

# **FLORA AND FAUNA ASSESSMENT**

## **REDEVELOPMENT OF WAGGA BASE HOSPITAL STURT HIGHWAY, WAGGA WAGGA CITY OF WAGGA WAGGA**



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## 1.0 Introduction

This Flora and Fauna Assessment was commissioned by LFA (Pacific) Pty Limited of Sydney on behalf of the Wagga Wagga Base Hospital Redevelopment. The purpose of the report is to describe the flora and fauna of the study area and to provide an assessment of the potential impact of the proposed development

The report contains:

1. a description of the vegetation and a list of plant species observed on the study area;
2. a description of the animal habitats and a list of the animal species observed on the study area;
3. an assessment of the potential impact of the development proposal on flora and fauna, including:
  - species, populations and communities listed under the New South Wales *Threatened Species Conservation Act 1995*;
  - matters of national environmental significance listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*; and
4. a discussion of measures that could be taken to reduce the impact of the development on flora and fauna.

## 2.0 The Study Area

The **study area** means the area of land that is likely to be affected by the proposal, either directly or indirectly and extends as far as is necessary to take all potential impacts into account. This definition is consistent with the DECC (2007) assessment guidelines. The study area is the site occupied by Wagga Base Hospital, located in the Sturt Highway, Wagga Wagga; see **Figure 1**. The land is level and highly developed, set within the urban environment of the City of Wagga Wagga.



**Figure 1. The Study Area.**

### 3.0 Survey Methods

A flora and fauna survey was undertaken in the study area on 21 June 2011. Bearings were taken from a colour aerial photograph showing the extent of the hospital area and the plan in the arborist's report (Somewhere Landscape Architects 2011). The purpose of the survey was to describe the vegetation, to record as many as possible of the plant species present and to search for threatened plant species and communities. The survey covered the whole of the study area.

In addition to the field survey, information was sought in various places regarding the flora and fauna of the Wagga Wagga area, particularly threatened species.

### 4.0 Flora

The grounds of Wagga Wagga Hospital are a completely modified environment; there is no natural vegetation and almost no native plants on the site. Planted exotic trees, gardens and mown lawn are the vegetation on the site. Planted trees are the dominant feature on the site; these have been documented in the arborist's report by Somewhere Landscape Architects (2011). That report contains a plan and a schedule of the trees on the hospital site; these trees are summarised in **Table 1**. Most of the trees are deciduous and only three are Australian natives.

**Table 1**  
**Trees documented in the Arborist's Report**

Species	Common Name	No.
<i>Acer negundo</i>	Box Elder	1
<i>Alnus jorullensis</i>	Evergreen Alder	13
<i>Arbutus unedo</i>	Irish Strawberry Tree	3
<i>Casuarina cunninghamiana</i> <sup>1</sup>	River Oak	1
<i>Cupressus funebris</i>	Weeping Chinese Cypress	1
<i>Cupressus macrocarpa</i>	Monterey Cypress	2
<i>Cupressus glabra</i> 'Limelgiht'	Arizona Cypress	7
<i>Eucalyptus</i> sp.	Gum	1
<i>Fraxinus angustifolia</i> 'raywood'	Claret Ash	3
<i>Fraxinus angustifolia</i>	Desert Ash	3
<i>Fraxinus excelsior</i> 'Aurea'	Golden Ash	2
<i>Fraxinus</i> sp.	American Ash	1
<i>Grevillea robusta</i>	Silky Oak	3
<i>Liquidambar styraciflua</i>	Liquidambar	3
<i>Liriodendron tulipifera</i>	Tulip Tree	2
<i>Phoenix canariensis</i>	Canary Island Date Palm	2
<i>Prunus x blireana</i>	Flowering Plum	2
<i>Quercus rubra</i>	Red Oak	1
<i>Salix chilensis</i>	Chilean Willow	1

1. Incorrect name used in arborist's report.

Smaller trees and shrubs, nearly all exotic species, are not documented in the above report but occur throughout the site. Most of these are in gardens around the buildings. Some of the plantings are of "native" species, including the trees River Oak *Casuarina cunninghamiana* and Silky Oak *Grevillea*

*robusta*, and other species such as Bottlebrushes *Callistemon* spp., Native Sarsaparilla *Hardenbergia violacea*, Flax-lily *Dianella* sp. and Bracelet Honeymyrtle *Melaleuca armillaris*.

