FLORA AND FAUNA SURVEY AND ASSESSMENT REPORT FOR A PLANNED THREE - LOT SUBDIVISION OF LOT 3, GOOLABRI LANE, SUTTON

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INDEX

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Introduction

At the request of Mr David Rouse, Land Planning Solutions, on behalf of the owner, Mr Gordon Luton, an inspection and two field surveys was undertaken on the 10th March and 1st April 2014 of a proposed three-lot subdivision on this property at Goolabri Park, Goolabri Lane,Sutton (Lot 3 DP1074706 Parish of Goorooyarroo).

The property has an area of approximately 94.5ha with the planned subdivision being Lot 1 of 15.56 ha, and Lot 2 of 7.20 ha. and Lot 3 of 8.41 ha. The remainder of the property (63.30 ha.) has been developed as a resort and golf course. An existing dwelling exists on the proposed Lot 1 (fig.1).

A wider flora and fauna survey of the Goolabri Park estate area was undertaken some 17 years ago (Butler & Associates) for the wider original estate subdivision. The field survey and this report is therefore only a supplementary statement relevant to this three Lot subdivision.

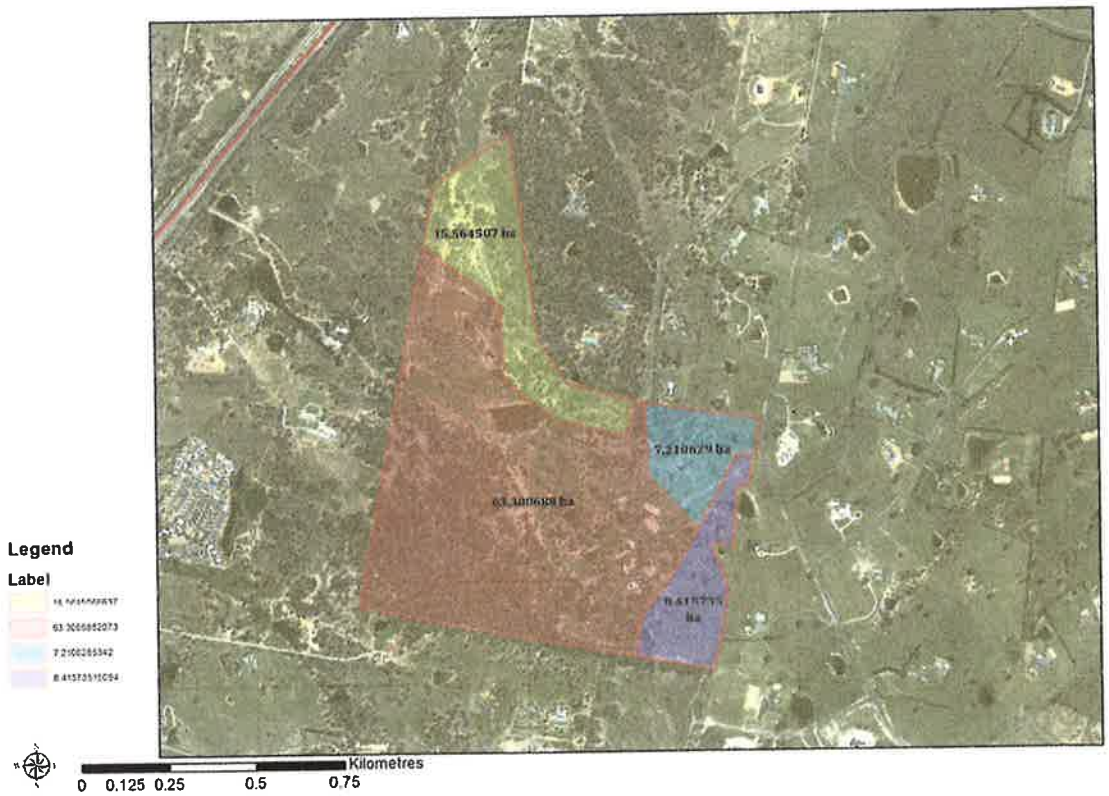

Figure 1. Layout plan for the three lot subdivision and the existing golf course

Survey Methodology

The survey was carried out by way of randomly located linear transects across the three Lots over a linear distance of approximately 500 metres in each Lot. All flora species observed along the three transects were recorded and were recorded by way ofa two-step toe-point technique. During the vegetation survey any native fauna and avifauna, or indicators of their presence (scats, tree scratchings, and soil surface diggings), were also noted. Tree hollows and possible nesting sites for arboreal mammals (possums) and native birds were searched for and recorded, if signs of occupation were noted. A specific search was made for termite mounds that provide a feed source for the endangered Rosenberg's Monitor that has been recorded in the general Sutton, Mac's Reef Road area.

