BIODIVERSITY | BUSHFIRE | ARBORICULTURE

NEWCASTLE SYDNEY

Lochinvar Developments Pty Ltd

c/- ADW Johnson

Attention: Mathew London

Via Email: mathewl@adwjohnson.com.au

Our Ref: 2699.03

6 February 2024

Dear Mathew

Request for Additional Information from Maitland City Council DA/2023/415 - 262 Lot Residential Subdivision, 2 Public Reserves, 3 Drainage Reserves and Road Widening – Item 9 b).

Item 9b from Council RFI:

> *9b) In the Flora Species List, according to Section 7.1.3m, the native Cynodon dactylon was recorded in PCT 1728 but is recorded as exotic Cynodon spp. in the Flora Species List. Please provide further detail on the identification of this species on site, and how it was factored into the determination of the exotic/cleared areas.*

The Subject Site consists of native, and non-native species as a result of previous clearing for agricultural use.

PlantNet, 2023, describes *Cynodon dactylon* as a rhizomatous and/or stoloniferous mat-forming perennial, to 0.3m high, rooting at the nodes; culms erect or geniculate. Being distributed widespread through all states and very common; widely cultivated as a lawn grass and for pasture. PlantNet does not discuss the origin of the species as it does with many other natives and non-natives. This is likely due to the high level of debate that surrounds the species.

The debate of the origins of the species started back in 1810 with Robert Brown describing samples he had collected as an introduced species and also by Woolls in 1867, who wrote, *Cynodon dactylon* was rapidly replacing the native grass *Themeda australis* in grazing areas, considering the species to be introduced from the East indies (Langdon, 1954). Langdon also presented the case that associated fungal parasites of *Cynodon dactylon* are a rust and a smut, fungi whose arrival in Australia appears in the early 1800's, soil records show it was not present before this time. Therefore, Langdon (1954) concluded it was introduced as fodder for livestock.

Friedel, 2017, also states that the species was "deliberately introduced into Australia for use in crops, pasture, gardens and horticulture". More recently, Identic Pty Ltd, 2016, stated "*the species most probably originated from sub-Saharan Africa and/or on islands in the western parts of the Indian Ocean*".

The Commonwealth Department of the Environment (2023), "The community of native species dependent on natural discharge of groundwater from the Great Artesian Basin in Community and Species Profile and Threats Database", Department of the Environment, states in Sections 11.1 and 11.3 that "*Cynodon dactylon* (nonnative)", confirming it status with the Commonwealth department as exotic.

The species has become dominant in most communities and even wetlands in the western division of NSW. It can survive in times of drought and other harsh conditions, including saline soils, floods, etc and given it is thought to have been introduced in the 1800s it has replaced other native species that may not have been

identified, resulting in some species in the western division being dependant on its presence, such as Night Parrot, Dusky Hopping Mouse and Plains Wanderer. Hence the Department of the Environment (2023), provides guidance measures on how to manage the species and return native grasses to these environments with a focus on the Great Artesian Basin.

The Department of Primary Industries (Agricultural), 2023, Local Land Services and Department of Industry and Investment, promotes the planting / sowing of *Cynodon dactylon* at a rate of 6-10kg on well drained and alluvial soils. The species tolerates saline, heat conditions, drought tolerance, and is flood tolerant. *Cynodon dactylon* can adapt to all conditions such as shade, full sun and even wetter areas (Department of Industry and Investment, 2011). The species has great pasture features, such as the ability to adapt and high tolerance to a changing environment, it also binds soils and prevents erosion and provides fodder for domestic stock annually and it is readily available. Hence its high use in the Hunter catchment for pasture improvement (Department of Primary Industries, 2023).

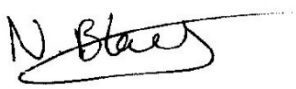
Within the Hunter, *Cynodon dactylon* is heavily used for turf or lawn. Turf farms throughout the region farm the species. The species is also used in large subdivisions as it is quick growing, has tough, mat-forming rhizomes which binds the soils; tolerates heat and full sun; and the matting rhizomes limit other species such as weeds colonising the new lots.

Morgan, 1998 has researched the decline in species of *Themeda* species within grasslands, *Cynodon dactylon* and other invasive species were dominating especially in areas of higher soil phosphorus. Morgan, 1998, considered this change as being permanent, naturalising these species, recommending management actions to reduce if not eradicate the species due its invasive properties and the significant reduction in diversity of native grasses. Such management actions are applied throughout the Hunter Catchment within the Bush Regeneration field. *Cynodon dactylon* is a target species for eradication as it is considered an invasive weed. The species prevents diversity within a community with its ability to matt the top 10cm of topsoil, prohibiting orchids, herbs and forbs from persisting. The reduction in diversity within a Bush Regeneration site results in targets not being achieved and limits fauna use.

AEP recognises the importance of the species in the western division of NSW, as listed species have become dependent on the species presence. However, we also support the Commonwealth decision to list the species as non – native, especially in the eastern division of the state. This includes the Hunter Catchment Area where the species is known to dominate grazing lands and known to invade endemic Plant Community Types (PCTs), leading to a reduction in biodiversity. Recognising the species as an endemic native, will significantly impact regeneration works within the Hunter, halting the progress made to reduce and eradicate this species from the communities. AEPs collective knowledge and expertise within the Hunter Catchment Area does not agree with the species being considered a native species within Hunter Catchment Area and are concerned such a decision will have a significant impact on Bush Regeneration works and on the diversity within the region, resulting in the loss of endemic species.

AEP acknowledges that Maitland City Council are reviewing this species for the LGA, and requests a copy of the results of this investigation and consideration is given to the information contained within this response to item 9b.

Regards,



Natalie Black

Senior Environmental Manager

BAAS No. 19076