APPENDIX "C"

Assessment of Faunal Impact
Proposed Rezoning, Nebraska Estate,
St Georges Basin.
City of Shoalhaven

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Table of Contents

1. Introduction

This study was commissioned by council to

- describe the endangered fauna and the environment of endangered fauna found in that part of Nebraska Estate north of Pelican Road
- assess the impacts of various development options on that fauna.
- assess the impacts of those same options on the functioning of a wildlife corridor which encompasses Nebraska Estate.

Throughout this report "endangered fauna" refers to those species listed as "threatened" or "rare and vulnerable" in Schedule 12 of the National Parks and Wildlife Act, 1974. "Protected Fauna" refers to any native bird, mammal (except the Dingo), reptile or frog in NSW.

2. Description of the Study Area

The study area is a part of DP 9699, covering an area of approximately 30ha north of Pelican Road in the St Georges Basin locality. The land is gently undulating falling into an ephemeral creek which runs roughly north-south.

Apart from the dirt roads which surround the estate, numerous vehicle tracks bisect it. The site was logged in the 1970s. Various degrees of further clearing, ranging from removal of all vegetation to selective underscrubbing, has also occurred on most of the lots.

The estate is surrounded by intact native vegetation to the north. To the east, south and west are rural residential areas with varying degrees of clearing.

3. Methodology and Results

The site and the bushland to its north were surveyed over the period 23/9/94 to 26/9/94. Weather during this period was fine and dry. Temperatures, as measured on site, ranged from a minimum of 3°C at night to 21°C in mid-afternoon.

Prior to survey literature relevant to the site and general area (Andrews Neil, 1994; Hassell Planning Consultants, 1994; Mills, 1992; Nexus Environmental Planning, 1994; Symbiosis, 1993) was reviewed to allow targeting of methodology for endangered species likely to occur on the site. Methodology used for the species thought likely to occur is as follows:

Yellow-bellied Glider

Nocturnal searches for this species were carried out in suitable habitat using a 12 volt 50 watt spotlight for a period of 2 hours over three

consecutive nights. In addition to this, daytime searches for indirect evidence of gliders (scats, scarring of trees) were done.

Two individuals were observed during the third night of the spotlight survey. Both were in red mahoganies: one just to the north of Nebraska Road and the other in an underscrubbed section of Portion 78.

Sugar gliders, ring-tailed possums, grey-headed flying-foxes and a southern boobook were also observed during spotlight searches.

Southern Brown Bandicoot

10 Medium sized Elliot traps were set in suitable habitat throughout the study area and baited with a mixture of peanut butter, rolled oats and honey. This was done over a period of three nights.

Trapping only revealed the presence of bush rats (*Rattus fuscipes*) and brown antechinus (*Antechinus stuartii*). No bandicoot diggings were observed and it is concluded the species does not occur in the study area.

Insectivorous Bats

Not covered in this survey. Andrews Neil (1994) found the endangered common bent-wing bat (*Miniopterus schreibersii*) just north of Nebraska Road.

Glossy Black Cockatoo

Apart from attempts at direct observation, indirect evidence (e.g. chewed she-oak cones) as to the presence of this species were searched for. An assessment of the likelihood of this species use of the study area was made on the presence/absence of habitat requirements.

Although not detected during this survey the glossy black cockatoo was observed on the site previously (Andrews Neil 1994) and not far south-east in Pillaiien Estate (personal observations). Likely to use the site as part of a large range.

Powerful Owl and Masked Owl

Tapes of these species' calls were played within two hours after sundown. 30 minutes was allowed for responses to the tapes. During the day searches were done of likely roost/nest areas in an effort to detect presence.

Neither species was detected during this survey but both are likely to use the site due to the presence of arboreal mammals.

Green and Golden Bell Frog
This species was searched for at night by listening for calls and testing responses to playback tapes. This was done along the creek which although mostly dry had a few large pools. Likely sheltering areas around the creek were searched during daylight hours.

Not detected during this survey or the survey by Andrews Neil (1994)

4 Endangered Fauna and Their Habitat

4.1 Habitat Description

Vegetation
The vegetation communities occurring on the estate is mostly of an open forest/woodland structure (following Specht, 1970) The dominant tree species are on the drier slopes are red bloodwood (*Eucalyptus gummifera*, red mahogany (*E resinifera*), and turpentine (*Syncarpia glomulifera*). Many blackbutts (*E pilularis*) would have been removed by loggers though there remain a few large specimens as well as many re growth trees.