Specific searches were also made to locate any threatened plant species that may potentially occur in the Goolabri area. None have been recorded for the property from previous flora surveys of the local area (NPWS advice) but a potential does exist for the occurrence of several threatened species.

General landscape and soils

The general landscape is one of undulating terrain on Silurian volcanics (Jenkins et al 1996). The local relief is 10 to 30 metres. The soils of the site and surrounding area are shallow, free draining Red Rudosols and Lithosols (Red podzolics) on the upper slopes with shallow to moderately deep and poorly drained Brown and Yellow Chromosols (Brown & Yellow Podzolics) on the low slopes to flat areas of the property. On the flats the soils are compacted and can be seasonally waterlogged. The shallow lithosols / Rudosols exhibit extensive areas of exposed surface gravels and rocks and are highly erosive. Large areas of bare soil and sheet erosion are evident on the property (fig 2).

Figure 2. Extensive areas of degraded vegetation and sheet erosion on proposed Lot 1

General Vegetation landscape

The general vegetation reflects the terrain, with the property having approximately half its area on a westerly aspect and half with an easterly / north-easterly aspect.

The general vegetation of the area is one of an open dry sclerophyll woodland (fig 3). of Yellow Box *E. melliodora,* Red Gum *E.blakelyi,* Brittle Gum E. *mannifera,* Scribbly Gum *E.rossii,* Broad-leaved Peppermint *E. dives* Red Stringybark *E. macrorhyncha,* with occurrences of Apple Box *E. bridgesiana* The sub-dominant tree layer is represented by Silver Wattle *Acacia dealbata,* Black Wattle *Acacia mearnsii,* with several individual occurrences of Ballart *Exocarpus cupressiformis* and Black She-Oak *Allocasuraina littoralis.*

a

b

Figure 3a & b. Box – Gum woodland on the low slope westerly aspect of Lot 1.

Remnant Yellow box – Blakely's Red Gum – Brittle Gum woodland still exists on the lower slopes to flat areas of the westerly aspects of the property particularly in Lot 1, with Brittle Gum - Broad Leaved Peppermint – Red Stringybark - Apple Box woodland on the upper slopes of Lot 1.

Remnant Brittle Gum - Peppermint - Red Stringybark woodland extends over the low south / north ridgeline onto the upper and mid slopes of Lot 2 and Lot 3. On the lower slopes of Lot 3 Apple Box - Blakely's Red Gum - Yellow Box occur as remnants of a once grassy Box woodland. This Yellow Box Grassy Woodland is a listed Endangered Ecological Community (EEC) under the Commonwealth Environment Protection and Biodiversity Conservation Act (EPBC Act) and the NSW Threatened Species Conservation Act (TSC Act) but the remnant woodland trees on the property, in their current degraded state and low population numbers, does not meet the criteria for recognition as a Grassy Box woodland community (Appendix 3).

Figure 4. Remnant small stand of Box – Gum woodland on Lot 2

Figure 5. Large Yellow Box tree adjacent to the proposed access from Cartwright Ave to Lot 2 and 3

The majority of the area of this woodland is highly degraded by over-grazing by domestic stock and a very large population of Eastern Grey Kangaroos *Macropus giganteus* (fig. 6). Some regeneration is evident but few juvenile Yellow Box and Red Gum trees exist. The sub-dominant Wattles are regenerating in patches.

Figure 6. Highly degraded grassy Box - Gum woodland area on the lower part of Lot 1.

