

ASSESSMENT OF THE WATER SUPPLY PIPELINE AND EFFLUENT PIPELINE ROUTES ASSOCIATED WITH THE PROPOSED PULP MILL DEVELOPMENT FOR NESTS OF THE SWIFT PARROT (*LATHAMUS DISCOLOR*), PEREGRINE FALCON (*FALCO PEREGRINUS*) AND MASKED OWL (*TYTO NOVAEHOLLANDIAE* SUBSP. *CASTANOPS*)

**Environmental Consulting Options Tasmania (ECOtas) for
Gunns Limited**

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SUMMARY

An assessment of the proposed route of the water supply pipeline and effluent pipeline associated with the pulp mill for the presence of nests of the swift parrot (*Lathamus discolor*), peregrine falcon (*Falco peregrinus*) and Tasmanian masked owl (*Tyto novaehollandiae* subsp. *castanops*) was undertaken to satisfy State pulp mill permit conditions, Schedule TS1 (clauses 39, 40 and 41) and Schedule NC1 (clauses 10 and 11).

The study area was assessed by Mark Wapstra and Brian French (ECOtas), Jo Edwards and Linda Drummond (Pitt & Sherry) over several days in October and November 2007. Additional assessments by Mark Wapstra and Brian French of previously unsurveyed areas associated with the revised location of pipeline infrastructure occurred in April, May, June and September of 2008, and by Mark Wapstra in January 2009.

Database information does not indicate the presence of nests of the three target species from the study area (specifically the water supply pipeline, the effluent pipeline and access road near Williams Creek). No nests for the three target species were located during field assessments from the study area.

PURPOSE, SCOPE AND LIMITATIONS OF THE SURVEY

Purpose

Gunns Limited (via Suzette Weeding) engaged ECOtas (Mark Wapstra) to undertake an assessment of the proposed water supply pipeline and effluent pipeline routes associated with the proposed pulp mill development for nests of the swift parrot (*Lathamus discolor*), peregrine falcon (*Falco peregrinus*) and masked owl (*Tyto novaehollandiae* subsp. *castanops*), to satisfy the requirements of State pulp mill permit conditions 10 and 11 (Schedule NC1) and conditions 39, 40 and 41 (Schedule TS1).

Scope

This report relates specifically to the study area, referred to in a general sense as the "pipeline route", as defined by GIS shape files provided by Gunns Limited to facilitate the assessment process, and as shown in Figure 1.

Except where otherwise stated, the opinions and interpretations of legislation and policy expressed in this report are made by the authors and do not necessarily reflect those of the relevant agency. The client should confirm any such interpretations with the relevant agency before acting on the content of this report.

Limitations

In the case of the present assessment, there were no significant limitations with respect to access of the study area.

It is noted that the swift parrot is a migratory species and breeds in Tasmania, arriving in the State during and after August (FPA 2008). The survey of the pipeline route was undertaken at various times of the year, with many sections assessed during October and November of 2007, and the entire route assessed during April to June 2008. These times at least partially coincide with the expected residence of swift parrots in Tasmania so if present, individuals were likely to have been noted (distinctive appearance, flight pattern and in-flight calling).

There is some evidence that the masked owl breeds in winter and spring in Tasmania (Bell *et al.* 1997; Higgins 1999; FPA 2008), with most egg-laying in late October to early November. As such, the timing of the present survey (as indicated above) is considered appropriate to detect current breeding activity. In addition, the timing of a survey of this nature (i.e. ground-based assessment of potential trees) is not constrained by the actual breeding season because a regularly used roost/nest tree is likely to show evidence of previous occupation (e.g. pellets, feathers, etc.).

STUDY AREA

The study area, referred to in a general sense in this report as the "pipeline route", is defined by GIS shape files provided by Gunns Limited and shown in Figure 1 (all figures at end of report). More specifically, the study area was divided into three main sections: (1) the water supply pipeline route between Lake Trevallyn and the pulp mill site, (2) the effluent pipeline route between the pulp mill site and the outfall area near Five Mile Bluff, and (3) the access road location south of Williams Creek.

Detailed descriptions of the vegetation and physical characteristics of the study area are not provided in the present report because they are covered in detail in various parts of the Integrated Impact Statement and in subsequent ecological assessments (e.g. ECOtas 2006a-b; ECOtas 2007a-l; ECOtas 2008a-d).

