



Tuesday, 29 September 2009

St Vincents' Foundation Pty Ltd
c/-
Mr Brian Tierney
PO Box 493
Port Macquarie
NSW 2444

**Re: EPBCA 1999 -MNES Assessments
for Proposed Constructed Wetland and Associated Filling
on Part Lot 123 DP 1106943, & Lot 5 DP 25886,
Ocean Drive, Lake Cathie.**

Dear Sir,

As requested, I provide information to demonstrate that a formal referral to the Department of Environment, Water, Heritage and the Arts is not necessary, as the proposal does not have any significant likelihood of a significant adverse impact on any Matter of National Environmental Significance (MNES) currently listed under the *Environment Protection and Biodiversity Conservation Act 1999*.

1. RELEVANT MNES

Darkheart (2008) contains a previous MNES assessment. Of the categories of MNES, only threatened species, Endangered Ecological Communities (EECs) and internationally listed migratory birds are relevant.

1.1 Threatened Species

As detailed in Darkheart (2008), this firm conducted major ecological surveys of the pastoral property over various periods from 2002-2008. Of relevance, the Grey-Headed Flying Fox (Vulnerable) was recorded foraging in the very limited remnant forested and woodland portions of the property which contained flowering trees at the time. The Department of Environment, Climate Change and Water (DECCW)'s Atlas of Wildlife and Bionet (www.bionet.nsw.gov.au) databases also report a location (accurate within 1km) of the Swift Parrot (Endangered) in the northwest of the property.

As detailed in the report, the site only offers a relatively minute area of seasonal foraging habitat for both species as part of their respective nomadic and migratory ecology (Swift Parrot Recovery Team 2001, Smith *et al* 1995, Eby 2000a, 2000b, DECCW 2009b, Garnett and Crowley 2000). The property

is not known or suitable as a colonial roost for the Grey-Headed Flying Fox, and is not a significant expanse of known or potential foraging habitat for the Swift Parrot. Consequently, the site does not currently have the capacity to support any significant proportion of the local population of these species.

The Spotted-Tail Quoll (Endangered) and less so the Regent Honeyeater (Endangered) were also considered to have some limited generic potential to occur on the property due to the presence of some generic habitat attributes and local records. However, as for the Grey-Headed Flying Fox and Swift Parrot, the property is not considered to have any particularly significant (ie breeding, key seasonal foraging area) value to either species in its current state.

The site also has generic foraging value for the Red Goshawk (Vulnerable), but as this species has not been recorded south of the Clarence for some time (DECCW 2009a, Bionet 2009), is considered very unlikely to have any association with the site.

An exhaustive search over the development footprint and most of the property also failed to record any threatened flora species listed under the Act (Darkheart 2008).

1.2 Endangered Ecological Communities

At the time of the Darkheart (2008) assessment, no relevant EECs were listed for the Local Government Area.

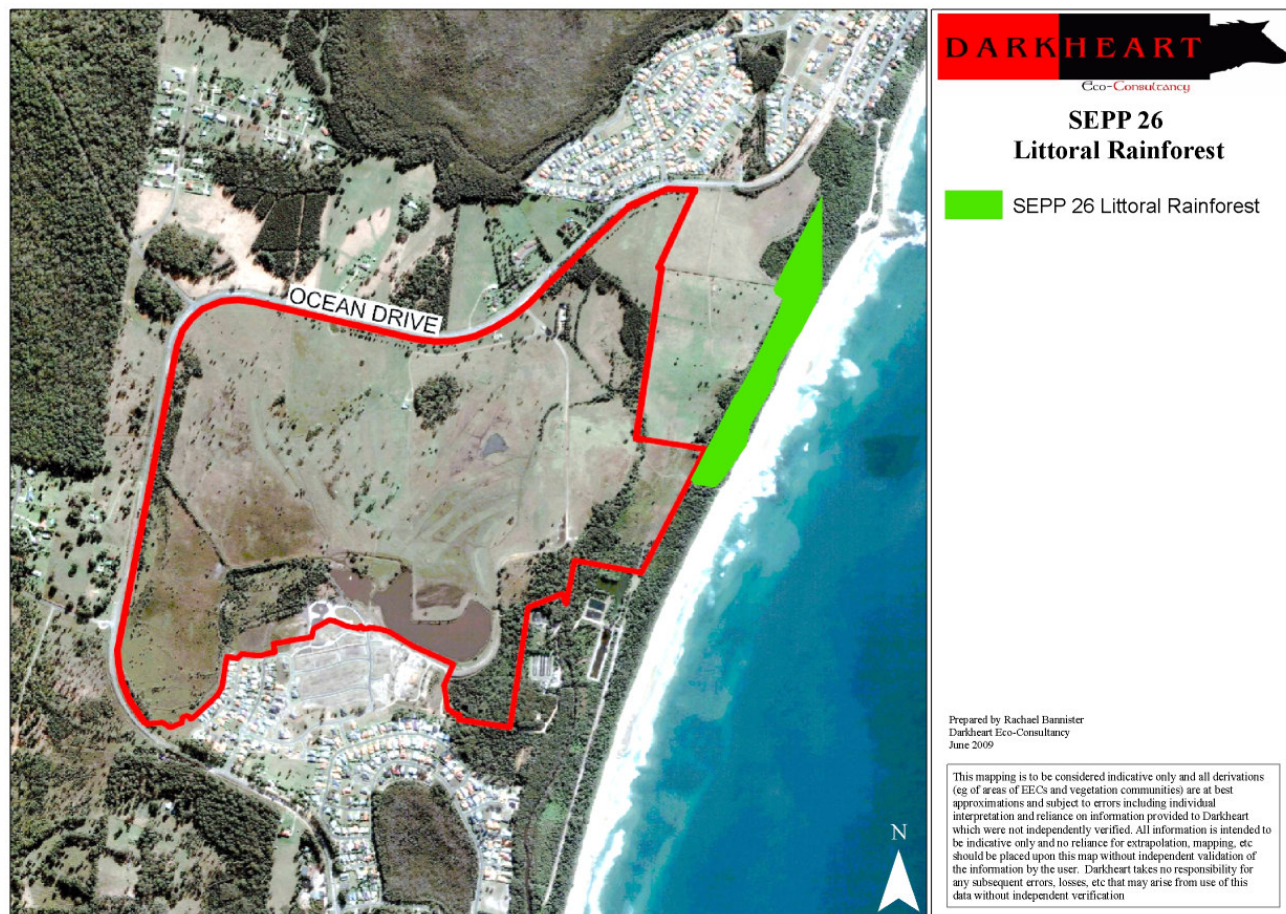
Littoral Rainforest and Coastal Vine Thickets of Eastern Australia was listed as an EEC on the 10th October 2008, just after the Darkheart (2008) report was submitted. SEPP 26 *Littoral Rainforest* #116 (which is currently zoned Environmental Protection 7(f1) – *Coastal* under the Hastings Local Environmental Plan 2001) lies on Crown land adjacent to the northeast corner of the property (see figure 1), and qualifies as example of this EEC. This high conservation value vegetation forms part of a remnant strip of dune succession vegetation, narrowed down to a ribbon of varying width by historical clearing for pasture to the west, particularly over the last 30yrs (ERM 1996). SEPP 26 #116 extends about 110m south adjacent to the northeast boundary of the site, degrading to a stalled dune succession (assumedly due to historical sand mining) south of the existing beach access (see figure 1).