A small list of indigenous and naturalised plants was recorded on the site; see **Table 2**. The garden plantings include species such as Nandina *Nandina domestica*, Agapanthus *Agapanthus praecox* ssp. *orientalis*, Diosma *Coleonema pulchrum* and Camellia *Camellia* spp.

**Table 2**  
**Indigenous and Naturalised Plants**

Species	Common Name
<i>Arctotheca calendula</i> *	Capeweed
<i>Bromus cartharticus</i> *	Prairie Grass
<i>Cirsium vulgare</i> *	Spear Thistle
<i>Cotula australis</i>	Common Cotula
<i>Dichondra repens</i>	Kidney Weed
<i>Gamochaeta ? americana</i> *	American Cudweed
<i>Hypochaeris radicata</i> *	Flatweed
<i>Modiola caroliniana</i> *	Red-flowered Mallow
<i>Paronychia brasiliensis</i> *	Chilean Whitlow Wort
<i>Poa bulbosa</i> *	Bulbous Bluegrass
<i>Polygonum aviculare</i> *	Wireweed
<i>Sonchus asper</i> subsp. <i>glaucescens</i> *	Prickly Sowthistle
<i>Sporobolus africanus</i> *	Parramatta Grass
<i>Stellaria media</i> *	Chickweed
<i>Taraxacum officinale</i> *	Dandelion
<i>Trifolium repens</i> *	White Clover

\* Introduced (weed) species.

Planted trees occur along the footpaths to the north (Sturt Highway) and west (Docker Street) of the hospital land. To the north there is a row of London Plane Trees *Platanus x acerifolia* and to the west a mixed planting of the native Kurrajong *Brachychiton populneus* and Desert Ash *Fraxinus angustifolia*.

## 5.0 Fauna

The animal species occurring in the area are typical of inland towns and are a mix of native and introduced species. Only a few bird species were observed during the survey (see below), although various other species no doubt pass through the site from time to time. The artificial habitats present are not favourable in attracting native animals. Few of the planted trees have value for foraging by native animals and no tree hollows (used for roosting and breeding) were found in these trees.

Australian Magpie	<i>Gymnorhina tibicen</i>
Common Starling*	<i>Sturnus vulgaris</i>
Crested Pigeon	<i>Ocyphaps lophotes</i>
Galah	<i>Cacatua roseicapilla</i>
House Sparrow*	<i>Passer domesticus</i>
Red Wattlebird	<i>Anthochaera carunculata</i>

## 6.0 Potential for Threatened Species, Populations and Communities

### 6.1 Threatened Species

Threatened species in New South Wales are listed on schedules in the New South Wales *Threatened Species Conservation Act 1995* (TSC Act), where they are classified as "critically endangered" (Schedule 1A, Part 1), "endangered" (Schedule 1, Part 1), "vulnerable" (Schedule 2) or "presumed extinct" (Schedule 1, Part 4). Nationally threatened species are similarly listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Information on the occurrence of threatened species in New South Wales is available online from the NSW Wildlife Atlas, maintained by the NSW Office of the Environment and Heritage. The Wildlife Atlas was interrogated for records of threatened species previously recorded in the local area; in this case the area is the Wagga Wagga local government area.

The following threatened plants have been recorded within Wagga Wagga local government area (source: NSW Wildlife Atlas, 16 June 2011; see **Appendix 1**); the number in brackets is the number of local records. No threatened plant species were recorded in the study area and none are expected to occur there given the complete modification of the site and lack of natural vegetation.

Claypan Daisy	<i>Brachyscome muelleroides</i> (1)
Dwarf Bush-pea	<i>Pultenaea humilis</i> (2)
Mountain	Swainson-pea <i>Swainsona recta</i> (2)
Woolly Ragwort	<i>Senecio garlandii</i> (2)
Yass Daisy	<i>Ammobium craspedioides</i> (3)

The threatened animal species recorded for the Wagga Wagga local government area are listed in **Appendix 1**. The following species are nomadic/migratory and may occur on the site very occasionally; the habitat there is not really suitable for these or any other species listed in **Appendix 1**. There is virtually no foraging resources on the site (e.g. flowering trees) for these species. The figures in brackets indicate the number of records in Wagga Wagga LGA.