Where underscrubbing has not occurred there is a shrub layer with a range of species present. Common shrubs are hairpin banksia (*Banksia spinulosa*), and paperbark tea-tree (*Leptospermum trinervium*) Common in the groundcover layer are the herb *Gonocarpus teucroides*, kangaroo grass (*Themeda australis*) and wiry panic (*Entolasia stricta*). In some areas there is a thick understorey to 8m tall of black she-oak (*Allocasuarina littoralis*) which has caused a decrease in the variety of species below it.

Along the flood prone areas the vegetation is quite different and is dominated by bangalay (*Eucalyptus botryoides x saligna*) above thickets of paperbarks (*Melaleuca bracteata* and *M linariifolia*). In some places the creek banks are covered with thick growth of sword sedge (*Gahnia clarkei*).

The bushland north of Nebraska Road shows much the same patterns. However, as it is less disturbed there is a more continuous small tree and shrub layer and many large eucalypts.

Specific Habitat Features

Features of the study area which are likely to contribute to the presence of endangered and protected fauna are:
- the wide variety of shrub species. Some of these require pollination by birds. Others are fed on or pollinated by insects thus providing a food source for insectivorous bats and many birds.

- the variety of canopy species which provide a year-round supply of pollen. For example, red mahoganies were flowering at the time of survey. Both yellow-bellied gliders and grey headed flying-foxes (*Pteropus poliocephalus*) were observed in red mahoganies. Spotted gums flower in winter, bangalays and blackbutts in summer.
- the abundance of black she-oak. This is an important factor contributing to the presence of glossy black cockatoos
- tree hollows of a size suitable for arboreal mammals and birds such as owls and parrots.
- the ephemeral creek. This would provide breeding habitat for a variety of frog species, possibly including the endangered green and golden bell frog.
- thick shrub and groundcover which is favourable to small mammals such as brown antechinus.

It was apparent from the field survey that the bushland north of Nebraska Road had a better representation of these habitat features than the estate. For example, underscrubbing has simplified the vegetative structure of much of the estate. This has made the estate less suitable for a range of birds by removal of foraging and nesting resources.

4.2 Discussion of Endangered Species

From the results of the current survey and from reviewing available literature it is concluded the following endangered fauna species occur or are likely to occur in the study area. All of the species discussed are listed in Part 2 "rare and vulnerable" of Schedule 12.

Spotted tailed Quoll

This endangered species may occur on the site. It has been recorded in the Beecroft Peninsula area (Braithewaite et al, 1988) and nearby Cudmirrah Nature Reserve (NPWS, unpublished) It uses a wide range of habitats including swamps and woodlands though it prefers moist forests (D. Andrew personal communication).

Processes that threaten the Spotted tailed Quoll are clearing of forest for agriculture or forestry; fragmentation of habitat by roads, fences and other barriers; siltation of streams; and shooting, trapping and poisoning (Wilson, 1991)

Due to the amount of time involved in an effective survey for this species it was not specifically targeted in this survey. It could use the study area as part of a very large territory. On the north coast of NSW male Spotted-tailed Quolls have been known to move 13kms over three days (Andrew pers comm).

Yellow-bellied Glider

This species occurs in eucalypt forests of eastern Australia. It has a patchy distribution which may be due to local availability of trees with overlapping blossoming periods. Yellow-bellied gliders are usually found in groups of two to five which have home ranges in the order of 30-65ha (Goldingay & Kavanagh, 1991) Its diet consists of sap, nectar, blossom and insects (Russell in Stranan, 1991). The species habitat requirements are well represented along the coast and ranges of NSW, though it is more abundant in tall montane forests than in coastal forests (Kavanagh, 1984).

Processes that threaten the yellow-bellied glider are habitat alteration and fragmentation due to forestry and clearing of privately-owned forests for agriculture (Goldingay & Kavanagh, 1991). Such processes can also be ascribed to the urban/rural-residential expansion and infrastructure augmentation occurring in the Shoalhaven City Council area. The species has a low breeding potential and may have a low capacity to recover from reductions in population size. However, its exceptional mobility (it can travel over 2km in one night - Goldingay & Kavanagh, 1991), may mitigate this. It is not thought domestic pets or electricity wires pose a threat to this species (Allan York personal communication).

