

CHARLES DARWIN UNIVERSITY
WEED PLAN

(Casuarina Campus)

(2019/20 season)

1: Introduction and background

Little Falcon Consulting presents an integrated strategic weed management plan providing the results of the 2018/19 weed management program and the detailed aims, objectives and recommended actions for the 2019/20 weed management season at the Charles Darwin University owned Casuarina Campus. Importantly these aims and objectives are consistent with the obligations prescribed under the *NT Weeds Management Act 2013*.

Charles Darwin University (Casuarina Campus) owned sections 9260 and 9198 are located approximately 11 kilometres from the Darwin CBD and occupy a total of approximately 58 hectares. Of this total area this document relates to the management of target weeds found in the project site which is comprised woodland areas located in the north western part of the campus (see figure 1). This is an area of approximately 6.71 hectares.

For the purpose of developing, implementing and updating this plan the project site has been surveyed and assessed in November 2017, May 2018 and again during May 2019. Weed distribution data collected and notes taken during the May 2019 assessment have been used to formulate this weed management plan.

At the commencement of this program the project site was divided into 2 management areas reflecting the overall distribution and density of weeds encountered during the initial survey. In turn the varying weed distribution influenced the initial program aims, objectives and as such the management actions required to achieve these objectives.

As a result of the 2017/18 and 2018/19 weed management programs the distribution, density and impact of target weeds at the project site have decreased significantly. End of season assessment conducted on 01/05/2019 indicated that weed populations have been reduced to zero, or very close to zero in the majority of the defined management area. Elsewhere target weeds were found to have been generally reduced to scattered low density populations with all established high density infestations having been effectively removed.

As such the management objectives for the 2019/20 management season aim to (i) prevent the further spread or establishment of targeted weed species across the site, to (ii) bring all areas containing very low density (<0.1%) target weed populations to zero, and (iii) to contain and further reduce the area affected by the higher density (1 -10%) infestation of target grasses.

2: Weed management obligations

Issue	Obligations
Gamba grass	- declared a Class B/C weed (NT Weeds Act, Section 7).
	- active management of species required, growth and spread to be controlled.
	- subject to a statutory management plan (NT Weeds Act, Section 10).
Perennial mission grass	- declared a Class B/C weed (NT Weeds Act, Section 7).
	- active management of species required, growth and spread to be controlled.
Annual Mission grass:	- not declared in the NT however the species is identified as high risk and is listed as a Key Threatening Process (KTP) under the Commonwealth EPBC Act.



Figure 1: Charles Darwin University (Casuarina Campus) indicating property boundary and project area.