Eastern Bentwing Bat	<i>Miniopterus schreibersii oceanensis</i> (1)
Gang-gang Cockatoo	<i>Callocephalon fimbriatum</i> (12)
Regent Honeyeater	<i>Xanthomyza phrygia</i> (2)
Superb Parrot	<i>Polytelis swainsonii</i> (83)
Swift Parrot	<i>Lathamus discolor</i> (40)
Turquoise Parrot	<i>Neophema pulchella</i> (27)

### 6.2 Migratory Species

In addition to threatened species, the EPBC Act provides for the listing of internationally protected migratory species, i.e. species listed under the Japan - Australia Migratory Bird Agreement (JAMBA), the China - Australia Migratory Bird Agreement (CAMBA) and the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention). Various internationally protected migratory species occur in the area from time to time, but there is no important habitat on the site for such species and the habitat on the site is not likely to support an ecologically important proportion of a population of such species.

### 6.3 *Endangered Ecological Communities*

Endangered ecological communities in New South Wales are listed under the TSC Act (Schedule 1, Part 3). Nationally threatened ecological communities are listed under the EPBC Act. No natural vegetation occurs on the hospital site so that no endangered ecological communities occur on there.

### 6.4 *Endangered Populations*

Endangered populations in New South Wales are listed under the TSC Act (Schedule 1, Part 2). There are no provisions under the EPBC Act for the listing of endangered populations. No endangered populations on the study area.

## 7.0 *Impact of the Proposed Development*

### 7.1 *Impact on Native Vegetation and Habitat*

The proposed redevelopment of the Wagga Wagga Base Hospital will not involve clearing any native vegetation or natural habitats, nor habitats of any importance to native plants or animals. The site is most unattractive to the vast majority of native animals. The planted trees, etc. provide little in the way of foraging resources for native birds and there are almost no breeding resources (e.g. hollow-bearing trees). The buildings are modern and well maintained; they are not likely to be utilised by bats for roosting. Nor are there many other artificial structures, e.g. drains, that could be used by roosting bats.

### 7.2 *Impact on Threatened Species, Populations and Communities*

Under the provisions of the *Threatened Species Conservation Act 1995* (TSC Act), the impact of a proposed action, development or activity on species, populations and communities (and their habitats) is assessed by applying various factors set out under Section 5A of the *New South Wales Environmental Planning and Assessment Act 1979* (EPA Act). Commonly referred to as the "seven part test", these factors assist the proponent and the determining authority to decide whether the impact is likely to be significant and whether a Species Impact Statement (SIS) should be prepared.

#### **Assessment under the TSC Act**

The "seven part test" is considered below to assist in determining whether the proposed development is likely to have a significant effect on species, populations and communities (and their habitats) listed under the TSC Act. In addressing the 'seven part test of significance', consideration has been given to those matters discussed in the document titled "Threatened Species Assessment Guidelines. The Assessment of Significance" prepared by the Department of Environment and Climate Change in August 2007. Extracts from that document are provided below where relevant to clarify interpretation of the significance assessment. The Guidelines use two important terms when discussing assessment procedures.

**Subject site** means the area directly affected by the proposal.

**Study area** means the subject site and any additional areas which are likely to be affected by the proposal, either directly or indirectly. The study area should extend as far as is necessary to take all potential impacts into account.

(a) *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 of extinction*



The Guidelines define the following relevant terms:

**Life cycle:** the series of stages of reproduction, growth, development, ageing and death of an organism.

**Viable:** the capacity to successfully complete each stage of the life cycle under normal conditions.

**Local population** the population that occurs in the study area. The assessment of the local population may be extended to include individuals beyond the study area if it can be clearly demonstrated that contiguous or interconnecting parts of the population continue beyond the study area, according to the following definitions:

- The *local population* of a threatened *plant* species comprises those individuals occurring in the study area or the cluster of individuals that extend into habitat adjoining and contiguous with the study area that could reasonably be expected to be cross-pollinating with those in the study area.
- The *local population* of *resident fauna* species comprises those individuals known or likely to occur in the study area, as well as any individuals occurring in adjoining areas (contiguous or otherwise) that are known or likely to utilise habitats in the study area.
- The *local population* of *migratory or nomadic fauna* species comprises those individuals that are likely to occur in the study area from time to time.