1.3 Migratory Species

Survey by Darkheart (2008) recorded the Cattle Egret and Great Egret on the property, and the White-Breasted Sea-Eagle flying over. Clancy and Ayres (1983) recorded the White-Breasted Sea-Eagle, Fork-Tailed Swift and Rufous Fantail. The Rufous Fantail is considered likely to have been all but displaced by significant clearing as part of an earlier incomplete development on the property.

Habitat evaluation and local records indicated several other forest birds and aerial foragers were also potential occurrences on at least parts of the property. Marine mammals, birds and reptiles, and estuarine birds were considered irrelevant due to lack of habitat on site or potentially affected to any significance by the proposal.

Figure 1: Location of SEPP 26 #116 relative to site



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2. MNES ASSESSMENT OF SIGNIFICANCE

2.1 Threatened Species:

An assessment of significance was previously undertaken for the Grey-Headed Flying Fox and Swift Parrot due to their being recorded on site (Darkheart 2008, DECCW 2009a, Bionet 2009). The original assessment is appended to this report.

Neither species was considered likely to be significantly affected given:

- Breeding of either species is not likely to be detectably affected.
- The affected habitat for both species essentially consists of mostly declining eucalypts and a handful of paperbarks, numbering only a few dozen. This extent of habitat comprises a miniscule fraction of the species' requirements and is not capable of supporting any significant proportion of a local population or the species in general.
- The habitat loss will be overwhelming overcompensated by the extent of swamp forest currently being created in the 53.82ha open space area. The net effect of the development thus should be a significant net increase in potential habitat, especially Winter flowering species which are critical to both species, and historically reduced in abundance.
- The net increase in potential foraging habitat will have a potentially positive impact on the recovery of both species.
- Trees used in landscaping in the future urban areas will also add potential forage for the Grey-Headed Flying Fox and possibly the Swift Parrot.

2.2 Migratory Species:

An assessment of significance was undertaken for the 5 migratory species recorded by Darkheart (2008) for an older survey, plus species considered to have potential to occur due to potential habitat and local records eg Rainbow Bee-Eater.

Again, the habitat affected by the proposal was either of minimal significance (eg open pasture, small dams) or unsuitable for these species. Some would also benefit substantially by the creation of a large freshwater waterbody and its associated range of habitats (eg littoral zone, open water, etc), and the extensive swamp forest which is being regenerated over a large area cleared in the late 1980s. Overall thus, the proposal is not considered to have potential to significantly adversely affect any population or species of migratory birds.

2.3 EECs:

The EEC - *Littoral Rainforest and Coastal Vine Thickets of Eastern Australia* was not assessed in the Darkheart (2008) report as it was not listed at the time. As detailed in Darkheart (2009), this EEC is not directly affected by the proposal as it is on land adjacent to the site. The Department of Planning has requested measures to be implemented to address indirect impacts (to address SEPP 26), with the following is to be undertaken:

- **Rainforest buffer:** To protect the rainforest core of SEPP 26 #116 from the main currently existing environmental threats ie exposure to westerly winds, prolonged exposure to the setting sun, and excess salt deposition on the western fringe via turbulence, the proponent

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intends to establish a varying width vegetated screen adjacent to the core rainforest area adjacent to the northeast. This vegetated screen will predominantly consist of rainforest species in a fully structured community interconnecting with similar works proposed to the north (King and Campbell 2007). A gradation from east to west will occur in structure and floristics, with protective species such as Banksias, wattles and Spiney-Headed Matrush occupying the western edge, and rainforest species dominating the inner zone. This is to be implemented and managed under a Vegetation Management Plan.

- ***Rehabilitation of the Crown land and SEPP 26 area:*** In addition to the above, the approximately 4.4ha of Crown land immediately east of the subject land is to be completely weeded (to remove current threats to the Littoral Rainforest eg invasion by Bitou Bush) using conventional bush regeneration techniques, and supplementary plantings provided to fill canopy gaps and restore buffers to maritime stresses.
- ***Re-Development of Beach Access:*** The existing beach access will be redeveloped to remove all weeds, minimise wind intrusion, and stop current erosion of the foredune and berm, potentially allowing storm surge intrusion. This will remove other threats currently facing the EEC.