Few native shrubs remain as the shrub understorey, these mainly being on the gravelly soil areas where grasses are sparse and the ground cover is low (fig 7). Elsewhere the shrubs have all but disappeared, having been destroyed by domestic grazing. The shrubs include, Sarsaparilla *Hardenbergia violacea,* Dolly Bush *Cassinia aculeata*, Shiny Cassinia *Cassinia longifolia*, Guinea Flower *Hibbertia obtusifolia* Dillwynia *Dillwynia sericea*, , Groundberry *Acrotriche serrulata,* Urn Heath *Melichrus urceolatus,* Grey Beard Heath *Leucopogon attenuatus,* Daphne

Heath *Brachyloma daphanoides*, Spiney Headed Mat-rush *Lomandra longifolia*, Wattle Mat-rush *Lomandra filiformis*, Red-stemmed Wattle *Acacia rubida*, Spiny Wattle *Acacia genistifolia*, Dagger Wattle *Acacia siculiformis* and Prickly Moses *Acacia ulicifolia*,

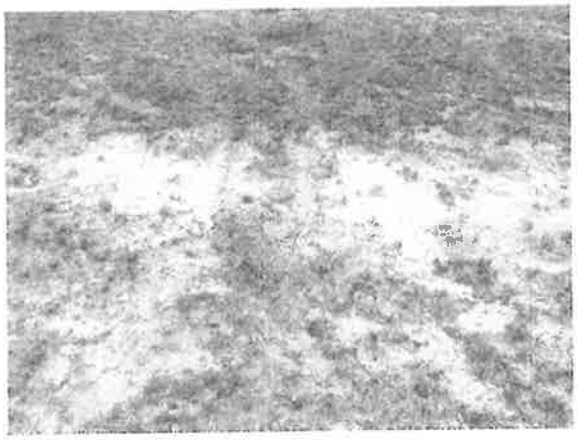

Figure 7. An example of the very sparse and poor groundcover that exists over the majority of the area of the three proposed Lots.

Small patches of native grasses occur in reasonable condition, particularly that of Tussocky Poa Grass *Poa sieberiana*. Other native grasses occurring in various degraded states include Kangaroo Grass *Themeda australis* Wallaby Grass *Austrodanthonia spp.*, Spear Grass *Austrostipa spp.* and Redanther Wallaby Grass *Rytidosperma pallida*.

Across the property a number of herbaceous native species occur but not in population numbers or species mix that should exist in the Box Gum Woodland. Many species occur as single plant specimens. The herbaceous species recorded as one or more specimens included Rock Fern *Cheilanthes austrotenuifolia*, Tufted Bluebell *Wahlenbergia communis*, Common Everlasting *Chrysochephaum apiculatum*, Variable Plantain *Plantago varia*, Austral Bear's Ear *Cymbonotus preissianus*, Stinking Pennywort *Hydrocotyle laxiflora*, Common Cotula *Cotula australis*, Wattle Mat-rush *Lomandra filiformis*, Dock *Rumex brownii* Storksbill *Erodium crinitum*, Pin Rush *Juncus spp.*, and Common Woodruff *Asperula conferta*, together with introduced, exotic and cosmopolitan herbaceous species – Brome *Bromus spp.*, Couch *Cynodon dactylon*, Paspalum *Paspalum dilatatum*, Yorkshire Fog *Holcus lanatus*, Winter Grass *Poa annua*, Cudweed *Gnaphalium gymnocephalum*, Prickly Lettuce *Lactuca serriola*, Plantain *Plantago lanceolata*, and Sorrel *Acetosella vulgaris* (figs 7a & b and 8a & b).

Weed species are numerous, predictably as a result of overgrazing resulting in the current low groundcover, sheet erosion and patches of salt scald particularly on the proposed Lot 1.The weed species include Spear Thistle *Cirsium vulgare*, Cape Weed *Arctotheca calendula*, Hairy Mustard *Hirschfeldia incana*, St John's Wort *Hypericum perforatum*, Dandelion *Taraxacum officinale*, Flatweed *Hypochearis radicata*, Paterson's Curse *Echium plantagineum* and Serrated Tussock *Nassella trichonoma*.

a

b

Figure 7a & b. Views across Lots 2 and 3 with very low occurrences of native shrubs.

a

b

Figure 8a & b. View across the proposed building precincts of Lot 3 (a) and Lot 2 (b)