In cases where multiples populations occur in the study area, each population should be assessed separately.

**Risk of extinction:** the likelihood that the local population will become extinct either in the short-term or in the long-term as a result of direct or indirect impacts on the viability of that population.

No threatened plants occur on the hospital site. An assessment of all previously recorded threatened animal species in the Wagga Wagga local government area found that no species would find suitable habitat on the site. The redevelopment of the hospital is therefore not 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 of extinction.

*(b) 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 Guidelines note that:

This factor is essentially identical to factor (a) except that it refers only to endangered populations listed in Part 2 of Schedule 1 of the TSC Act and Part 2 of Schedule 4 of the FM Act, whereas factor (a) refers to species.

The proposed development is not likely to have an adverse effect on the life cycle of any endangered population. No endangered populations occur on the hospital site.

*(c) in the case of an endangered ecological community or critically endangered ecological community, whether the action 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*

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

The Guidelines define the following important terms:

**Local occurrence:** the ecological community that occurs within the study area. However the local occurrence may include adjacent areas if the ecological community on the study area forms part of a larger contiguous area of that ecological community and the movement of individuals and exchange of genetic material across the boundary of the study area can be clearly demonstrated.

**Risk of extinction:** similar to the meaning set out in factor (a), this is the likelihood that the local occurrence of the ecological community will become extinct either in the short term or in the long-term as a result of direct or indirect impacts on the ecological community, and includes changes to ecological function.

**Composition:** both the plant and animal species present, and the physical structure of the ecological community. Note that while many ecological communities are identified primarily by their vascular plant composition, an ecological community consists of all plants and animals as defined under the TSC and FM Acts that occur in that ecological community.

No endangered ecological communities occur on the hospital site.

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

*(iii) 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*

The Guidelines define the following relevant terms:

**Habitat:** the area occupied, or periodically or occasionally occupied, by any threatened species, population or ecological community and includes all the different aspects (both biotic and abiotic) used by species during the different stages of their life cycles.

**Extent:** the physical area removed and/or to the compositional components of the habitat and the degree to which each is affected.

**Importance:** related to the stages of the species' life cycles and how reproductive success may be affected.

**Locality:** the same meaning as ascribed to local population of a species or local occurrence of an ecological community.

No threatened species, endangered populations or endangered ecological communities occur on the hospital site.

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

The Guidelines note that:

This factor is aimed at assessing whether the proposal is likely to affect (directly or indirectly) areas of critical habitat present in the study area. Critical habitat refers only to those areas of land listed in the following registers:

- The Register of Critical Habitat kept by the Director General, DECC  
[[www.nationalparks.nsw.gov.au/npws.nsw/content/critical+hjabitat+protection](http://www.nationalparks.nsw.gov.au/npws.nsw/content/critical+hjabitat+protection)]
- The Register of Critical Habitat kept by the Director General, DPI  
[[www.fisheries.nsw.gov.au/threatened\\_species/general/register\\_of\\_critical\\_habitat](http://www.fisheries.nsw.gov.au/threatened_species/general/register_of_critical_habitat)]

Critical habitat refers only to those areas of land listed in the Registers of Critical Habitat. No critical habitat has been declared on the study area.

*(f) whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan*

In regard to this factor, the *Guidelines* note that

When deciding whether the proposal is consistent with the objectives or actions of a recovery plan or threat abatement plan, applicants/proponents must consider all relevant approved recovery plans and threat abatement plans.

In 2004 amendments were made to the TSC Act and the FM Act that remove the mandatory requirement to prepare recovery plans and threat abatement plans, and instead requires the preparation of a *threatened species priorities action statement* (TSC Act s. 90A and FM Act s. 220ZVA).

The priorities action statements will set out the measures required to promote the recovery of each threatened species, population and ecological community to a position of viability in nature and for managing each key threatening process. In applying this factor, consideration should be given to measures outlined in the priorities action statements as well as existing recovery plans and threat abatement plans which will remain in place.

