Melinis repens*, *Physalis peruviana*, *Setaria pumila*, *Solanum americanum*, *Verbena rigida*, *Bidens pilosa*, *Macroptilium lathyroides*, *Melinis minutiflora*, *Ochna serrulata*, *Passiflora suberosa*, *Ageratum houstonianum* and *Macrotyloma uniflorum*

Trail-edge ground cover transect at D'Aguilar 30A

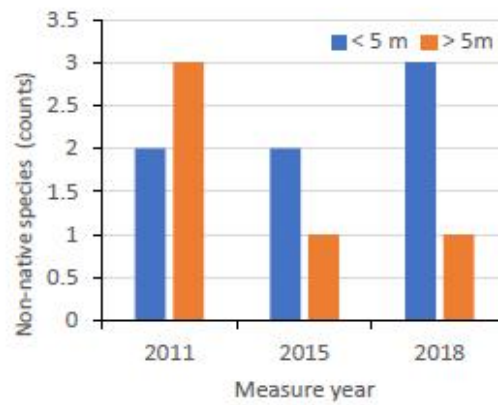


Trail-edge transect August 2015

Trial-edge transect April 2018

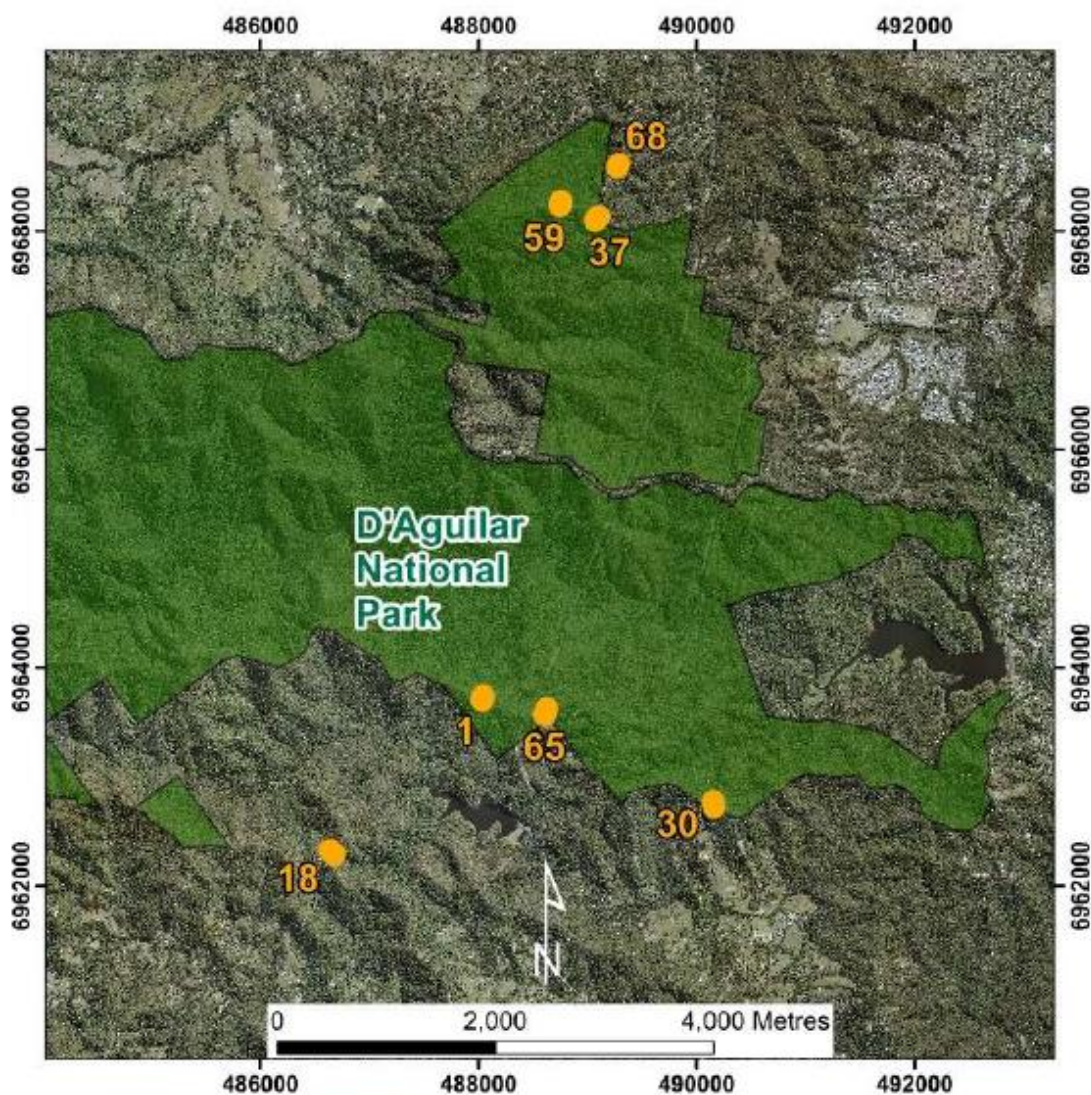


Non-native species cover



Number of non-native species

General comments: This site had a moderate non-native species richness with the species spreading out from trail edge to 20 m from the edge. *Melinis repens* was most widespread spanning the length of the transect. Other non-native species recorded at the site were: *Emilia sonchifolia*, *Crassocephalum crepidioides*, *Macrotyloma axillare*, *Setaria pumila*, *Bidens pilosa*, *Camellia sinensis* and *Digitaria didactyla*. This site is within 100 m of a freehold farm along Boundary road.



SEQ Monitoring Report Card

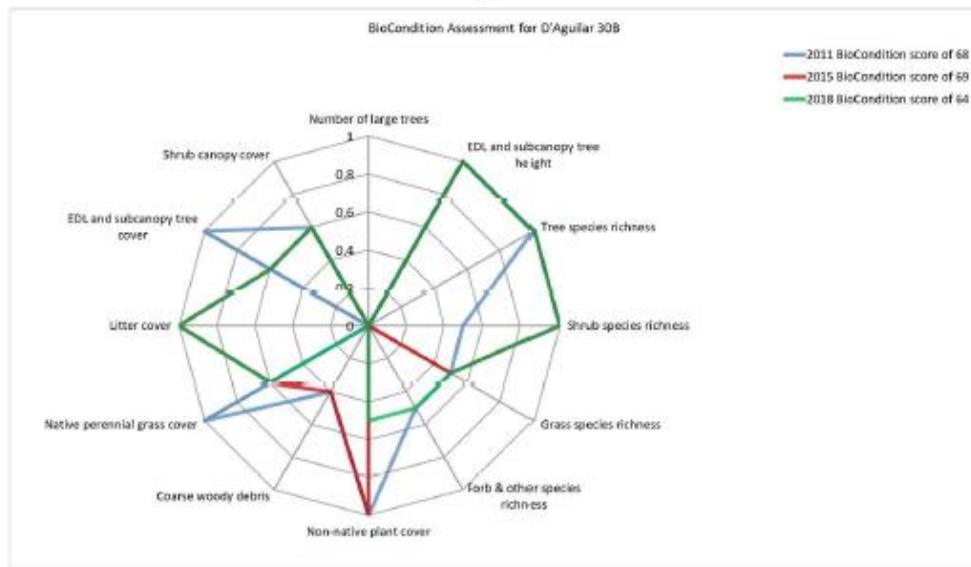
D'Aguilar 30B

Regional Ecosystem 12.11.7

Eucalyptus crebra, *Corymbia citriodora* subsp. *variegata*, *Eucalyptus tereticornis* woodland

Queensland Herbarium, October 2021

QBEIS Site BioCondition monitoring



Radar diagram of BioCondition Scores by attribute and year sampled
 BioCondition scores: 2011 – 68 2015 – 69 2018 – 64
 Fire History: No data (sample 2011 suggests >3yr prior)



Forest monitoring transect March 2011

Forest monitoring transect April 2018

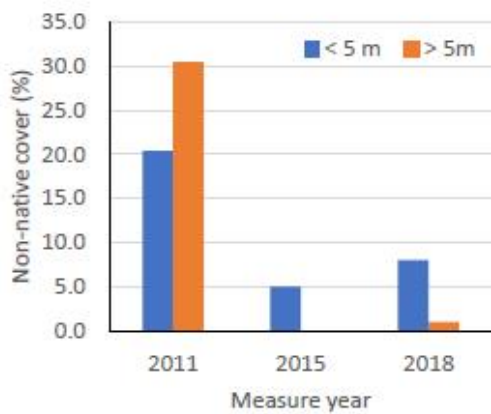
General Comments: This site had no large trees (> 39 cm diameter), low score for coarse woody debris, grass species richness and forb and other species richness. Non-native species recorded at the site included: *Bidens pilosa*, *Crassocephalum crepidioides*, *Emilia sonchifolia*, *Erigeron sumatrensis*, *Gomphocarpus fruticosus*, *Lantana camara*, *Macrotyloma axillare* var. *axillare*, *Ochna serrulata*, *Passiflora suberosa*, *Physalis peruviana* and *Solanum mauritianum*.

Trail-edge ground cover transect at D'Aguilar 30B

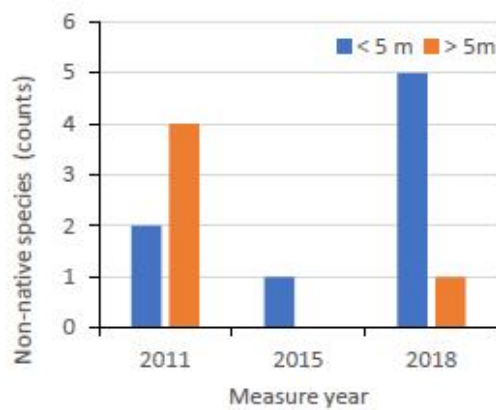


Trail-edge transect March 2015

Trail-edge transect April 2018



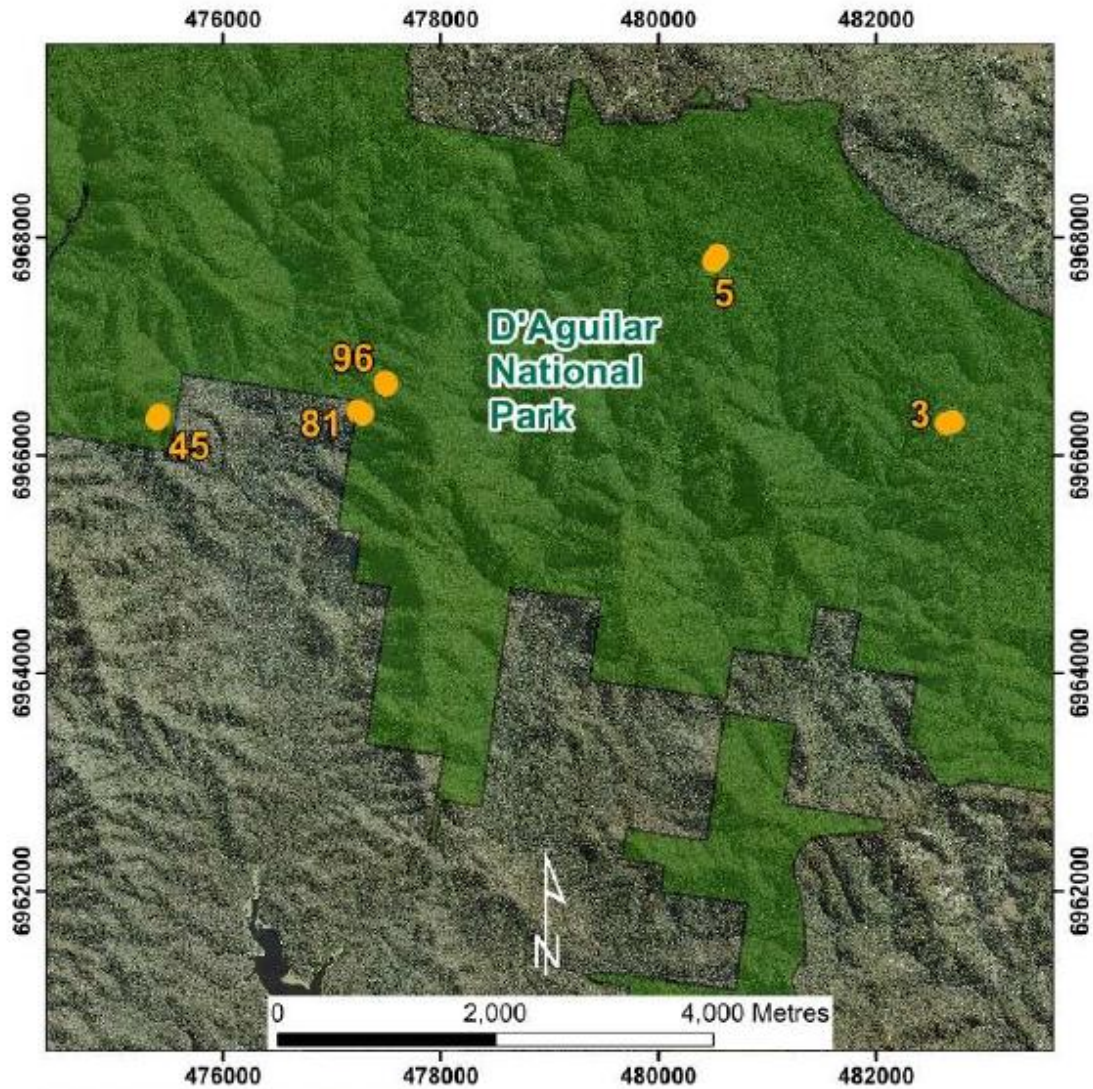
Non-native species cover



Number of non-native species

General comments: This site had a high weed cover which was dominated by *Erigeron bonariensis*, *Melinis repens*, *Melinis minutiflora*, *Setaria palmifolia*, *Sida rhombifolia* and very low cover of *Physalis peruviana*, *Sporobolus fertilis*, *Bidens pilosa* and *Verbesina encelioides* var. *encelioides*. This site is within 500 m of a cultivated freehold land which may explain the potential source of the high diversity of non-native species. This site is within 100 m of a freehold farm along Boundary road.

D'Aguilar National Park: Site 45



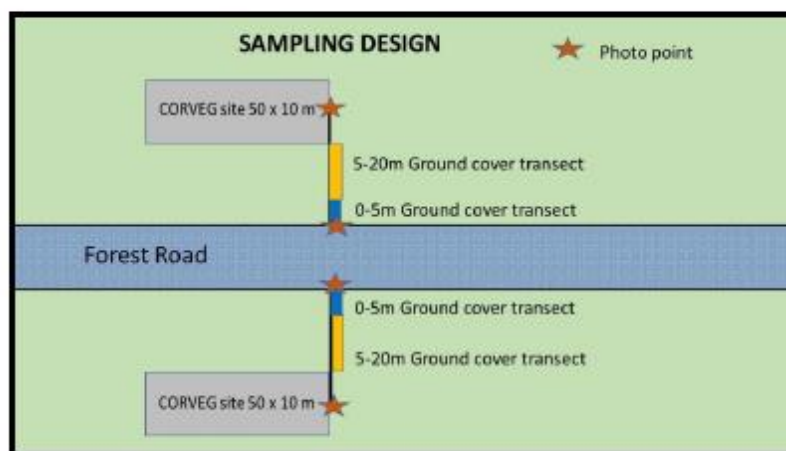
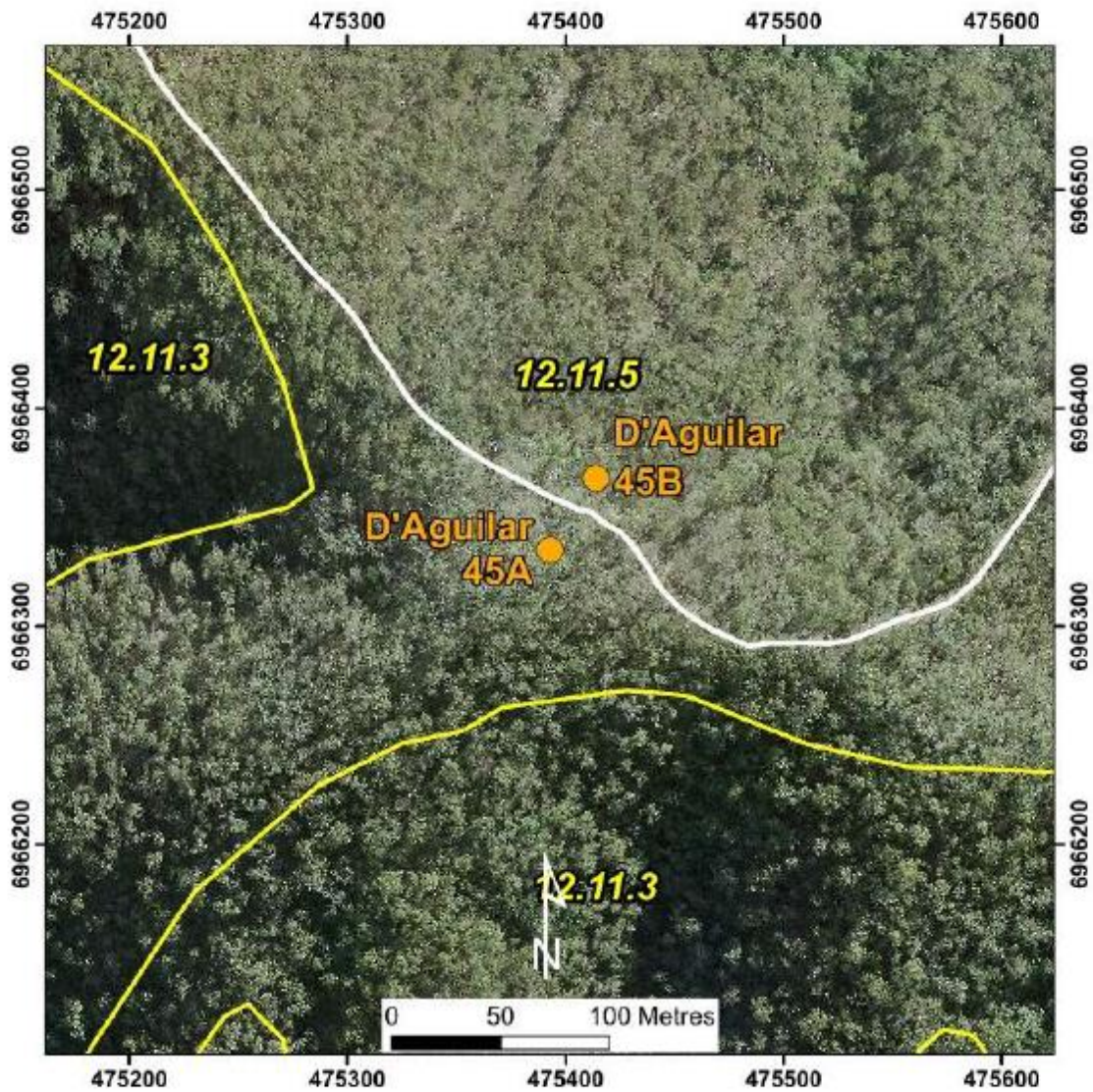
SEQ Monitoring Report Card

D'Aguilar 45A

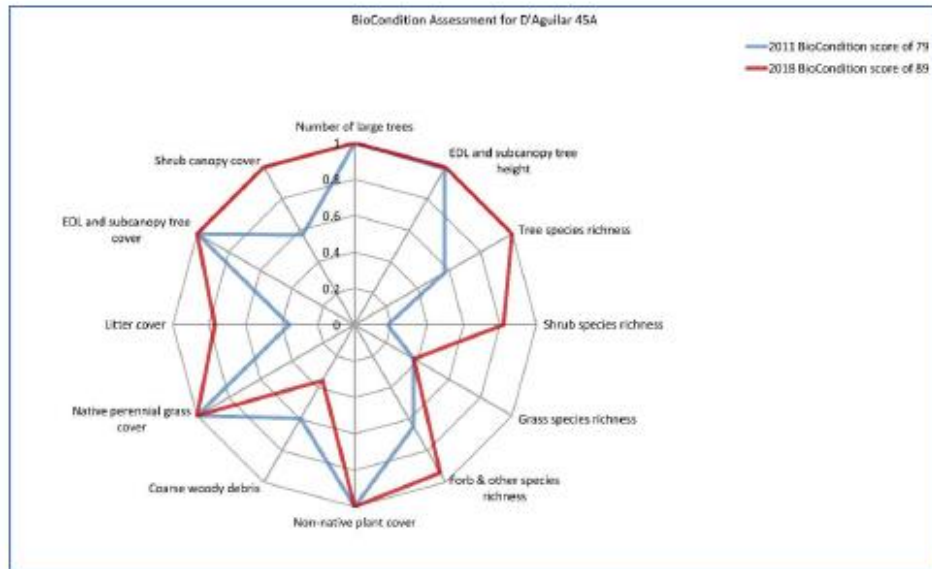
Regional Ecosystem 12.11.5

Eucalyptus crebra open forest to woodland

Queensland Herbarium, October 2021



QBEIS Site BioCondition monitoring



Radar diagram of BioCondition Scores by attribute and year sampled

BioCondition scores: 2011 – 79 2018 – 89

Fire History: Burnt September 2013



Forest monitoring transect November 2018

Forest monitoring transect November 2018

General Comments: Since the 2013 prescribed fire burn, the BioCondition of the site has improved from an increase in tree, shrub and forb species richness, shrub and litter cover. However coarse wood debris was reduced by the fire. Non-native species recorded at the site were *Lantana camara*, red Natal grass (*Melinis repens*), velvety tree pear (*Opuntia tomentosa*), corky passion vine (*Passiflora suberosa*), flaxleaf fleabane (*Erigeron bonariensis*) and white passionflower (*Passiflora subpeltata*).

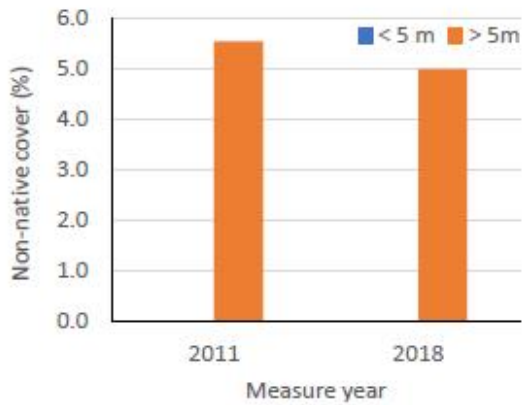
Trail-edge ground cover transect at D'Aguilar 45A



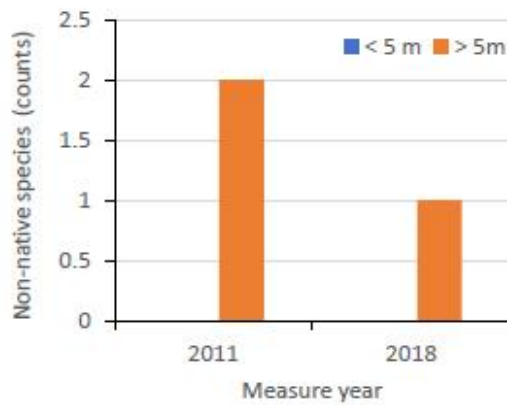
Trail-edge transect March 2015



Trail-edge transect November 2018

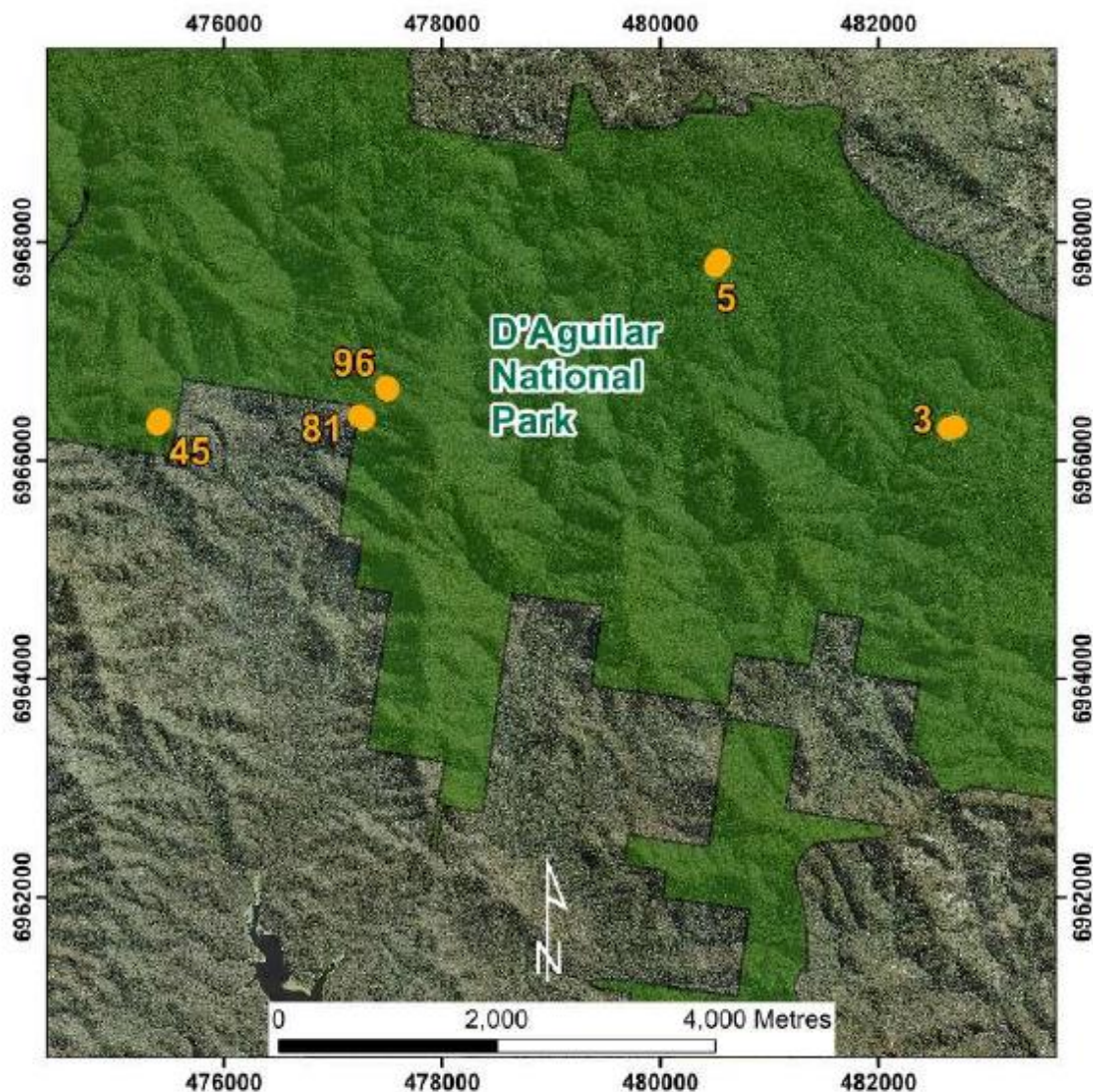


Non-native species cover



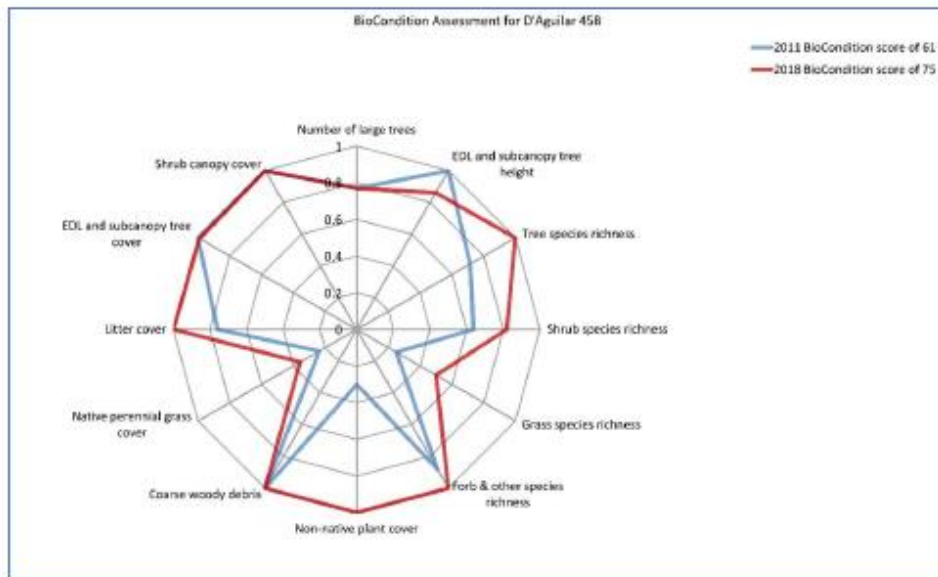
Number of non-native species

General comments: The site had low cover of non-native species and mainly in the > 5m from trail-edge section. The two species present were red Natal grass (*Melinis repens*, 10%) and very low cover of corky passion vine (*Passiflora suberosa* subsp. *Litoralis*) in the > 5m section from trail edge.



SEQ Monitoring Report Card
D'Aguilar 45B
 Regional Ecosystem 12.11.5
Corymbia citriodora subsp. *variegata*
 woodland
 Queensland Herbarium, October 2021

QBEIS Site BioCondition monitoring



Radar diagram of BioCondition Scores by attribute and year sampled

BioCondition scores: 2011 – 61 2018 – 75

Fire History: Burnt May 2014



Forest monitoring transect



Forest monitoring transect May 2018

General Comments: Since the 2014 prescribed fire burn, the BioCondition of the site has improved. There has been an increase in tree, shrub and forb species richness, shrub and litter cover. Native perennial grass cover is low. Although several non-native species were recorded at the site, their cover was very low cover (< 5%). These were: *Lantana camara*, *Melinis repens*, *Passiflora suberosa*, *Passiflora subpeltata*, *Erigeron bonariensis*, *Erigeron sumatrensis*, *Bidens pilosa*, *Gomphocarpus physocarpus*, *Sonchus oleraceus*, *Bidens pilosa* and *Solanum americanum*.