In addition to the above, controls are provided for dogs, strategic location of artificial lighting, litter and bushfire (Darkheart 2009).

Consequently, it is readily apparent that there should be a significant net benefit to the conservation of the EEC as a result of the proposal. An assessment of significance as per the Assessment of Significance Guidelines (DEH 2006) is provided as follows:

An action is likely to have a significant impact on a critically endangered or endangered ecological community if there is a real chance or possibility that it will (DEH 2006):

(a) *Reduce the extent of an ecological community;*

As noted above, the proposal does not require the removal of any Littoral Rainforest. Rainforest species will be planted in the buffer zones on site, and also in parts of the adjacent Crown land currently dominated by weeds to enhance the ecological processes associated with this EEC. The net effect thus is that the current extent of this EEC will be protected and enhanced, and genetic diversity extended, to the evolutionary benefit of this EEC.

(b) *Fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads or transmission lines;*

The proposal has no requirement to fragment the Littoral Rainforest EEC as it occurs outside the property, and no new beach access is to be created. An existing track for beach access lies just off the southern end of the SEPP 26 area, and forms a natural boundary of the rainforest. This track is currently weed infested, acting as a source point for weed invasion of gaps caused by attrition of canopy trees. As part of the eventual development of the property, this track will be formalized into an all-weather pathway, all weeds removed, and a natural edge constructed via planting of appropriate native species. Creation of new tracks will be discouraged by retaining the existing fence, and dense edge plantings.

(c) *Adversely affect habitat critical to the survival of an ecological community;*

The proposal has no direct impact on the EEC as it is located outside the property. Darkheart (2009) has identified all current and future potential threats to the EEC, and all of these are either insignificant, or readily abatable eg via planting a buffer zone.

The proponent also intends to undertake a comprehensive bush regeneration program (as currently being undertaken in the Open Space zone to establish a wildlife corridor) which will effectively eliminate current threats to the section of EEC opposite the site, and formalize the current beach access to eliminate this weed entry point and maritime stress access eg storm surges. These actions will significantly increase the survival likelihood of the EEC.

- (d) *Modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns;*

The development proposal includes earthworks on land west of Duchess Gully. The impact of these earthworks on the water table has previously been assessed by geotechnical consultants and no impact on the EEC vegetation was identified by the modeling undertaken. It was also noted that the proposed earthworks are some distance from the EEC vegetation, as well as the fact that Duchess Gully lies in between, and currently has a natural draw down effect on the watertable,.

Furthermore, no stormwater drainage is to be directed to the EEC from any urban area or hard surface, hence no adverse impacts from eutrophication or pollution will eventuate.

- (e) *Cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting;*

As noted above, no clearing, underscrubbing, cultivation, etc, is proposed to be undertaken in the EEC. Weeds will be removed as part of a bush regeneration program, which will eliminate the current major threat to the integrity of this EEC, with native species encouraged or propagated from on-site sources and planted in canopy gaps and buffer zones.

Fuel reduction via burning will not be practiced in the EEC or adjoining vegetation at any time as it is totally inappropriate to the EEC (NSWSC 2004a, RFS 2006). Any fire will be immediately suppressed due to the potential environmental and economic impacts it may cause. Cattle currently occur on the property, but denied access via fencing. All stock will be removed from the property as part of the development, permanently eliminating this potential threat. No harvesting of any flora or fauna is proposed or legally allowed given all naturally occurring species are legally protected.

- (f) *Cause a substantial reduction in the quality or integrity of an occurrence of an ecological community, including, but not limited to:*

- *assisting invasive species, that are harmful to the listed ecological community, to become established; or*
- *causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community;*

As part of future development, a Vegetation Management Plan will include provisions for elimination of all weeds in the adjacent Crown reserve via an extensive bush regeneration program akin to that currently being undertaken in the Open Space zone (Darkheart 2008). Weeds such as Bitou Bush are currently degrading the forest edges, invading canopy gaps, and reducing the effectiveness of seaward buffers (see photos in Darkheart 2009). Edge treatments on the eastern boundary of the property will also benefit the EEC via abating edge effects caused by historical clearing of buffer zones eg exposure to western setting sun.

As noted above, stormwater will not be directed to the EEC or Crown land from developed areas. No residential development adjoins the Crown land, hence the potential for any pollutant (eg fertilisers) to enter the EEC's habitat is negligible.

(g) *interfere with the recovery of an ecological community.*

It is evident from the above that:

- The proposal has no potential for any direct impact on the EEC.
- Any indirect impacts are effectively mitigated by a range of measures.
- Measures are proposed as part of future development to significantly reduce or eliminate current major threats (eg weed invasion) on the EEC.
- Post-development, the EEC is expected to be in better condition than it currently is, with threats significantly abated or eliminated.

In addition to the above, the proposal will see creation of a formal wildlife corridor interlinking the EEC to extensive forest and eventually Nature Reserve to the southwest and west. This will allow exchange of genetic diversity between populations of fauna in the EEC (Berrigan and Bray 2002), hence assisting maintenance of their genetic diversity. This corridor is critical to long term biodiversity maintenance as the narrow ribbon of coastal vegetation has no current linkage beyond the southern end of Lake Cathie and northern Bonny Hills due to natural and urban barriers.