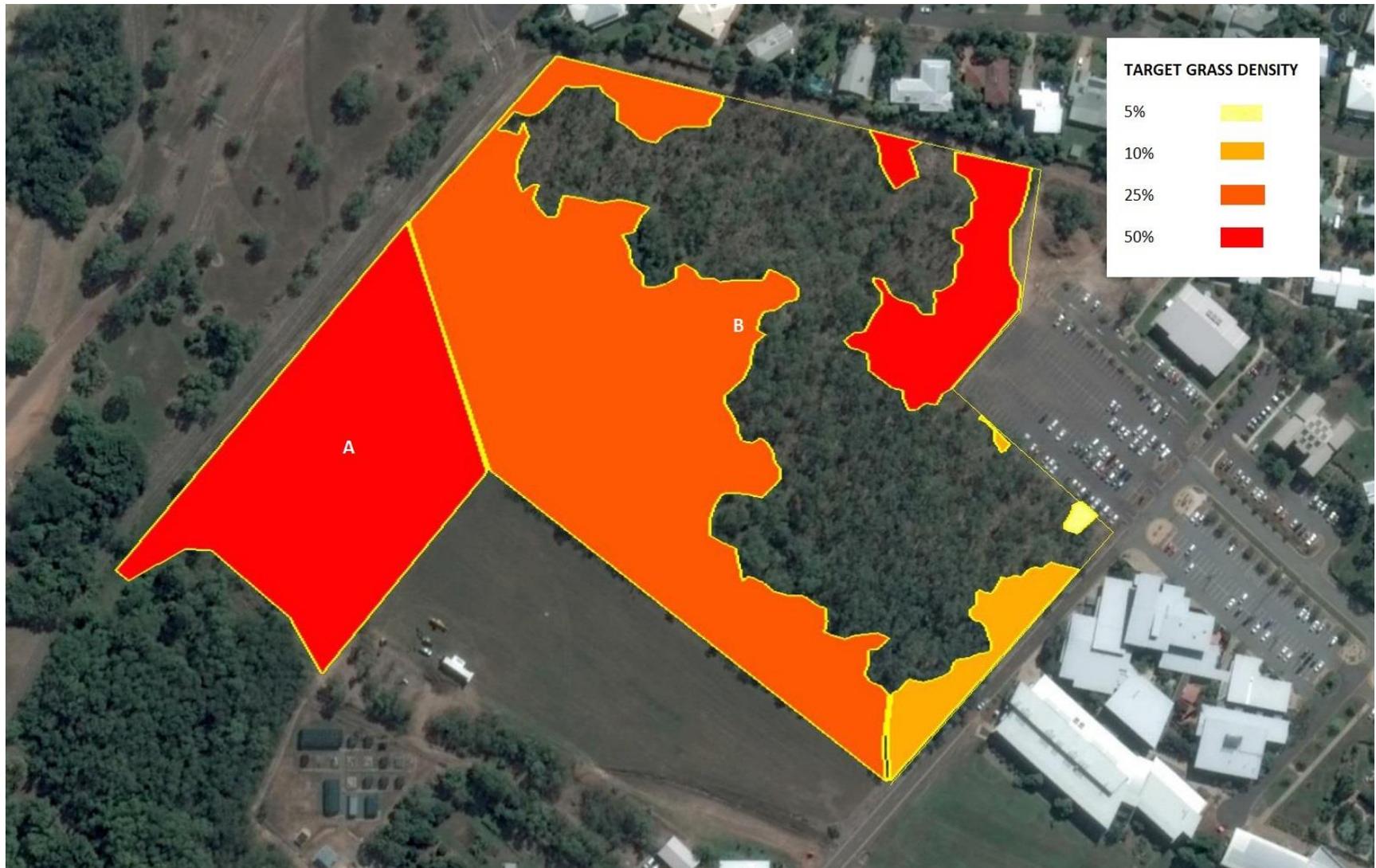


Figure 2: Charles Darwin University, weed management project area indicating target grass densities in Areas A and B prior to the start of the 2017/18 management program.



Figure 3: Charles Darwin University, Casuarina Campus, weed management project area indicating target grass densities at end of 2018/19 management program. Note that weed populations in Area A and Area B have been reduced to < 0.1% density on average over the majority of the overall project site, with the main remaining area of infestation located in the central northern part of Area B.

3: Results and recommendations

An on ground assessment of Area A conducted in early May 2019 indicated that weed populations appear to have effectively been brought down to an overall average significantly less than 0.1% density (less than 1 plant per 10 m²) across the site as a result of 2 consecutive years of control work. This is a very good result given that in November 2017 target grass populations were estimated to exceed 50% across this part of the project site. In particular it was noted that the established high density gamba grass infestations located on the south eastern edge, and in the north western corner of this part of the site have been completely removed. In addition to this the medium density perennial mission grass infestation previously found in the disturbed area located at the southern corner of this management area has been reduced to basically zero.

Similarly, the assessment of Area B indicated that on ground control efforts had been effective and target grasses have been brought to almost zero (< 0.1% density) across the south western, south eastern, north eastern and northern parts of the site. Previously target grasses were found in densities ranging from 5 – 50% density across much of these areas. Again, this is a very good result indicating that a systematic strategic approach, with repeated control activity occurring throughout the wet season will provide effective results and meet legislated weed management requirements relating to these target species.

This assessment however also found that reasonably significant populations of annual and perennial mission grass remain in the central northern part of this management area. Target grass densities in this part of the site are estimated to be in the 1 – 10% density category on average and in some parts this may be higher. Survey of this area found the infestation to be in close proximity to a 4WD quadbike track. In addition to this it was noted during the implementation of the control program that scattered very low density gamba grass plants were found along the edges of the quadbike track where it swung to the east heading toward the carpark. These individual plants were not found in association with any untreated gamba grass plants remaining from the 2017/18 management season. As such it seems reasonable to suggest that quadbike training conducted in Area B may be creating a disturbance that encourages the establishment of annual and perennial mission grass and may also be leading to the inadvertent spread of gamba grass at this part of the project site.

As a result of these findings it is recommended that the current approach to management, with the repeated control events timed to coincide with key growth periods and to prevent flowering and seed production continue across the project area. It is also however recommended that any further disturbance to the site is prevented, or at least minimised, in order to decrease the risk of the further establishment and spread of target grasses, particularly while seeding populations remain in some areas.

4: Key risks and consideration/recommendation(s)

Risk item	Consideration/recommendation
-all declared weeds + annual mission grass.	- currently under effective and legislatively compliant on ground management program within targeted areas.
-weed spread prevention.	- recommend continuing with current approach to on ground weed management program at site. - recommend excluding vehicle traffic from management area in order to reduce disturbance and risk of further weed seed spread.

5: Weed Management: Charles Darwin University (Casuarina Campus), Objectives, actions and milestones.

Area	Objective(s)	Action required	Milestones	Management tools
Area A and B	Eradication (short term) of all/any remaining gamba grass, Prevention of further seed production across project area	Treatment of all gamba grass prior to flowering/seed production 1 st treatment at end of December 2 nd treatment end of March 3 rd treatment at end of April	All plants treated prior to flowering/seeding. Zero seed production on site	Multiple glyphosate application or nominated organic herbicide.
Area A	Eradication (short term) of all/any remaining annual and perennial mission grass, Prevention of further seed production across project area	Treatment of all annual and perennial mission grass prior to flowering/seed production 1 st treatment at end of December 2 nd treatment end of March 3 rd treatment at end of April	All plants treated prior to flowering/seeding. Zero seed production on site	Multiple glyphosate application or nominated organic herbicide.
Area B	Eradication (short term) of all/any remaining gamba, annual and perennial mission grass in area east of central drainage line, Bring remaining area (west of drainage line) to overall weed density of < 0.1% (with minimum 50 mt wide clean buffer around all edges) by end of 2019/20 management program	Treatment of all gamba, annual and perennial mission grass in area east of central drainage line, prior to flowering/seed production 1 st treatment at end of December 2 nd treatment end of March 3 rd treatment at end of April	All plants treated prior to flowering/seeding in east of area. All plants treated in minimum 50 m buffer prior to flowering/seeding in west of area. Reduction in weed density across entire area to < 0.1%	Multiple glyphosate application or nominated organic herbicide.