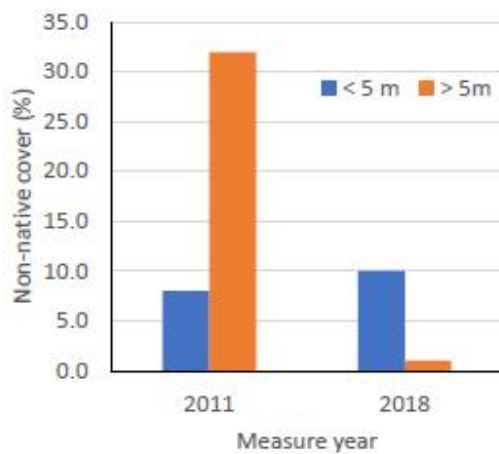
Trail-edge ground cover transect at D'Aguilar 45B



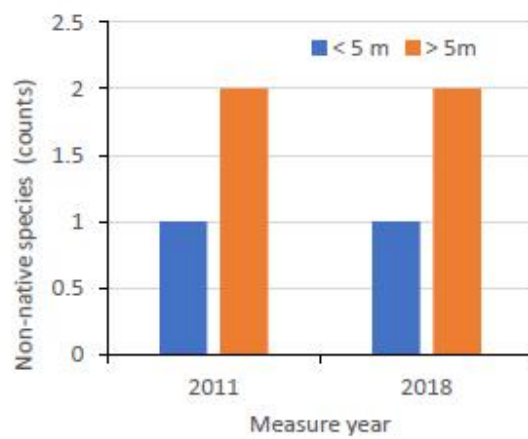
Trail-edge transect March 2015



Trail-edge transect May 2018



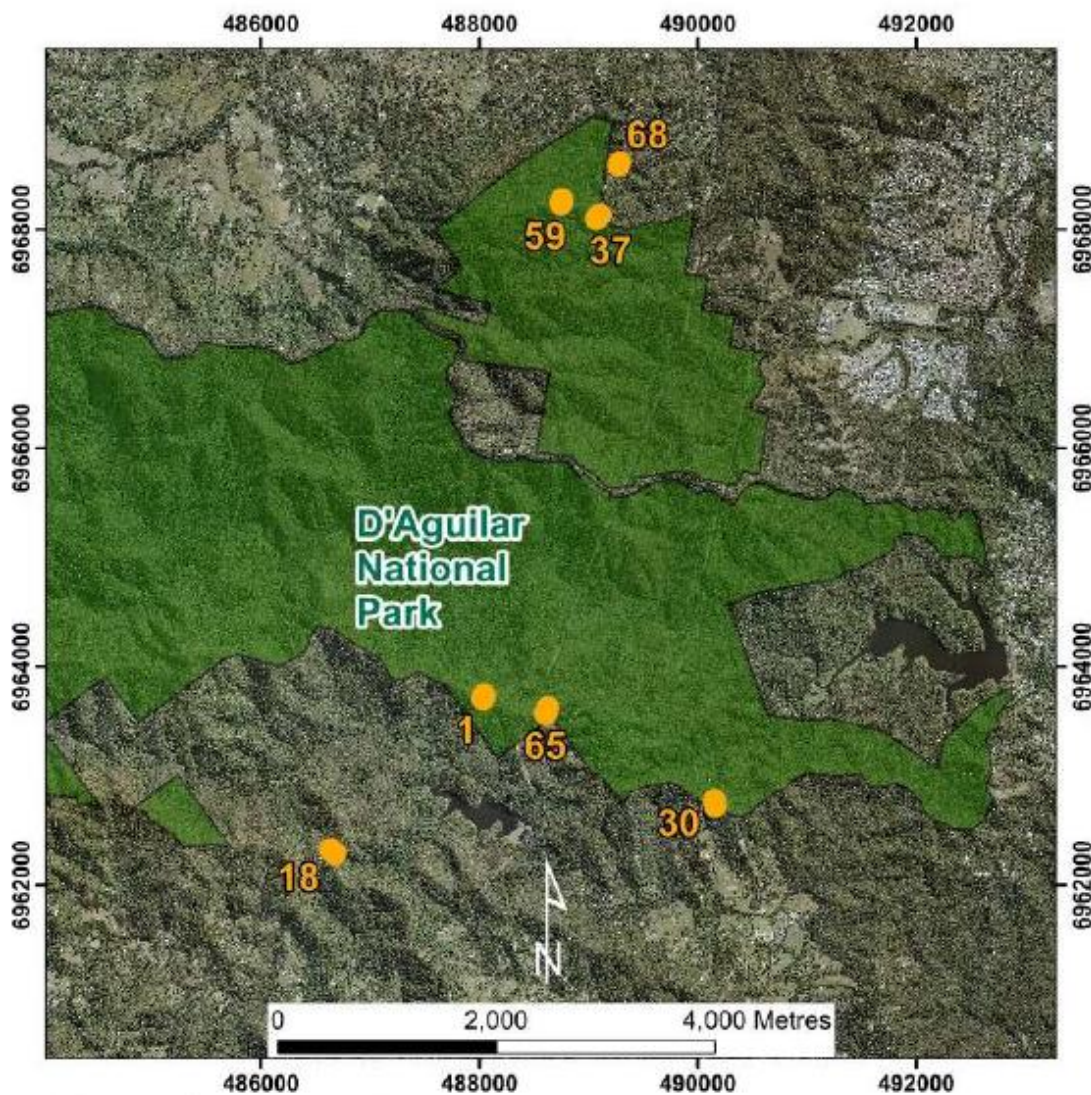
Non-native species cover



Number of non-native species

General comments: The dominating non-native species at this site was red Natal grass (*Melinis repens*) and very low cover of flaxleaf fleabane (*Erigeron bonariensis*).

D'Aguilar National Park: Site 59



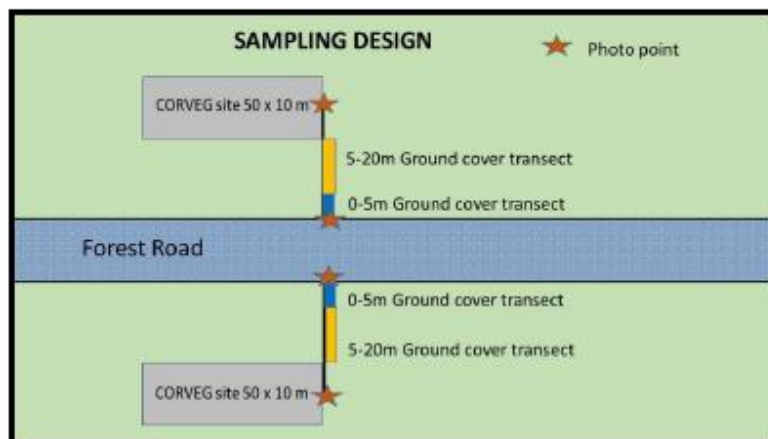
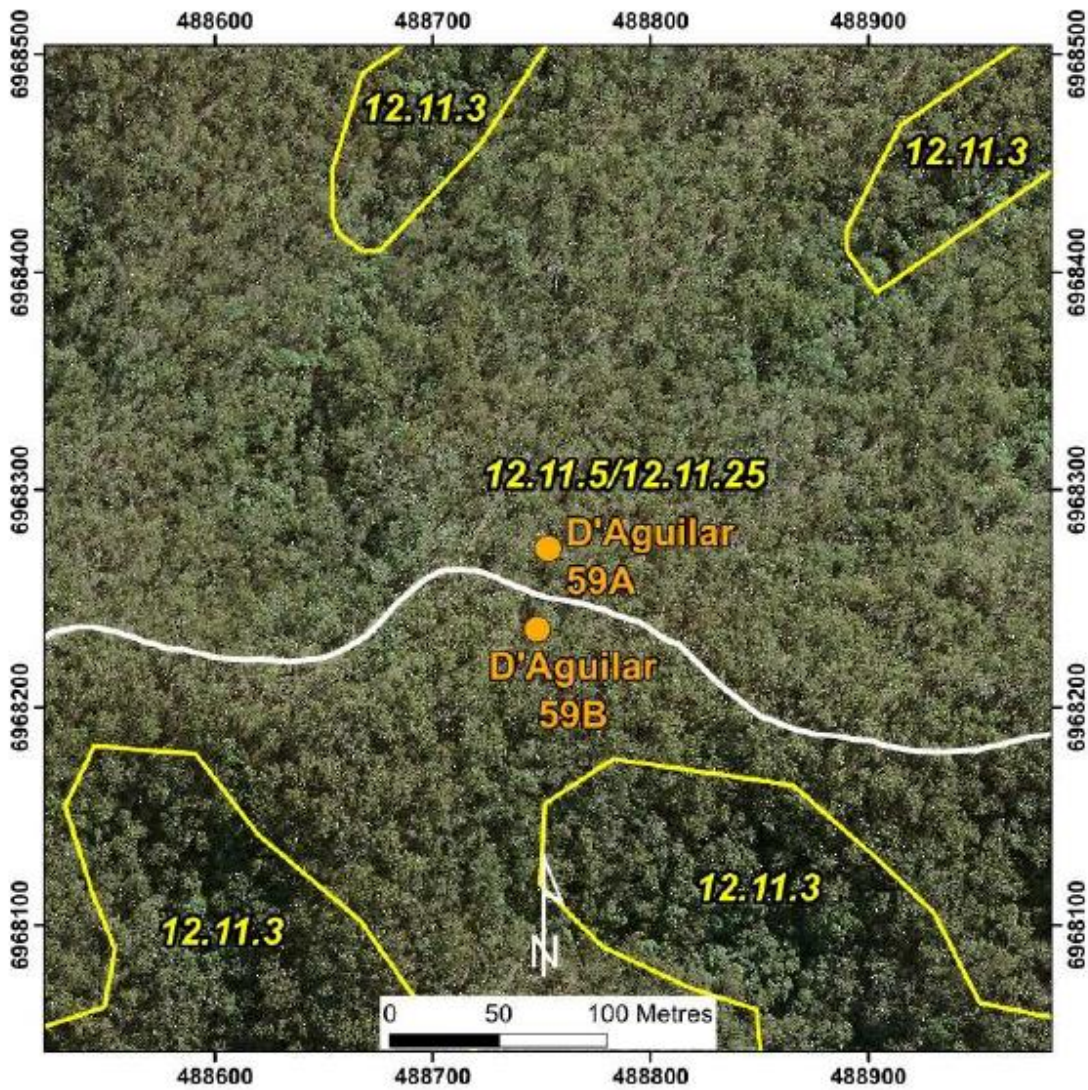
SEQ Monitoring Report Card

D'Aguilar 59A

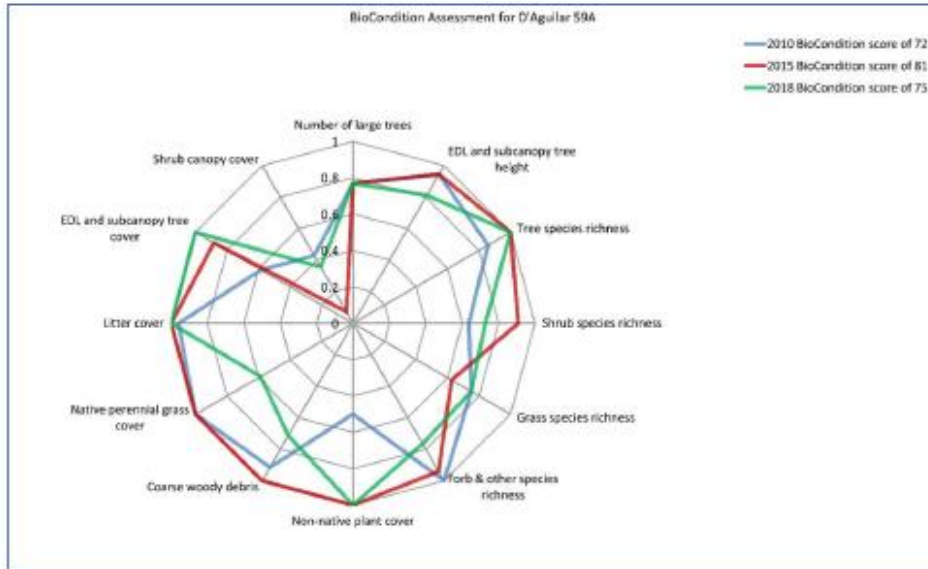
Regional Ecosystem 12.11.5

Corymbia citriodora subsp. *variegata*,
Eucalyptus crebra open forest

Queensland Herbarium, October 2021



QBEIS Site BioCondition monitoring



Radar diagram of BioCondition Scores by attribute and year sampled
 BioCondition scores: 2010 – 72 2015 – 81 2018 – 75
 Fire History: Burnt May 1994



Forest monitoring transect October 2010

Forest monitoring transect November 2018

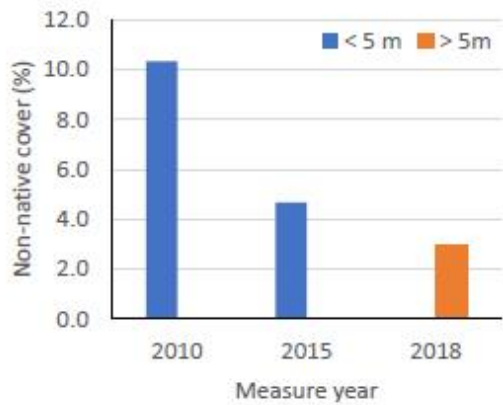
General Comments: This site had consistently low shrub cover and very low non-native cover despite long list of non-native species recorded at the site. These included, *Bidens bipinnata*, *Gomphocarpus fruticosus*, *Lantana camara*, *Melinis minutiflora*, *Melinis repens*, *Ochna serrulata*, *Passiflora suberosa*, *Sonchus oleraceus*, *Bidens pilosa*, *Passiflora suberosa* subsp. *litoralis* and *Passiflora subpeltata*.

Trail-edge ground cover transect at D'Aguilar 59A

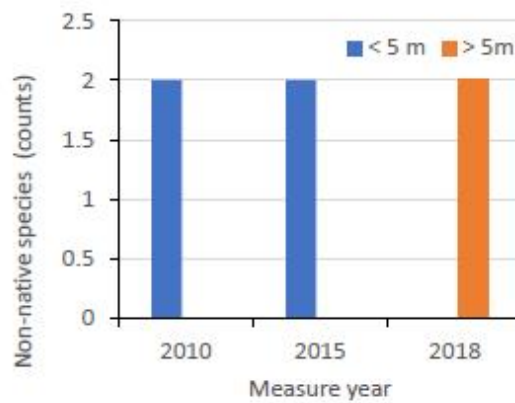


Trail-edge transect October 2010

Trail-edge transect November 2018

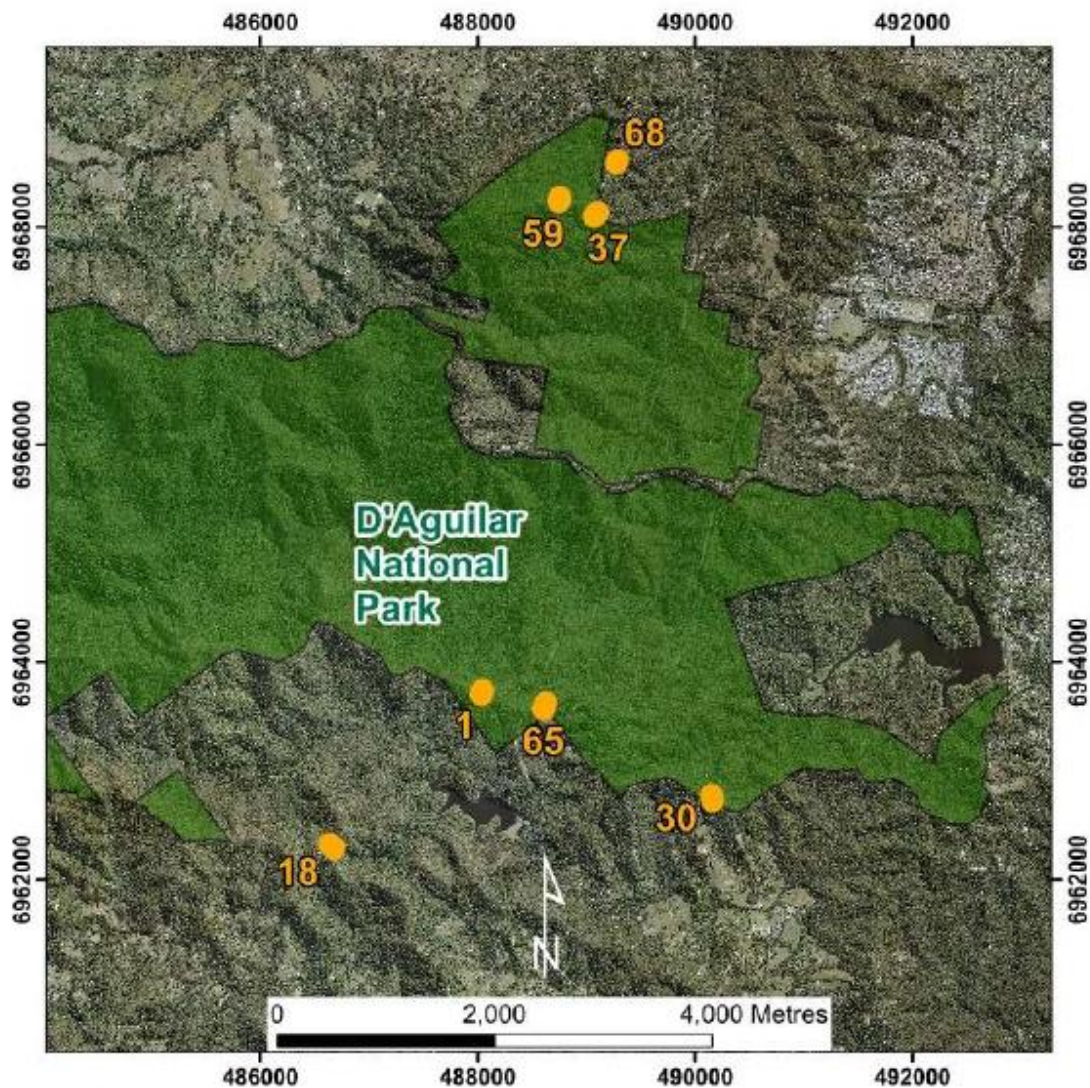


Non-native species cover



Number of non-native species

General comments: Non-native species recorded at the site were *Melinis repens*, *Bidens pilosa*, *Paspalum notatum* and *Erigeron sumatrensis* at the trail-edge and *Lantana camara* and *Gomphocarpus physocarpus* in the > 5m section.



SEQ Monitoring Report Card

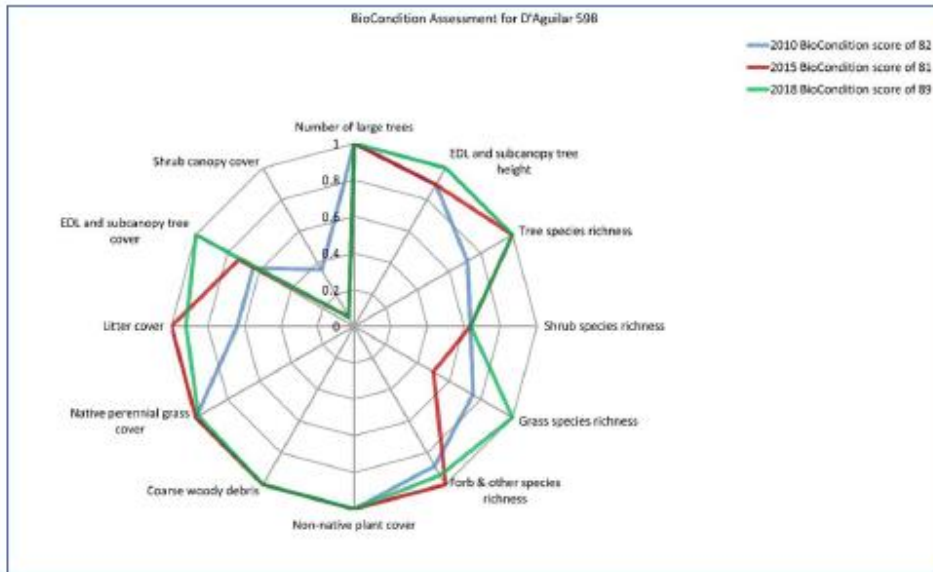
D'Aguilar 59B

Regional Ecosystem 12.11.5

Corymbia citriodora subsp. *variegata*,
Eucalyptus carnea, *Eucalyptus*
microcorys open forest

Queensland Herbarium, October 2021

QBEIS Site BioCondition monitoring



Radar diagram of BioCondition Scores by attribute and year sampled

BioCondition scores: 2010 – 82 2015 – 81 2018 – 89

Fire History: Burnt September 2015



Forest monitoring transect October 2010

Forest monitoring transect March 2015

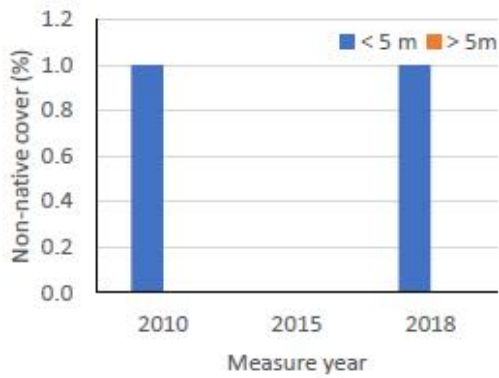
General Comments: This site had consistently high BioCondition score but it has very low shrub cover which may be associated with the recorded low shrub species richness. Although several non-native species were recorded at the site including *Lantana camara*, *Bidens bipinnata*, *Bidens pilosa*, *Gomphocarpus fruticosus*, *Macroptilium lathyroides*, *Passiflora suberosa* and *Erigeron sumatrensis*.

Trail-edge ground cover transect at D'Aguiar 59B

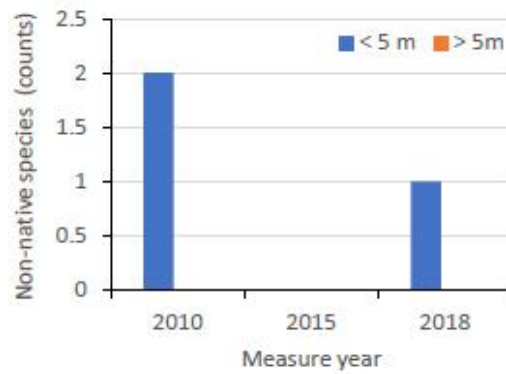


Trail-edge transect October 2010

Trail-edge transect November 2018

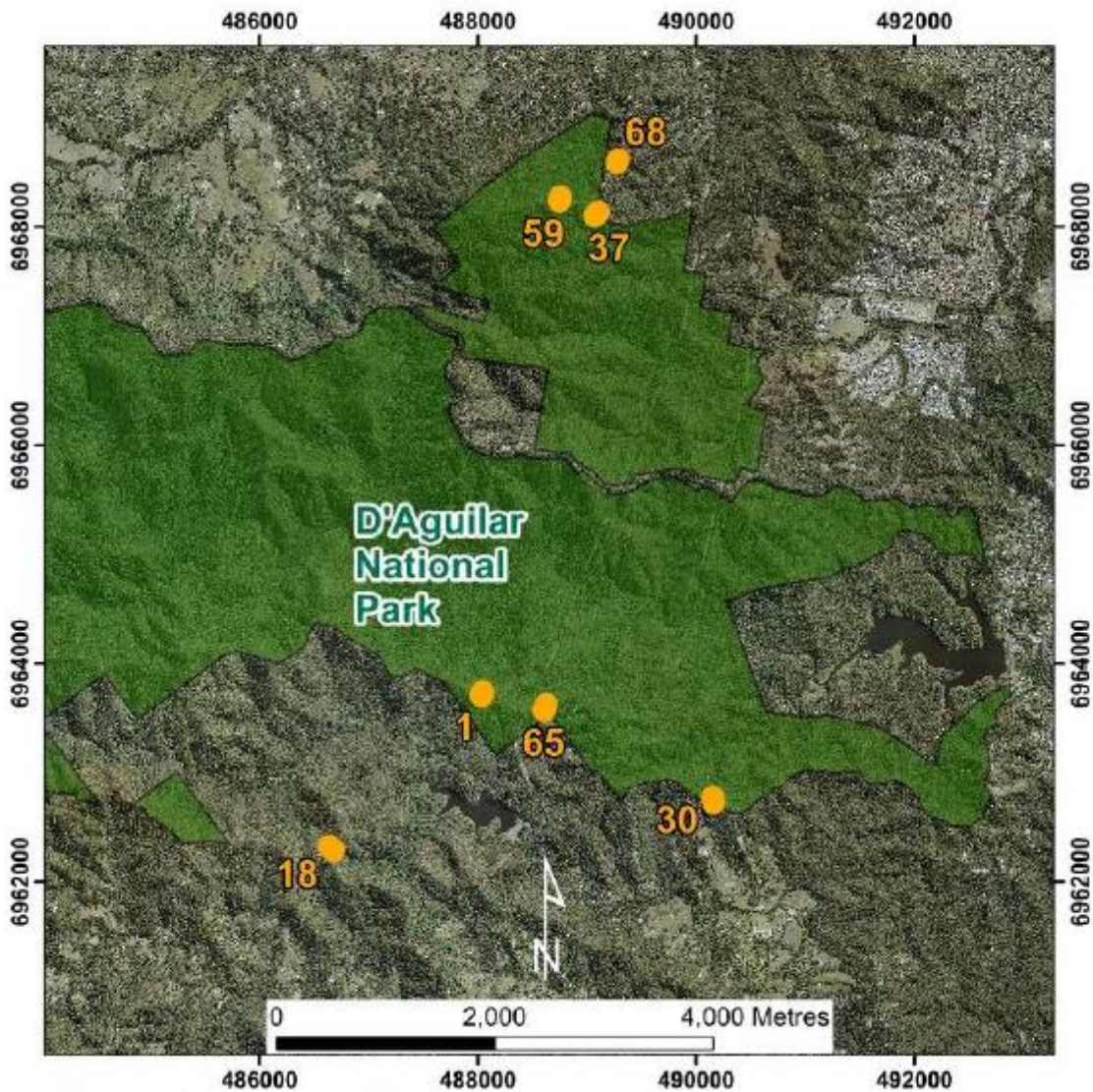


Non-native species cover



Number of non-native species

General comments: Non-native species were only recorded adjacent to the trail edge within 5 m and these were spear thistle (*Cirsium vulgare*), common sowthistle (*Sonchus oleraceus*) and molasses grass (*Melinis minutiflora*) and had very low cover (<1%).