Nearby records of the species include Milallen Estate (west of Sussex Inlet), Tomerong Creek; Beecroft Peninsula; Callala Beach; Jervis Bay Nature Reserve and Old Erowal Bay (Braithewaite *et al*, 1988; Sinclair Knight, 1989; AES, 1993; Andrews.Neil, 1993) The species has also been the subject of a fauna impact statement in the Bomaderry area. Large areas of its habitat have been lost to rural-residential and urban development in the Shoalhaven City Council area. Its status could be termed as common but declining on the coastal strip and secure to the west in the state forests and national parks.

During this survey two yellow-bellied gliders were seen in red mahoganies north of Nebraska Road. One was within 10m of Nebraska Road and the other in the cleared section of Portion 78 where scattered trees remain. As the species has home ranges in the order of 30-65ha (Goldingay & Kavanagh, 1991) a den site would be in proximity to the study area if not within it.

Common Bent-wing Bat

This species forages over forested valleys and roosts in caves, mines stormwater channels and buildings (Dwyer, 1983). Bent-wing bats will fly over 50km from their day-time roosts to feed (Hall, 1990). As there is a lack of these habitat requirements in the study area this wide ranging species is likely to be roosting and nesting elsewhere. Processes that threaten microchiropteran bats such as the common bent-wing are loss of

habitat, roosts and food. In particular, aged trees with roosts hollows are a limiting resource (Richards, 1991).

The species has also been recorded at Milallen Estates and at Jervis Bay (Hassell Planning Consultants,1994; Nexus Environmental Planning, 1994).

Powerful Owl

Powerful Owls live solitarily or in pairs and tend to have territories of at least 800-1000ha (Fleay, 1968; Blakers *et al*, 1984). Its preferred habitat is wet and hilly sclerophyll forest with deep gullies adjacent to more open forest where it preys mainly on arboreal mammals. It requires large tree hollows for nesting (Blakers et al, 1984; Hollands, 1991). It also occurs in drier more open areas in Victoria (viz Hollands, 1991; Trail, 1993). In NSW this species is regarded as uncommon and it is found in the following regions: coast, tablelands, south-west slopes and north-west plains (Morris *et al* 1981). This species habitat requirements are well represented along the coast and ranges of the south coast region and NSW in general. Threatening processes to this species are clear-fell forestry and habitat fragmentation.

Nearby records of the species include Nowra, Jervis Bay Nature Reserve, Budawang Nature Reserve, Currambene State Forest and Beecroft Peninsula (Rose, 1995; Braithwaite et al, 1988, ANCA records). Considering the proximity of these records and the species' territorial requirements, the area may be holding near capacity populations.

This species was not detected during this or previous surveys. However, suitable foraging habitat is represented in the study area.

Masked Owl

The masked owl (*Tyto novaehollandiae*) has much the same habitat requirements as the powerful owl though it also hunts around cleared forest edges and preys on ground-dwelling mammals. It is seldom detected probably due to lack of recognition of its call and confusion with the more common barn owl, *Tyto alba*. Its decline is probably related to the decline of native mammals (Blakers *et al*, 1984). Although recorded in all regions of the State it is regarded as uncommon and is apparently more numerous in the east than the west (Morris *et al*,1981).

Regional records include Beecroft Peninsula, Quaama and Kioloa (Braithwaite *et al*, 1988; Morris & Burton, 1994). Suitable habitat for the species is abundant in the region. However, its status at a regional level is indeterminate.

Glossy Black Cockatoo

The glossy black cockatoo (*Calyptorhynchus lathamii*) is an inhabitant of forests and woodlands of the coasts, slopes and ranges of eastern Australia. It feeds almost exclusively on cones of *Casuarina* and *Allocasuarina* plants. This ecological specialisation, the reduction in its population and its poor recovery potential are the reasons it is considered vulnerable and rare in NSW (NPWS, 1992). Although its habitat is well represented in the south coast region and NSW in general, it is likely it will become more scarce along the coastal strip as urban expansion continues.

The species has been recorded in other nearby studies (e.g. AES, 1993; Braithwaite et al, 1988), Cudmirrah Nature Reserve, Kulundi and Murramarrang National Park (Morris & Burton, 1994).

'The Atlas of Australian Birds' (Blakers *et al*, 1984) indicates it is a moderately common breeding resident in the region. It is regarded as moderately common in NSW and has been recorded in all regions except the Upper Western (Morris *et al*, 1981).

The glossy black cockatoo was detected in a survey of the study area in October 1993 (Andrews Neil, 1994) and would be likely to continue to use the area on an irregular basis.