No plant species listed as regionally threatened were predicted to occur on the property and none were located and hence there are no implications for the development from the occurrence of any threatened native plant species. The listed threatened species for the local region being Button Wrinklewort *Rutidosis leptorrhynchoides,* Mountain Swainson Pea, *Swainsona recta,* Silky Swainson Pea *S. sericea,* Parrot Pea *Dillwynia glaucula*, Spider Orchid *Arachnorchis tessellata*, Doubletail Buttercup *Diuris aqualis*, Tarengo Leek Orchid *Prasophyllum petilum* and Pomaderris *Pomaderris pallida.*

Native fauna and habitats

Little significant native animal habitat now exists on the three proposed lots as the native grassland and shrublands, characteristic of the Box – Gum Woodland have been removed by stock and native animal grazing. The remnant trees provide nesting and refuge habitat for the Common Brushtail Possum *Trichosurus vulpecular* and

possibly Gliders (Greater Glider *Petauroides volans*, Squirrel Glider *Petaurus norfolcensis*, Sugar Glider *P. breviceps* and Yellow-bellied Glider *P. australis)*, although the only Glider recorded recently for the area is the Yellow-bellied Glider. (Landcare surveys).

Much dead and fallen tree limbs and grassland around them provide habitat for the small Skinks and Geckos although none were sighted during the field survey. The species known to inhabit dry sclerophyll woodlands and predictably most likely to occur in the Goolabri area, are White's Skink *Egernia whitii*, Grass Skink *Lampropholis guitchenoti* and Tussock Skink *Pseudemoia pagenstecheri*, the latter utilising degraded tussock grasslands. No extensive areas of accumulated and decaying ground litter exist that could provide habitat for small mammals (*Antechinus spp*). More common and predicted to occur on the property are the Eastern Blue-tongued Lizard *Tiliqua scincoides*, Shingleback *Trachydosaurus rugosus* and Common Bearded Dragon *Pogona barbata* but none were sighted.

The threatened Rosenberg's Monitor has been recorded in the Sutton, Mac's Reef Road and Goolabri area but predictably would only be a transient visitor to the Luton property as it feeds on termites and lays its eggs in termite mounds which are absent from the remnant woodland areas of the property.

The greater part of the property has been developed as a golf course and as this has watered greens and fairways (figs 9a & b), these are heavily utilised by the large Kangaroo population while the large water supply dam provides habitat for many aquatic and wetland birds, several species being observed in large numbers on the dam. These were Grey Teal *Anas gracilis*, Black Duck *Anas superciliosa*, Maned / Wood Duck *Chenonetta jubata*, White-faced Heron *Egretta novaehollandiae*, Little Egret, *Egretta garzetta*, and Little Pied Cormorant *Phalacrocorax melanoleucos*.

Frogs were heard calling from the the dam, these possibly being the Common Eastern Froglet *Crinia signifera*, Plains Froglet *Crinia parinsignifera*, and / or Smooth Toadlet *Uperoleia laevigata*.

Figure 9a. Woodland on the boundary between the golf course and Lot I and Lot 2.

Figure 9b. Irrigated fairways frequented by large numbers of grazing Ducks and Kangaroos.

Several Eastern Long-necked Turtles *Chelodina longicollis* were observed on the edge of the water and in the fringing vegetation (Rush spp.).

Some 55 bird species have been recorded for the local area and the nearby woodland nature reserve. Ten species of woodland bird are in decline in population numbers across the Tablelands but none of these species were observed / noted during the surveys.

Interestingly there has been a recent confirmed Koala sighting in the near vicinity of Goorooyaroo Nature Reserve which suggests that a population may exist in the general area.

The bird species observed during the survey were species common to the area; these being the Crimson Rosella, *Platycercus elegans*, Sulphur Crested Cockatoo *Cacatua galerita*, Galah *Cacatua roseticapilla*, Red Wattlebird *Anthochaera carunculata*, Willie-Wagtail *Rhipidura leucophrys*, Pied *Currawong Strepera graculina*, White-winged Chough *Corcorax melanorhamphos*, and Magpie *Gymnorhina tibicen.*

The bird species that are recognised as being in decline across the Tablelands are the Speckled Warbler *Chthonicola sagittata*, Eastern Yellow Robin *Eopsaltria australis*, Diamond Firetail *Zonaeginthus bellus (*V& D*)*, Hooded Robin *Petroica cucullata* (D), Restless Flycatcher *Seisura inquieta* (D), Jacky Winter *Microeca leucophaea* (D), Brown Treecreeper *Climacteris picumnus* (V&D), Striated Thornbill *Acanthiza lineata* (D), Crested Shrike Tit *Falcunculus frontatus* (D) and Painted Quail *Turnix varia* (D). (V – vulnerable, D – declining).