There are no relevant recovery plans. No relevant threat abatement plans have been prepared.

*(g) whether the action proposed constitutes or 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.*

The Guidelines state that:

In addition to deciding whether the action/activity constitutes a KTP, consideration must also be given to whether the proposal is likely to exacerbate a KTP. Species listed in the determination as being 'at risk' warrant particular consideration if these species are known or likely to occur within the study area of the development or activity.

Key threatening processes in New South Wales are listed under the *Threatened Species Conservation Act 1995* (TSC Act) and *Fisheries Management Act 1994* (FMA Act). Key threatening processes are the things that threaten, or could threaten, the survival or evolutionary development of species, populations or ecological communities. The listed threatening processes can be divided into several categories.

**Key threatening processes** are the things that threaten - or could threaten - the survival or evolutionary development of species, populations or ecological communities. They are listed in the *Threatened Species Conservation Act*, and include:

**Pest animals.** Introduced animal species can compete with, and prey upon, native animals. They can also damage native plants and degrade natural habitats.

**Weeds.** Weeds compete with native plants for resources such as light and nutrients. They can aggressively invade areas, displacing native plants and animals.

**Diseases.** Exotic fungal infections, viruses and other pathogens can weaken and kill native species.

**Habitat loss/change.** From large-scale land clearing to the gathering of bushrock for suburban gardens, humans have degraded many native environments across the state.

This development on the hospital site does not involve any key threatening process.

### Conclusion of Significance Assessment

The Guidelines make the following comments in regard to forming a conclusion about the significance of the potential impact on threatened species, etc.

The threatened species assessment of significance should **not** be considered a 'pass or fail' test. Instead, consideration of the factors will inform the decision-making process of the likelihood of significant effect. Where necessary, the process will trigger further assessment in the form of a species impact statement.

All factors should be considered as well as any other information deemed relevant to the assessment. The assessment of significance should not be used as a substitute for a species impact statement. Application of the precautionary principle requires that a lack of scientific certainty about the potential impacts of an action does not itself justify a decision that the action is not likely to have a significant impact. If information is not available to conclusively determine that there will not be a significant impact on a threatened species, population or ecological community, or its habitat, then it should be assumed that a significant impact is likely and a species impact statement should be prepared.

Proposed measures that mitigate, improve or compensate for the action, development or activity should not be considered in determining the degree of the effect on threatened species, populations or ecological communities, unless the measure has been used successfully for that species in a similar situation.

In our opinion, the redevelopment of Wagga Wagga Base Hospital is not likely to have a significant effect on any threatened species, populations or communities listed under the *Threatened Species Conservation Act 1995*, or their habitats, and the preparation of a Species Impact Statement (SIS) is not warranted.

### Assessment under the EPBC Act

The impact of a proposed action on matters of national environmental significance is assessed under the provisions of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Matters of national environmental significance are World Heritage properties, National Heritage places, wetlands of international importance (RAMSAR wetlands), threatened species and ecological communities listed under the EPBC Act, migratory species listed under the EPBC Act, Commonwealth marine environment, and nuclear actions (including uranium mining).

An "action" is a project, a development, an undertaking, an activity or a series of activities, and an alteration of any of the above. An action can be on Commonwealth land, State land council land, private land, or water. Approval is required from the Commonwealth Environment Minister for actions that are likely to have a significant impact on a matter of national environmental significance; these are called "controlled actions". A proposed action is a "controlled action" if:

- is likely to have a significant impact on a matter of national environmental significance,
- is likely to have a significant impact on the environment of Commonwealth land,
- is to be undertaken on Commonwealth land and is likely to have a significant impact on the environment anywhere, and
- is an action to be taken by the Commonwealth that is likely to have a significant impact on the environment anywhere.

Only the Commonwealth can advise definitively whether a proposed action is a controlled action; however, the Department of the Environment and Heritage has prepared guidelines to facilitate a self-assessment process to help proponents decide whether an action is likely to be a controlled action that should be referred to the Minister for assessment and approval. The *Significant Impact Guidelines: Matters of National Environmental Significance* (DEH May 2006) is used to assess the impact on matters of national environmental significance under the EPBC Act.