5. Impacts of Development Options on Endangered Fauna

Introduction

In this section the impacts of various development options on endangered fauna are assessed. As the Yellow bellied Glider is a known locally occurring species with a territorial size not much greater than the estate's size, this assessment will concentrate on likely impacts on this species. The yellow-bellied glider is also considered an appropriate target species for designing and managing conservation reserves (Kavanagh, 1991).

The other endangered fauna species likely to occur are powerful owl, masked owl, glossy black cockatoo, tiger quoll and common bent-wing bat. There would be little variation in impact amongst the various options on these species. This is because these species are wide-ranging, or have very large territories, and any development on the site will result in a loss of a small amount of potential habitat. However, it will contribute to the overall pressure of regional development which may lead eventually to localized extinctions.

The three **options** for development limits on the estate are illustrated in Figures A, B &C. These involve a combination of road openings with accompanying services (sewage, electricity).

In this assessment two levels of development on each block have been proferred. **Level 1** development envisages a dwelling house located within a cleared area (for fire hazard management) commencing 10m from the road frontage (leaving an uncleared buffer) and extending a further 60m down the lot. Scattered trees are likely to be retained in the cleared area. This will leave an area of undisturbed bushland 30x20m at the rear of the lot. **Level 2** development envisages clearing of the entire lot with only the 10m buffer retained at the front.

Assessment of Options

Option 1

Level 1
This option will result in a 60m strip of vegetation remaining in the centre of the estate east of Park Road. To reach this area gliders would have to travel along the creek-line and then fan out. Or less likely they could utilise the 10m frontage strip and move along it and into the estate. The width of the retained vegetation may be too narrow to attract gliders. However, if scattered trees are retained in the areas cleared for dwellings, there is more likelihood the gliders will use the estate. From studies in logged areas Goldingay and Kavanagh (1991) concluded that rather than the openness of the forest, glider movement is more likely to be inhibited by tree-spacings greater than normal gliding distance or by unsuitable forest eg regenerating forest devoid of mature trees. The width of the road reserve 10m should not present a barrier to the species.

Therefore, Option 1 with level 1 development could be adopted with appropriate ameliorative strategies. These would include a significant tree survey to accompany the development application of individual lots so that habitat trees and minimum gliding distances are maintained. To mitigate the loss of any large trees by road or service construction telegraph poles could be erected. This method is on trial at Bomaderry (Allan York, pers comm) and the results of that trial would be necessary to adjudge the usefulness of this strategy.

Level 2
Level 2 development would result in the estate being totally unsuitable for this species as there would be removal of a large number of potential resource trees from the glider's habitat area. The only area which would remain suitable for the species would be the flood-prone areas. The increased edge to volume ratio due to clearing would probably make even

this area unfavourable. It would also expose the bushland north of Nebraska Road to more wind-burn and cut down humidity with consequential changes in vegetation and long-term effects on gliders.

Option 2

In this scenario Pelican Road and the eastern section of Nebraska Road are closed and the blocks in that area serviced by a road between them. Access to the western section of the estate is as for option 1 i.e off Grange Road.

Level 1
This will result in a thick perimeter of vegetation in the eastern section linked through the flood prone land to a T-shaped piece of vegetation in the west. As the north-east section of the estate will be more thickly vegetated than in option 1 there will be greater likelihood of glider movement into that area and more protection of the adjacent bushland. Conversely, the narrowness of the retained vegetation elsewhere will mean less movement of the species into those areas. An alternative is to close Nebraska Road east of Waterpark Road thus lessening effects on glider habitat north of Nebraska Road.

Level 2
As for option 1

In that part of the estate west of Waterpark Road, both options 1 and 2 would have little discernible difference in their effect on gliders. Unless a substantial number of trees are retained on the blocks in this section it is unlikely gliders will use it.

Option 3

This option restricts development to those lots fronting Pelican Road plus some off a truncated Waterpark Road. Of the three options this would have the least effect on yellow-bellied gliders conserving a large amount of potential habitat (approx. 8ha). The absence of roads would allow easier movement to and from the north and east with Grange Road being the only major barrier to movement to the west. Level 1 development would also have the effect of further buffering the species from development as opposed to level 2.