3. CONCLUSION

The Assessment of Significance undertaken for the relevant MNES is considered to clearly illustrate the proposal does not have the capacity to have significant adverse effect. Consequently, formal referral to DEWHA, in my opinion, is not required under the provisions of the EPBC Act as the proposal does not have any significant likelihood of a significant adverse impact on any Matter of National Environmental Significance (MNES) currently listed under the *Environment Protection and Biodiversity Conservation Act 1999*.

Yours faithfully,



Jason Berrigan.

Director, D.E.C.

B. Nat. Res. (Hons). Grad. Cert. (Fish.).

MECANSW, MRZNSW, MABS, MAHS, MAPCN, MRBIA.

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PART B: ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999: MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE

7.0 RELEVANT EPBCA MNES SCHEDULES

7.1 THREATENED AND MIGRATORY FAUNA

7.1.1 Vulnerable and Endangered Species

The Grey-Headed Flying Fox (Vulnerable) was only EPBCA 1999 listed threatened species record on the property by this consultant. The Swift Parrot (Endangered) is indicated on the Atlas of Wildlife (DECC 2008a) to possibly have been recorded in the northern end of the property. These species are automatically subject to the statutory assessments in section 8.0.

A search of the Dept of Environment, Water, Heritage and the Arts (DEWHA) Matters of National Environmental Significance (MNES) website was also taken to generate a list of threatened species potentially occurring on the property. These are shown in the following table, with other species considered by the consultant as potential occurrences in the locality due to suitable habitat. An evaluation of their likelihood of occurrence is also provided.

Table 1: EPBCA listed threatened fauna species potential occurrence assessment

Note: Likelihood of occurrence derived from opinions of consultants in consideration of known ecology of each species (see Appendix 1); and quality of habitat on-site. * indicates listed on EA website search. Excludes marine mammals, reptiles, etc

GROUP	COMMON NAME	RECORDED IN LOCALITY (10km radius)	SUITABLE HABITAT ON PROPERTY	LIKELIHOOD OF OCCURRENCE
BIRDS	*Regent Honeyeater	Y – one bird recorded in Port Macquarie by Hastings Birdwatchers 2004	Forest Red Gums, Swamp Mahogany and possibly White Banksia offer some potential to support opportunistic foraging most likely during non-breeding movements.	No major occurrences known in LGA hence only very rare potential for infrequent visits. Site forms minute fraction of potential habitat in LGA. Unlikely to very low
	Red Goshawk	N	Very marginal – very open and limited prey diversity.	Very marginal – no records south of north coast. Unlikely to very low
	*Swift Parrot	Y	As for Regent Honeyeater.	Recorded
MAMMALS	*Long-Nosed Potoroo	N	N	No. Unlikely due to disturbance history
	*Spotted-Tail Quoll	Y	Marginal at best – too open	Marginal potential in SE corner. Low to very low as no significant habitat on property or interlinked.
	*Grey Headed Flying Fox	Y <1km	Y	Recorded
	*Dwyer's/Large Pied Bat	N	In broad terms for foraging only.	Marginal and very few coastal records. Foraging only. Very low to unlikely

FROGS	*Green and Golden Bell Frog	Y – Lake Innes area, Port Macquarie	Marginal in broad structural terms. Habitat is artificially created where it may not have existed before. High risk of predation	Considered unlikely as not detected by surveys despite being targeted, high risk of predation and no records in adjoining habitat
	Wallum Sedge Frog	N	Marginal in broad structural terms. Habitat is artificially created where it may not have existed before. High risk of predation	Considered unlikely as not detected by surveys despite being targeted, high risk of predation and no records in adjoining habitat or LGA
	*Stuttering Frog	N	N	N
	*Southern Barred Frog	N	N	N
REPTILES	Burrowing Skink/ Three-Toed Snake-Tooth Skink	N	N.	N

7.1.2 Migratory Species

This consultant recorded the Cattle Egret and Great Egret on the property, and the White-Breasted Sea-Eagle flying over. Clancy and Ayres (1983) recorded the White-Breasted Sea-Eagle, Fork-Tailed Swift and Rufous Fantail.

A number of other migratory bird species listed in the EPBCA have been recorded in the locality of the site and a search of the MNES website also produced a list of likely occurrences (excluding seabirds). All of these species plus some considered by the consultant as potential occurrences in the LGA in similar habitat to that on the property are also shown in the following table, with an evaluation made on likelihood of occurrence based on cited ecology.

Table 2: EPBCA listed Migratory fauna species potential occurrence assessment

(* indicates likely to occur in LGA in consultant's opinion)

COMMON NAME	SCIENTIFIC NAME	PREDICTED TYPE OF OCCURRENCE	RECORDED IN LOCALITY	HABITAT ON PROPERTY	LIKELIHOOD TO OCCUR
White-Bellied Sea-Eagle	<i>Haliaeetus benghalensis</i>	Species and/or habitat likely to occur in area	Y	Large lagoons appear to contain fish, hence potential to offer minute area of foraging habitat. Isolated trees in woodland offer potential nest sites.	Recorded flying over property
Osprey	<i>Pandion cristatus</i>	-	Y	As above	Unlikely to low – no nests on site and very limited forage
Latham's Snipe	<i>Gallinago hardwickii</i>	Species and/or habitat likely to occur in area	Y	Seasonally flooded pasture may offer potential foraging habitat	At least fairly likely when groundcover not too low. Site used as small part of wider non-breeding range
Painted Snipe	<i>Rostratula benghalensis</i>	Species and/or habitat likely to occur in area	N	Marginal at best	Unlikely
*Cattle Egret	<i>Egretta ibis</i>	Species and/or habitat likely to occur in area	Y	Y	Y. Recorded on property