The following questions in the *Significant Impact Guidelines* (DEH 2006) must be addressed when deciding whether or not to refer a proposed action to the Commonwealth Minister for the Environment:

1. Are there any matters of national environmental significance located in the area of the proposed action (noting that 'the area of the proposed action' is broader than the immediate location where the action is undertaken; consider also whether there are any matters of national environmental significance adjacent to or downstream from the immediate location that may potentially be impacted)?
2. Considering the proposed action at its broadest scope (that is, considering all stages and components of the action, and all related activities and infrastructure), is there potential for impacts, including indirect impacts, on matters of national environmental significance?
3. Are there any proposed measures to avoid or reduce impacts on matters of national environmental significance (and if so, is the effectiveness of these measures certain enough to reduce the level of impact below the 'significant impact' threshold)?
4. Are any impacts of the proposed action on matters of national environmental significance likely to be significant impacts (important, notable, or of consequence, having regard to their context or intensity)?

An action must be referred to the Commonwealth Minister if the action has, will have, or is likely to have a significant impact on matters of national environmental significance. In addition to setting out "significant impact criteria" for the various matters of national environmental significance, e.g. endangered species, vulnerable species, endangered ecological communities and listed migratory species, the *Guidelines* provide the following important definitions.

"A *significant impact* is an impact which is important, notable, or of consequence, having regard to its context or intensity. Whether or not an action is likely to have a significant impact depends upon the sensitivity, value, and quality of the environment which is impacted, and upon the intensity, duration, magnitude and geographic extent of the impacts. You should consider all of these factors when determining whether an action is likely to have a significant impact on matters of national environmental significance."

"To be *likely*, it is not necessary for a significant impact to have a greater than 50% chance of happening, it is sufficient if a significant impact on the environment is a real or not remote chance or possibility."

"*Population*, in relation to critically endangered, endangered or vulnerable, threatened species, means:

- a geographically distinct regional population, or collection of local populations; or

- a regional population, or collection of local populations occurring within a particular bioregion."

"An *important population* is a population that is necessary for a species' long-term survival and recovery. This may include populations identified as such in recovery plans, and/or that are:

- key source populations either for breeding or dispersal,
- populations that are necessary for maintaining genetic diversity, and/or
- populations that are near the limit of the species' range.

"*Habitat critical to the survival of a species or ecological community*" refers to areas that are necessary:

- for activities such as foraging, breeding, roosting, or dispersal;
- for the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators);
- to maintain genetic diversity and long term evolutionary development, or
- for the reintroduction of populations or recovery of the species or ecological community."

Such habitat may be, but is not limited to: habitat identified in a recovery plan for the species or ecological community as habitat critical for that species or ecological community; and/or habitat listed on the Register of Critical Habitat maintained by the Minister under the EPBC Act.

An assessment of the matters of national environmental significance known and likely to occur in the Wagga Wagga area (species and communities) found that no matters are likely to occur on the hospital site. At the very most, one of the bird species listed earlier in this report could incidentally fly through the site.

### **Conclusion, EPBC Act**

In our opinion, the redevelopment of Wagga Wagga Base Hospital is not likely to have a significant impact on matters of national environmental significance listed under the *Environment Protection and Biodiversity Conservation Act*. Referral to the Commonwealth Minister for the Environment for assessment and approval is therefore not warranted.

## **8.0 Conclusion and Recommendations**

This study and report has identified, described and assessed the flora and fauna on the site of Wagga Wagga Base Hospital where it is proposed to undertake a major redevelopment of the hospital. The hospital is located on completely cleared and highly modified land in an urban setting. The site does not provide any important habitat for native plants and animals, including threatened species.

In our opinion, the redevelopment of the hospital is not likely to have a significant effect on any threatened species, populations or communities listed under the *Threatened Species Conservation Act 1995*, or on matters of national environmental significance. Hence the preparation of a Species Impact Statement (SIS) is not warranted and nor is referral to the Commonwealth Minister for the Environment for assessment and approval.