6. Impacts of Development Options on the Wildlife Corridor

Introduction

Nebraska Estate lies within a wildlife and habitat corridor which links habitat areas to the east around Jervis Bay with larger habitat areas to the west of the Princes Highway and south of Wandandian Creek. The purpose of this corridor is to link Jervis Bay and Gurumbi Nature Reserves with forested areas to the north of St Georges basin, Yerriyong State Forest and the proposed Parma Creek Nature Reserve (Mills, 1991). The effectiveness of this corridor is already compromised by Princes Highway, the 132kV electricity line and the proposed upgrading of Island Point Road as a major arterial road. In spite of this the corridor within the vicinity of the estate still has considerable intrinsic value as wildlife habitat.

On a localised scale the importance of the study area as part of the corridor has been exacerbated by extensive clearing of parts of Portion 78 to the north of the creek line. Clearing on this block has created a 'bottleneck' in the corridor as well as right-angled bends. Its width north of the eastern half of the estate has been reduced to approximately 200m. If the estate is included its width is about 400m. The length of this constriction is approximately 250m. It then widens to over 600m east and west.

In principal, the wider the corridor the better it will function. Few studies have been done on the effectiveness of corridors but in the current case it is considered that the 200m (minimum) width should be enough to allow continued movement. Recher (cited in Hassell Planning Consultants, 1994) recommends a minimum width of 100m for corridors and that corridors should sample a full range of wildlife resource requirements. The bushland north of Nebraska Road has a wider range, and greater provision, of habitat components than in the estate. It also includes less fragmented examples of all the vegetation communities which occur on the estate. The short length of the constriction plus buffering by limiting development on the estate should mean its effectiveness should not significantly affected by 'sensitive' development of the estate.

There is great variability amongst the species present in their habitat requirements. For species such as the yellow-bellied glider the corridor will be effectively enlarged if sufficient tree cover is retained on the estate. Yellow-bellied gliders have been recorded in corridors more constrictive than the subject corridor (see Kavanagh & Rohan-Jones, 1982) and in this survey one was detected in that part of Portion 78 where only scattered trees remain. Apparently the space between the trees there is sufficient to allow movement.

Other species requiring thicker cover, such as whipbirds and scrub-wrens, will retreat further to the centre of the corridor due to edge effects such as noise and vulnerability to predators. However, even assuming a 50m loss of effective width for such species either side of the corridor, a 100m core width accompanied by buffering should be sufficient considering the constriction's short length.

Another factor when considering the development of the lots is impact on the habitat in the flood prone areas. The creek-line and its margins contain a different habitat type with niches for fauna, especially frogs, not found elsewhere on the estate. The likely use of fertilisers and pesticides by residents of the estate would therefore be a cause for concern. It is proposed that there be a development-free buffer of 25m either side of the flood line.

A highly likely outcome of the development of Nebraska Estate is the introduction of domestic pets which would prey on native fauna. Their movement into the corridor is facilitated by old vehicle tracks which would act as vectors for movement. It is not considered practicable for a council the size of the Shoalhaven City to attempt to control this problem by restrictions on ownership. Rather, an educative process highlighting to local residents the wealth of native fauna in the area and the threat their dogs and cats, excessive clearing and agricultural chemicals pose to native fauna would be a better approach. This could be achieved by including pamphlets with this information in rates notices etc. A regional Landcare or "species care" group could be established to provide a forum for environmental education and conservation projects.

Another factor affecting the diversity of fauna in the corridor is fire frequency. People living in proximity to bushland will lead to increased pressure on local authorities to carry out hazard reduction burning. Generally these are "cool" autumn burns which are done more frequently than in a natural regime. This leads to a simplification of vegetation structure and composition. The shrub layer becomes thinner and species such as blady grass (*Imperata cylindrica*) and bracken (*Pteridium esculentum*) dominate the groundcover. Such an outcome favours few native species (e.g. eastern grey kangaroo and red-necked wallaby) but many introduced species e.g black rat, fox and feral cat. Many native fauna species are disadvantaged e.g. sugar glider, common ringtail possum, bush rat and swamp wallaby (Catling, 1991).

Assessment of Options

Option 1

Of the three options this one will cause the greatest fragmentation of habitat due to the extensive road openings and the narrowing of the

corridor's width. The opening of Nebraska Road will lessen the chance of small mammals, reptiles and frogs crossing into the estate and isolate the populations therein.