*Great Egret	<i>Egretta alba</i>	Species and/or habitat likely to occur in area	Y	Y	Y. Recorded on property.
*Swift Parrot	<i>Lathumus discolor</i>	Species and/or habitat likely to occur in area	Y	As previous	Recorded
Rufous Fantail	<i>Rhipidura rufifrons</i>	Breeding or breeding habitat likely to occur in area	Y	Dry sclerophyll may offer some marginal potential – likely to occur in adjacent littoral rainforest	Low to marginally fair using site for non-breeding range. Previously recorded in 1983 but habitat removed.
Satin Flycatcher	<i>Myiagra cyanoleuca</i>	Breeding or breeding habitat likely to occur in area	Y	As for Rufous Fantail	Low
Black Faced Monarch	<i>Monarcha melanopsis</i>	Breeding or breeding habitat likely to occur in area	Y	As for Rufous Fantail	Low
Spectacled Monarch	<i>M. trivirgatus</i>	Breeding or breeding habitat likely to occur in area	Y	As for Rufous Fantail	Very low
*Oriental Cuckoo	<i>Cuculus saturatus</i>	Species and/or habitat likely to occur in area	N	Y – Dry sclerophyll areas	Low to fair – small part of non-breeding range
Regent Honeyeater	<i>Xanthomyza phrygia</i>	Species and/or habitat likely to occur in area	N	As previous	Unlikely to very low
*Rainbow Bee-eater	<i>Merops ornatus</i>	Species and/or habitat likely to occur in area	Y	Dry sclerophyll offers some marginal potential	At least fair
White-Throated Needle-tail	<i>Hirundapus caudacutus</i>	Species and/or habitat likely to occur in area	Y	Y	Highly likely to occur
*Fork-Tailed Swift	<i>Apus pacificus</i>	Species and/or habitat likely to occur in area	Y	Y	Recorded in 1983, highly likely to occur.

A number of seabirds and estuarine waterfowl listed as Migratory under the EPBCA (some are also listed as Threatened under the TSCA) may occur in the locality eg Eastern Curlew. However, no habitat occurs on the property for these species as the site does not contain tidal habitats or suitable watercourses. The tidal sections of Duchess Gully may offer some marginal potential for some species, though habitat is better developed in downstream sections (pers. obs.).

Similarly, while several migratory marine turtles and mammals also occur or may occur in the ocean to the far east (eg Blue Whale, Long-Nosed Spinner Dolphin, Humpback Whale and Green Turtle), the site and property obviously does not offer suitable habitat for these species. The migratory marine turtles, marine mammals and wetland and seabirds (discussed above) are not considered in the later assessment due to the lack of potential impacts on these groups of species.

7.2 THREATENED FLORA

No EPBCA listed threatened plants were recorded on the site or property. A search of the DECC Rare or Threatened Plants (ROTAP) database (2008a), Bionet (2008) and available literature (eg Biolink 2003, Berrigan and Bray 2002) indicated the following EPBCA 1999 listed species occur in the locality:

- *Melaleuca biconvexa*: Lake Innes NR.
- *Acacia courtii*: Dooragan NP, Yoorigan NP
- *Grevillea caleyi*: Dooragan NP

- *Allocasuarina defungens*: Crowdy Bay NP.
- *Thesium australe*: Kattang NR, Crowdy Bay NP
- *Cynanchum elegans*: Middle Rock
- *Phaius tankervilleae*: Cowarra SF

None of these species were found or considered likely potential occurrences on site or the property (see section 3.2.1 and Appendix 1). The following table lists other species considered potential occurrences in the locality derived from the MNES site:

Table 3: EPBCA threatened flora species potential occurrence assessment

Note: Likelihood of occurrence derived from opinions of consultant in consideration of local records, known ecology of each species (see section 2.2.1.2 and after this table); and quality of habitat on-site. * indicates not recorded on ROTAP database in region as yet

COMMON NAME	SCIENTIFIC NAME	LISTING STATUS	RECORDED IN LOCALITY (10km radius)	SUITABLE HABITAT ON-SITE AND LIKELIHOOD OF OCCURRENCE ON SITE	SUITABLE HABITAT ON-PROPERTY AND LIKELIHOOD OF OCCURRENCE ON PROPERTY
Leafless Tongue Orchid	<i>Cryptostylis hunteriana</i>	V	N	N. Unlikely	N. Unlikely
*Frogbit Fern	<i>Hydrocharis dubia</i>	V	N	N. Unlikely	N. Unlikely
Clear Milkvine	<i>Marsdenia longilobia</i>	V	N	N. Unlikely	N. Unlikely
-	<i>Parsonsia dorrigoensis</i>	E	N	N. Unlikely	N. Unlikely
Snake Orchid	<i>Diuris pedunculata</i>	E	N	N. Unlikely	N. Unlikely

These species are assessed in Appendix 1. The other species listed in the above table is considered as follows:

- Frogbit (*Hydrocharis dubia*) is an aquatic perennial plant with emergent and floating leaves, with the plant rooted when in shallow water, or floating if in deeper water. It is found north from the Clarence River, NSW, and grows in small shallow freshwater bodies or swamps. The drains and dams/lagoons offered marginal potential habitat, but this species was not found by the survey. It is not considered a potential occurrence given the marginal habitat and lack of LGA records.

7.3 THREATENED ECOLOGICAL COMMUNITIES

Of the Threatened Ecological Communities currently listed on the Environment Australia website, none occur on or near the site (as determined by listing description and MNES website search).