SEQ Monitoring Report Card

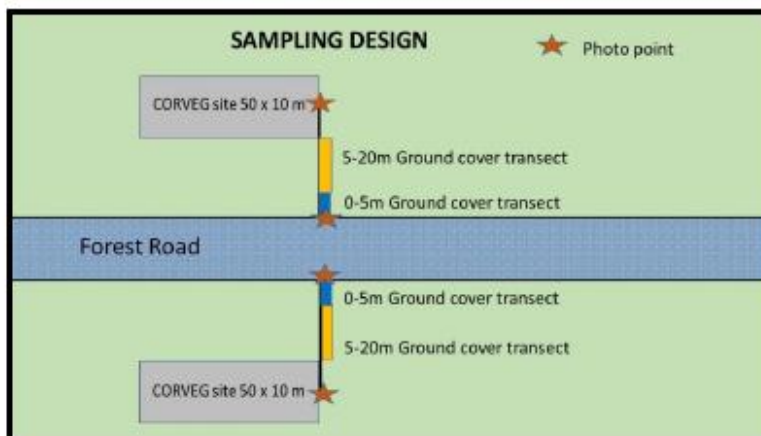
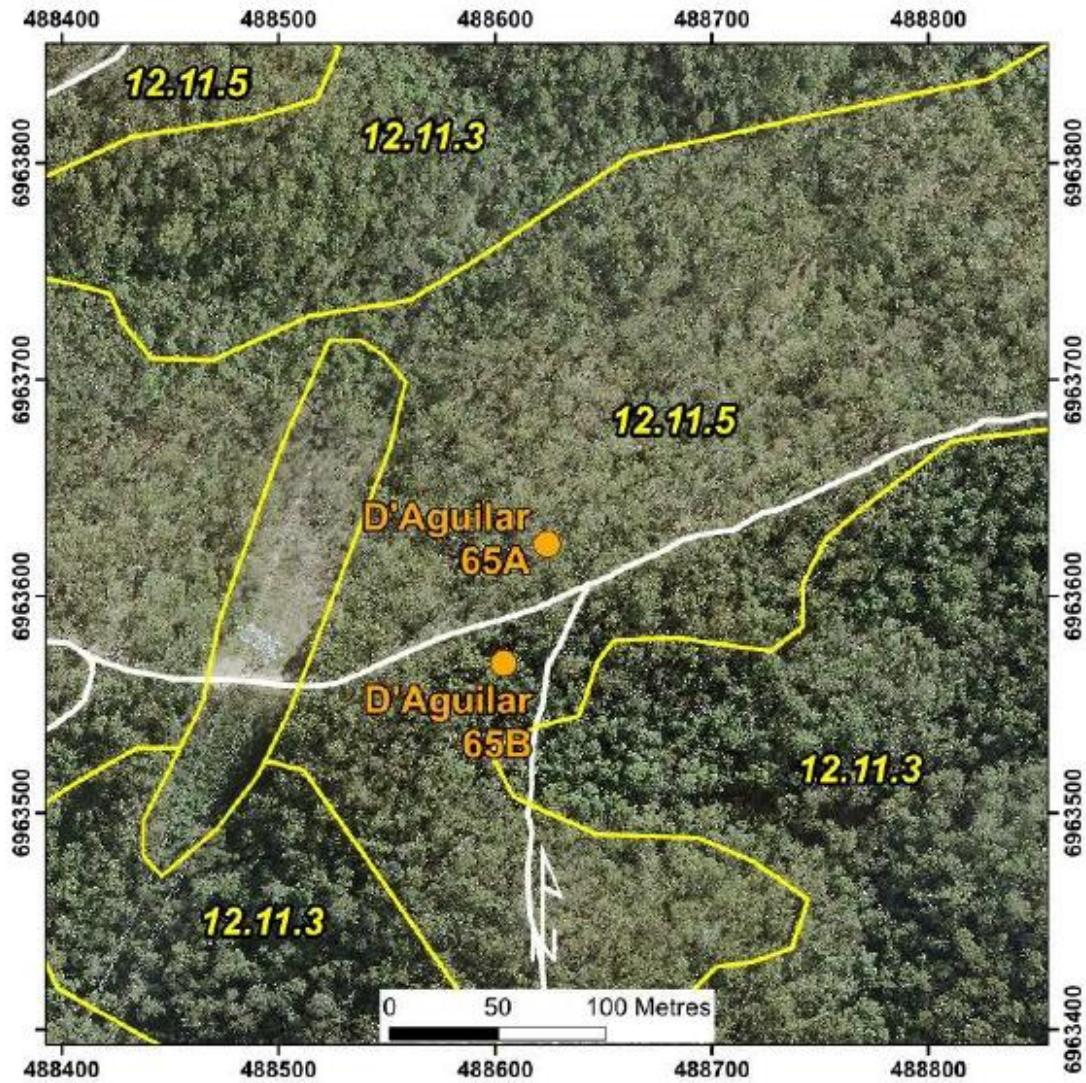
D'Aguilar 65A

Regional Ecosystem 12.11.5

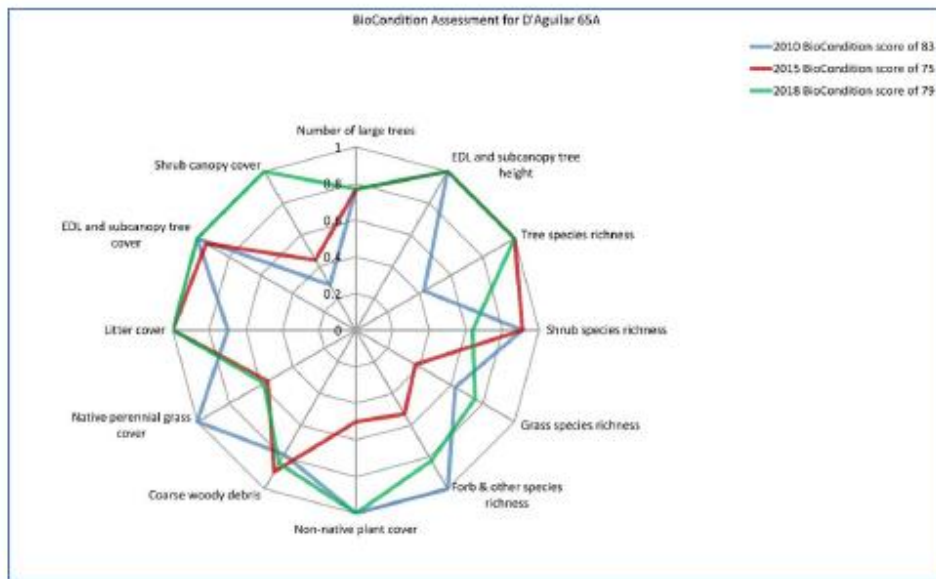
Corymbia citriodora subsp. *variegata*,
Eucalyptus helidonica, *Eucalyptus crebra* open forest

Queensland Herbarium, October 2021

D'Aguilar National Park: Site 65A



QBEIS Site BioCondition monitoring



Radar diagram of BioCondition Scores by attribute and year sampled
 BioCondition scores: 2010 – 83 2015 – 75 2018 – 79
 Fire History: Burnt August 2015



Forest monitoring transect November 2010 Forest monitoring transect April 2018

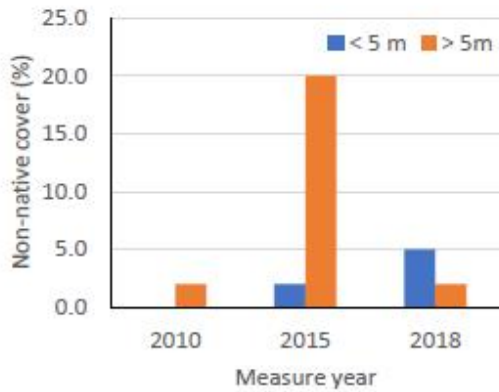
General Comments: This site had relatively high BioCondition score. Although several non-native species were recorded at the site, only *Lantana camara* had relatively higher cover but it was < 5% and hence the high score for non-native cover. The other non-native species were: *Baccharis halimifolia*, *Erigeron bonariensis*, *Erigeron sumatrensis*, *Gomphocarpus physocarpus*, *Lantana camara*, *Passiflora foetida*, *Lantana camara*, *Passiflora subpeltata* and *Crotalaria lanceolata* subsp. *lanceolata*.

Trail-edge ground cover transect at D'Aguilar 65A

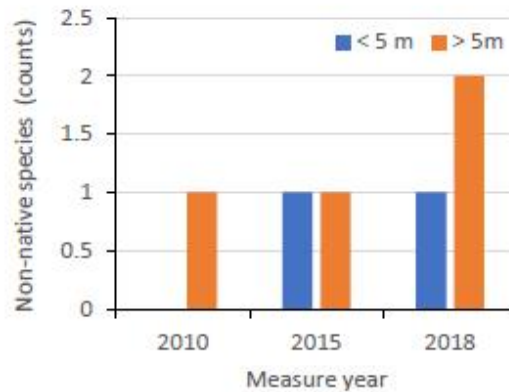


Trail-edge transect March 2015

Trail-edge transect April 2018

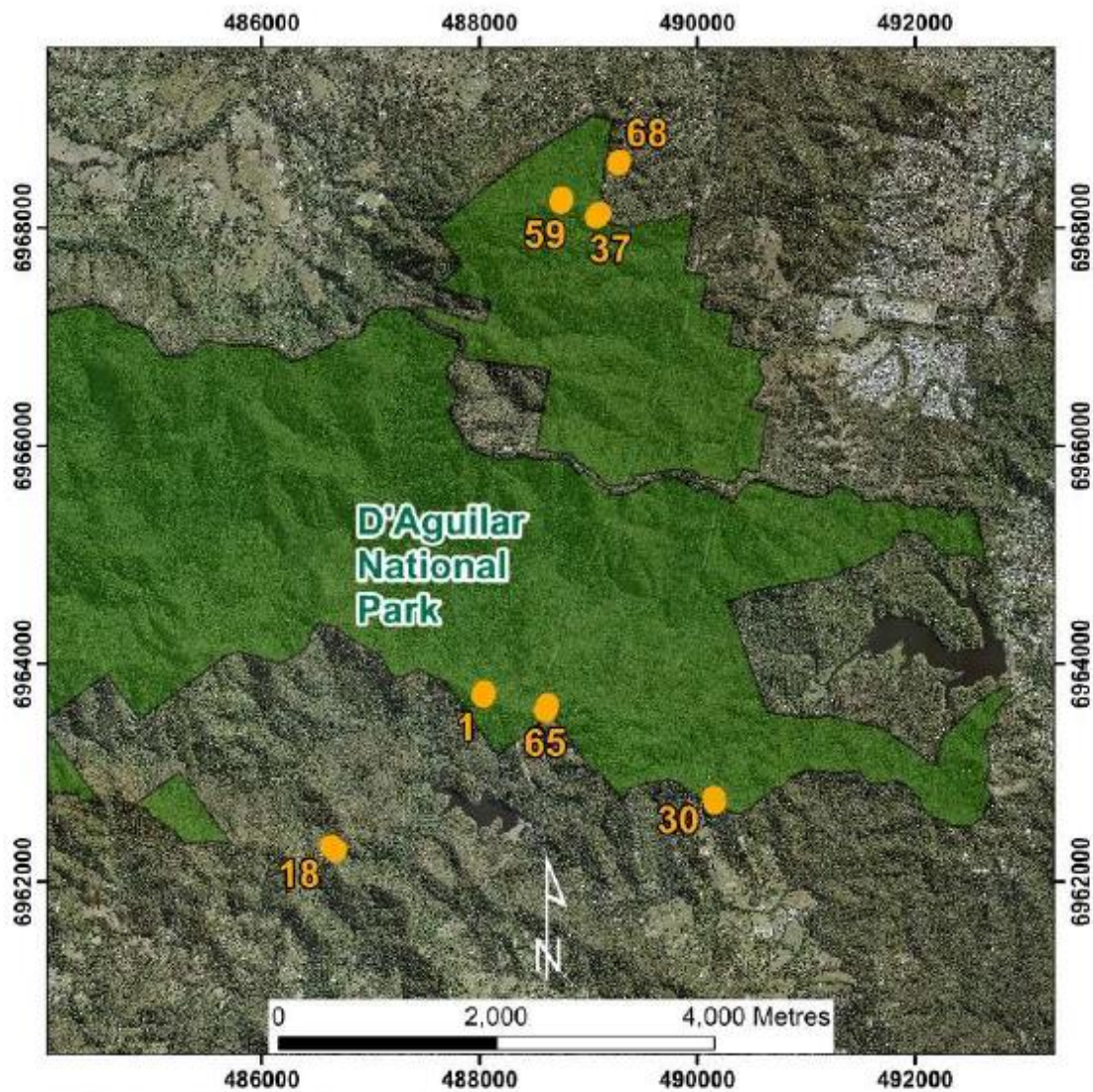


Non-native species cover



Number of non-native species

General comments: This site had high *Lantana camara* (20%) cover adjacent the QBEIS transect. Other non-native species at the site include red Natal grass (*Melinis repens*) and lance-leaved rattlespod (*Crotalaria lanceolata* subsp. *Lanceolata*).



SEQ Monitoring Report Card

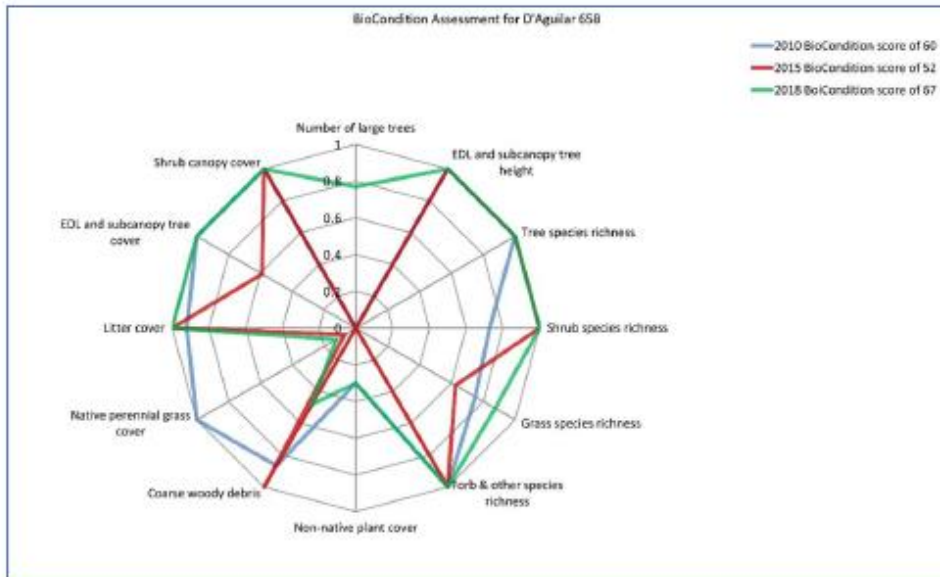
D'Aguilar 65B

Regional Ecosystem 12.11.5

Corymbia citriodora subsp. *variegata*,
Eucalyptus microcorys, *Eucalyptus crebra* open forest

Queensland Herbarium, October 2021

QBEIS Site BioCondition monitoring



Radar diagram of BioCondition Scores by attribute and year sampled
 BioCondition scores: 2010 – 60 2015 – 52 2018 – 67
 Fire History: Burnt September 2000



Forest monitoring transect November 2010



Forest monitoring transect April 2018

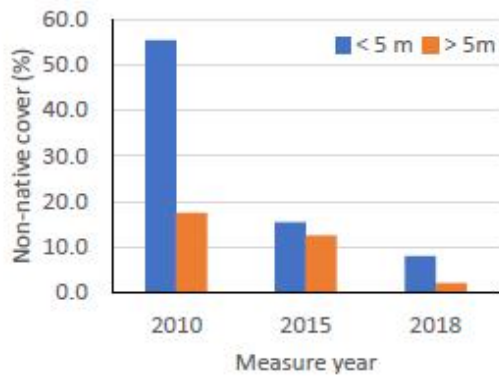
General Comments: This site has not had recent fire since September 2000 and has significantly high *Lantana camara* cover and very cover of native perennial grasses. Other non-native species with low cover include, *Ochna serrulata*, *Verbena rigida*, *Opuntia tomentosa*, *Passiflora suberosa* and *Passiflora subpeltata*.

Trail-edge ground cover transect at D'Aguilar 65B

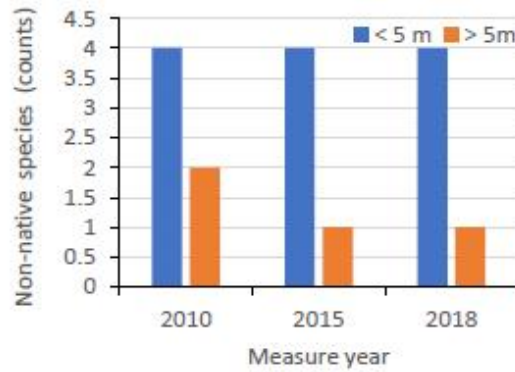


Trail-edge transect March 2015

Trail-edge transect April 2018

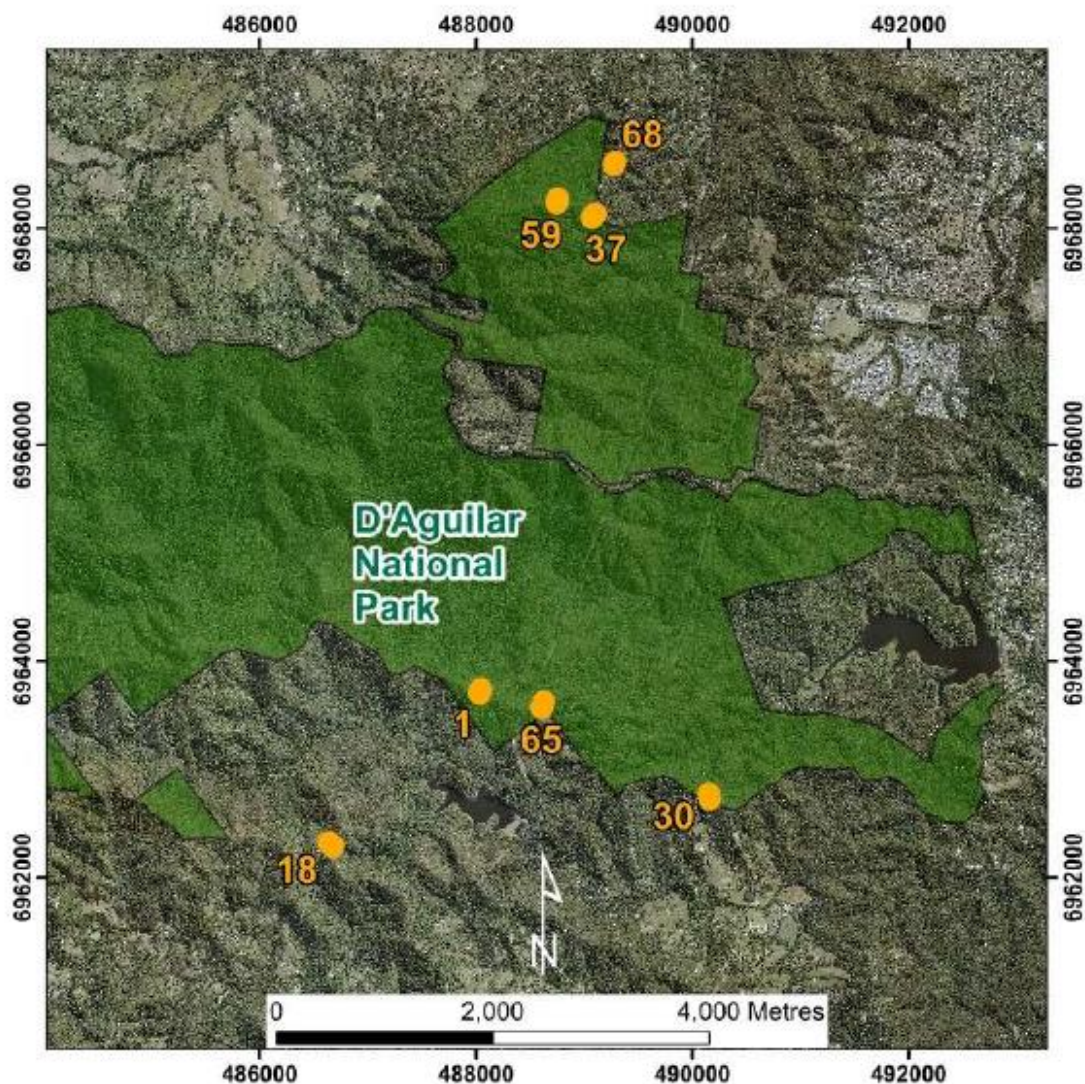


Non-native species cover



Number of non-native species

General comments: The trail-edge had the highest cover and richness of non-native species which included *Cynodon dactylon*, *Lantana camara*, *Megathyrsus maximus*, *Melinis repens*, *Digitaria didactyla*, *Sida rhombifolia*, *Sonchus oleraceus* and *Gomphocarpus physocarpus*. *Lantana camara* was the dominant non-native species in the > 5m section of the transect.



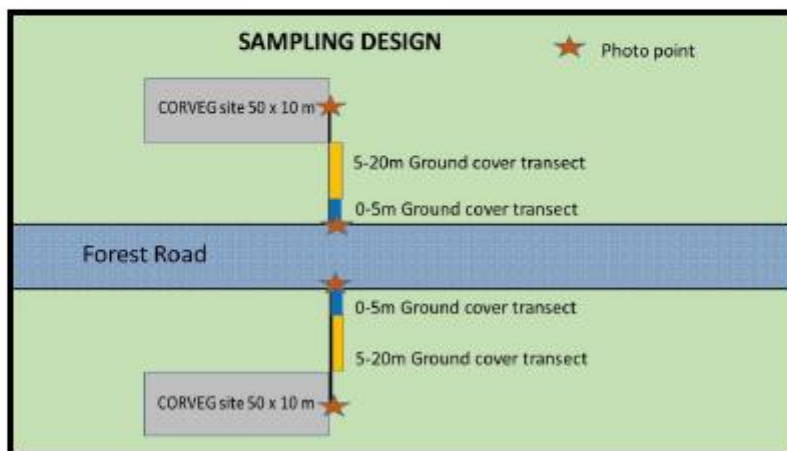
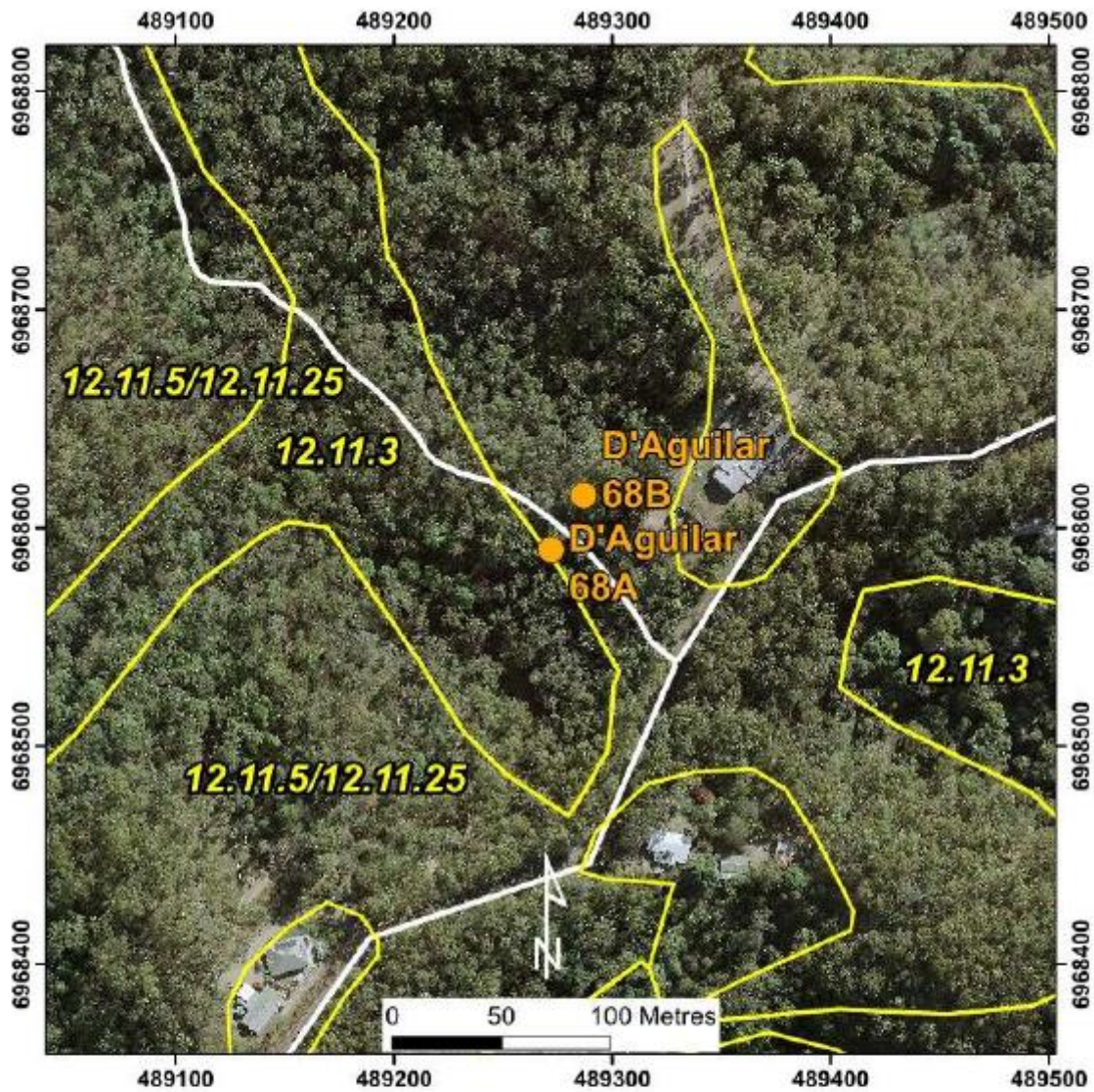
SEQ Monitoring Report Card

D'Aguilar 68A

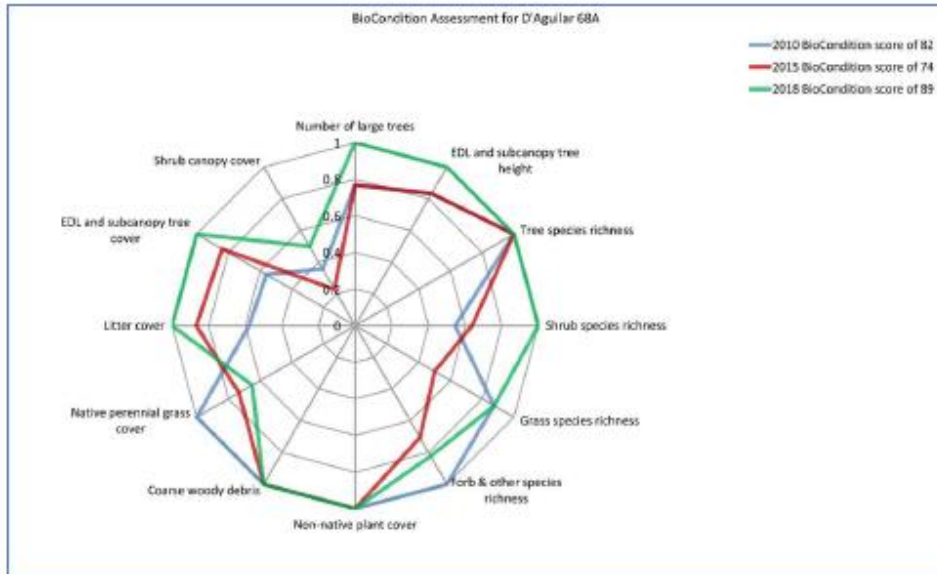
Regional Ecosystem 12.11.5

Eucalyptus helidonica, *Eucalyptus major*, *Corymbia citriodora* subsp. *variegata*, *Corymbia intermedia* open forest

Queensland Herbarium, October 2021



QBEIS Site BioCondition monitoring



Radar diagram of BioCondition Scores by attribute and year sampled
 BioCondition scores: 2010 – 82 2015 – 74 2018 – 89
 Fire History: Burnt May 1994



Forest monitoring transect October 2010

Forest monitoring transect November 2018

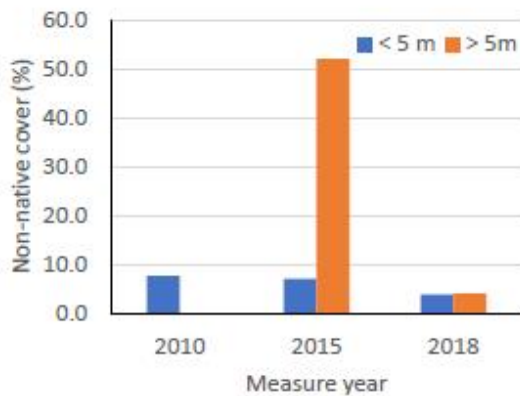
General Comments: The site had relatively high BioCondition score except the 2015 measure which took place during a dry weather spell and very low shrub cover. Considerable fluctuations of BioCondition attributes reflects the rainfall conditions during field measurements. Many non-native species were recorded but in very low covers as shown by the high score for non-native plant cover. These species were: *Ageratum houstonianum*, *Bidens bipinnata*, *Lantana camara*, *Macroptilium atropurpureum*, *Ochna serrulata*, *Senna pendula* var. *glabrata*, *Melinis minutiflora*, *Passiflora suberosa* subsp. *litoralis*

Trail-edge transect at D'Aguilar 68A

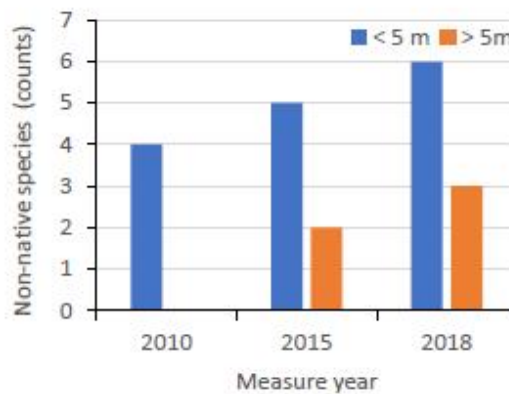


Trail-edge transect October 2010

Trail-edge transect November 2018

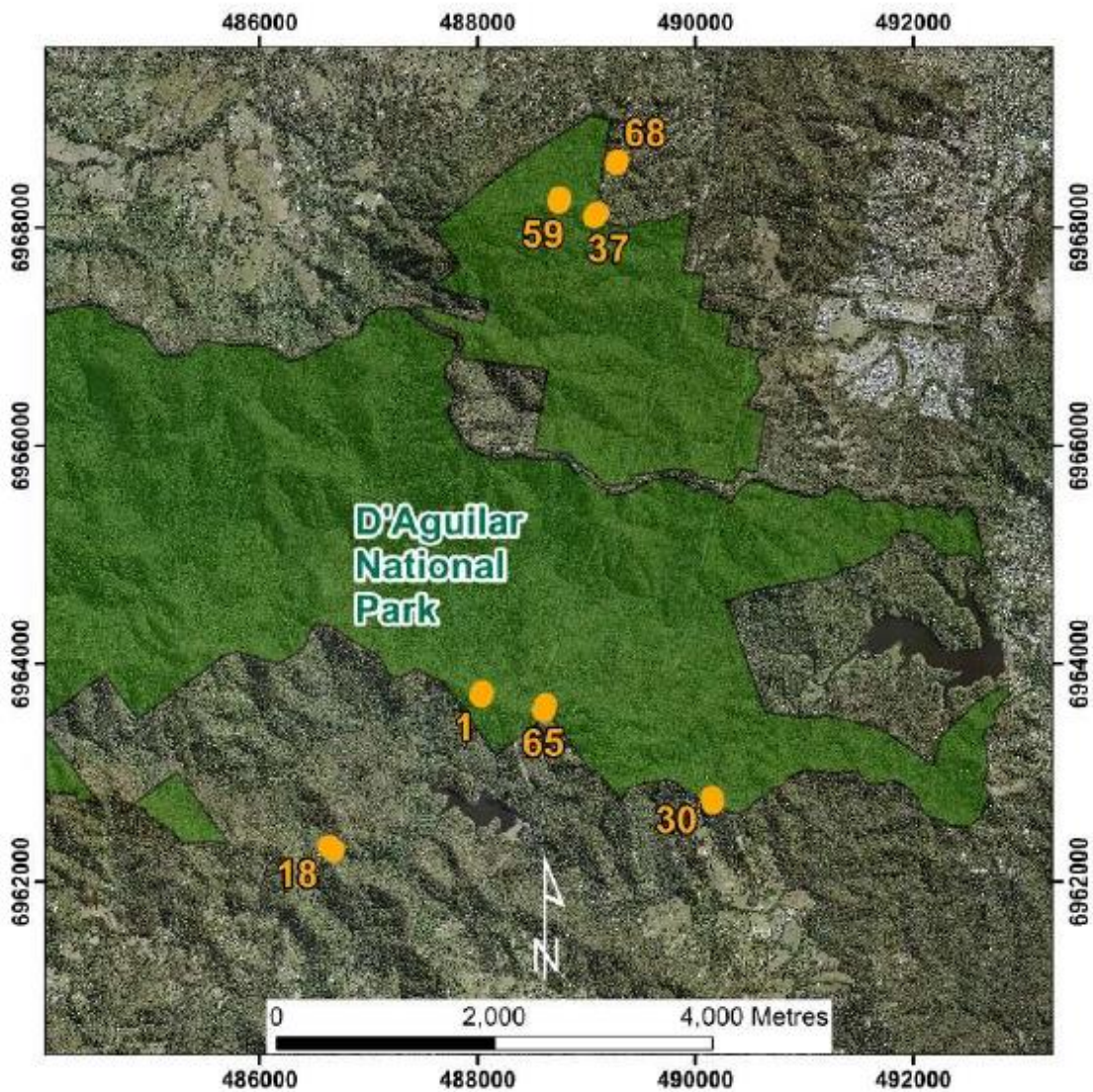


Non-native species cover



Number of non-native species

General comments: The very high cover of non-native species observed during the 2015 measure and was a lush *Lantana camara* bush that was then removed. The richness of non-native species increased over the time of sampling. The most significant non-native species were perennial horse gram (*Macrotyloma axillare*) and *Lantana camara*. Other non-native species present at the site were: cobbler's pegs (*Bidens pilosa*), ground asparagus fern (*Asparagus aethiopicus*), easter cassia (*Senna pendula*), common sida (*Sida rhombifolia*), ochna (*Ochna serrulata*), tall fleabane (*Erigeron sumatrensis*) and white eye (*Mitracarpus hirtus*).