The mature woodland trees potentially provide habitat for Brushtail Possum *Trichosurus vulpecular* and Possum scratchings were noted on several Stringybark trees. As there are few trees on the property exhibiting hollows there is little habitat for avifauna or small arboreal mammals, such as the the Sugar Glider Petaurus *breviceps* Yellow-bellied Glider and Bats, the Little Freetail Bat *Mormopterus planiceps* and Lesser Long-eared Bat *Nyctophilus geoffroyi,* that are common residents of woodlands in the local area. Wombats *Vombatus ursinus* and Echidnas *Tachyglossus aculeatus* are also common in the locality but no active diggings or nesting holes were observed.

No rock outcrops or surface rock floaters exist on the property and as the open native grasslands are heavily grazed by a large kangaroo population and as a consequence are highly modified / degraded, no potential habitat exists for the endangered grassland species, the Striped Legless Lizard *Delmar impar*, Eastern Lined Earless Dragon *Tympanocrytis lineata pinguicolla*, Pink-tailed Worm Lizard *Aprasia parapulchella* and Little Whip Snake *Suta flagellum*, that predictably may have occupied the area in the past.

Summary

The dry sclerophyll woodland and grasslands of the property have no threatened native plant or animal species, significant local native flora species; or any significant native animal habitat. No native fauna species were observed during the surveys except for a large population of Eastern Grey Kangaroos *Macropus giganteus.*

The Yellow Box- Red Box woodland (with other mixed gum species) that exists on the better soil areas of the property, is generally in a poor condition in terms of the understorey species and groundcover, due to extensive clearing in the past and severe overgrazing over many years.

The Box Gum woodland of the property is a significant woodland type, being part of the once, more extensive area of Yellow Box -Red Gum woodlands of the Canberra Plains landscape region. This woodland community is listed as an Endangered Ecological Community under the Commonwealth Environment Protection and Biodiversity Conservation Act (EPBC Act) and the NSW Threatened Species Conservation Act (TSC Act). If the woodland on the property was in a good condition it would need to be considered in terms of its condition and status as being representative of the woodland type. (see appendices)

Section 5A of the NSW Environmental Planning and Assessment Act and Section 94 (2) of the New South Wales Threatened Species Conservation Act, requires the evaluation of any significant impact on threatened species, populations or ecological communities or habitats through the application of a 'Seven -part Test'. This is considered not to be necessary in this case but the Seven point Test has been applied to reinforce this (Appendix 1 and 2).

The criteria for a woodland (NSW Scientific Committee) has also been considered and indicates that the Box Gum woodland EEC does exist on the property but in a poor condition and not representative of the EEC (Appendix 3).

The subdivision of the property into 3 Lots will not have any significant impact on the Box-Gum Woodland as few native understorey shrubs and few herbaceous groundstorey species representative of the woodland exist. Few if any trees will be removed in developing the building precincts on Lots 2 and 3,

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Appendices

Appendix 1. Seven-part Test of Significance

1. **In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk.**

   No threatened species were located during the survey of the Luton property and as such, the planned subdivision of the property into three Lots will have no adverse impacts on the life cycle of any threatened flora or fauna. The

highly modified habitats of the property would predictably, not be utilised during the life cycle of any significant or threatened native fauna. The subdivision will not impact on the life cycle of the remnant Yellow Box - Red Box trees. The most significant impact is the current level of kangaroo grazing pressure.

All of the birds listed as vulnerable and / or declining across the Tableland woodlands occur in the local area at various times during the year but none are predicted to be resident / semi-resident on the Luton property, as more significant habitats exist in the woodlands of Goorooyaroo Nature Reseve in the near vicinity to the property.

2. **In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction**

The remnant woodland trees are part of an endangered population, that of the Yellow Box – Red Gum EEC within or near the Luton property but the subdivision will not increase the current level of impact and may actually mitigate further impacts if post-subdivision management of the new Lots reduces the level of grazing pressure.