The only "new" road will be the extension of Nebraska Road through to Grange Road. However, the widening and sealing of existing dirt roads and provision of services will increase the distance of uncovered vegetation from about 5m to about 10m. This will make it far more difficult for ground mammals (e.g Antechinus, bush rats), reptiles and frogs to pass between the estate and the bushland north of Nebraska Road and make road kills for such species more likely. The construction of power lines along Nebraska Road will be a hazard to arboreal mammals and flying-foxes.

The only area left for such crossings will be the flood prone areas where the road will be left unmade. The opening of Nebraska Road will result in edge effects impacting on the bushland to the north. There is also likely to be community pressure for hazard reduction burning which will simplify the vegetation north of Nebraska Road.

Level 1

Under Level 1 development, a T-shaped parcel of retained vegetation would result in the area between Pelican and Nebraska Roads. This would have a maximum width of 60m and be subject to heavy edge disturbance. The likely result of this would be a diminution in the variety of species present. Those species better adapted to edge environments (e.g kookaburras, large honeyeaters, grey kangaroos) would drive out those requiring thicker cover e.g fantails, whistlers, swamp wallabies. However, as opposed to Level 2 development, Level 1 would allow the movement of fauna especially arboreal mammals, from the south-west corner of DP 435531 through the estate.

Level 2

Level 2 development under option 1 would narrow the corridor's width to 200m in its constricted section. Edge effects would also be exacerbated as there would be no buffer. Exposure to wind-burn and human and domestic pet encroachment would be likely outcomes. The effective width of the corridor for more sensitive species would be down to 100m. Therefore, level 2 development should not be adopted for options 1 or 2.

Option 2

Level 1

This option would create a mosaic of cleared and uncleared vegetation throughout the estate. The narrowness of these strips will mean less movement of fauna into those areas. The 30m strips of retained vegetation would be under heavy edge pressures and it would be unlikely they would be

left intact. The exception to this is the eastern end of Nebraska Road which would remain closed and would have a 30m retained vegetation strip along its southern edge. This would effectively buffer the corridor in this area from some edge effects. North of the western section of Nebraska Road the corridor broadens to approximately 600m. Therefore, the edge effect of constructing that section of Nebraska Road is not as detrimental

Level 2
This would have much the same effect on the functioning of the corridor as in option 1.

Option 3

This option would be the most desirable in terms of habitat conservation and the continued function of the corridor as habitat. It would result in the corridor being in the order of 300m width at its narrowest point. A number of the lots fronting Nebraska Road have already been partly cleared or underscrubbed. However, regeneration is evident on many of these and they would eventually recover. Level 1 development of the Pelican Road lots would add a 30m buffer to the corridor as opposed to level 2 development. For this option there is little difference in likely outcome of the two levels of development.

7. Conclusions and Recommendations

To maximise the width of the wildlife corridor and minimise impacts on the local yellow-bellied glider population option 3 should be adopted.

If options 1 and 2 were to be adopted they must be done within strict guidelines ensuring level 1 development is enacted and maintained. Legal instruments available are restrictions on title as to user and conservation agreements with the NPWS. The following ameliorative strategies would also have to be adopted:

- all power lines be placed underground
- planting of all road edges with fast growing eucalypts e.g spotted gum, and other food trees especially *Acacia* species. On a number of blocks the proposed retained vegetated buffer strips will have already been cleared. these should be revegetated by the landowner as part of the DA process.
- development applications be accompanied by a significant tree survey which identifies and locates those trees likely to be used as food and shelter by the yellow bellied gliders, and other species. Understorey *Acacias* should be included in such an assessment.
- Boundary fencing of properties be of a nature that allows movement of fauna. Barbed wire fencing should not be allowed.

Level 2 development should not be considered under options 1 or 2. The amount of habitat lost is too great and the bushland to the north would be highly exposed to edge effects.

This assessment concurs with that of Andrews Neil (1994) that fauna habitat on the estate is not of the value of that in bushland north of the estate. That land's future as wildlife habitat is under threat due to the zoning which allows clearing without a development application needing to be lodged. If that land could be conserved the local yellow bellied gliders would be secure and the link in the corridor maintained. It is considered that the minimum width of the corridor of 200m should be sufficient to allow continued movement of fauna.

There is little point in conserving Nebraska Estate's fauna habitat without conserving that in more valuable parts of the corridor. Council should investigate securing the bushland to north either by rezoning or extending the tree preservation order.

The regional office of NPWS has raised concerns that any further development of the estate will compromise the viability of the corridor. It is this consultant's view that likely impacts have been addressed in this review and appropriate ameliorative strategies suggested.

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