SEQ Monitoring Report Card

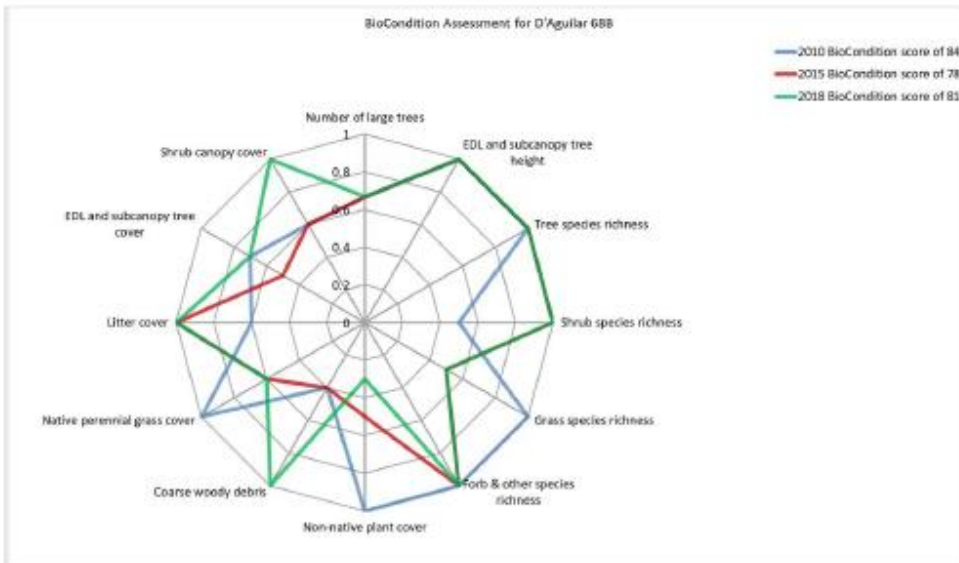
D'Aguilar 68B

Regional Ecosystem 12.11.5

Eucalyptus microcorys, *Eucalyptus major*, *Eucalyptus crebra* open forest

Queensland Herbarium, October 2021

QBEIS Site BioCondition monitoring



Radar diagram of BioCondition Scores by attribute and year sampled
 BioCondition scores: 2010 – 84 2015 – 78 2018 – 81
 Fire History: No fire data



Forest monitoring transect October 2010

Forest monitoring transect November 2018

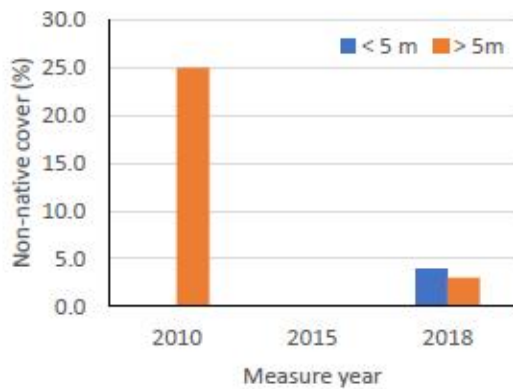
General Comments: The BioCondition scores are moderately high and shrub species cover and richness have all increased. Non-native species cover has increased and could be affecting grass species richness which has decreased. Coarse wood debris in 2018 had also increased relative to past records. Moderate non-native species presence observed in 2010 and 2015 had worsened by 2018. The most significant environmental weeds are lantana (*L. camara*), ground asparagus (*Asparagus aethiopicus*), ochra (*O. serrulata*), siratro (*Macroptilium atropurpureum*), and easter cassia (*Senna pendula*).

Trail-edge ground cover transect at D'Aguilar 68B

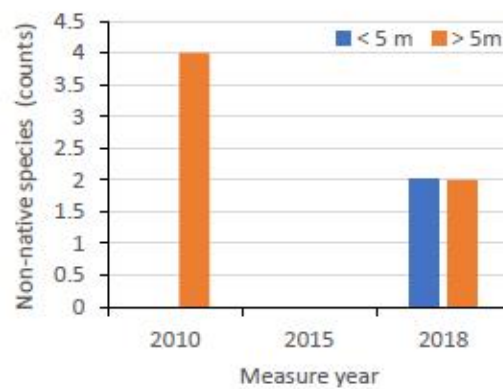


Trail-edge transect November 2010

Trail-edge transect November 2018

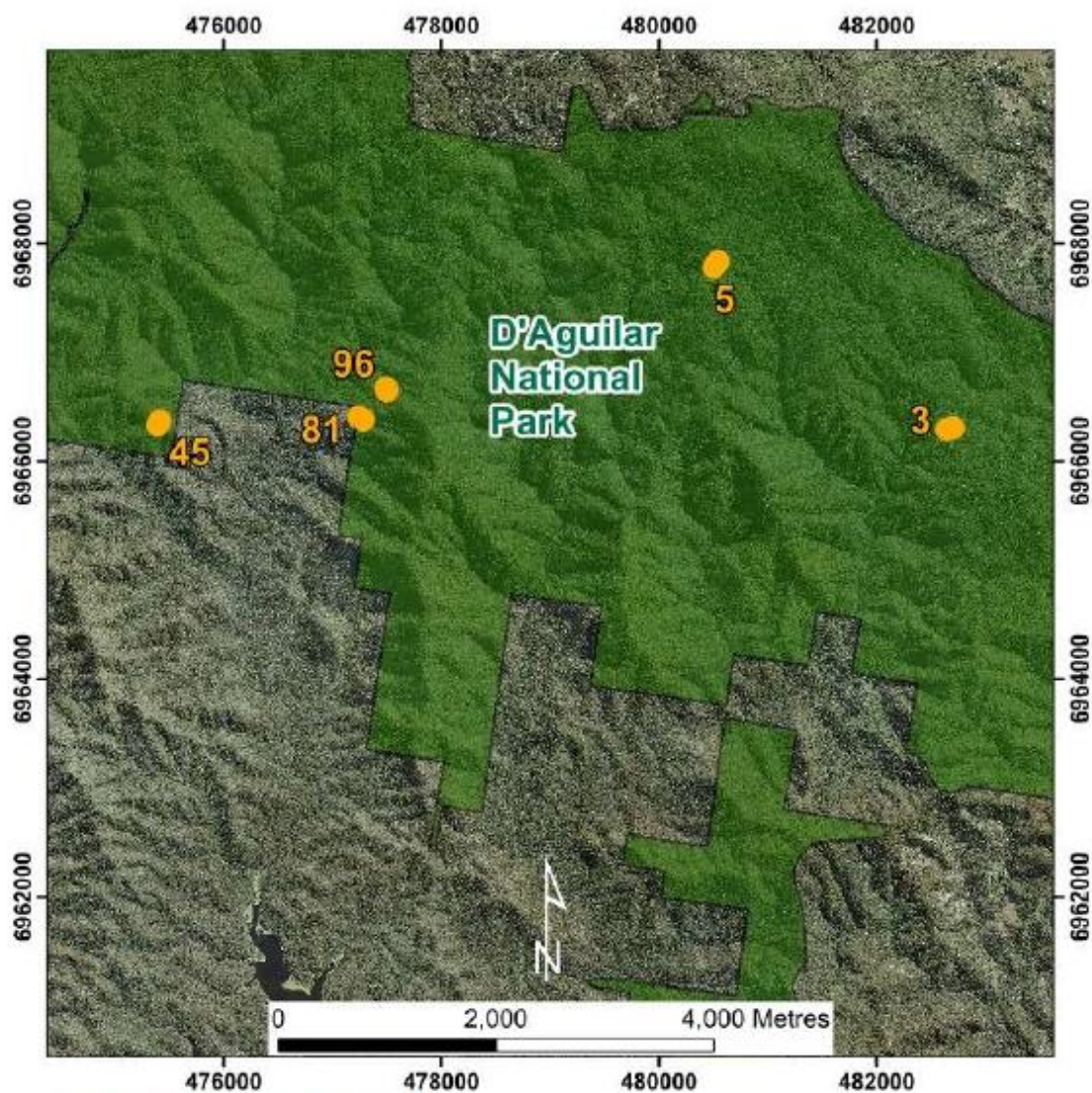


Non-native species cover



Number of non-native species

General comments: Non-native species cover and number of non-native species decreased overall since 2010. Easter cassia (*Senna pendula*) and red Natal grass (*Melinis repens*) have not been observed in the ground cover transect since 2010 despite persisting in the forest monitoring transect. Low cover of lantana (*L. camara*) was recorded closer to the track by 2018, and corkstem passionflower (*Passiflora suberosa*) was recorded for the first time. The Millennium drought and wet years that followed may have contributed to the fluctuation in species presence at each sample.



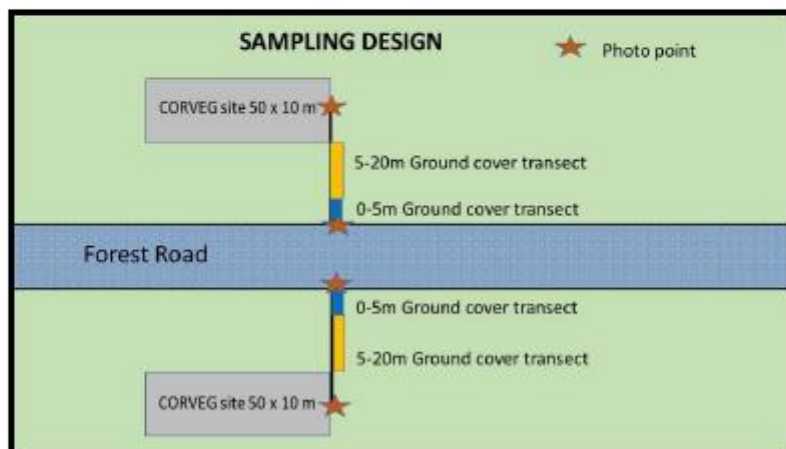
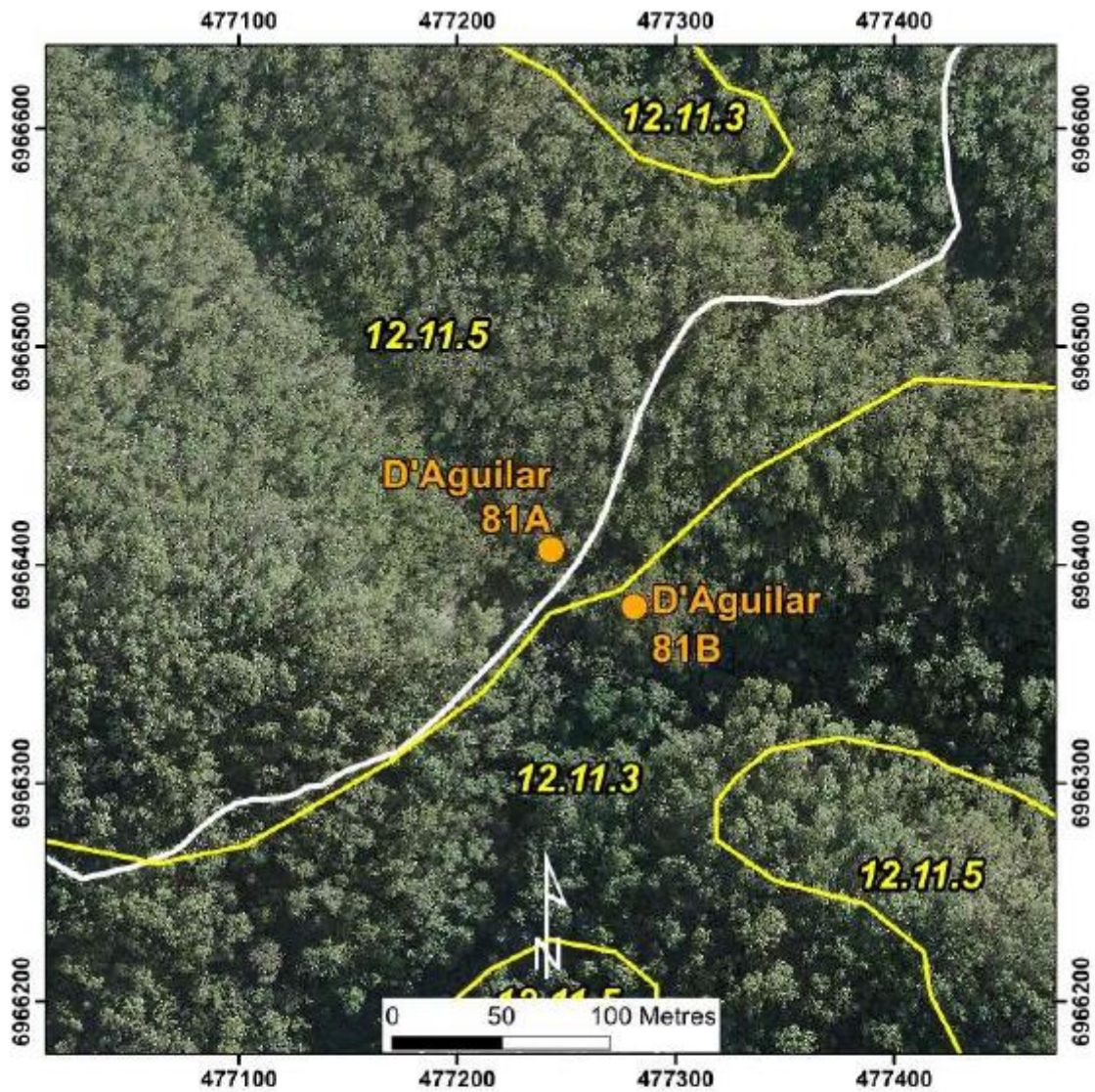
SEQ Monitoring Report Card

D'Aguilar 81A

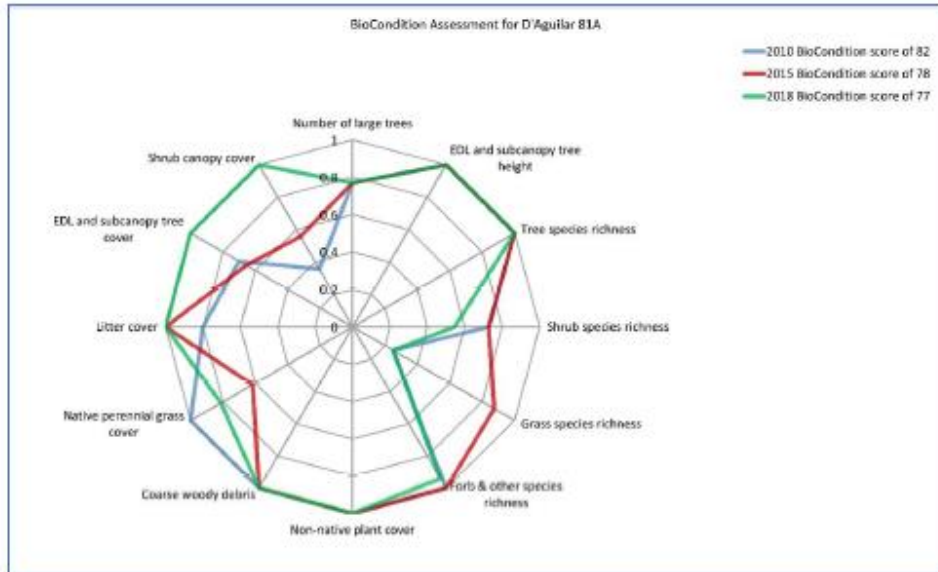
Regional Ecosystem 12.11.5

Corymbia citriodora subsp. *variegata*,
Eucalyptus crebra, *Eucalyptus major*
 open forest

Queensland Herbarium, October 2021



QBEIS Site BioCondition monitoring



Radar diagram of BioCondition Scores by attribute and year sampled
 BioCondition scores: 2010 – 82 2015 – 78 2018 – 77
 Fire History: Burnt September 2013



Forest monitoring transect March 2015

Forest monitoring transect November 2018

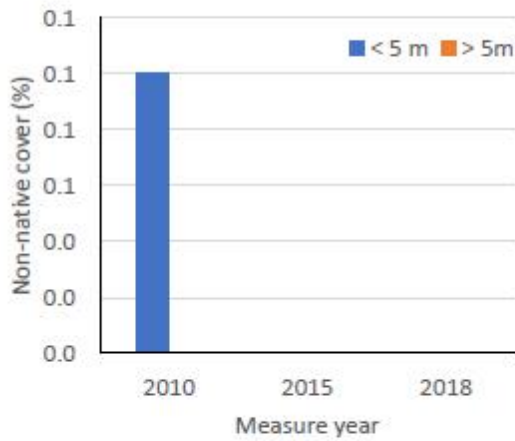
General Comments: The BioCondition score for this site has decreased since first sample in 2010. Canopy cover and litter cover have increased while grass species richness has decreased markedly, shrub species richness and native perennial grass cover have decreased moderately, and forb and other ground layer species richness has decreased slightly. Seven non-native plant species have been recorded, including persistent presence of Lantana (*L. camara*) and red Natal grass (*Melinis repens*) at low densities, and first record of balloon cotton bush (*Gomphocarpus physocarpus*) in 2018.

Trail-edge ground cover transect at D'Aguilar 81A

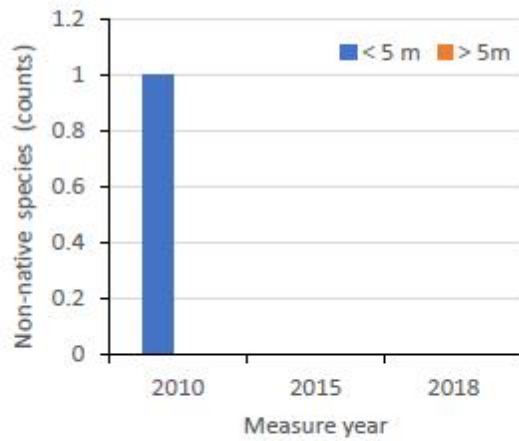


Trail-edge transect March 2015

Trail-edge transect November 2018

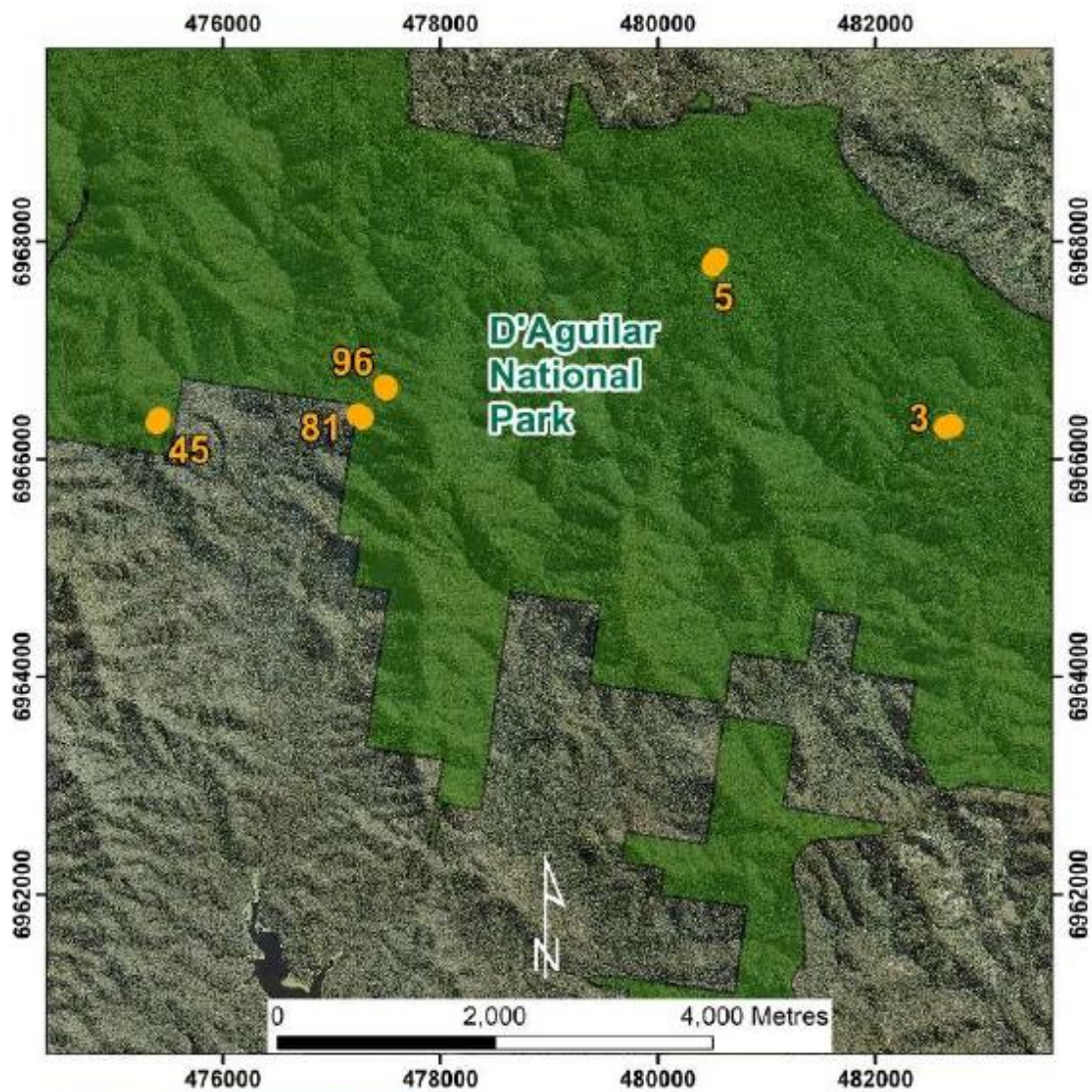


Non-native species cover



Number of non-native species

General comments: Fire in 2013 may have effectively controlled common sowthistle (*Sonchus oleraceus*), which was recorded near to the track in 2010 at very low cover and was not recorded on subsequent samples.



SEQ Monitoring Report Card

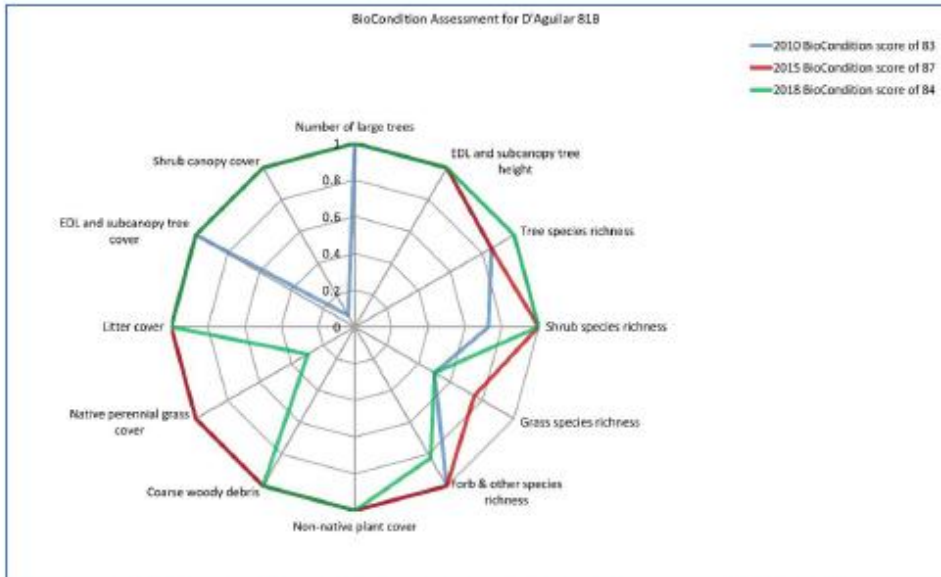
D'Aguilar 81B

Regional Ecosystem 12.11.5

Corymbia citriodora subsp. *variegata*,
Eucalyptus major open forest

Queensland Herbarium, October 2021

QBEIS Site BioCondition monitoring



Radar diagram of BioCondition Scores by attribute and year sampled
 BioCondition scores: 2010 – 83 2015 – 87 2018 – 84
 Fire History: Burnt September 2003



Forest monitoring transect November 2010



Forest monitoring transect November 2018

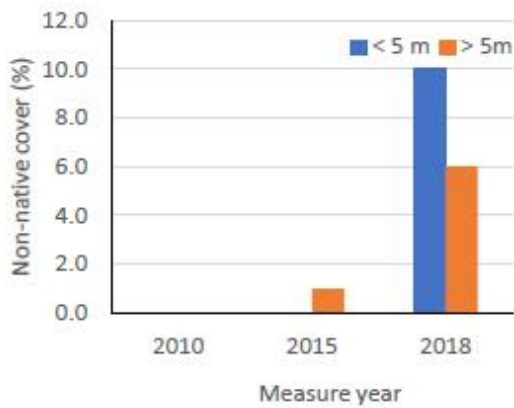
General Comments: This site has increased in tree species richness, shrub species richness, and shrub canopy cover since first sample in 2010, but has decreased in grass species richness and forb and other ground layer species richness. The large decrease in native perennial grass cover between 2015 and 2018 samples may be associated with increasing and maintaining high levels of shrub canopy cover.