7.4 KEY THREATENING PROCESSES

In addition the Key Threatening Processes relevant to the site and property and listed in section 3.4 the following Key Threatening Processes listed in the EPBCA are also relevant to the locality of the site:

- Competition and land degradation by feral Rabbits
- Dieback caused by the root-rot fungus (*Phytophthora cinnamomi*)
- Incidental catch (bycatch) of Sea Turtle during coastal otter-trawling operations within Australian waters north of 28° South
- Incidental catch (bycatch) of Sea Turtle during coastal otter-trawling operations within Australian waters north of 28° South
- Infection of amphibians with chytrid fungus resulting in chytridiomycosis
- Land clearance
- Loss of climatic habitat caused by anthropogenic emissions of greenhouse gases
- Predation by Feral Cats
- Predation by the European Red Fox (*Vulpes vulpes*)

8.0 MNES – STATUTORY ASSESSMENTS

8.1 GENERAL CONSIDERATIONS/SUMMARY

The provisions of the EPBCA 1999 require determination of whether the proposal has, will or is likely to have a significant impact on a “*matter of national environmental significance*”. These matters are listed and addressed as follows:

1. **World Heritage Properties:** The site is not listed as a World Heritage area nor does the proposal affect any such area.
2. **Ramsar Wetlands of International Significance:** No Ramsar wetland occurs on the site, nor does the proposal affect a Ramsar Wetland.
3. **EPBCA listed Threatened Species and Communities:** No EPBCA listed species are likely to be significantly affected (See section 8.2 and Appendix 1).
4. **Migratory Species Protected under International Agreements:** The site does not offer significant known or potential habitat for such migratory species and the proposal does not significantly negatively affect any such sites. The new wetland may offer a substantial area of new potential habitat.
5. **Nuclear Actions:** The proposal is not a nuclear action.
6. **The Commonwealth Marine Environment (CME):** The site is not within the CME nor does it affect such.
7. **National Heritage:** The site is not listed as National Heritage nor does it affect any such item.

The proposal thus is not considered to require referral to the DEWHA for approval under the EPBCA 1999.

8.2 EPBCA 1999 - THREATENED SPECIES

8.2.1 Threatened Flora

As detailed in section 7.2 and table 14, no EPBCA 1999 listed flora species were found or considered likely potential occurrences on the study site, and are thus not considered further.

8.2.2 Threatened Fauna

8.2.2.1 General Consideration

The Grey Headed Flying Fox was the only EPBCA species recorded on site during surveys by this consultant, and is automatically assessed in section 8.2.2.2. The Swift Parrot has also been reported to occur on site (DECC 2008a), and is assessed in section 8.2.2.3.

A number of other EPBCA threatened species have been recorded in the locality (Bionet 2008, DECC 2008a), or are considered potential occurrences in the locality in terms of potentially suitable habitat (see Appendix 1). A significant number of others have also been recorded in the region in similar habitats to those occurring in the locality (Bionet 2008, DECC 2008a, 2008b, Strahan 2000, Smith *et al* 1995, Churchill 1998, etc). The following groups of species are not considered further as the proposal has no consequence upon them:

1. **Marine reptiles, fish and mammals** eg Grey Nurse Shark, Great White Shark, Southern Right Whale, Loggerhead Turtle, Green Turtle and Leatherback Turtle.
2. **Migratory/open ocean seabirds** eg Gould’s Albatross, Southern Giant Petrel, Blue Petrel, Northern Giant Petrel, Sooty Albatross, Kermadec Petrel, Shy Albatross and Grey-Headed Albatross.

These species were considered likely to be unaffected by the development proposal due to:

- Lack of habitat affected eg pelagic species
- Extremely rare probability of occurrence near site or in locality

- Nesting or foraging habitat not potentially or significantly affected
- No threats to be introduced or enhanced.

The following species listed under the EPBCA are potential or known occurrences in the locality or LGA, and are considered for potential impacts, risk and significance in the evaluation table in Appendix 1. These species are generally dually listed under the NSW *Threatened Species Conservation Act 1995*. Species considered are:

1. Birds: Regent Honeyeater, Painted Snipe and Red Goshawk.
2. Mammals: Dwyer's Bat, Spotted-Tail Quoll, Long-Nosed Potoroo (latter two considered as entire species).
3. Frogs: *Litoria olongburensis*, *L. aurea*, *Mixophyes balbus*, *M. iteratus*.

None of these species were considered to have at least a fair chance of occurrence on the property overall (see Appendix 1) and were considered unlikely to be significantly affected by the development proposal for one or more of the following reasons:

- Potential habitat does not occur on or near the site/property.
- Potential habitat is not affected at all or significantly.
- Site has minimal potential to support these species to any significant extent eg key part of migratory range, breeding habitat, refuge, etc.
- Habitat loss represents negligible contraction of a marginally suitable fraction of a larger potential range.

8.2.2.2 Vulnerable Species: Grey-Headed Flying Fox

8.2.2.2.1 Factors to be Considered for Vulnerable Species

The guidelines to assessment of significance to this Matter, define an action as likely to have a significant impact on a vulnerable species, if it will:

- a) Lead to a long-term decrease in the size of an important population of a species, or:
- b) Reduce the area of occupancy of an important population, or:
- c) Fragment an existing important population into two or more populations, or:
- d) Adversely affect habitat critical to the survival of a species, or:
- e) Disrupt the breeding cycle of an important population, or:
- f) Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline, or:
- g) Result in invasive species, that are harmful (by competition, modification of habitat, or predation) to a Vulnerable species, becoming established in the Vulnerable species' habitat, or:
- h) Interferes substantially with the recovery of the species.

An *important population* is one that is necessary for a species' long-term recovery. This includes such populations as:

- Key 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:

8.2.2.2.2. Assessment of Significance

This section addresses each of the previous points listed.

For the purposes of discussion, the "important population" of Grey-Headed Flying Foxes is defined as that population of the species likely to depend on colonial roosts in the locality or within foraging range of the site.