PERMIT CONDITIONS

This report relates to the State-issued permit for the pulp mill construction activities, specifically the following clauses of Schedule TS1 (clauses 39, 40 and 41) and Schedule NC1 (clauses 10 and 11).

- 39 At a minimum the following threatened fauna species habitat (including den sites, nesting and foraging habitat) must be considered during the development of the Offset Plan required by the relevant EMPCA Schedule of the Pulp Mill Permit:

Species Name	Common Name	Status
<i>Dasyurus maculatus maculatus</i>	Spotted-tailed quoll	rare
<i>Lathamus discolor</i>	Swift parrot	endangered
<i>Sarcophilus harrisii</i>	Tasmanian devil	vulnerable
<i>Tyto novaehollandiae castanops</i>	Masked owl (Tasmanian)	endangered

- 40 A pre-construction survey at all locations where construction activities are to occur for the project must be undertaken in order to determine the location of nests of the following threatened fauna species:

Species Name	Common Name	Status
<i>Aquila audax fleayi</i>	Wedge-tailed eagle	endangered
<i>Lathamus discolor</i>	Swift parrot	endangered
<i>Tyto novaehollandiae castanops</i>	Masked owl (Tasmanian)	endangered
<i>Haliaeetus leucogaster</i>	White-bellied sea-eagle	vulnerable

- 41 A report outlining the findings of the survey required by condition 40 must be submitted to the Secretary prior to the commencement of construction activities.

- 10 A pre-construction survey at all locations where construction activities related to the project are to occur must be undertaken in order to determine the location of nests of the following specially protected wildlife species:

Species Name	Common Name	Status
<i>Aquila audax fleayi</i>	wedge-tailed eagle	Specially protected wildlife
<i>Lathamus discolor</i>	swift parrot	Specially protected wildlife
<i>Falco peregrinus macropus</i>	peregrine falcon	Specially protected wildlife
<i>Haliaeetus leucogaster</i>	white-bellied sea-eagle	Specially protected wildlife
<i>Tyto novaehollandiae castanops</i>	masked owl (Tasmanian)	Specially protected wildlife

- 11 A report outlining the findings of the survey required by condition 10 must be submitted to the Secretary prior to the commencement of construction activities.

There are other related clauses in the permit that take effect if nests of the target species are recorded as part of satisfying the precedent conditions but the reader is referred to the full copy of the State permit. Note that the clauses related to the wedge-tailed eagle and white-bellied sea-eagle are covered by a separate report (ECOtas 2009).

BACKGROUND ON SPECIES

Swift parrot

The swift parrot (*Lathamus discolor*) is listed as endangered on both the Tasmanian *Threatened Species Protection Act 1995* and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. It is also listed as a "priority species" under the *Regional Forest Agreement* (Anon 1997). It is listed on Schedule 1 ("specially protected wildlife") of the Tasmanian *Wildlife Regulations 1999* (under the *Nature Conservation Act 2002*). The species was included in the *Action Plan for Australian Birds 2000* (Garnett & Crowley 2000). There is a Recovery Plan for the species (SPRT 2001).

The Forest Practices Authority's online *Fauna Values Database* (and associated species profiles and information on forest-dependent species, including a known threatened species range boundary map) includes the swift parrot (FPA 2008). The species is included in *Tasmania's Threatened Fauna Handbook* (Bryant & Jackson 1999).

The most recent description of potential habitat for the species is provided by the Forest Practices Authority. FPA (2008) describes potential swift parrot habitat as (based on the description provided for 1:25000 mapsheets from which the species is known):

Breeding range (comprising foraging and nesting habitat) is within 10 km of the coastline (nearest coast including shores, bays, inlets or peninsulas). Foraging habitat: all *Eucalyptus ovata* – *E. viminalis* shrubby forest (OV), grassy *E. globulus* forest (GG) and *E. globulus* wet forest floristic communities (subsumed into R) or any forest type with >10% *E. globulus* canopy cover. Nesting habitat: *Eucalyptus* trees present > 70cm dbh, with hollows present.