Trail-edge ground cover transect at D'Aguilar 81B

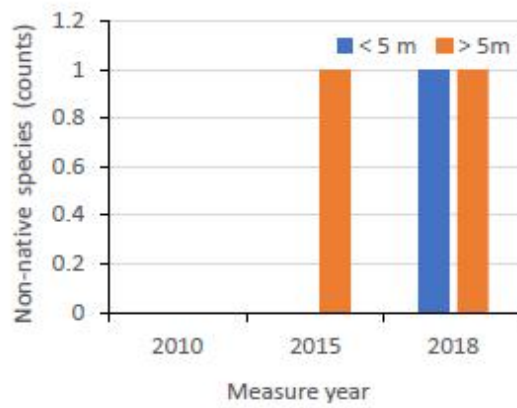


Trail-edge transect March 2015

Trail-edge transect November 2018

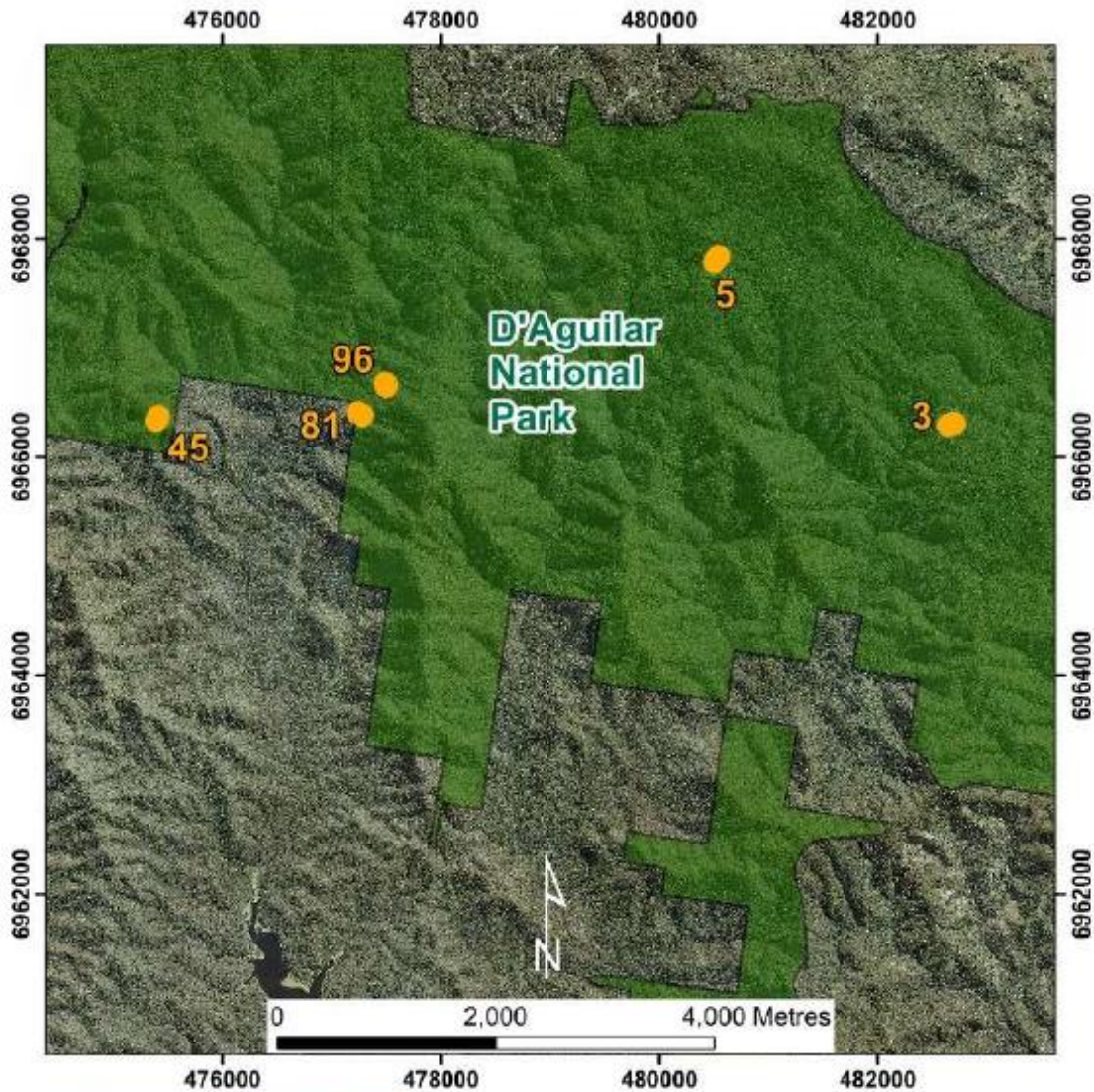


Non-native species cover



Number of non-native species

General comments: Non-native species Corky passionflower (*Passiflora suberosa* subsp. *litoralis*) was recorded at low cover in the 2015 but not in 2018. Incursion of pink sowthistle (*Emilia sonchifolia*) had occurred between 2015 and 2018, with cover decreasing with distance from the track.



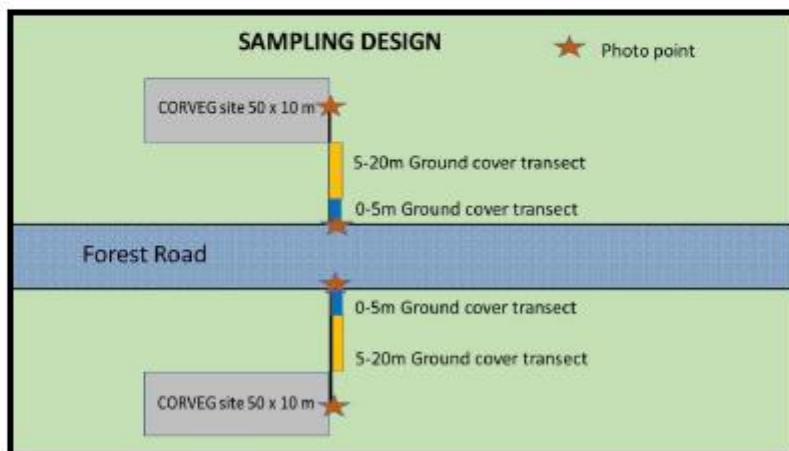
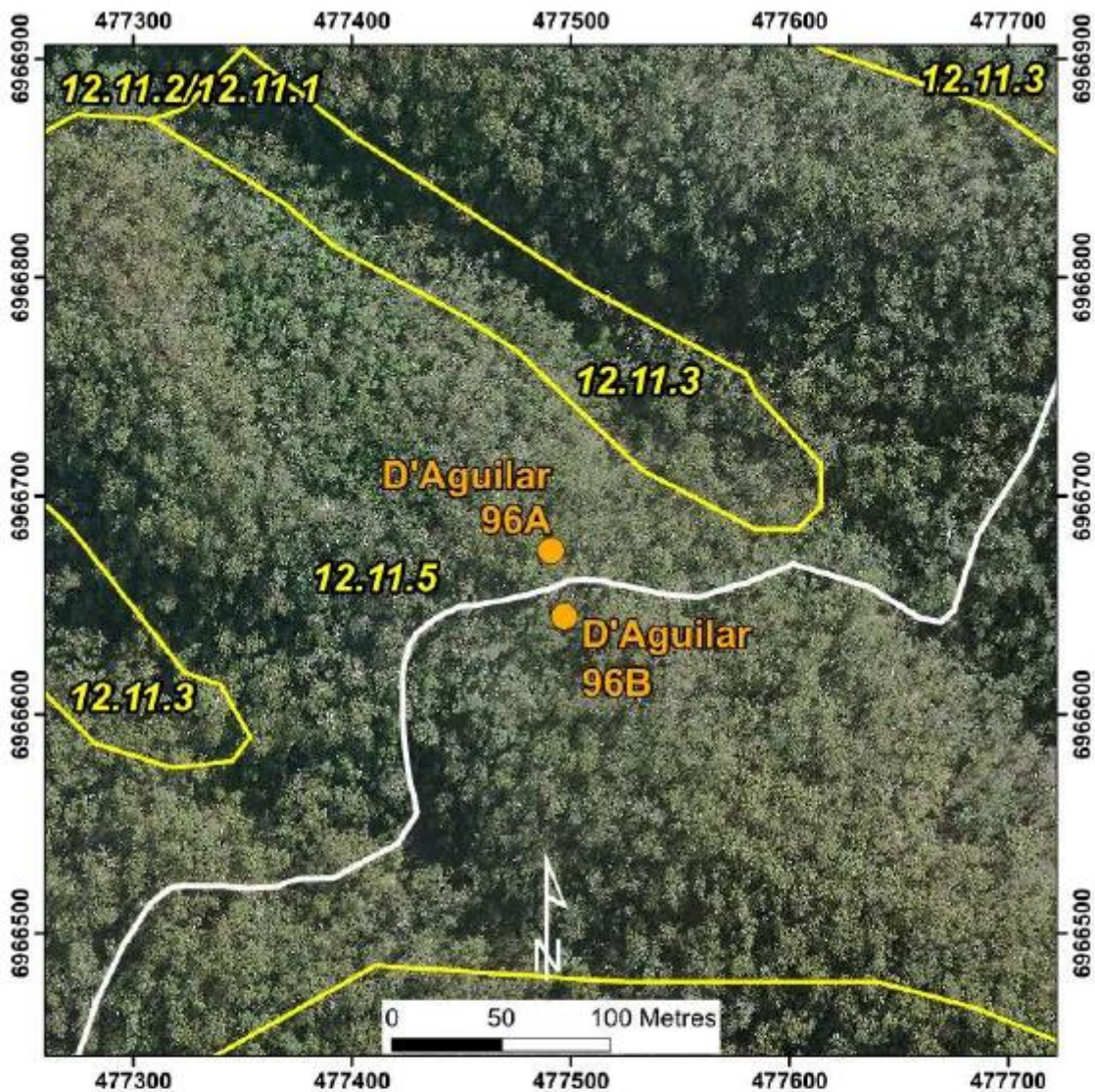
SEQ Monitoring Report Card

D'Aguilar 96A

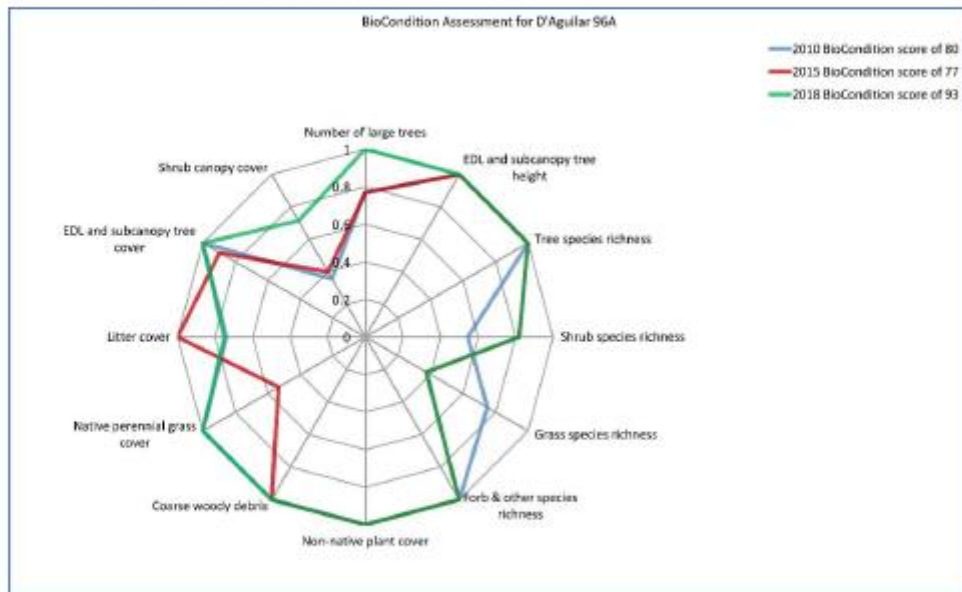
Regional Ecosystem 12.11.5

Corymbia citriodora subsp. *variegata*,
Eucalyptus crebra, *Corymbia*
intermedia open forest

Queensland Herbarium, October 2021



QBEIS Site BioCondition monitoring



Radar diagram of BioCondition Scores by attribute and year sampled
 BioCondition scores: 2010 – 80 2015 – 77 2018 – 93
 Fire History: Burnt September 2013



Forest monitoring transect March 2015



Forest November 2018

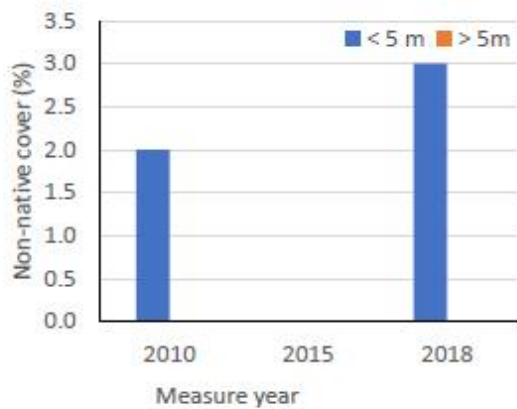
General Comments: This site had slight decrease in BioCondition score between 2010 and 2015, possibly related to late fire in 2013. In 2018, approximately 5 years after fire, increased canopy cover, shrub species richness, and native perennial grass cover was recorded, giving a higher BioCondition score. Observed decrease in grass species richness may be associated with increase in shrub cover. Large tree abundance increasing to benchmark levels may indicate longer-term recovery from disturbance such as logging.

Trail-edge ground cover transect at D'Aguilar 96A

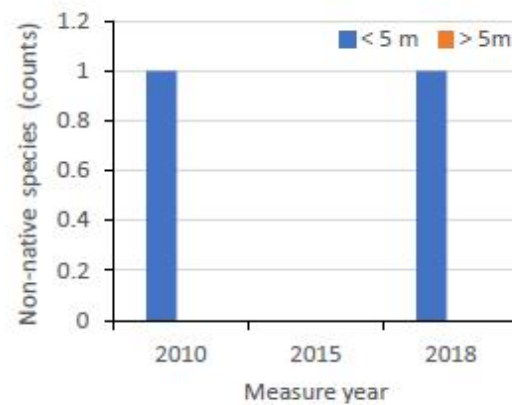


Trail-edge transect March 2015

Trail-edge transect November 2018



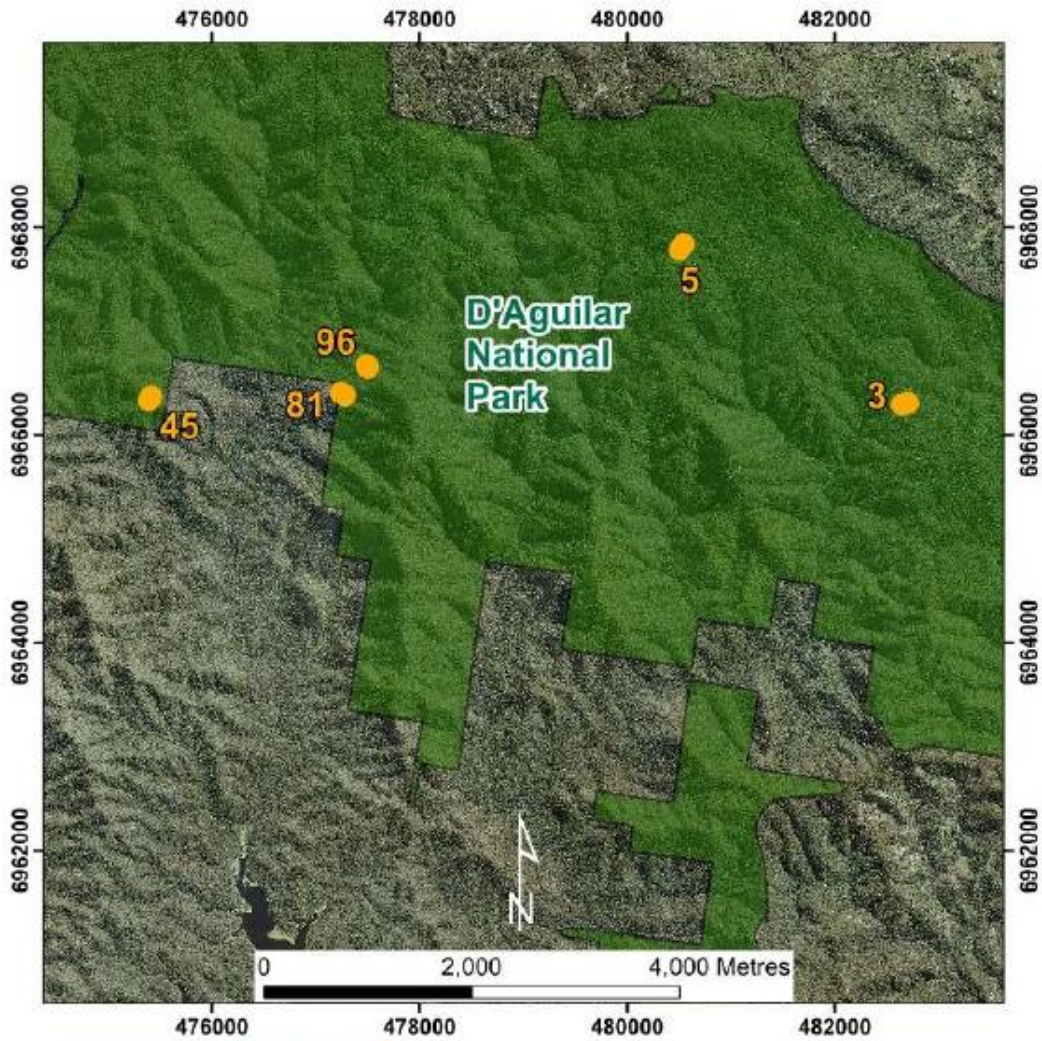
Non-native species cover



Number of non-native species

General comments: Red Natal grass (*Melinis repens*) is the only non-native species recorded on the ground cover transect. In 2010 there was low red Natal grass cover (3%), it was not recorded in 2015 which may relate to the 2013 fire, and it was recorded at 1% cover in 2018. Such low levels of non-native cover are not high concern, but we may find increased cover with time since fire in future samples.

D'Aguilar National Park: Site 96B



SEQ Monitoring Report Card

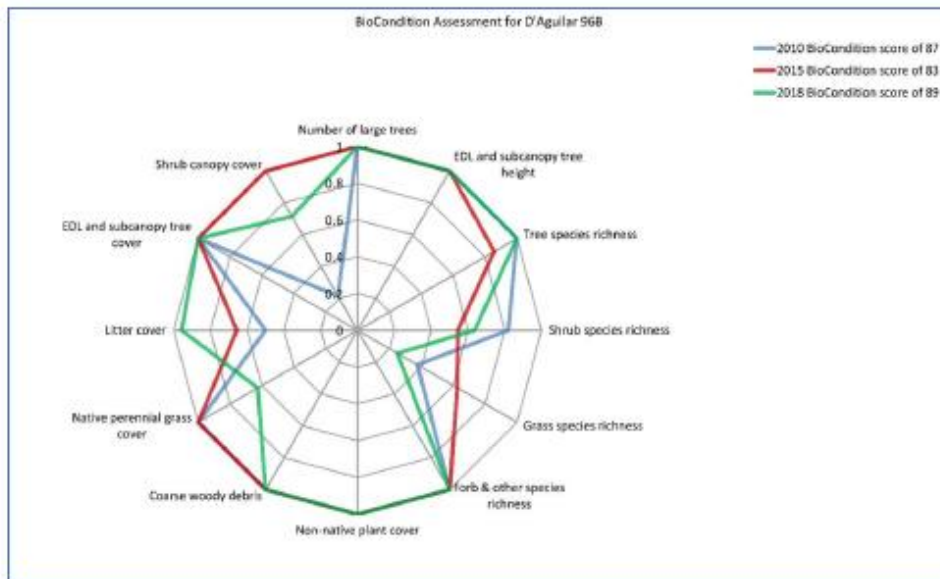
D'Aguilar 96B

Regional Ecosystem 12.11.5

Corymbia citriodora subsp. *variegata*
open forest

Queensland Herbarium, October 2021

QBEIS Site BioCondition monitoring



Radar diagram of BioCondition Scores by attribute and year sampled
 BioCondition scores: 2010 – 87 2015 – 83 2018 – 89
 Fire History: Burnt September 2003



Forest monitoring transect November 2010 Forest monitoring transect November 2018

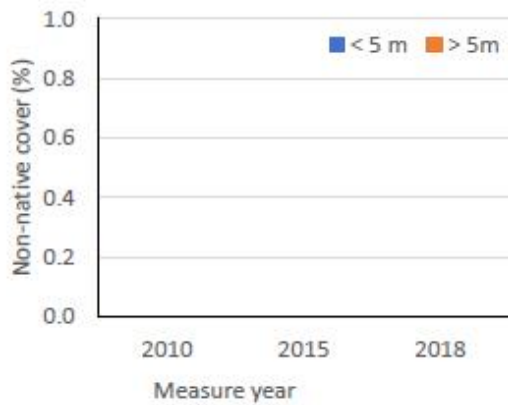
General Comments: Shrub species richness and litter cover have increased during each sample interval, and tree species richness increased from 2010 to 2015 and remained high. Shrub canopy cover decreased between 2015 and 2018 but remains high relative to the 2010 state. Grass species richness has decreased during each sample interval, and native perennial grass cover was high in 2010 and 2015 but decreased by 2018, probably accounting for some increase in the litter cover recorded.

Trail-edge ground cover transect at D'Aguilar 96B

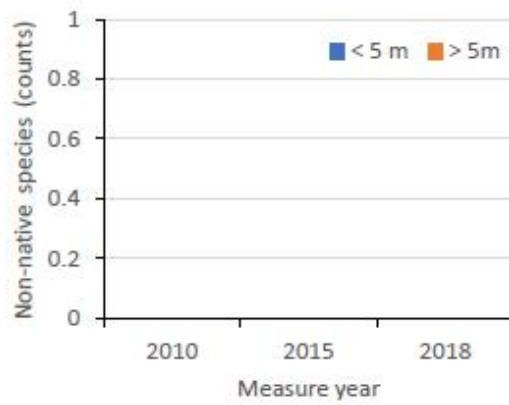


Trail-edge transect March 2015

Trail-edge transect November 2018



Non-native species cover



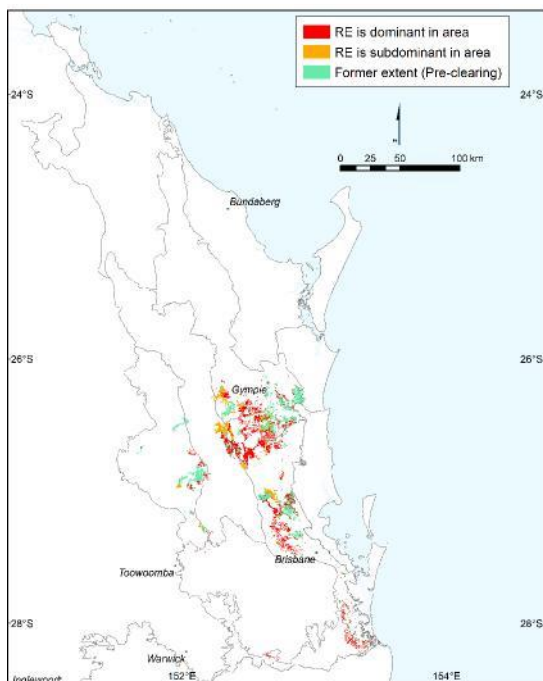
Number of non-native species

General comments: No non-native species have been recorded on the ground cover transect for this site.

Appendix II. Technical Descriptions and Benchmarks

Please note that the [Technical Descriptions](#) and [Benchmarks](#) provided here are accurate at the time of publication of this report but may be subject to change over time as new data becomes available. Please refer to the relevant Departmental webpages to ensure you are accessing the most recent versions.

12.11.3: *Eucalyptus siderophloia*, *E. propinqua* +/- *E. microcorys*, *Lophostemon confertus*, *Corymbia intermedia*, *E. acmenoides* open forest on metamorphics +/- interbedded volcanics



Mapping data	Pre-clearing area = 135,216.8 ha; Remnant area 2019 = 89,674.5 ha; Remnant percent remaining in 2019 = 66.3 %
Species richness	total: 512 (67 sites); woody: 214 (67 sites); ground: 358 (66 sites); average spp./site: 51.0, standard deviation: 13.4 (66 sites)
Basal area	average/site: 23.4 m ² /ha; range: 9.0 - 39.0 m ² /ha; std. deviation: 5.8; (66 sites)
Ecological dominant layer (EDL) height	stratum: tree 1; average/site: 27.95m; range: 15.00 - 37.00m; (67 sites)
Ecological dominant layer (EDL) Crown Cover	stratum: tree 1; average: 50.5%; range: 20.0 - 90.0%; (67 sites)
Structural formation	Open Forest: 44.8 %; Woodland: 25.4 %; Tall Woodland: 16.4 %; Tall Open Forest: 10.4 %; Closed Forest: 3.0 %; (67 sites)
Representative site(s)	1988, 2126, 2128, 2129, 2215, 2287, 2416, 2603, 2604, 2605, 2606, 2669, 2901, 2902, 3085, 3086, 3200, 3235, 3831, 3832, 6653, 6659, 6672, 6673, 8363, 11738, 13556, 13566, 13710, 13711, 13713, 13714, 13717, 13719, 13722, 13723, 14005, 14461, 14704, 14789, 15049, 15062, 15678, 15680, 15682, 15683, 15684, 15685, 15686, 16178, 16180, 16181, 16183, 16184, 16185, 16219, 16220, 16658, 16660, 16661, 16672, 16715, 17068, 17888, 17889, 18065, 18094

Stratum: Tree 1 (EDL)

Height: average: 27.95m; range: 15.00 - 37.00m; (67 sites)

Crown Cover: average: 50.5%; range: 20.0 - 90.0%; (67 sites)

Stem Count: average: 211 stems/ha; range: 60 - 680 stems/ha; std. deviation: 101.5 stems/ha; (61 sites)

Basal area: average: 19.6 m²/ha; range: 7.0 - 33.0 m²/ha; std. deviation: 6.2 m²/ha; (66 sites)

Species list (frequency (%), average cover (%)):

Most frequent species (up to 6):

Eucalyptus siderophloia (82.1, 9.9), *Eucalyptus propinqua* (64.2, 14.6), *Corymbia intermedia* (64.2, 6.7), *Eucalyptus microcorys* (58.2, 10.9), *Eucalyptus acmenoides* (49.3, 19.4), *Lophostemon confertus* (41.8, 7.3)

Additional species:

Eucalyptus carnea (32.8, 10.5), *Eucalyptus biturbinata* (28.4, 8.2), *Eucalyptus tereticornis* (10.4, 10.2), *Eucalyptus saligna* (10.4, 6.3), *Corymbia citriodora* subsp. *variegata* (7.5, 8.1), *Allocasuarina torulosa* (7.5, 7.1), *Eucalyptus moluccana* (7.5, 2.2), *Eucalyptus longirostrata* (6.0, 9.0), *Eucalyptus crebra* (6.0, 6.8), *Eucalyptus major* (6.0, 5.5), *Angophora leiocarpa* (3.0, 5.0), *Eucalyptus microcarpa* (1.5, 28.0), *Eucalyptus eugenoides* (1.5, 12.0), *Eucalyptus pilularis* (1.5, 2.0), *Allocasuarina littoralis* (1.5, 1.0), *Brachychiton populneus* subsp. *trilobus* (1.5, 1.0), *Amyema bifurcata* (1.5, 0.0), *Corymbia citriodora* (1.5, 0.0), *Dendrophthoe glabrescens* (1.5, 0.0), *Eucalyptus melliodora* (1.5, 0.0), *Platynerium bifurcatum* (1.5, 0.0)

Stratum: Tree 2

Height: average: 11.31m; range: 7.00 - 20.00m; (47 sites)

Crown Cover: average: 11.1%; range: 2.0 - 67.6%; (47 sites)

Stem Count: average: 212 stems/ha; range: 5 - 1,200 stems/ha; std. deviation: 258.1 stems/ha; (41 sites)

Basal area: average: 5.7 m²/ha; range: 1.0 - 16.0 m²/ha; std. deviation: 3.7 m²/ha; (40 sites)

Species list (frequency (%), average cover (%)):

Most frequent species (up to 6):

Allocasuarina torulosa (38.8, 5.9), *Lophostemon confertus* (38.8, 4.2), *Eucalyptus siderophloia* (23.9, 3.9), *Acacia disparrima* subsp. *disparrima* (16.4, 2.4), *Eucalyptus acmenoides* (14.9, 5.8), *Eucalyptus carnea* (14.9, 3.3)

Additional species:

Eucalyptus propinqua (13.4, 3.4), *Corymbia intermedia* (13.4, 3.2), *Eucalyptus microcorys* (11.9, 4.5), *Angophora subvelutina* (4.5, 5.0), *Corymbia citriodora* subsp. *variegata* (4.5, 4.5), *Alphitonia excelsa* (4.5, 1.5), *Lophostemon suaveolens* (4.5, 1.0), *Erythrina vespertilio* (3.0, 4.0), *Eucalyptus crebra* (3.0, 4.0), *Polyscias elegans* (3.0, 3.0), *Brachychiton populneus* subsp. *trilobus* (3.0, 2.0), *Eucalyptus biturbinata* (3.0, 2.0), *Eucalyptus tereticornis* (3.0, 2.0), *Allocasuarina littoralis* (3.0, 1.0), *Olea paniculata* (3.0, 1.0), *Mallotus philippensis* (3.0, 0.0), *Rhodosphaera rhodanthema* (3.0, 0.0), *Acacia irrorata* subsp. *irrorata* (1.5, 5.0), *Corymbia trachyphloia* subsp. *trachyphloia* (1.5, 4.0), *Diploglottis australis* (1.5, 4.0), *Eucalyptus major* (1.5, 4.0), *Acacia penninervis* var. *longiracemosa* (1.5, 3.0), *Eucalyptus moluccana* (1.5, 2.0), *Melaleuca salicina* (1.5, 2.0), *Elaeocarpus obovatus* (1.5, 1.0), *Amyema miquelii* (1.5, 0.0), *Cryptocarya macdonaldii* (1.5, 0.0), *Drypetes deplanchei* (1.5, 0.0), *Eucalyptus longirostrata* (1.5, 0.0), *Eucalyptus microcarpa* (1.5, 0.0), *Eucalyptus saligna* (1.5, 0.0), *Euroschinus falcatus* (1.5, 0.0), *Platynerium bifurcatum* (1.5, 0.0), *Psyrax lamprophylla* (1.5, 0.0)

Stratum: Tree 3

Height: average: 6.08m; range: 3.50 - 8.00m; (6 sites)

Crown Cover: average: 10.9%; range: 5.0 - 29.0%; (6 sites)

Stem Count: average: 610 stems/ha; range: 40 - 1,320 stems/ha; std. deviation: 531.0 stems/ha; (4 sites)

Basal area: average: 2.0 m²/ha; range: 1.0 - 3.0 m²/ha; std. deviation: 1.0 m²/ha; (3 sites)

Species list (frequency (%), average cover (%)):

Most frequent species (up to 6):

Lophostemon confertus (6.0, 5.0), *Allocasuarina torulosa* (3.0, 4.5), *Eucalyptus microcorys* (3.0, 4.3), *Trochocarpa laurina* (3.0, 4.0), *Corymbia citriodora* subsp. *variegata* (3.0, 2.0), *Eucalyptus propinqua* (3.0, 1.0)

Additional species:

Guioa semiglaucula (3.0, 0.5), *Polyscias elegans* (3.0, 0.5), *Alphitonia excelsa* (3.0, 0.0), *Corymbia intermedia* (1.5, 13.4), *Acacia irrorata* subsp. *irrorata* (1.5, 4.0), *Rhodosphaera rhodanthema* (1.5, 4.0), *Pilidiostigma rhytispermum* (1.5, 2.0), *Alectryon reticulatus* (1.5, 1.0), *Eucalyptus carnea* (1.5, 1.0), *Acacia maidenii* (1.5, 0.5), *Cryptocarya microneura* (1.5, 0.0), *Dioscorea transversa* (1.5, 0.0), *Diospyros pentamera* (1.5, 0.0), *Eucalyptus siderophloia* (1.5, 0.0), *Euroschinus falcatus* (1.5, 0.0), *Mallotus philippensis* (1.5, 0.0), *Pandorea pandorana* (1.5, 0.0), *Trema tomentosa* var. *aspera* (1.5, 0.0)

Stratum: Shrub 1

Height: average: 2.11m; range: 1.20 - 3.00m; (67 sites)

Crown Cover: average: 9.6%; range: 0.0 - 37.0%; (67 sites)

Stem Count: average: 1,168 stems/ha; range: 80 - 3,200 stems/ha; std. deviation: 850.3 stems/ha; (28 sites)

Basal area: average: 2.4 m²/ha; range: 1.0 - 10.1 m²/ha; std. deviation: 3.4 m²/ha; (7 sites)

Species list (frequency (%), average cover (%)):

Most frequent species (up to 6):

Breynia oblongifolia (77.6, 2.0), *Lantana camara** (55.2, 7.8), *Lophostemon confertus* (44.8, 1.3), *Acacia maidenii* (44.8, 0.7), *Alphitonia excelsa* (41.8, 1.2), *Acacia irrorata* subsp. *irrorata* (40.3, 4.5)

Additional species:

Denhamia silvestris (40.3, 2.8), *Psychotria daphnoides* (38.8, 2.7), *Exocarpos cupressiformis* (32.8, 2.2), *Acrotriche aggregata* (32.8, 1.0), *Wikstroemia indica* (32.8, 0.8), *Allocasuarina torulosa* (29.9, 1.3), *Styphelia sieberi* (29.9, 0.8), *Acacia melanoxylon* (26.9, 2.8), *Acacia disparrima* subsp. *disparrima* (26.9, 2.1), *Indigofera australis* (20.9, 2.2), *Solanum densevestitum* (20.9, 0.0), *Eucalyptus siderophloia* (19.4, 1.0), *Astrotricha latifolia* (17.9, 1.8), *Polyscias elegans* (17.9, 1.4), *Daviesia ulicifolia* (14.9, 4.4), *Pultenaea retusa* (14.9, 4.0), *Brachychiton populneus* subsp. *trilobus* (14.9, 0.5), *Psychotria loniceroides* (14.9, 0.0), *Acacia implexa* (13.4, 1.0), *Myrsine variabilis* (13.4, 0.0), *Pittosporum revolutum* (13.4, 0.0), *Myoporum acuminatum* (11.9, 2.0), *Carissa ovata* (11.9, 1.8), *Choretrum candollei* (11.9, 1.2), *Eucalyptus acmenoides* (11.9, 1.2), *Trema tomentosa* var. *aspera* (11.9, 1.0), *Persoonia sericea* (11.9, 0.8), *Swainsona galegifolia* (10.4, 2.0), *Bursaria spinosa* subsp. *spinosa* (10.4, 1.2), *Notelaea longifolia* (10.4, 1.0), *Rhodamnia rubescens* (10.4, 0.0), *Acacia fimbriata* (9.0, 4.0), *Eucalyptus microcorys* (9.0, 4.0), *Pilidiostigma rhytispermum* (9.0, 3.3), *Trochocarpa laurina* (9.0, 2.0), *Acalypha nemorum* (9.0, 1.0), *Eucalyptus carnea* (9.0, 0.8), *Acacia penninervis* var. *longiracemosa* (7.5, 9.0), *Dodonaea triquetra* (7.5, 7.0), *Jacksonia scoparia* (7.5, 3.0), *Ozothamnus diosmifolius* (7.5, 2.0), *Podolobium ilicifolium* (7.5, 2.0), *Clerodendrum floribundum* (7.5, 1.8), *Acacia falcata* (7.5, 1.5), *Denhamia celastroides* (7.5, 1.0), *Hibiscus heterophyllus* (7.5, 0.5), *Melaleuca salicina* (7.5, 0.0), *Acacia longissima* (6.0, 6.3), *Daviesia arborea* (6.0, 4.0), *Macrozamia lucida* (6.0, 3.5), *Hovea acutifolia* (6.0, 1.0), *Mallotus philippensis* (6.0, 1.0), *Corymbia intermedia* (6.0, 0.8), *Guioa semiglaucula* (6.0, 0.5), *Baccharis halimifolia** (6.0, 0.0), *Cordyline petiolaris* (6.0, 0.0), *Pimelea neoanglica* (6.0, 0.0), *Zieria smithii* (6.0, 0.0), *Denhamia bilocularis* (4.5, 5.2), *Callicarpa pedunculata* (4.5, 2.0), *Xanthorrhoea latifolia* (4.5, 2.0), *Olea paniculata* (4.5, 1.0), *Pimelea altior* (4.5, 1.0), *Smilax australis* (4.5, 0.8), *Acacia concurrens* (4.5, 0.0), *Cordyline rubra* (4.5, 0.0), *Dendrobium aemulum* (4.5, 0.0), *Diospyros geminata* (4.5, 0.0), *Elaeodendron australe* (4.5, 0.0), *Jagera pseudorhus* var. *pseudorhus* (4.5, 0.0), *Melia azedarach* (4.5, 0.0), *Pittosporum undulatum* (4.5, 0.0), *Solanum stelligerum* (4.5, 0.0), *Synoum glandulosum* subsp. *glandulosum* (4.5, 0.0), *Prostanthera ovalifolia* (3.0, 10.0), *Allocasuarina littoralis* (3.0, 0.8), *Clematis glycinoides* (3.0, 0.8), *Alyxia ruscifolia* (3.0, 0.5), *Drypetes deplanchei* (3.0, 0.5), *Eucalyptus biturbinata* (3.0, 0.5), *Olearia nemstii* (3.0, 0.5), *Solori involuta* (3.0, 0.5), *Abutilon oxycarpum* (3.0, 0.0), *Acronychia oblongifolia* (3.0, 0.0), *Acronychia pauciflora* (3.0, 0.0), *Celastrus subspicata* (3.0, 0.0), *Corymbia citriodora* subsp. *variegata* (3.0, 0.0), *Cryptocarya microneura* (3.0, 0.0), *Cymbidium suave* (3.0, 0.0), *Denhamia* (3.0, 0.0), *Diospyros pentamera* (3.0, 0.0), *Eremophila debilis* (3.0, 0.0), *Erythrina vespertilio* (3.0, 0.0), *Eucalyptus propinqua* (3.0, 0.0), *Eucalyptus tereticornis* (3.0, 0.0), *Euroschinus falcatus* (3.0, 0.0), *Glochidion ferdinandi* (3.0, 0.0), *Hodgkinsonia ovatiflora* (3.0, 0.0), *Homalanthus populifolius* (3.0, 0.0), *Psydrax odorata* forma *buxifolia* (3.0, 0.0), *Rhodosphaera rhodanthema* (3.0, 0.0), *Tephrosia rufula* (3.0, 0.0), *Melicope micrococca* (1.5, 9.0), *Zieria collina* (1.5, 8.0), *Seringia arborescens* (1.5, 7.0), *Hibbertia aspera* (1.5, 4.0), *Pimelea linifolia* (1.5, 3.0), *Aphanopetalum resinum* (1.5, 2.0), *Eriobotrya japonica** (1.5, 2.0), *Passiflora subpeltata** (1.5, 2.0), *Acacia binervata* (1.5, 1.0), *Acronychia laevis* (1.5, 1.0), *Corymbia trachyphloia* subsp. *trachyphloia* (1.5, 1.0), *Eucalyptus saligna* (1.5, 1.0), *Persoonia iogyne* (1.5, 1.0), *Persoonia media* (1.5, 1.0), *Gossia bidwillii* (1.5, 0.5), *Pandorea pandorana* (1.5, 0.5), *Sarcophilus* (1.5, 0.5), *Acacia leiocalyx* subsp. *leiocalyx* (1.5, 0.0), *Acacia oshanesii* (1.5, 0.0), *Alchomea ilicifolia* (1.5, 0.0), *Alectryon semicinerus* (1.5, 0.0), *Alpinia caerulea* (1.5, 0.0), *Angophora leiocarpa* (1.5, 0.0), *Angophora subvelutina* (1.5, 0.0), *Austrosteenisia blackii* (1.5, 0.0), *Brachychiton bidwillii* (1.5, 0.0), *Capparis velutina* (1.5, 0.0), *Casearia multinervosa* (1.5, 0.0), *Cassytha filiformis* (1.5, 0.0), *Cinnamomum camphora** (1.5, 0.0), *Claoxylon australe* (1.5, 0.0), *Cordyline congesta* (1.5, 0.0), *Corymbia citriodora* (1.5, 0.0), *Cryptocarya triplinervis* (1.5, 0.0), *Cupaniopsis newmanii* (1.5, 0.0), *Cupaniopsis parvifolia* (1.5, 0.0), *Cupaniopsis serrata* (1.5, 0.0), *Cyclophyllum coprosmoides* (1.5, 0.0), *Cymbidium madidum* (1.5, 0.0), *Dioscorea transversa* (1.5, 0.0), *Elaeocarpus obovatus* (1.5, 0.0), *Elaeocarpus reticulatus* (1.5, 0.0), *Eucalyptus crebra* (1.5, 0.0), *Eucalyptus moluccana* (1.5, 0.0), *Flindersia australis* (1.5, 0.0), *Flindersia bennettii* (1.5, 0.0), *Geijera salicifolia* (1.5, 0.0), *Glochidion ferdinandi* var. *ferdinandi* (1.5, 0.0), *Gomphocarpus fruticosus** (1.5, 0.0), *Gossia hillii* (1.5, 0.0), *Grewia latifolia* (1.5, 0.0), *Gymnostachys anceps* (1.5, 0.0), *Homalanthus stillingiiifolius* (1.5, 0.0), *Huberantha nitidissima* (1.5, 0.0), *Indigofera suffruticosa** (1.5, 0.0), *Leichhardtia lloydii* (1.5, 0.0), *Lenwebbia* sp. (*Blackall Range P.R.Sharpe 5387*) (1.5, 0.0), *Lepidozamia peroffskyana* (1.5, 0.0), *Ligustrum sinense** (1.5, 0.0), *Livistona australis* (1.5, 0.0), *Macaranga tanarius* (1.5, 0.0), *Maclura cochinchinensis* (1.5, 0.0), *Mallotus claoxyloides* (1.5, 0.0), *Mallotus discolor* (1.5, 0.0), *Melaleuca saligna* (1.5, 0.0), *Melodorum leichhardtii* (1.5, 0.0), *Mischocarpus pyriformis* subsp. *pyriformis* (1.5, 0.0), *Monotoca scoparia* (1.5, 0.0), *Myoporum* (1.5, 0.0), *Neolitsea dealbata* (1.5, 0.0), *Parsonsia* (1.5, 0.0), *Pavetta australiensis* (1.5, 0.0), *Persoonia* (1.5, 0.0), *Petalostigma** (1.5, 0.0), *Petalostigma pubescens* (1.5, 0.0), *Pilidiostigma glabrum* (1.5, 0.0), *Pittosporum viscidum* (1.5, 0.0), *Pleogyne australis* (1.5, 0.0), *Psydrax lamprophylla* (1.5, 0.0), *Rubus moluccanus* var. *trilobus* (1.5, 0.0), *Scolopia braunii* (1.5, 0.0), *Senna pendula* var. *glabrata** (1.5, 0.0), *Solanum americanum** (1.5, 0.0), *Solanum prinophyllum* (1.5, 0.0), *Sophora fraseri* (1.5, 0.0), *Tabernaemontana pandacaqui* (1.5, 0.0), *Tecoma stans* var. *stans** (1.5, 0.0), *Toona ciliata* (1.5, 0.0), *Turraea pubescens* (1.5, 0.0)

Stratum: Shrub 2

Height: average: 1.00m; range: 0.80 - 1.20m; (2 sites)

Crown Cover: average: 20.0%; range: 11.0 - 29.0%; (2 sites)

Stem Count: average: 1,340 stems/ha; range: 800 - 1,880 stems/ha; std. deviation: 763.7 stems/ha; (2 sites)

Basal area: No data available.

Species list (frequency (%), average cover (%)):

Most frequent species (up to 6):

Breynia oblongifolia (3.0, 26.0), *Lantana camara** (1.5, 5.0), *Jacksonia scoparia* (1.5, 3.0), *Guioa semiglauca* (1.5, 2.0), *Smilax australis* (1.5, 2.0), *Zieria smithii* (1.5, 2.0)

Additional species:

Acacia disparrima subsp. *disparrima* (1.5, 0.0), *Alphitonia excelsa* (1.5, 0.0), *Astrotricha latifolia* (1.5, 0.0), *Brachychiton bidwillii* (1.5, 0.0), *Carissa ovata* (1.5, 0.0), *Cissus antarctica* (1.5, 0.0), *Clematicissus opaca* (1.5, 0.0), *Denhamia bilocularis* (1.5, 0.0), *Hovea acutifolia* (1.5, 0.0), *Indigofera australis* (1.5, 0.0), *Jagera pseudorhus* var. *pseudorhus* (1.5, 0.0), *Persoonia sericea* (1.5, 0.0), *Phyllanthus gunnii* (1.5, 0.0), *Ptilidostigma rhytispernum* (1.5, 0.0), *Psychotria loniceroides* (1.5, 0.0), *Rhodamnia rubescens* (1.5, 0.0), *Solanum densevestitum* (1.5, 0.0), *Styphelia sieberi* (1.5, 0.0), *Trema tomentosa* var. *aspera* (1.5, 0.0), *Wikstroemia indica* (1.5, 0.0)

Stratum: Ground

Height: average: 0.58m; range: 0.20 - 1.80m; (66 sites)

Projective foliage cover (PFC): average: 33.4%; range: 3.0 - 94.0%; (66 sites)

Species list (frequency (%), average cover (%)):

Grass - perennial:

Most frequent species (up to 6):

Imperata cylindrica (77.3, 9.3), *Themeda triandra* (62.1, 15.7), *Cymbopogon refractus* (37.9, 5.2), *Poa labillardierei* var. *labillardierei* (36.4, 8.9), *Entolasia stricta* (34.8, 4.8), *Ottochloa gracillima* (33.3, 12.5)

Additional species:

Digitaria parviflora (30.3, 1.8), *Oplismenus aemulus* (27.3, 2.6), *Panicum effusum* (16.7, 4.7), *Oplismenus imbecillis* (12.1, 5.3), *Arundinella nepalensis* (10.6, 18.7), *Sarga leiocladum* (9.1, 44.0), *Entolasia marginata* (7.6, 0.0), *Aristida calycina* var. *calycina* (6.1, 0.0), *Capillipedium spicigerum* (6.1, 5.0), *Echinopogon ovatus* (6.1, 0.0), *Microlaena stipoides* (6.1, 1.0), *Poa cheelii* (6.1, 7.0), *Aristida gracilipes* (4.5, 14.5), *Aristida queenslandica* (4.5, 0.0), *Dichelachne micrantha* (4.5, 0.0), *Eragrostis spartinoides* (4.5, 1.5), *Eremochloa bimaculata* (4.5, 1.0), *Ottochloa nodosa* (4.5, 0.0), *Paspalidium gracile* (4.5, 0.0), *Poa sieberiana* (4.5, 8.7), *Alloteropsis semialata* (3.0, 2.0), *Chrysopogon sylvaticus* (3.0, 0.0), *Melinis minutiflora** (3.0, 11.0), *Oplismenus* (3.0, 3.0), *Paspalidium distans* (3.0, 0.0), *Rytidosperma* (3.0, 1.0), *Aristida vagans* (1.5, 2.0), *Austrostipa* (1.5, 1.0), *Austrostipa ramosissima* (1.5, 0.0), *Capillipedium parviflorum* (1.5, 5.0), *Danthonia* (1.5, 5.0), *Digitaria* (1.5, 0.0), *Megathyrsus maximus** (1.5, 0.0), *Microlaena stipoides* var. *stipoides* (1.5, 0.0), *Paspalum conjugatum** (1.5, 0.0), *Paspalum dilatatum** (1.5, 0.0), *Paspalum scrobiculatum* (1.5, 0.0), *Poa* (1.5, 1.0), *Sporobolus* (1.5, 1.0), *Sporobolus creber* (1.5, 0.0), *Urochloa decumbens** (1.5, 2.0)

Grass - annual/biennial:

Not present

Forbs & other:

Most frequent species (up to 6):

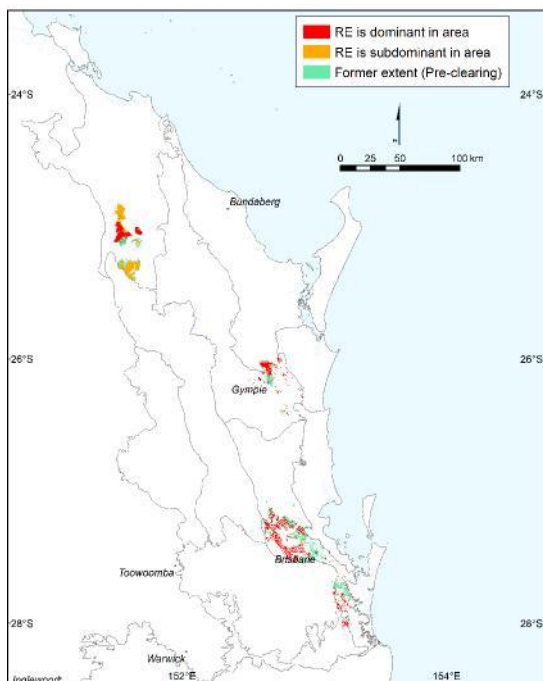
Desmodium rhytidophyllum (78.8, 2.7), *Desmodium gunnii* (77.3, 2.7), *Eustrephus latifolius* (72.7, 1.8), *Cyanthillium cinereum* (71.2, 2.2), *Glycine clandestina* var. *clandestina* (71.2, 1.3), *Hardenbergia violacea* (69.7, 2.0)

Additional species:

Lomandra longifolia (62.1, 2.2), *Coleus australis* (57.6, 3.5), *Goodenia rotundifolia* (51.5, 3.8), *Lobelia purpurascens* (50.0, 3.0), *Oxalis chnoodes* (48.5, 0.0), *Smilax australis* (43.9, 1.6), *Clematicissus opaca* (42.4, 0.0), *Lepidosperma laterale* (36.4, 1.0), *Dianella caerulea* (34.8, 0.8), *Pseuderanthemum variabile* (34.8, 2.5), *Pigea enneasperma* (33.3, 0.0), *Pigea stellarioides* (30.3, 1.0), *Sigesbeckia orientalis* (30.3, 2.5), *Blechnum neohollandicum* (28.8, 3.7), *Cyperus laevis* (28.8, 3.0), *Causonis clematidea* (27.3, 0.0), *Cissus antarctica* (25.8, 0.5), *Geitonoplesium cymosum* (24.2, 0.0), *Gymnostachys anceps* (24.2, 0.0), *Pteridium esculentum* (24.2, 3.5), *Viola hederacea* (24.2, 2.8), *Desmodium brachypodium* (22.7, 0.0), *Hydrocotyle laxiflora* (22.7, 2.0), *Veronica plebeia* (22.7, 3.0), *Billardiera scandens* (21.2, 0.6), *Viola betonicifolia* (21.2, 0.0), *Ajuga australis* (19.7, 1.1), *Lomandra multiflora* subsp. *multiflora* (19.7, 0.5), *Lordhowea amygdalifolia* (19.7, 3.0), *Ozothamnus diosmifolius* (19.7, 0.0), *Hibbertia aspera* (18.2, 0.0), *Adiantum hispidulum* (16.7, 0.0), *Brunoniella australis* (16.7, 0.0), *Stephania japonica* (16.7, 0.0), *Commelina diffusa* (15.2, 0.0), *Cyperus enervis* (15.2, 0.0), *Dianella longifolia* (15.2, 0.0), *Dioscorea transversa* (15.2, 3.0), *Kennedia rubicunda* (15.2, 3.0), *Macrozamia lucida* (15.2, 1.0), *Poranthera*

microphylla (15.2, 0.0), *Rubus parvifolius* (15.2, 3.5), *Solanum densevestitum* (15.2, 3.5), *Clematis glycinoides* (13.6, 1.5), *Dianella* (13.6, 0.0), *Dianella caerulea* var. *vannata* (13.6, 12.0), *Gonocarpus humilis* (13.6, 0.0), *Pandorea pandorana* (13.6, 0.0), *Teucrium argutum* (13.6, 0.0), *Centratherum riparium* (12.1, 0.0), *Cyperus tetraphyllus* (12.1, 0.0), *Dianella caerulea* var. *assera* (12.1, 3.0), *Dichondra repens* (12.1, 3.1), *Galium leptogonium* (12.1, 0.8), *Parsonsia straminea* (12.1, 0.0), *Passiflora suberosa** (12.1, 0.0), *Phyllanthus virgatus* (12.1, 0.0), *Scleria mackaviensis* (12.1, 0.0), *Geranium solanderi* var. *solanderi* (10.6, 2.0), *Gomphocarpus fruticosus** (10.6, 0.0), *Lomandra laxa* (10.6, 8.0), *Mentha saturoioides* (10.6, 5.0), *Passiflora subpeltata** (10.6, 6.5), *Pimelea latifolia* (10.6, 0.0), *Alpinia caerulea* (9.1, 6.0), *Blechnum rupestre* (9.1, 2.0), *Chamaecrista nomame* var. *nomame* (9.1, 0.0), *Cirsium vulgare** (9.1, 0.0), *Cissus hypoglauca* (9.1, 0.0), *Crassocephalum crepidioides** (9.1, 1.0), *Crotalaria montana* (9.1, 0.0), *Hibbertia dentata* (9.1, 0.0), *Lagenophora sublyrata* (9.1, 0.0), *Leichhardtia lloydii* (9.1, 0.5), *Lomandra confertifolia* subsp. *pallida* (9.1, 3.0), *Opercularia hispida* (9.1, 0.0), *Pellaea paradoxa* (9.1, 0.5), *Rubus rosifolius* (9.1, 0.0), *Trachymene procumbens* (9.1, 1.0), *Acrotiche aggregata* (7.6, 0.0), *Arthropodium milleflorum* (7.6, 0.0), *Bidens pilosa** (7.6, 0.0), *Blechnum cartilagineum* (7.6, 10.0), *Blechnum doodianum* (7.6, 0.0), *Drynaria rigidula* (7.6, 1.0), *Gahnia melanocarpa* (7.6, 0.0), *Leichhardtia coronata* (7.6, 0.0), *Oxalis* (7.6, 1.0), *Phyllanthus gunnii* (7.6, 0.0), *Polygala japonica* (7.6, 0.0), *Rubus moluccanus* (7.6, 0.0), *Zornia dyctiocarpa* (7.6, 3.0), *Aristolochia meridionalis* (6.1, 0.0), *Brachyscome microcarpa* (6.1, 0.0), *Calochlaena dubia* (6.1, 5.0), *Calotis dentex* (6.1, 2.0), *Celastrus subspicata* (6.1, 0.0), *Davallia pyxidata* (6.1, 0.0), *Dendrobium aemulum* (6.1, 0.0), *Erigeron* (6.1, 0.0), *Hibbertia linearis* (6.1, 0.0), *Hibbertia scandens* (6.1, 0.0), *Hypericum gramineum* (6.1, 0.0), *Hypoxis pratensis* (6.1, 0.0), *Lomandra filiformis* (6.1, 0.0), *Murdannia graminea* (6.1, 0.0), *Olearia nemstii* (6.1, 0.5), *Pimelea linifolia* (6.1, 0.0), *Plantago debilis* (6.1, 0.0), *Secamone elliptica* (6.1, 2.0), *Solanum americanum** (6.1, 1.0), *Solori involuta* (6.1, 0.0), *Tripladenia cunninghamii* (6.1, 1.0), *Adiantum aethiopicum* (4.5, 2.0), *Aphanopetalum resinosum* (4.5, 2.0), *Cheilanthes sieberi* (4.5, 0.0), *Chiloglottis sylvestris* (4.5, 0.0), *Cymbidium suave* (4.5, 0.0), *Dipodium variegatum* (4.5, 0.0), *Eremophila debilis* (4.5, 0.0), *Fimbristylis dichotoma* (4.5, 0.0), *Glycine tabacina* (4.5, 0.0), *Gomphocarpus physocarpus** (4.5, 0.5), *Haloragis heterophylla* (4.5, 0.0), *Indigofera australis* (4.5, 1.0), *Lantana montevidensis** (4.5, 0.0), *Passiflora herbertiana* subsp. *herbertiana* (4.5, 0.0), *Pimelea altior* (4.5, 1.2), *Pteris tremula* (4.5, 0.0), *Pterostylis nutans* (4.5, 0.0), *Rubus moluccanus* var. *trilobus* (4.5, 0.0), *Senecio pinnatifolius* var. *serratus* (4.5, 0.0), *Senecio quadridentatus* (4.5, 0.0), *Solanum stelligerum* (4.5, 0.5), *Tetrastigma nitens* (4.5, 0.0), *Tragia novae-hollandiae* (4.5, 0.0), *Viola banksii* (4.5, 2.0), *Xanthorrhoea macronema* (4.5, 3.0), *Abutilon oxycarpum* (3.0, 0.5), *Acianthus fornicatus* (3.0, 0.0), *Acomis acoma* (3.0, 4.5), *Ageratina riparia** (3.0, 0.0), *Ageratum houstonianum** (3.0, 0.0), *Breynia oblongifolia* (3.0, 0.0), *Carex breviculmis* (3.0, 0.0), *Carex declinata* (3.0, 0.0), *Centella asiatica* (3.0, 0.0), *Centratherum punctatum** (3.0, 0.0), *Chrysocephalum apiculatum* (3.0, 0.0), *Commelina lanceolata* (3.0, 0.0), *Cyperus cyperoides* (3.0, 0.0), *Cyperus gracilis* (3.0, 0.8), *Dianella brevipedunculata* (3.0, 0.0), *Diplocyclos palmatus* (3.0, 0.0), *Einadia hastata* (3.0, 0.0), *Eucalyptus tereticornis* (3.0, 0.0), *Galactia tenuiflora* (3.0, 0.0), *Geranium homeanum* (3.0, 0.0), *Glossocardia bidens* (3.0, 0.0), *Hibbertia linearis* var. *obtusifolia* (3.0, 0.0), *Juncus continuus* (3.0, 0.0), *Lespedeza juncea* subsp. *sericea* (3.0, 0.0), *Lomandra* (3.0, 3.0), *Parsonsia lanceolata* (3.0, 0.0), *Passiflora aurantia* (3.0, 0.0), *Passiflora edulis** (3.0, 0.0), *Phytolacca octandra** (3.0, 0.0), *Pimelea neoanglica* (3.0, 0.5), *Platyterium bifurcatum* (3.0, 0.0), *Prostanthera ovalifolia* (3.0, 0.0), *Rostellularia adscendens* (3.0, 0.0), *Schenkia australis* (3.0, 0.0), *Solanum nigrum** (3.0, 0.0), *Sonchus oleraceus** (3.0, 0.0), *Thysanotus tuberosus* (3.0, 0.0), *Trochocarpa laurina* (3.0, 0.0), *Vigna vexillata* var. *angustifolia* (3.0, 0.0), *Wahlenbergia gracilis* (3.0, 0.0), *Zehneria cunninghamii* (3.0, 0.0), *Acianthus** (1.5, 0.0), *Adiantum formosum* (1.5, 6.0), *Ageratina adenophora** (1.5, 0.0), *Amyema miquelii* (1.5, 0.0), *Aneilema acuminatum* (1.5, 0.0), *Araujia sericifera** (1.5, 0.0), *Arthropodium paniculatum* (1.5, 0.0), *Asplenium gracillimum* (1.5, 0.0), *Caladenia catenata* (1.5, 1.0), *Calotis cuneata* (1.5, 0.0), *Carex* (1.5, 0.0), *Carex appressa* (1.5, 0.0), *Cassinia subtropica* (1.5, 0.0), *Cassytha filiformis* (1.5, 0.0), *Cassytha pubescens* (1.5, 0.0), *Causonis japonica** (1.5, 0.0), *Centipeda minima* (1.5, 0.0), *Cephalalaria cephalobotrys* (1.5, 0.0), *Chamaecrista mimosoides* (1.5, 0.0), *Cheilanthes* (1.5, 0.0), *Clematis aristata* (1.5, 0.0), *Clerodendrum floribundum* (1.5, 0.0), *Clerodendrum tomentosum* (1.5, 0.0), *Coleus graveolens* (1.5, 0.0), *Cordyline petiolaris* (1.5, 0.0), *Cordyline rubra* (1.5, 0.0), *Corybas* (1.5, 0.0), *Corymbia citriodora* (1.5, 0.0), *Cullen cinereum* (1.5, 0.0), *Curculigo ensifolia* var. *ensifolia* (1.5, 0.0), *Dawsonia* (1.5, 0.0), *Dendrobium* (1.5, 0.0), *Desmodium* (1.5, 0.0), *Desmodium heterocarpon* (1.5, 0.0), *Desmodium varians* (1.5, 0.0), *Dianella revoluta* (1.5, 0.0), *Dipodium punctatum* (1.5, 0.0), *Dockrillia linguiformis* (1.5, 0.0), *Dodonaea triquetra* (1.5, 0.0), *Einadia* (1.5, 0.5), *Einadia nutans* (1.5, 0.0), *Embelia australiana* (1.5, 0.0), *Erechtites valerianifolius** (1.5, 0.0), *Erigeron bonariensis** (1.5, 0.0), *Eucalyptus biturbinata* (1.5, 0.0), *Eucalyptus carnea* (1.5, 0.0), *Eucalyptus carnea* x *Eucalyptus racemosa* subsp. *racemosa* (1.5, 0.0), *Eucalyptus pilularis* (1.5, 0.0), *Eucalyptus propinqua* (1.5, 0.0), *Eucalyptus siderophloia* (1.5, 0.0), *Eupomatia laurina* (1.5, 0.0), *Euroschinus falcatus* (1.5, 0.0), *Flemingia parviflora* (1.5, 0.0), *Gahnia aspera* (1.5, 0.0), *Geodorum densiflorum* (1.5, 0.0), *Glochidion ferdinandi* var. *ferdinandi* (1.5, 0.0), *Glycine* (1.5, 0.0), *Glycine clandestina* (1.5, 0.0), *Goodenia ovata* (1.5, 0.0), *Gynochthodes jasminoides* (1.5, 0.0), *Gynura drymophila* (1.5, 0.0), *Heliotropium brachygyne* (1.5, 0.0), *Hypolepis muelleri* (1.5, 0.0), *Ipomoea plebeia* (1.5, 0.2), *Jasminum didymum* subsp. *racemosum* (1.5, 0.0), *Jasminum simplicifolium* subsp. *australiense* (1.5, 0.0), *Lantana camara** (1.5, 0.0), *Lastreopsis decomposita* (1.5, 0.0), *Lepidosperma* (1.5, 0.0), *Lepidozamia peroffskyana* (1.5, 0.0), *Lobelia* (1.5, 0.0), *Lobelia trigonocaulis* (1.5, 0.0), *Macrotyloma axillare* var. *axillare** (1.5, 13.0), *Microseris walteri* (1.5, 0.0), *Muehlenbeckia gracillima* (1.5, 0.0), *Myrsine angusta* (1.5, 1.0), *Olea paniculata* (1.5, 0.0), *Oxalis corniculata** (1.5, 0.0), *Pandorea jasminoides* (1.5, 0.0), *Parsonsia* (1.5, 0.0), *Parsonsia latifolia* (1.5, 0.0), *Pavetta australiensis* (1.5, 0.0), *Physalis** (1.5, 0.0), *Physalis peruviana** (1.5, 0.0), *Pipturus argenteus* (1.5, 0.0), *Pittosporum undulatum* (1.5, 0.5), *Plectranthus* (1.5, 0.0), *Polymeria calycina* (1.5, 0.0), *Psilotum nudum* (1.5, 0.0), *Pterostylis ophioglossa* (1.5, 0.0), *Pyrrhosia confluens* var. *confluens* (1.5, 0.0), *Ranunculus lappaceus* (1.5, 0.0), *Rhodospaera rhodanthema* (1.5, 0.0), *Rhynchosia acuminatissima* (1.5, 3.0), *Ripogonum brevifolium* (1.5, 0.0), *Sarcopetalum harveyanum* (1.5, 0.0), *Scenecium australe* (1.5, 0.0), *Scleria* (1.5, 0.5), *Scleria brownii* (1.5, 0.0), *Scleria sphacelata* (1.5, 0.0), *Scolopia braunii* (1.5, 0.0), *Senecio angulatus** (1.5, 0.0), *Senecio pinnatifolius* var. *pinnatifolius* (1.5, 0.0), *Sida rhombifolia** (1.5, 0.0), *Solanum* (1.5, 0.0), *Solanum mauritianum** (1.5, 0.0), *Solanum seafortianum** (1.5, 0.0), *Solanum shirleyanum* (1.5, 0.0), *Spermacoce* (1.5, 0.0), *Spermacoce brachystema* (1.5, 0.0), *Swainsona galegifolia* (1.5, 0.0), *Tephrosia* (1.5, 0.0), *Tephrosia brachyodon* var. *longipes* (1.5, 0.0), *Teucrium junceum* (1.5, 0.0), *Tylophora* (1.5, 0.0), *Usnea** (1.5, 0.0), *Verbena bonariensis** (1.5, 0.0), *Vincetoxicum paniculatum* (1.5, 0.0), *Vittadinia dissecta* (1.5, 0.0), *Wahlenbergia* (1.5, 0.0), *Xanthorrhoea johnsonii* (1.5, 5.0), *Xanthorrhoea latifolia* (1.5, 1.0), *Xerochrysum bracteatum* (1.5, 0.0), *Youngia japonica* (1.5, 0.0), *Zanthoxylum brachyacanthum* (1.5, 0.0), *Zieria smithii* (1.5, 1.0)