- a) *Lead to a long-term decrease in the size of an important population of a species, or:*

This species was recorded on the property using it as a minor fraction of its wider foraging range (Eby 2000a, 2000b, DECC 2008b). The property does not contain known roosting habitat for the Grey-Headed Flying Fox and it is unlikely to be used for roosting.

The proposal is likely to remove about two dozen scattered declining eucalypts, resulting in a minute contraction of the local foraging resource. The loss is considered unlikely to be significant to the local foraging success of the Grey-Headed Flying Fox as:

- The trees are not considered to be critical foraging habitat;
- The loss will be ameliorated by tree plantings elsewhere on the site;
- A relatively large area of similar habitat is accessible locally.

The property will retain its potential to support seasonal foraging by the Grey-Headed Flying Fox as part of a larger foraging range and since other aspects of the life cycle will not be affected the proposed development is unlikely to lead to a long-term decrease in the size of an important population of this species.

b) *Reduce the area of occupancy of an important population, or:*

The proposal will not result in the loss of any Grey-Headed Flying Fox roosting habitat and will not produce any barriers to their access to foraging habitat. Some potential foraging habitat will be removed, but the small area of loss (about two dozen scattered trees) was considered to be insignificant relative to the large area of suitable habitat accessible locally and should be replaced by landscaping plantings in the long term. Hence, the area of occupancy for populations of the Grey-Headed Flying Fox will not be effectively reduced.

c) *Fragment an existing important population into two or more populations, or:*

The Grey-Headed Flying Fox is highly mobile and known to be capable of crossing human-modified habitat. The proposal will offer no barrier to movement. Thus it will not fragment an existing important population.

d) *Adversely affect habitat critical to the survival of a species, or:*

“Critical habitat” refers to areas critical to the survival of a species or ecological community and may include areas that are necessary for/to:

- Activities such as foraging, breeding, roosting or dispersal.
- Succession.
- Maintain genetic diversity and long term evolutionary development, or
- Reintroduction of populations or recovery of the species/community.

As mentioned previously, the land proposed for development is not roosting habitat for the Grey-Headed Flying Fox, nor is any significant area of potential foraging habitat to be removed by the proposal. Tree plantings on the site are expected to retain the long term potential to support seasonal foraging by the Grey-Headed Flying Fox as part of such locally abundant habitat and the site is thus not considered to be critical habitat.

e) *Disrupt the breeding cycle of an important population, or:*

The Grey-Headed Flying Fox is dependant on a sufficient extent of reliable sources of nectar, pollen and fruits for successful reproduction, and uses specific maternity roosts (Eby 2000). The site/property is not a maternity habitat, nor is it likely to be suitable as it contained limited Winter-Spring flowering species. The development will result in a minor contraction of the potential foraging resource of nectar but tree plantings should provide long term potential for seasonal foraging. Additionally, access will be retained to the relatively large areas of similar habitat in the locality. Thus local foraging success will not be significantly affected and the breeding cycle is not expected to be disrupted by the proposed development.

f) *Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline, or:*

As detailed previously, only a small area of potential habitat loss will result from the development and in the long term the site is expected to effectively retain its potential to support seasonal foraging as part of a larger home range. Hence, it is unlikely that the development will impact on a local population of Grey-Headed Flying Fox to the point that it could cause a decline of the species.

g) *Result in invasive species, that are harmful (by competition, modification of habitat, or predation) to a Vulnerable species, becoming established in the Vulnerable species’ habitat, or:*

No new species that affects the Grey-Headed Flying Fox will be introduced.

h) *Interferes substantially with the recovery of the species.*

Ideally, the goal in threatened species recovery is to increase the number and extent of the threatened species, so that it is not at risk of becoming extinct.

The proposal as modified by the recommendations of this assessment aims to retain the current potential of the site to support opportunistic foraging by the Grey-Headed Flying Fox by removing the potential foraging habitat.

8.2.2.3 Endangered Species: Swift Parrot

8.2.2.3.1 Factors to be Considered for Endangered Species

The guidelines to assessment of significance to this Matter, define an action as likely to have a significant impact on an Endangered species, if it will:

- a) Lead to a long-term decrease in the size of a population of a species, or:
- b) Reduce the area of occupancy of the species, or:
- c) Fragment an existing population into two or more populations, or:
- d) Adversely affect habitat critical to the survival of a species, or:
- e) Disrupt the breeding cycle of a population, or:
- f) Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline, or:
- g) Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat:
- h) Interferes substantially with the recovery of the species.

8.2.2.3.2. Assessment of Significance

As the subject bird species is migratory, it is very difficult to qualify the "population" of the species. Unless specified thus, the population is referred to as either the remaining number of the species, or the handful of birds that may occur in the area at some time.

a) Lead to a long-term decrease in the size of a population of a species, or:

Habitat in the property and the general area is provided for the bird by the range of flowering species. For the Swift Parrot, the Winter to early Spring flowering species are the most important potential foraging resources eg Swamp Mahogany and Forest Red Gum.

The proposal may result in the loss of about two dozen scattered declining Forest Red Gums. This loss is considered insignificant relative to the extent of locally available habitat (eg Darkheart 2006h, 2004q) and will be compensated via replantings as part of proposed landscaping. As the species has also been recorded in modified, rural and even urban habitats (SPRT 2001, Smith *et al* 1995, Berrigan 2002d), this suggests the area will retain its foraging value as part of the wide migratory range of the species.

Overall, the proposal is not likely to lead to a long-term decrease in the size of a population of the Swift Parrot as the species breeds in Tasmania, and migrates northwards in Winter. Thus the site only forms a very small fraction of potential foraging habitat stretching coastally to the NSW/Qld border.

b) Reduce the area of occupancy of the species, or:

The proposal may result in the loss of about two dozen scattered marginal potential non-breeding foraging habitat.