### **Recommendations**

- (i) Landscaping of the site should use some local native plants to attract native fauna. Flowering shrubs and trees are the most valuable.
- (ii) The exotic shrub *Cotoneaster* is an environmental weed and should be removed from the site and not used in landscaping.

## **9.0**    **References**

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**Appendix 1**

**Threatened Species Recorded in the Wagga Wagga Local Government Area**

Source: NSW Wildlife Atlas, 16 June 2011.

<b>Plants</b>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Legal Status</u>	<u>Count</u>
	<i>Ammobium craspedioides</i>	Yass Daisy	V	3
	<i>Brachyscome muelleroides</i>	Claypan Daisy	V	1
	<i>Senecio garlandii</i>	Woolly Ragwort	V	2
	<i>Pultenaea humilis</i>	Dwarf Bush-pea	V	2
	<i>Swainsona recta</i>	Mountain Swainson-pea	E1	2

<b>Amphibia</b>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Legal Status</u>	<u>Count</u>
	<i>Litoria booroolongensis</i>	Booroolong Frog	E1	1
	<i>Litoria raniformis</i>	Southern Bell Frog	E1	2

	<i>Crinia sloanei</i>	Sloane's Froglet	V	2
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<b>Aves</b>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Legal Status</u>	<u>Count</u>
	<i>Pyrrholaemus saggitatus</i>	Speckled Warbler	V	29
	<i>Circus assimilis</i>	Spotted Harrier	V	6
	<i>Hieraaetus morphnoides</i>	Little Eagle	V	47
	<i>Stictonetta naevosa</i>	Freckled Duck	V	1
	<i>Burhinus grallarius</i>	Bush Stone-curlew	E1	5
	<i>Cacatua leadbeateri</i>	Major Mitchell's Cockatoo	V	2
	<i>Callocephalon fimbriatum</i>	Gang-gang Cockatoo	V	12
	<i>Calyptorhynchus lathami</i>	Glossy Black-Cockatoo	V	2
	<i>Climacteris picumnus</i>	Brown Treecreeper	V	1026
	<i>Climacteris picumnus victoriae</i>	Brown Treecreeper (eastern subspecies)	V	6
	<i>Stagonopleura guttata</i>	Diamond Firetail	V	26
	<i>Grus rubicunda</i>	Brolga	V	7
	<i>Epthianura albifrons</i>	White-fronted Chat	V	11
	<i>Melithreptus gularis gularis</i>	Black-chinned Honeyeater (eastern subspecies)	V	20
	<i>Xanthomyza phrygia</i>	Regent Honeyeater	E1	2

	<i>Daphoenositta chrysoptera</i>	Varied Sittella	V	15
	<i>Pachycephala inornata</i>	Gilbert's Whistler	V	5
	<i>Melanodryas cucullata</i>	Hooded Robin	V	13
	<i>Petroica boodang</i>	Scarlet Robin	V	32
	<i>Petroica phoenicea</i>	Flame Robin	V	13
	<i>Pomatostomus temporalis temporalis</i>	Grey-crowned Babbler (eastern subspecies)	V	7
	<i>Glossopsitta pusilla</i>	Little Lorikeet	V	13
	<i>Lathamus discolor</i>	Swift Parrot	E1	40
	<i>Neophema pulchella</i>	Turquoise Parrot	V	27
	<i>Polytelis swainsonii</i>	Superb Parrot	V	83
	<i>Ninox connivens</i>	Barking Owl	V	8
<b>Mammalia</b>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Legal Status</u>	<u>Count</u>
	<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	V	5
	<i>Petaurus norfolcensis</i>	Squirrel Glider	V	69
	<i>Petaurus norfolcensis</i>	Squirrel Glider in the Wagga Wagga Local Government Area	E2	69
	<i>Phascolarctos cinereus</i>	Koala	V	12
	<i>Macrotis lagotis</i>	Bilby	E4	2
	<i>Miniopterus schreibersii oceanensis</i>	Eastern Bentwing-bat	V	1
	<i>Myotis macropus</i>	Southern Myotis	V	1
	<i>Vespadelus baverstocki</i>	Inland Forest Bat	V	1
<b>Reptilia</b>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Legal Status</u>	<u>Count</u>
	<i>Delma impar</i>	Striped Legless Lizard	V	1