An Endangered Population is a population listed under Part 2 Schedule 1 of the Threatened Species Conservation Act and is defined as a population that, in the opinion of the New South Wales Scientific Committee, is facing a very high risk of extinction in NSW in the near future. A population is not eligible to be listed as an Endangered Population if it is a population of a species already listed in Schedule 1 or 1A (i.e.) already listed as an Endangered or Critically Endangered Species)

3. **In the case of an endangered ecological community or critically endangered ecological community, whether the proposed :**

   i. **is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or**

   ii. **is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.**

The proposed subdivision will have little or no adverse impact on the Yellow Box - Red Gum woodland, as the herbaceous understorey is highly modified or absent due to excessive grazing pressure of kangaroos and domestic stock. The subdivision will not substantially modify the tree composition of the ecological community such that its local occurrence is at risk of extinction. In developing the building precincts on Lots 2 and 3, a number of trees may have to be removed but this will not threaten the existence of the community.

4. **In relation to the habitat of a threatened species, population or ecological community:**

   i. **the extent to which habitat is likely to be removed or modified as a result of the action proposed**

   ii.

As little significant habitat for any threatened species exists in the woodlands , very little will be modified or removed by development of the subdivision.

   iii. **whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action**

No threatened species habitat will be fragmented or isolated from other areas of habitat, as very little habitat exists at the present time due to past land management practices and heavy grazing.

   iv. **the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.**

No threatened flora, or significant native species populations exist and the Box Gum woodland is in a very degraded condition, so no further fragmentation or isolation of significant native species habitat will result from the subdivision.

5. **Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly)**

No critical native fauna or flora habitats exist on the Luton property, and no critical habitat has been declared in the near vicinity of the property for any listed threatened species.

Critical habitats are areas of land that are crucial to the survival of particular threatened species, populations or ecological communities. Under the TSC Act the Director- General maintains a register of critical habitat.

6. **Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan**

The subdivision would not be inconsistent with any recovery plan but no such plans are known or relevant to the property.

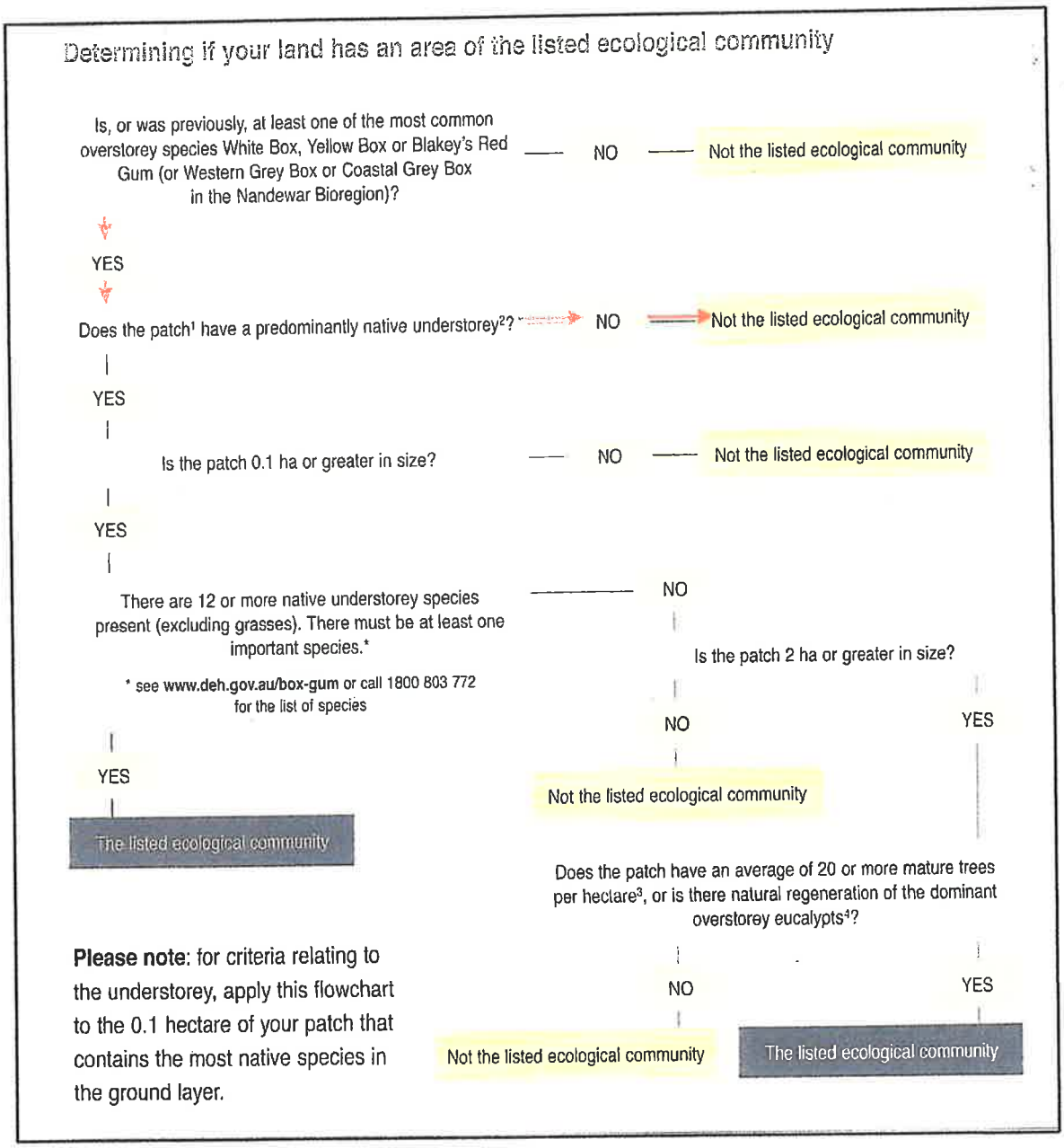
7. **Whether the action proposed is part of a key threatening process or is likely to result in the operation of, or increase the impact of a key threatening process.**