12.11.5: *Corymbia citriodora* subsp. *variegata* woodland to open forest +/- *Eucalyptus siderophloia*/*E. crebra*, *E. carnea*, *E. acmenoides*, *E. propinqua* on metamorphics +/- interbedded volcanics



Mapping data	Pre-clearing area = 86,384.3 ha; Remnant area 2019 = 52,557.3 ha; Remnant percent remaining in 2019 = 60.8 %
Species richness	total: 375 (44 sites); woody: 146 (44 sites); ground: 287 (44 sites); average spp./site: 43.8, standard deviation: 11.8 (44 sites)
Basal area	average/site: 20.5 m ² /ha; range: 11.0 - 34.5 m ² /ha; std. deviation: 4.7; (44 sites)
Ecological dominant layer (EDL) height	stratum: tree 1; average/site: 22.43m; range: 12.73 - 33.70m; (44 sites)
Ecological dominant layer (EDL) Crown Cover	stratum: tree 1; average: 56.6%; range: 20.0 - 92.6%; (44 sites)
Structural formation	Open Forest: 77.3 %; Woodland: 22.7 %; (44 sites)
Representative site(s)	1985, 2339, 2425, 2668, 3365, 4033, 4485, 4591, 6426, 6661, 6662, 8335, 8336, 13024, 13559, 13567, 13574, 13706, 13721, 14528, 15278, 15312, 16239, 17041, 17044, 17045, 17046, 17087, 17132, 17133, 17227, 17275, 17548, 17556, 17621, 17622, 17730, 17763, 17932, 18002, 18034, 18036, 18037, 18039

Stratum: Tree 1 (EDL)

Height: average: 22.43m; range: 12.73 - 33.70m; (44 sites)

Crown Cover: average: 56.6%; range: 20.0 - 92.6%; (44 sites)

Stem Count: average: 237 stems/ha; range: 40 - 640 stems/ha; std. deviation: 134.9 stems/ha; (43 sites)

Basal area: average: 16.0 m²/ha; range: 4.0 - 31.5 m²/ha; std. deviation: 5.0 m²/ha; (44 sites)

Species list (frequency (%), average cover (%)):

Most frequent species (up to 6):

Corymbia citriodora subsp. *variegata* (97.7, 34.5), *Eucalyptus crebra* (63.6, 14.5), *Eucalyptus carnea* (47.7, 8.7), *Eucalyptus propinqua* (34.1, 10.5), *Eucalyptus tereticornis* (25.0, 3.4), *Eucalyptus microcorys* (20.5, 15.8)

Additional species:

Eucalyptus siderophloia (18.2, 9.0), *Eucalyptus acmenoides* (15.9, 13.7), *Corymbia intermedia* (15.9, 9.3), *Eucalyptus major* (15.9, 6.8), *Eucalyptus helidonica* (9.1, 9.9), *Angophora leiocarpa* (6.8, 3.0), *Eucalyptus fibrosa* subsp. *fibrosa* (6.8, 2.2), *Corymbia tessellaris* (4.5, 3.0), *Corymbia trachyphloia* subsp. *trachyphloia* (2.3, 15.0), *Eucalyptus longirostrata* (2.3, 14.0), *Eucalyptus tindaliae* (2.3, 12.0), *Brachychiton populneus* subsp. *trilobus* (2.3, 3.0), *Lophostemon confertus* (2.3, 1.0), *Eucalyptus grandis* (2.3, 0.0)

Stratum: Tree 2

Height: average: 11.13m; range: 6.00 - 19.00m; (42 sites)

Crown Cover: average: 17.4%; range: 3.0 - 68.4%; (42 sites)

Stem Count: average: 314 stems/ha; range: 30 - 1,040 stems/ha; std. deviation: 180.8 stems/ha; (41 sites)

Basal area: average: 4.4 m²/ha; range: 0.5 - 12.0 m²/ha; std. deviation: 2.4 m²/ha; (40 sites)

Species list (frequency (%), average cover (%)):

Most frequent species (up to 6):

Corymbia citriodora subsp. *variegata* (72.7, 7.7), *Eucalyptus crebra* (54.5, 7.8), *Eucalyptus carnea* (54.5, 4.6), *Lophostemon confertus* (38.6, 3.6), *Corymbia intermedia* (36.4, 2.8), *Eucalyptus microcorys* (25.0, 7.7)

Additional species:

Eucalyptus propinqua (20.5, 5.8), *Allocasuarina torulosa* (20.5, 1.7), *Acacia disparrima* subsp. *disparrima* (20.5, 1.5), *Eucalyptus major* (18.2, 12.3), *Eucalyptus tereticornis* (18.2, 4.2), *Eucalyptus helidonica* (18.2, 3.6), *Eucalyptus siderophloia* (9.1, 1.0), *Angophora leiocarpa* (6.8, 2.5), *Eucalyptus acmenoides* (6.8, 2.5), *Acacia implexa* (4.5, 9.4), *Acacia maidenii* (4.5, 6.1), *Alphitonia excelsa* (4.5, 5.0), *Acacia concurrens* (4.5, 3.5), *Eucalyptus tindaliae* (4.5, 1.5), *Brachychiton populneus* subsp. *trilobus* (2.3, 6.4), *Allocasuarina littoralis* (2.3, 5.0), *Lophostemon suaveolens* (2.3, 2.0), *Corymbia henryi* (2.3, 1.0), *Eucalyptus exserta* (2.3, 1.0), *Eucalyptus longirostrata* (2.3, 1.0), *Huberantha nitidissima* (2.3, 1.0), *Jagera pseudorhus* var. *pseudorhus* (2.3, 1.0), *Acacia longissima* (2.3, 0.0), *Amyema conspicua* subsp. *conspicua* (2.3, 0.0), *Cryptocarya glaucescens* (2.3, 0.0), *Daviesia arborea* (2.3, 0.0), *Drypetes deplanchei* (2.3, 0.0), *Eucalyptus grandis* (2.3, 0.0), *Flindersia schottiana* (2.3, 0.0), *Lophostemon confertus* x *Lophostemon grandiflorus* (2.3, 0.0)

Stratum: Tree 3

Height: average: 5.80m; range: 2.50 - 9.20m; (19 sites)

Crown Cover: average: 25.0%; range: 0.0 - 73.6%; (19 sites)

Stem Count: average: 2,213 stems/ha; range: 80 - 16,700 stems/ha; std. deviation: 4,254.4 stems/ha; (17 sites)

Basal area: average: 1.6 m²/ha; range: 1.0 - 4.0 m²/ha; std. deviation: 1.1 m²/ha; (8 sites)

Species list (frequency (%), average cover (%)):

Most frequent species (up to 6):

Corymbia citriodora subsp. *variegata* (31.8, 5.1), *Eucalyptus crebra* (25.0, 5.7), *Acacia fimbriata* (18.2, 20.6), *Acacia disparrima* subsp. *disparrima* (18.2, 6.7), *Eucalyptus carnea* (18.2, 1.8), *Allocasuarina torulosa* (13.6, 4.4)

Additional species:

Lophostemon confertus (11.4, 9.8), *Acacia maidenii* (11.4, 2.6), *Eucalyptus siderophloia* (9.1, 6.7), *Alphitonia excelsa* (9.1, 6.7), *Eucalyptus major* (9.1, 3.9), *Eucalyptus propinqua* (9.1, 2.8), *Guioa semiglauca* (6.8, 16.1), *Eucalyptus helidonica* (6.8, 2.6), *Eucalyptus microcorys* (6.8, 0.0), *Acacia podalyriifolia* (4.5, 8.5), *Acacia irrorata* subsp. *irrorata* (4.5, 5.2), *Brachychiton populneus* subsp. *trilobus* (4.5, 0.0), *Corymbia intermedia* (4.5, 0.0), *Jagera pseudorhus* var. *pseudorhus* (4.5, 0.0), *Mallotus philippensis* (4.5, 0.0), *Exocarpos cupressiformis* (2.3, 9.2), *Mallotus discolor* (2.3, 6.6), *Acacia leiocalyx* subsp. *leiocalyx* (2.3, 6.0), *Rhodosphaera rhodanthema* (2.3, 4.6), *Breynia oblongifolia* (2.3, 1.5), *Angophora leiocarpa* (2.3, 1.0), *Eucalyptus tereticornis* (2.3, 1.0), *Guioa acutifolia* (2.3, 0.2), *Acacia longissima* (2.3, 0.0), *Cryptocarya glaucescens* (2.3, 0.0), *Cyclophyllum coprosmoides* var. *coprosmoides* (2.3, 0.0), *Diospyros geminata* (2.3, 0.0), *Drypetes deplanchei* (2.3, 0.0), *Eucalyptus acmenoides* (2.3, 0.0), *Euroschinus falcatus* var. *falcatus* (2.3, 0.0), *Flindersia australis* (2.3, 0.0), *Lantana camara** (2.3, 0.0), *Melia azedarach* (2.3, 0.0), *Passiflora suberosa** (2.3, 0.0), *Rhodamnia rubescens* (2.3, 0.0), *Senna pendula* var. *glabrata** (2.3, 0.0), *Synoum glandulosum* subsp. *glandulosum* (2.3, 0.0), *Trochocarpa laurina* (2.3, 0.0)

Stratum: Shrub 1

Height: average: 1.77m; range: 0.80 - 3.00m; (44 sites)

Crown Cover: average: 13.9%; range: 0.0 - 86.0%; (44 sites)

Stem Count: average: 1,880 stems/ha; range: 20 - 22,400 stems/ha; std. deviation: 3,670.0 stems/ha; (40 sites)

Basal area: average: 1.8 m²/ha; range: 1.0 - 2.0 m²/ha; std. deviation: 0.5 m²/ha; (4 sites)

Species list (frequency (%), average cover (%)):

Most frequent species (up to 6):

Alphitonia excelsa (63.6, 1.1), *Corymbia citriodora* subsp. *variegata* (61.4, 2.4), *Acacia disparrima* subsp. *disparrima* (59.1, 1.7), *Lantana camara** (56.8, 9.8), *Lophostemon confertus* (56.8, 2.1), *Eucalyptus crebra* (40.9, 1.4)

Additional species:

Acacia fimbriata (36.4, 15.8), *Acacia maidenii* (36.4, 0.6), *Acacia leiocalyx* subsp. *leiocalyx* (34.1, 2.9), *Allocasuarina torulosa* (29.5, 4.7), *Acacia falcata* (29.5, 1.7), *Eucalyptus carnea* (29.5, 1.1), *Persoonia sericea* (27.3, 0.9), *Jacksonia scoparia* (27.3, 0.9), *Breynia oblongifolia* (22.7, 0.0), *Acrotriche aggregata* (20.5, 3.0), *Smilax australis* (20.5, 1.2), *Psychotria loniceroides* (18.2, 1.1), *Corymbia intermedia* (18.2, 0.2), *Eucalyptus propinqua* (13.6, 2.0), *Eucalyptus microcorys* (13.6, 1.2), *Eucalyptus tereticornis* (13.6, 1.0), *Cyclophyllum coprosmoides* var. *coprosmoides* (13.6, 0.2), *Dodonaea triquetra* (11.4, 3.2), *Indigofera australis* (11.4, 1.0), *Styphelia sieberi* (11.4, 1.0), *Jagera pseudorhus* var. *pseudorhus* (11.4, 0.4), *Wikstroemia indica* (11.4, 0.0), *Eucalyptus acmenoides* (9.1, 4.0), *Acacia irrorata* subsp. *irrorata* (9.1, 2.7), *Acacia concurrens* (9.1, 2.5), *Eucalyptus siderophloia* (9.1, 1.4), *Acacia longissima* (9.1, 1.0), *Angophora leiocarpa* (9.1, 1.0), *Brachychiton populneus* subsp. *trilobus* (9.1, 0.0), *Hibbertia linearis* var. *obtusifolia* (9.1, 0.0), *Pittosporum revolutum* (9.1, 0.0), *Acacia podalyriifolia* (6.8, 7.1), *Guioa semiglaucula* (6.8, 6.0), *Ochna serrulata** (6.8, 5.6), *Eucalyptus major* (6.8, 1.2), *Carissa ovata* (6.8, 1.0), *Acacia penninervis* var. *longiracemosa* (6.8, 0.6), *Clerodendrum floribundum* (6.8, 0.5), *Euroschinus falcatus* var. *falcatus* (6.8, 0.0), *Flindersia schottiana* (6.8, 0.0), *Melia azedarach* (6.8, 0.0), *Psychotria daphnoides* (6.8, 0.0), *Hovea acutifolia* (4.5, 4.2), *Cryptocarya glaucescens* (4.5, 2.4), *Pilidiostigma rhytispermum* (4.5, 2.4), *Podolobium ilicifolium* (4.5, 1.4), *Denhamia silvestris* (4.5, 1.0), *Eucalyptus tindaliae* (4.5, 1.0), *Ficus opposita* (4.5, 1.0), *Mallotus philippensis* (4.5, 1.0), *Trema tomentosa* var. *aspera* (4.5, 1.0), *Polyscias elegans* (4.5, 0.2), *Acacia melanoxylon* (4.5, 0.0), *Astrotricha latifolia* (4.5, 0.0), *Cissus antarctica* (4.5, 0.0), *Daviesia ulicifolia* (4.5, 0.0), *Denhamia celastroides* (4.5, 0.0), *Diospyros geminata* (4.5, 0.0), *Eucalyptus helidonica* (4.5, 0.0), *Flindersia australis* (4.5, 0.0), *Monotoca scoparia* (4.5, 0.0), *Secamone elliptica* (4.5, 0.0), *Senna pendula* var. *glabrata** (4.5, 0.0), *Pultenaea villosa* (2.3, 5.0), *Lophostemon suaveolens* (2.3, 3.0), *Mallotus discolor* (2.3, 2.6), *Cassinia subtropica* (2.3, 2.0), *Zieria smithii* (2.3, 2.0), *Denhamia cunninghamii* (2.3, 1.2), *Allocasuarina littoralis* (2.3, 1.0), *Bridelia leichhardtii* (2.3, 1.0), *Eucalyptus longirostrata* (2.3, 1.0), *Jasminum didymum* (2.3, 1.0), *Lophostemon confertus* x *Lophostemon grandiflorus* (2.3, 1.0), *Persoonia media* (2.3, 1.0), *Zieria minutiflora* subsp. *minutiflora* (2.3, 1.0), *Opuntia* (2.3, 0.5), *Daviesia villifera* (2.3, 0.2), *Acacia* (2.3, 0.0), *Acacia implexa* (2.3, 0.0), *Acacia penninervis* (2.3, 0.0), *Acronychia laevis* (2.3, 0.0), *Acronychia pauciflora* (2.3, 0.0), *Alectryon connatus* (2.3, 0.0), *Alpinia caerulea* (2.3, 0.0), *Alyxia ilicifolia* (2.3, 0.0), *Alyxia ruscifolia* (2.3, 0.0), *Asparagus aethiopicus** (2.3, 0.0), *Austrosteenisia blackii* var. *blackii* (2.3, 0.0), *Cassinia laevis* subsp. *rosmarinifolia* (2.3, 0.0), *Chorizema parviflorum* (2.3, 0.0), *Clematicissus opaca* (2.3, 0.0), *Corymbia tessellaris* (2.3, 0.0), *Cryptocarya triplinervis* (2.3, 0.0), *Cupaniopsis anacardioides* (2.3, 0.0), *Cupaniopsis serrata* (2.3, 0.0), *Daviesia arborea* (2.3, 0.0), *Dioscorea transversa* (2.3, 0.0), *Diospyros pentamera* (2.3, 0.0), *Drypetes deplanchei* (2.3, 0.0), *Elaeocarpus obovatus* (2.3, 0.0), *Eucalyptus* (2.3, 0.0), *Eucalyptus fibrosa* subsp. *fibrosa* (2.3, 0.0), *Eucalyptus seeana* (2.3, 0.0), *Eustrephus latifolius* (2.3, 0.0), *Exocarpos latifolius* (2.3, 0.0), *Ficus benjamina* (2.3, 0.0), *Ficus rubiginosa* (2.3, 0.0), *Geitonoplesium cymosum* (2.3, 0.0), *Glochidion ferdinandi* var. *ferdinandi* (2.3, 0.0), *Gomphocarpus physocarpus** (2.3, 0.0), *Guioa acutifolia* (2.3, 0.0), *Hardenbergia violacea* (2.3, 0.0), *Lespedeza juncea* subsp. *sericea* (2.3, 0.0), *Livistona australis* (2.3, 0.0), *Malva sylvestris** (2.3, 0.0), *Murraya paniculata* 'Exotica'* (2.3, 0.0), *Myoporum acuminatum* (2.3, 0.0), *Myrsine variabilis* (2.3, 0.0), *Olea paniculata* (2.3, 0.0), *Opuntia tomentosa** (2.3, 0.0), *Parsonia straminea* (2.3, 0.0), *Passiflora subpeltata** (2.3, 0.0), *Petalostigma triloculare* (2.3, 0.0), *Planchonella australis* (2.3, 0.0), *Psyrdrax odorata* (2.3, 0.0), *Rhodospaera rhodanthema* (2.3, 0.0), *Synoum glandulosum* subsp. *glandulosum* (2.3, 0.0), *Tecoma stans* var. *stans** (2.3, 0.0), *Trochocarpa laurina* (2.3, 0.0), *Turraea pubescens* (2.3, 0.0)

Stratum: Shrub 2

Height: average: 0.80m; range: 0.80 - 0.80m; (3 sites)

Crown Cover: average: 4.2%; range: 2.0 - 5.5%; (3 sites)

Stem Count: average: 520 stems/ha; range: 120 - 880 stems/ha; std. deviation: 381.6 stems/ha; (3 sites)

Basal area: No data available.

Species list (frequency (%), average cover (%)):

Most frequent species (up to 6):

Alphitonia excelsa (6.8, 0.5), *Lophostemon confertus* (4.5, 1.2), *Acrotriche aggregata* (4.5, 0.3), *Acacia maidenii* (2.3, 1.0), *Persoonia sericea* (2.3, 1.0), *Acacia leiocalyx* subsp. *leiocalyx* (2.3, 0.6)

Additional species: *Allocasuarina torulosa* (2.3, 0.5), *Corymbia citriodora* subsp. *variegata* (2.3, 0.5), *Denhamia silvestris* (2.3, 0.5), *Eucalyptus carnea* (2.3, 0.5), *Eucalyptus crebra* (2.3, 0.5), *Eucalyptus major* (2.3, 0.5), *Eucalyptus microcorys* (2.3, 0.5), *Lantana camara** (2.3, 0.5), *Psychotria loniceroides* (2.3, 0.5), *Acacia concurrens* (2.3, 0.2), *Breynia oblongifolia* (2.3, 0.2), *Cyclophyllum coprosmoides* var. *coprosmoides* (2.3, 0.2), *Eucalyptus tereticornis* (2.3, 0.2), *Acacia disparima* subsp. *disparima* (2.3, 0.0)

Stratum: Ground

Height: average: 0.55m; range: 0.30 - 0.80m; (44 sites)

Projective foliage cover (PFC): average: 33.6%; range: 7.4 - 60.4%; (44 sites)

Species list (frequency (%), average cover (%)):

Grass - perennial:

Most frequent species (up to 6):

Themeda triandra (84.1, 17.2), *Imperata cylindrica* (77.3, 4.9), *Cymbopogon refractus* (63.6, 4.6), *Entolasia stricta* (56.8, 1.7),

Arundinella nepalensis (52.3, 7.9), *Eremochloa bimaculata* (38.6, 5.3)

Additional species:

Panicum effusum (34.1, 0.6), *Digitaria parviflora* (29.5, 2.5), *Melinis repens** (29.5, 0.9), *Capillipedium spicigerum* (25.0, 2.0), *Oplismenus aemulus* (22.7, 0.7), *Aristida queenslandica* var. *queenslandica* (20.5, 1.3), *Paspalidium distans* (15.9, 0.5), *Aristida calycina* var. *calycina* (13.6, 2.0), *Panicum simile* (13.6, 1.0), *Paspalidium gracile* (13.6, 0.2), *Alloteropsis semialata* (11.4, 2.0), *Dichelachne micrantha* (11.4, 0.0), *Ottochloa gracillima* (11.4, 0.6), *Aristida gracilipes* (9.1, 15.3), *Capillipedium parviflorum* (9.1, 3.0), *Chrysopogon sylvaticus* (9.1, 3.0), *Eragrostis spartinoides* (9.1, 0.0), *Microlaena stipoides* (9.1, 0.8), *Aristida vagans* (6.8, 0.2), *Eragrostis* (6.8, 0.0), *Heteropogon contortus* (6.8, 0.8), *Megathyrsus maximus** (6.8, 0.0), *Melinis minutiflora** (6.8, 0.0), *Paspalidium gausum* (6.8, 3.0), *Bothriochloa decipiens* (4.5, 0.0), *Chloris divaricata* (4.5, 1.0), *Digitaria* (4.5, 0.0), *Digitaria minima* (4.5, 0.6), *Oplismenus imbecillis* (4.5, 0.0), *Sporobolus creber* (4.5, 0.0), *Aristida benthamii* (2.3, 1.0), *Aristida warburgii* (2.3, 0.0), *Cenchrus caliculatus* (2.3, 0.0), *Digitaria ramularis* (2.3, 1.0), *Eragrostis brownii* (2.3, 0.0), *Eragrostis lacunaria* (2.3, 0.0), *Leptochloa* (2.3, 0.0), *Poa labillardierei* var. *labillardierei* (2.3, 0.5), *Poa sieberiana* (2.3, 0.0), *Rytidosperma* (2.3, 0.2), *Urochloa decumbens** (2.3, 1.0)

Grass - annual/biennial:

Not present

Forbs & other:

Most frequent species (up to 6):

Desmodium rhytidophyllum (90.9, 2.8), *Cyanthillium cinereum* (79.5, 0.5), *Eustrephus latifolius* (79.5, 0.7), *Hardenbergia violacea* (59.1, 1.2), *Eremophila debilis* (54.5, 0.2), *Lomandra longifolia* (47.7, 1.4)

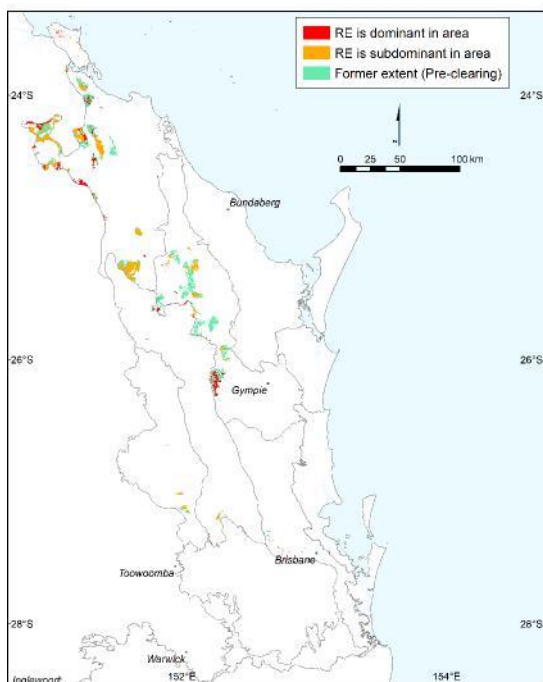
Additional species:

Glycine clandestina var. *clandestina* (45.5, 0.3), *Dianella longifolia* (40.9, 1.5), *Glycine tabacina* (38.6, 1.5), *Goodenia rotundifolia* (38.6, 0.4), *Lomandra laxa* (38.6, 1.9), *Phyllanthus virgatus* (38.6, 0.0), *Bidens pilosa** (36.4, 0.4), *Lomandra confertifolia* subsp. *pallida* (36.4, 2.3), *Lomandra multiflora* subsp. *multiflora* (36.4, 0.6), *Clematicissus opaca* (34.1, 0.2), *Cheilanthes sieberi* subsp. *sieberi* (31.8, 0.0), *Causonis clematidea* (29.5, 1.2), *Dianella caerulea* (29.5, 4.4), *Passiflora suberosa** (29.5, 0.6), *Smilax australis* (29.5, 0.7), *Brunoniella australis* (27.3, 0.0), *Crotalaria montana* (27.3, 0.2), *Desmodium brachypodium* (27.3, 6.0), *Lobelia purpurascens* (27.3, 0.8), *Scleria mackaviansis* (27.3, 0.5), *Pigea stellarioides* (25.0, 0.2), *Desmodium gunnii* (22.7, 0.0), *Galactia tenuiflora* (20.5, 0.8), *Lepidosperma laterale* var. *laterale** (20.5, 0.5), *Cassytha pubescens* (18.2, 0.2), *Coleus australis* (18.2, 0.6), *Passiflora subpeltata** (18.2, 0.5), *Sigesbeckia orientalis* (18.2, 0.2), *Chamaecrista nomame* (15.9, 0.4), *Dianella caerulea* var. *vannata* (15.9, 0.4), *Drynaria rigidula* (15.9, 0.3), *Glossocardia bidens* (15.9, 0.0), *Gomphocarpus physocarpus** (15.9, 0.0), *Hibbertia linearis* var. *obtusifolia* (15.9, 0.2), *Adiantum hispidulum* var. *hispidulum* (13.6, 0.0), *Commelina lanceolata* (13.6, 0.2), *Cyperus gracilis* (13.6, 1.1), *Lantana camara** (13.6, 0.5), *Tephrosia filipes* subsp. *filipes* (13.6, 0.2), *Alphitonia excelsa* (11.4, 0.5), *Apowollastonia spilanthis* (11.4, 0.0), *Erigeron sumatrensis** (11.4, 0.6), *Iphigenia indica* (11.4, 0.0), *Lantana montevidensis** (11.4, 2.3), *Opercularia diphylla* (11.4, 0.0), *Pseuderanthemum variabile* (11.4, 0.0), *Sonchus oleraceus** (11.4, 0.2), *Stephania japonica* var. *discolor* (11.4, 0.0), *Zornia dyctiocarpa* var. *dyctiocarpa* (11.4, 0.2), *Aeschynomene brevifolia* (9.1, 1.1), *Aristolochia meridionalis* subsp. *meridionalis* (9.1, 0.5), *Cassytha filiformis* (9.1, 0.5), *Centratherum riparium* (9.1, 0.0), *Corymbia citriodora* subsp. *variegata* (9.1, 1.4), *Lomandra filiformis* subsp. *filiformis* (9.1, 0.5), *Xanthorrhoea johnsonii* (9.1, 5.0), *Acacia disparima* subsp. *disparima* (6.8, 0.3), *Ageratum houstonianum** (6.8, 0.6), *Calotis dentex* (6.8, 0.2), *Carissa ovata* (6.8, 1.4), *Chrysocephalum apiculatum* (6.8, 0.0), *Eucalyptus crebra* (6.8, 0.2), *Ochna serrulata** (6.8, 5.0), *Oxalis chnoodes* (6.8, 0.2), *Oxalis corniculata** (6.8, 0.0), *Parsonsia straminea* (6.8, 0.2), *Persoonia sericea* (6.8, 0.0), *Spermacoe brachystema* (6.8, 0.0), *Styphelia sieberi* (6.8, 0.2), *Anisomeles* (4.5, 0.0), *Asparagus aethiopicus** (4.5, 0.0), *Blechnum rupestre* (4.5, 0.5), *Breynia oblongifolia* (4.5, 0.0), *Cissus oblonga* (4.5, 0.0), *Commelina diffusa* (4.5, 0.2), *Commelina ensifolia* (4.5, 0.4), *Crassocephalum crepidioides** (4.5, 0.7), *Crotalaria lanceolata* subsp. *lanceolata** (4.5, 0.0), *Cyperus laevis* (4.5, 0.6), *Desmodium varians* (4.5, 0.2), *Emilia sonchifolia** (4.5, 0.0), *Erigeron bonariensis** (4.5, 0.0), *Eucalyptus major* (4.5, 0.0), *Eucalyptus microcorys* (4.5, 0.0), *Eucalyptus propinqua* (4.5, 0.0), *Flemingia parviflora* (4.5, 1.0), *Geitonoplesium cymosum* (4.5, 0.0), *Gomphocarpus fruticosus** (4.5, 0.0), *Grewia latifolia* (4.5, 0.0), *Guioa semiglaucua* (4.5, 0.3), *Hovea acutifolia* (4.5, 0.6), *Indigofera hirsuta* (4.5, 0.0), *Ipomoea plebeia* (4.5, 0.0), *Lilium formosanum** (4.5, 0.0), *Murdannia graminea* (4.5, 0.0), *Poranthera microphylla* (4.5, 0.0), *Psychotria loniceroides* (4.5, 0.0), *Pyrosia rupestris* (4.5, 0.0), *Rostellularia adscendens* (4.5, 0.6), *Solanum americanum** (4.5, 0.0), *Solanum stelligerum* (4.5, 0.0), *Xanthorrhoea latifolia* subsp. *latifolia*

(4.5, 0.0), *Zornia dyctiocarpa* var. *filifolia* (4.5, 0.0), *Acacia* (2.3, 0.4), *Acacia fimbriata* (2.3, 0.2), *Acacia leiocalyx* subsp. *leiocalyx* (2.3, 0.2), *Acacia penninervis* var. *longiracemosa* (2.3, 0.0), *Acronychia pauciflora* (2.3, 0.4), *Acrotriche aggregata* (2.3, 0.0), *Ageratina riparia** (2.3, 0.0), *Ajuga australis* (2.3, 0.0), *Alectryon subdentatus* (2.3, 0.0), *Allocauarina torulosa* (2.3, 0.0), *Angophora leiocarpa* (2.3, 0.0), *Apiaceae* (2.3, 0.0), *Artanema fimbriatum* (2.3, 0.0), *Asclepias curassavica** (2.3, 0.2), *Asparagus* (2.3, 0.0), *Asparagus racemosus* (2.3, 0.0), *Astrotricha latifolia* (2.3, 0.0), *Billardiera scandens* (2.3, 0.0), *Blechnum cartilagineum* (2.3, 0.2), *Blechnum doodianum* (2.3, 0.0), *Blechnum neohollandicum* (2.3, 0.0), *Brachychiton populneus* subsp. *trilobus* (2.3, 0.0), *Centella asiatica* (2.3, 0.0), *Centratherum punctatum** (2.3, 0.0), *Chamaecrista mimosoides* (2.3, 0.0), *Cheilanthes distans* (2.3, 0.0), *Chorizema parviflorum* (2.3, 0.0), *Cirsium vulgare** (2.3, 0.0), *Cissus antarctica* (2.3, 0.0), *Cissus hypoglauca* (2.3, 0.0), *Clerodendrum tomentosum* (2.3, 0.0), *Corybas barbarae* (2.3, 0.0), *Corymbia intermedia* (2.3, 0.0), *Curculigo ensifolia* var. *ensifolia* (2.3, 0.0), *Cyclophyllum coprosmoides* var. *coprosmoides* (2.3, 0.2), *Cymbidium madidum* (2.3, 0.0), *Cyperus cyperoides* (2.3, 0.0), *Cyperus dactyloides* (2.3, 0.0), *Cyperus enervis* (2.3, 0.0), *Cyperus tetraphyllus* (2.3, 0.2), *Cyperus trinervis* (2.3, 0.0), *Daviesia ulicifolia* (2.3, 0.0), *Denhamia cunninghamii* (2.3, 1.4), *Denhamia silvestris* (2.3, 0.4), *Desmodium* (2.3, 1.6), *Desmodium gangeticum* (2.3, 0.0), *Desmodium triflorum** (2.3, 0.0), *Dianella brevipedunculata* (2.3, 0.0), *Dianella caerulea* var. *assera* (2.3, 0.0), *Dioscorea transversa* (2.3, 0.0), *Diospyros fasciculosa* (2.3, 0.2), *Dockrillia linguiformis* (2.3, 0.0), *Dodonaea triquetra* (2.3, 0.2), *Erigeron* (2.3, 0.0), *Eucalyptus* (2.3, 1.2), *Eucalyptus carnea* (2.3, 0.2), *Eucalyptus moluccana* (2.3, 0.0), *Evolvulus alsinoides* (2.3, 0.0), *Exocarpos strictus* (2.3, 0.0), *Ficus rubiginosa* (2.3, 0.0), *Fimbristylis cinnamometorum* (2.3, 0.0), *Fimbristylis dichotoma* (2.3, 0.0), *Flindersia australis* (2.3, 0.0), *Gahnia aspera* (2.3, 0.0), *Glycine* (2.3, 0.0), *Glycine cyrtoloba* (2.3, 0.6), *Glycine stenophita* (2.3, 1.2), *Glycine tomentella* (2.3, 0.0), *Gompholobium pinnatum* (2.3, 0.0), *Goodenia bellidifolia* subsp. *argentea* (2.3, 0.0), *Goodenia delicata* (2.3, 0.0), *Goodenia mystrophylla* (2.3, 0.0), *Gymnostachys anceps* (2.3, 0.0), *Hibbertia aspera* (2.3, 0.0), *Hibbertia linearis* (2.3, 0.0), *Hoya australis* (2.3, 0.0), *Hypericum gramineum* (2.3, 0.0), *Indigofera australis* (2.3, 0.0), *Jacksonia scoparia* (2.3, 0.0), *Jasminum didymum* (2.3, 1.0), *Kennedia rubicunda* (2.3, 0.0), *Lagenophora stipitata* (2.3, 0.0), *Laxmannia gracilis* (2.3, 0.0), *Macroptilium atropurpureum** (2.3, 0.0), *Macrotyloma axillare* var. *axillare** (2.3, 6.0), *Macrozamia miquelii* (2.3, 0.0), *Malvastrum coromandelianum* subsp. *coromandelianum** (2.3, 0.0), *Marsdenia* (2.3, 0.0), *Myrsine variabilis* (2.3, 0.0), *Neonotonia wightii* var. *wightii** (2.3, 0.0), *Olearia nemstii* (2.3, 0.0), *Oxalis* (2.3, 0.0), *Oxalis radicata* (2.3, 0.0), *Oxylobium* (2.3, 0.0), *Pandorea floribunda* (2.3, 0.0), *Pandorea pandorana* (2.3, 0.0), *Passiflora edulis** (2.3, 0.0), *Passiflora foetida** (2.3, 0.0), *Passiflora suberosa* subsp. *litoralis** (2.3, 0.5), *Pavetta australiensis* (2.3, 0.0), *Peripleura hispidula* var. *hispidula* (2.3, 0.0), *Peripleura hispidula* var. *setosa* (2.3, 0.0), *Persoonia* (2.3, 0.0), *Pimelea altior* (2.3, 0.0), *Podolobium ilicifolium* (2.3, 0.2), *Polymeria calycina* (2.3, 0.0), *Pseudohyphnella verrucosa* (2.3, 0.0), *Pterocaulon redolens* (2.3, 0.0), *Rhynchosia minima* (2.3, 0.0), *Rhynchosia minima* var. *minima* (2.3, 0.0), *Rubus parvifolius* (2.3, 0.0), *Rutaceae* (2.3, 0.0), *Sarcopetalum harveyanum* (2.3, 0.0), *Scleria tricuspidata* (2.3, 0.0), *Secamone elliptica* (2.3, 0.0), *Sida* (2.3, 0.0), *Sida hackettiana* (2.3, 0.0), *Sida rhombifolia** (2.3, 0.0), *Solanum gympiense* (2.3, 0.0), *Solanum seaforthianum** (2.3, 0.0), *Solori involuta* (2.3, 0.0), *Streblus brunonianus* (2.3, 0.0), *Tephrosia* (2.3, 0.0), *Thysanotus tuberosus* (2.3, 0.0), *Trochocarpa laurina* (2.3, 0.2), *Usnea** (2.3, 0.0), *Veronica plebeia* (2.3, 0.0), *Viola betonicifolia* (2.3, 0.0), *Vittadinia cuneata* var. *hirsuta* (2.3, 0.0), *Wahlenbergia capillaris* (2.3, 0.0), *Wikstroemia indica* (2.3, 0.0)

Species list: Frequency (percent of total sites) and cover (average of species cover across sites where that species is present). Ordered by decreasing frequency. Naturalised species have an asterisk (*) after the name. indet. after listed name if indeterminate species or genus.

12.11.7: *Eucalyptus crebra* woodland on metamorphics +/- interbedded volcanics



Mapping data	Pre-clearing area = 60,686.3 ha; Remnant area 2019 = 29,012.1 ha; Remnant percent remaining in 2019 = 47.8 %
Species richness	total: 225 (18 sites); woody: 51 (15 sites); ground: 177 (8 sites); average spp./site: 49.5, standard deviation: 10.9 (8 sites)
Basal area	average/site: 12.9 m ² /ha; range: 6.0 - 19.0 m ² /ha; std. deviation: 3.1; (17 sites)
Ecological dominant layer (EDL) height	stratum: tree 1; average/site: 18.47m; range: 14.00 - 23.50m; (18 sites)
Ecological dominant layer (EDL) Crown Cover	stratum: tree 1; average: 28.6%; range: 5.0 - 78.2%; (18 sites)
Structural formation	Woodland: 66.7 %; Open Woodland: 33.3 %; (18 sites)
Representative site(s)	1913, 2143, 2385, 2389, 2725, 3123, 3129, 3182, 3239, 3333, 3377, 5611, 13819, 15372, 16373, 17043, 17620, 17639

Stratum: Tree 1 (EDL)

Height: average: 18.47m; range: 14.00 - 23.50m; (18 sites)

Crown Cover: average: 28.6%; range: 5.0 - 78.2%; (18 sites)

Stem Count: average: 284 stems/ha; range: 180 - 520 stems/ha; std. deviation: 139.6 stems/ha; (5 sites)

Basal area: average: 10.4 m²/ha; range: 6.0 - 18.0 m²/ha; std. deviation: 3.0 m²/ha; (17 sites)

Species list (frequency (%), average cover (%)):

Most frequent species (up to 6):

Eucalyptus crebra (100.0, 18.5), *Eucalyptus tereticornis* (22.2, 15.6), *Corymbia erythrophloia* (22.2, 5.5), *Corymbia citriodora* subsp. *variegata* (16.7, 30.4), *Corymbia clarksoniana* (16.7, 2.7), *Eucalyptus acmenoides* (11.1, 10.0)

Additional species:

Eucalyptus exserta (11.1, 1.0), *Acacia disparrima* subsp. *disparrima* (11.1, 0.0), *Corymbia trachyphloia* subsp. *trachyphloia* (5.6, 20.0), *Lophostemon confertus* (5.6, 17.5), *Corymbia intermedia* (5.6, 10.0), *Eucalyptus melliodora* (5.6, 0.0)

Stratum: Tree 2

Height: average: 11.12m; range: 6.00 - 20.00m; (17 sites)

Crown Cover: average: 11.2%; range: 0.0 - 46.8%; (17 sites)

Stem Count: average: 364 stems/ha; range: 80 - 720 stems/ha; std. deviation: 240.6 stems/ha; (5 sites)

Basal area: average: 3.1 m²/ha; range: 1.0 - 7.0 m²/ha; std. deviation: 2.3 m²/ha; (12 sites)

Species list (frequency (%), average cover (%)):

Most frequent species (up to 6):

Eucalyptus crebra (50.0, 6.7), *Corymbia erythrophloia* (27.8, 3.0), *Acacia disparrima* subsp. *disparrima* (16.7, 14.3), *Corymbia clarksoniana* (16.7, 4.6), *Eucalyptus exserta* (16.7, 3.0), *Lophostemon confertus* (11.1, 18.0)

Additional species:

Eucalyptus tereticornis (11.1, 9.2), *Corymbia intermedia* (11.1, 3.5), *Petalostigma pubescens* (11.1, 1.5), *Corymbia tessellaris* (11.1, 0.3), *Corymbia citriodora* subsp. *variegata* (11.1, 0.0), *Angophora leiocarpa* (5.6, 1.0), *Brachychiton populneus* subsp. *trilobus* (5.6, 1.0), *Eucalyptus acmenoides* (5.6, 1.0), *Acacia maidenii* (5.6, 0.0), *Allocasuarina torulosa* (5.6, 0.0), *Erythrina vespertilio* (5.6, 0.0)

Stratum: Tree 3

Height: average: 5.00m; range: 4.00 - 7.00m; (12 sites)

Crown Cover: average: 8.2%; range: 0.0 - 35.0%; (12 sites)

Stem Count: average: 240 stems/ha; range: 20 - 600 stems/ha; std. deviation: 251.4 stems/ha; (4 sites)

Basal area: average: 1.7 m²/ha; range: 1.0 - 3.0 m²/ha; std. deviation: 1.1 m²/ha; (3 sites)

Species list (frequency (%), average cover (%)):

Most frequent species (up to 6):

Lophostemon confertus (27.8, 14.1), *Eucalyptus crebra* (22.2, 5.3), *Acacia disparrima* subsp. *disparrima* (16.7, 6.0), *Corymbia*

clarksoniana (16.7, 6.0), *Acacia falcata* (11.1, 8.4), *Corymbia intermedia* (11.1, 1.0)

Additional species:

Corymbia tessellaris (11.1, 0.0), *Corymbia erythrophloia* (5.6, 3.0), *Eucalyptus exserta* (5.6, 2.5), *Acacia leiocalyx* subsp. *leiocalyx* (5.6, 2.0), *Alphitonia excelsa* (5.6, 2.0), *Erythrina vespertilio* (5.6, 2.0), *Petalostigma pubescens* (5.6, 1.0), *Acacia falciformis* (5.6, 0.3), *Corymbia citriodora* subsp. *variegata* (5.6, 0.0), *Eucalyptus carnea* (5.6, 0.0), *Eucalyptus tereticornis* (5.6, 0.0), *Planchonia careya* (5.6, 0.0)

Stratum: Shrub 1

Height: average: 1.77m; range: 0.70 - 2.50m; (14 sites)

Crown Cover: average: 7.0%; range: 0.0 - 20.0%; (13 sites)

Stem Count: average: 1,147 stems/ha; range: 880 - 1,400 stems/ha; std. deviation: 260.3 stems/ha; (3 sites)

Basal area: No data available.

Species list (frequency (%), average cover (%)):

Most frequent species (up to 6):

Lophostemon confertus (27.8, 4.8), *Alphitonia excelsa* (27.8, 3.2), *Lantana camara** (22.2, 4.2), *Acacia disparrima* subsp. *disparrima*

(22.2, 4.0), *Eucalyptus crebra* (22.2, 1.3), *Acacia leiocalyx* subsp. *leiocalyx* (16.7, 2.0)

Additional species:

Acacia falcata (11.1, 8.4), *Acacia maidenii* (11.1, 4.0), *Mallotus philippensis* (11.1, 2.0), *Glochidion lobocarpum* (11.1, 1.0), *Corymbia tessellaris* (11.1, 0.0), *Ochna serrulata** (11.1, 0.0), *Jacksonia scoparia* (5.6, 9.0), *Erythrina vespertilio* (5.6, 4.0), *Corymbia citriodora subsp. variegata* (5.6, 3.8), *Petalostigma pubescens* (5.6, 2.0), *Xanthorrhoea latifolia subsp. latifolia* (5.6, 0.9), *Alectryon* (5.6, 0.5), *Breynia oblongifolia* (5.6, 0.5), *Bridelia leichhardtii* (5.6, 0.5), *Flindersia collina* (5.6, 0.5), *Solori involuta* (5.6, 0.5), *Turraea pubescens* (5.6, 0.5), *Abrus precatorius* (5.6, 0.0), *Acacia crassa subsp. longicoma* (5.6, 0.0), *Acacia decora* (5.6, 0.0), *Asparagus africanus** (5.6, 0.0), *Capparis canescens* (5.6, 0.0), *Coelospermum reticulatum* (5.6, 0.0), *Corymbia clarksoniana* (5.6, 0.0), *Corymbia intermedia* (5.6, 0.0), *Cyclophyllum coprosmoides* (5.6, 0.0), *Eucalyptus acmenoides* (5.6, 0.0), *Eucalyptus carnea* (5.6, 0.0), *Eucalyptus exserta* (5.6, 0.0), *Monotoca scoparia* (5.6, 0.0), *Pandorea floribunda* (5.6, 0.0), *Persoonia sericea* (5.6, 0.0), *Physalis peruviana** (5.6, 0.0), *Planchonia careya* (5.6, 0.0), *Sida hackettiana* (5.6, 0.0), *Smilax australis* (5.6, 0.0), *Trema tomentosa var. aspera* (5.6, 0.0)

Stratum: Ground

Height: average: 0.53m; range: 0.20 - 0.70m; (8 sites)

Projective foliage cover (PFC): average: 34.8%; range: 5.0 - 63.0%; (8 sites)

Species list (frequency (%), average cover (%)):

Grass - perennial:

Most frequent species (up to 6):

Themeda triandra (75.0, 14.3), *Aristida queenslandica var. dissimilis* (62.5, 1.0), *Arundinella nepalensis* (50.0, 0.2), *Bothriochloa decipiens var. decipiens* (50.0, 15.5), *Cymbopogon refractus* (50.0, 4.3), *Heteropogon contortus* (50.0, 3.0)

Additional species:

*Melinis repens** (50.0, 0.6), *Panicum effusum* (50.0, 0.0), *Eragrostis spartinooides* (37.5, 0.0), *Sporobolus elongatus* (37.5, 0.0), *Aristida personata* (25.0, 5.0), *Aristida queenslandica var. queenslandica* (25.0, 0.2), *Aristida spuria* (25.0, 0.0), *Capillipedium spicigerum* (25.0, 0.0), *Chrysopogon sylvaticus* (25.0, 0.7), *Digitaria diffusa* (25.0, 30.0), *Digitaria parviflora* (25.0, 0.0), *Digitaria ramularis* (25.0, 0.2), *Enneapogon lindleyanus* (25.0, 0.0), *Eragrostis brownii* (25.0, 0.0), *Panicum simile* (25.0, 1.0), *Paspalidium distans* (25.0, 1.0), *Paspalidium gracile* (25.0, 1.0), *Aristida gracilipes* (12.5, 12.0), *Chloris divaricata* (12.5, 1.0), *Chrysopogon fallax* (12.5, 0.0), *Cymbopogon queenslandicus* (12.5, 20.0), *Dichanthium setosum* (12.5, 0.0), *Digitaria divaricatissima* (12.5, 0.0), *Digitaria longiflora* (12.5, 0.0), *Digitaria minima* (12.5, 0.0), *Digitaria violascens** (12.5, 0.0), *Eragrostis sororia* (12.5, 0.0), *Eragrostis tenuifolia** (12.5, 0.0), *Eremochloa bimaculata* (12.5, 1.0), *Imperata cylindrica* (12.5, 0.4), *Megathyrsus maximus var. maximus** (12.5, 0.0), *Sarga leiocladum* (12.5, 0.0), *Schizachyrium pseudeulalia* (12.5, 0.0), *Setaria nervosum* (12.5, 0.0), *Setaria palmifolia** (12.5, 0.0), *Setaria pumila** (12.5, 0.0), *Sporobolus creber* (12.5, 0.5), *Sporobolus fertilis** (12.5, 0.0), *Urochloa whiteana* (12.5, 0.0)

Grass - annual/biennial:

Not present

Forbs & other:

Most frequent species (up to 6):

Desmodium rhytidophyllum (100.0, 2.2), *Crotalaria montana* (87.5, 0.5), *Cyanthillium cinereum* (87.5, 0.5), *Phyllanthus virgatus*

(75.0, 0.0), *Scleria brownii* (62.5, 0.4), *Cyperus fulvus* (50.0, 0.0)

Additional species:

Dianella caerulea (50.0, 0.0), *Emilia sonchifolia** (50.0, 0.0), *Glycine tabacina* (50.0, 0.6), *Grewia latifolia* (50.0, 0.3), *Lomandra longifolia* (50.0, 0.6), *Rostellularia adscendens* (50.0, 0.5), *Sigesbeckia orientalis* (50.0, 1.2), *Spermacoce brachystema* (50.0, 0.2), *Bidens pilosa** (37.5, 2.2), *Brunoniella australis* (37.5, 0.0), *Capparis canescens* (37.5, 0.0), *Cheilanthes distans* (37.5, 0.8), *Cheilanthes sieberi subsp. sieberi* (37.5, 0.5), *Cyperus gracilis* (37.5, 0.5), *Desmodium varians* (37.5, 0.5), *Euphorbia hirta** (37.5, 0.0), *Eustrephus latifolius* (37.5, 0.0), *Galactia tenuiflora* (37.5, 5.0), *Glossocardia bidens* (37.5, 0.5), *Indigofera linnaei* (37.5, 30.0), *Lantana camara** (37.5, 4.2), *Pigea stellarioides* (37.5, 0.3), *Planchonia careya* (37.5, 0.0), *Pterocaulon* (37.5, 0.0), *Tephrosia filipes subsp. filipes* (37.5, 0.0), *Zornia dyctiocarpa var. dyctiocarpa* (37.5, 0.5), *Abildgaardia ovata* (25.0, 0.0), *Acacia disparrima subsp. disparrima* (25.0, 0.0), *Acacia*

leiocalyx subsp. *leiocalyx* (25.0, 0.0), *Chamaecrista absus* var. *absus* (25.0, 0.0), *Chamaecrista nomame* var. *nomame* (25.0, 0.2), *Chrysocephalum apiculatum* (25.0, 0.5), *Clematicissus opaca* (25.0, 0.0), *Coelospermum reticulatum* (25.0, 0.0), *Corymbia intermedia* (25.0, 0.0), *Desmodium brachypodium* (25.0, 0.0), *Evolvulus alsinoides* (25.0, 0.0), *Fimbristylis dichotoma* (25.0, 0.0), *Glycine clandestina* var. *clandestina* (25.0, 0.5), *Indigofera baileyi* (25.0, 7.0), *Indigofera hirsuta* (25.0, 0.5), *Lantana montevidensis** (25.0, 7.0), *Lomandra filiformis* (25.0, 0.5), *Lomandra laxa* (25.0, 0.3), *Lomandra multiflora* subsp. *multiflora* (25.0, 0.0), *Melhania oblongifolia* (25.0, 0.5), *Oxalis comiculata** (25.0, 0.0), *Passiflora suberosa** (25.0, 0.0), *Peripleura hispidula* var. *hispidula* (25.0, 0.0), *Petalostigma pubescens* (25.0, 0.0), *Scleria mackaviensis* (25.0, 0.5), *Sida hackettiana* (25.0, 0.0), *Acacia maidenii* (12.5, 0.0), *Achyranthes aspera* (12.5, 0.0), *Ageratum houstonianum** (12.5, 0.0), *Allocauarina torulosa* (12.5, 0.0), *Alphitonia excelsa* (12.5, 0.0), *Alternanthera nana* (12.5, 0.0), *Anisomeles* (12.5, 1.0), *Aristolochia pubera* (12.5, 0.0), *Austrosteenisia blackii* (12.5, 0.0), *Boerhavia* (12.5, 0.0), *Breynia oblongifolia* (12.5, 0.0), *Bulbostylis barbata* (12.5, 0.0), *Cajanus reticulatus* (12.5, 0.0), *Cassytha filiformis* (12.5, 0.2), *Clerodendrum floribundum* (12.5, 0.0), *Corchorus trilocularis* (12.5, 0.0), *Corymbia citriodora* subsp. *variegata* (12.5, 0.0), *Corymbia clarksoniana* (12.5, 0.0), *Crassocephalum crepidioides** (12.5, 0.0), *Cycas megacarpa* (12.5, 0.0), *Cyperus laevis* (12.5, 0.2), *Cyperus leiocaulon* (12.5, 0.5), *Desmodium gangeticum* (12.5, 0.0), *Dianella* (12.5, 0.5), *Dianella longifolia* (12.5, 0.0), *Dioscorea transversa* (12.5, 0.5), *Erigeron sumatrensis** (12.5, 0.0), *Eucalyptus crebra* (12.5, 0.0), *Eucalyptus exserta* (12.5, 0.0), *Eucalyptus tereticomis* (12.5, 0.0), *Euchiton sphaericus* (12.5, 0.0), *Euphorbia* (12.5, 0.5), *Fimbristylis vaginata* (12.5, 0.0), *Flemingia parviflora* (12.5, 0.0), *Gahnia aspera* (12.5, 0.0), *Glandularia aristigera** (12.5, 0.0), *Glycine tomentella* (12.5, 0.0), *Gomphocarpus physocarpus** (12.5, 0.0), *Gomphrena celosioides** (12.5, 0.0), *Hardenbergia violacea* (12.5, 0.5), *Heliotropium amplexicaule** (12.5, 0.0), *Indigofera linifolia* (12.5, 0.0), *Indigofera polygaloides* (12.5, 0.0), *Ipomoea plebeia* (12.5, 0.0), *Jacksonia scoparia* (12.5, 0.0), *Jasminum didymum* subsp. *racemosum* (12.5, 0.5), *Jasminum simplicifolium* subsp. *australiense* (12.5, 0.5), *Lagenophora sublyrata* (12.5, 0.0), *Leucas martinicensis** (12.5, 0.0), *Lomandra confertifolia* subsp. *pallida* (12.5, 0.0), *Macrotyloma uniflorum** (12.5, 0.0), *Macrozamia miquelii* (12.5, 0.0), *Malvastrum americanum* var. *americanum** (12.5, 0.0), *Malvastrum coromandelianum* subsp. *coromandelianum** (12.5, 0.0), *Oxalis* (12.5, 0.5), *Parsonsia* (12.5, 0.0), *Polycarpha corymbosa* var. *minor* (12.5, 0.0), *Polygala triflora* (12.5, 0.0), *Poranthera microphylla* (12.5, 0.0), *Pseuderanthemum variabile* (12.5, 0.0), *Pultenaea villosa* (12.5, 0.0), *Rhynchosia minima* (12.5, 0.0), *Richardia brasiliensis** (12.5, 0.0), *Scleria sphacelata* (12.5, 0.0), *Sida rhombifolia** (12.5, 0.0), *Sida rohlenae* (12.5, 0.0), *Smilax australis* (12.5, 0.0), *Solanum sturtianum* (12.5, 0.0), *Teucrium argutum* (12.5, 0.5), *Verbena rigida** (12.5, 0.2), *Xanthorrhoea latifolia* subsp. *latifolia* (12.5, 0.0), *Zornia* (12.5, 0.0), *Zornia muriculata* subsp. *angustata* (12.5, 0.0), *Zornia muriculata* subsp. *muriculata* (12.5, 0.0)

Species list: Frequency (percent of total sites) and cover (average of species cover across sites where that species is present). Ordered by decreasing frequency. Naturalised species have an asterisk (*) after the name. indet. after listed name if indeterminate species or genus.