The Swift Parrot is a migratory species that travels from its breeding habitat in Tasmania, to Winter foraging habitat along the east coast to the inland slopes of the Great Dividing Range of the mainland, up to Duaringa. The Swift Parrot is predicted to occur over 860 000km² (medium confidence), with only about 4000km² occupied and decreasing (low confidence) (Garnett and Crowley 2000). In this context, the loss of handful of trees scattered over about 2ha is relatively insignificant. This loss should be compensated via replantings.

c) Fragment an existing population into two or more populations, or:

The Swift Parrot migrates annually and has no known barriers (Smith *et al* 1995). The proposal thus will not fragment any population.

d) Adversely affect habitat critical to the survival of a species, or:

"Critical habitat" refers to areas critical to the survival of a species or ecological community may include areas that are necessary for/to:

- Activities such as foraging, breeding, roosting or dispersal.
- Succession.
- Maintain genetic diversity and long term evolutionary development, or
- Reintroduction of populations or recovery of the species/community.

As mentioned previously, the locality is not breeding habitat for the Swift Parrot. Use of the area is considered at most to be opportunistic, as part of the other potential habitat in the locality utilised as part of their migratory range. The site is thus not considered critical to the survival of the species.

e) Disrupt the breeding cycle of a population, or:

The Swift Parrot breeds only in Tasmania, thus the proposal has no effect on breeding.

f) Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline, or:

The proposal will constitute the loss of about two dozen scattered eucalypts which provide marginal potential foraging habitat. This is considered insignificant given that both species range over extensive areas (as noted above), and hence it is considered rather unlikely that the proposal will contribute significantly to the decline of the species. This habitat loss will also be compensated by replantings.

g) Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat, or:

No feral species that may affect the birds is likely to be introduced (since foxes, cats, feral cats and wild dogs are already likely to occur on or near the site).

h) Interferes substantially with the recovery of the species.

Ideally, the goal in threatened species recovery is to increase the number and extent of the threatened species, so that it is not in risk of becoming extinct.

The proposal will result in a relatively small area of habitat being lost/ that is considered inconsequential to the species given its ecology and extent of locally available habitat and that the loss will be regained via replantings. Given that the site is not critical to the species, it is not considered likely to interfere substantially with the recovery of the species.

8.2.2.4 Conclusion

The proposal is not considered likely to have a significant impact on any EPBCA listed threatened species.

8.3 EPBCA 1999 - Migratory Species

The following EPBCA species have been recorded on the property (Berrigan 2003h, Clancy and Ayres 1983, this survey):

- White-Breasted Sea-Eagle
- Fork-Tailed Swift
- Rufous Fantail
- Great Egret
- Cattle Egret

Other migratory bird species were considered at least a fair chance of occurrence on the site at some time, based on the presence of potential habitat eg Rainbow Bee-eater, Fork-Tailed Swift and the White-Throated Needletail.

These species are considered in the following section.

8.3.1 Factors to Be Considered

The guidelines to assessment of significance to this Matter, define an action as likely to have a significant impact on a migratory species, if it will:

- a) Substantially modify (including fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat of the migratory species, or;*
- b) Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat of the migratory species, or;*
- c) Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of the species.*

An *important area of habitat* is:

1. Habitat used by a migratory species occasionally or periodically within a region that supports an ecologically significant proportion of the population of the species, or;
2. Habitat utilised by a migratory species which is at the limit of the species range, or;
3. Habitat within an area where the species is declining.

8.3.1.1 Assessment of Significance

This section addresses each of the previous points listed.

The site is not considered likely to constitute an *important area of habitat* on the basis of the following:

1. Five migratory species have been recorded on the property. All of these species occurs widely in the locality and across the mid-north coast and the site is not considered to be an important area of habitat. The value of this habitat to all these species is as a fraction of a significant extent of similar habitat not only in the LGA, but the North Coast Bioregion. The site is not known breeding habitat for any of these species and it is not considered capable of supporting an ecologically significant proportion of any of these species (at most, only a small group or transient individuals).
2. While some migratory species occurring in the locality may be at the limits of their range, no such species were recorded in the study area. Additionally, similar habitat is known to occur both north and south of the LGA.
3. If the site were located at the limits of a species whose abundance and range is declining, it would not be considered significant as such habitat is locally abundant in the area, and habitat with greater capability occurs within 10km eg State Forest, conservation reserves, etc.

In regards to point (a): the proposal does not affect important habitat. The proposal will remove a small area of canopy trees and grassland. This may result in temporary reduction in the local area of marginal potential habitat for the Rainbow Bee-Eater, Great Egret and Cattle Egret, and potential prey habitat for aerial foragers such as the Fork-Tailed Swift. However, such habitat is abundant throughout the locality and the individuals are highly likely to utilise alternative foraging habitat. Conversely, the wetland will provide excellent habitat for the White-Breasted Sea-Eagle and Great Egret, and landscaping will increase habitat for other species.

In regards to point (b): An invasive species is one that may become established in the habitat, and harm the migratory species by direct competition, modification of habitat, or predation. No such invasive species is to be introduced by the proposal, though pet cats and dogs may potentially increase predatory rates.

In regards to point (c): No disruption to the lifecycle of any migratory bird is likely as:

- Habitat affected is either only marginally suitable, and/or locally abundant.
- Minimal habitat loss with majority retained or regenerated with tree plantings.
- Only a small portion of foraging habitat will be affected and this is insignificant relative to the area of potential habitat available in the locality.
- More optimum habitat for several EPBCA migratory species will be created.

In view of the above, no migratory bird is considered likely to be significantly negatively affected by the proposal. Conversely, several will be positively benefited via creation of new habitat which has been subject to major historical declines (NSWSC 2004e).