Key Threatening Processes are listed under Schedule 3 of the TSC Act.

Rural subdivision is not specifically listed as a key threatening process, although aspects of subdivision eg access construction, drainage etc could impact upon native flora and fauna and any significant habitat if it existed.

Appendix 2

Determining if an Endangered Ecological Community exists on a property *(Nationally threatened species and ecological communities – EPBC Act)*



Appendix 3. Determining a Box – Gum Woodfland

The NSW Office of Environment and Heritage (Scientific Committee) also defines the Box – Gum Woodland under five criteria that determine if the EEC exists at a site; these being: -

1. **Whether the site is within the area defined in the determination of the NSW Scientific Committee.**
   The Luton property falls within the defined area (Southern Tablelands).

2. **Whether the characteristic trees of the site are (or likely to have been) White Box, Yellow Box or Blakely's Red Gum.**
   Remnant Yellow Box and Red Box trees still exist on the property.

3. **Whether the site is mainly grassy.**
   The woodland has a very poor suite of understorey species and a low percentage groundcover, with a very poor representation of native grasses and other herbaceous species. Sheet erosion and bare soil areas are prevalent.

4. **Whether any of the listed characteristic species occur (including as part of the soil seedbank)**
   Native shrub species indicative of the Yellow Box – Red Gum EEC exist but in very low population numbers.

   A soil seedbank may exist and germination may occur but the heavy grazing has to date, suppressed regeneration over much of the property. Little seed would predictably occur in the soil as the site has been overgrazed and the soil compacted by concentrated domestic animal activity, and sheet erosion is evident.

5. **If the site is degraded, whether there is potential for assisted natural regeneration of the overstorey or understorey.**
   The extant Yellow Box trees would benefit greatly by fencing-off and protection from grazing, but regeneration would take many years to occur as the soil borne seed reserves would be very depleted or non-existent. Protection would best be provided to the mature-age paddock trees that would be the source of seed for regeneration but any regeneration of the woodland tree species would be very slow. The very depleted shrub understorey would only regenerate to an understorey shrubbery from the slow incursion of seed from sources outside of the property and hence would similarly be very slow even after grazing pressure is removed.

The above indicates that the Box Gum woodland on the Luton property potentially could meet the criteria for the endangered ecological community but will not do so until a shrub understorey and a good herbaceous groundstorey is restored. This predictably will never occur, due to the lack of soil borne seed sources and the continuing heavy kangaroo grazing pressure. Regeneration would require removal of grazing and considerable and long-term restoration of the native species shrub

understorey and the native herbaceous groundcover from its current highly degraded condition. The proposed subdivision as such, will not have a significant impact on the woodland as it currently exists.