This description of potential habitat provides an initial point of reference for forest industry planners to ascertain the broad potential for the swift parrot to be present in a particular area but does not necessarily imply that the species will be present, or that all sites demonstrating these features will be considered important for the species.

This habitat description was used as the basis for the field-based assessment of the potential for the study area to support nests of the swift parrot.

Peregrine falcon

The peregrine falcon (*Falco peregrinus*) is a distinctive bird of prey. It is a compact, heavily built falcon with a full black helmet, deep chest, broad-based wings, and a broad rump and tail. It measures between 36-50 cm long (tail less than half) with a wingspan of 81-106 cm (Marchant & Higgins 1993; Debus 1998).

The peregrine falcon is a solitary aggressive species occurring in most habitats but is characteristic of cliffs, escarpments and wetlands (Debus 1998). The species occurs naturally throughout Australia and Tasmania (Olsen 1995).

Of importance to the present assessment is the breeding behaviour and habitat of the species. In broad terms, the peregrine falcon uses four types of sites for nesting (Marchant & Higgins 1993): (1) cliffs; (2) stick-nests; (3) tree hollows and (4) artificial structures. The majority of sites in Australia are scrapes on a cliff ledge or quarry face but the old stick nest of another raptor in a tree or on an electricity pylon, a tree hollow, or the ledge of a structure, such as a building, dam wall or

silo are also used (Marchant & Higgins 1993; Debus 1998). Quarries, scree slopes and sand dunes are not used, which suggests that Tasmania has ample suitable cliffs (Mooney & Brothers 1987).

In Tasmania, the peregrine falcon is known only to nest on cliffs (Mooney & Brothers 1987). Marchant & Higgins (1993) indicate that the species occasionally uses holes in trees in Tasmania. However, there are only two published reports of peregrine falcons nesting in trees in Tasmania. One described the use of a stick nest (Skemp 1970 cited in Mooney & Brothers 1987), but is clearly due to the misidentification of a brown goshawk (Mooney & Brothers 1987). The only valid record is a brief description of a clutch in the base of a broken limb (Fletcher 1918 cited in Mooney & Brothers 1987). All remaining records of nesting peregrine falcons in Tasmania involve cliffs (Mooney & Brothers 1987). Mooney & Brothers (1987) state that "superficially, it is surprising that Tasmanian peregrines do not use trees for nesting, because elsewhere in Australia up to 25% of nests are in trees (Pruett-Jones *et al.* 1981). Tree-nesting has been attributed to local tradition established by a lack of cliffs (Newton 1979), which is not the case in Tasmania. Peregrines rarely disperse between Tasmania and mainland Australia (Brothers and Mooney, unpublished data), so mainland nesting habits have little influence in Tasmania".

The peregrine falcon is not listed as threatened on the Tasmanian *Threatened Species Protection Act 1995* or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. It is not listed as a "priority species" under the *Regional Forest Agreement* (Anon 1997), and the species was not recommended for inclusion on updated priority species lists (Anon 2002). It is listed on Schedule 1 ("specially protected wildlife") of the *Tasmanian Wildlife Regulations 1999* (under the *Nature Conservation Act 2002*). The species was not included in the *Action Plan for Australian Birds 2000* (Garnett & Crowley 2000).

The Forest Practices Authority's online *Threatened Fauna Manual* database (and associated species profiles and information on forest-dependent species) does not include the peregrine falcon (FPA 2008). Interestingly, *Tasmania's Threatened Fauna Handbook* (Bryant & Jackson 1999) only lists the species in the category of "other karst, cave and cliff animals of interest" because it "requires monitoring" noting that it "nests on cliff faces" and is "subject to persecution".

Masked owl

The Tasmanian subspecies of the masked owl (*Tyto novaehollandiae* subsp. *castanops*) is listed as endangered on the Tasmanian *Threatened Species Protection Act 1995* but not currently listed on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. It was not specifically listed as a "priority species" under the *Regional Forest Agreement* (Anon 1997) but was technically included under the category of "hollow dependent species" as "other species protected through existing mechanisms". It is listed on Schedule 1 ("specially protected wildlife") of the *Tasmanian Wildlife Regulations 1999* (under the *Nature Conservation Act 2002*). The species was included in the *Action Plan for Australian Birds 2000* (Garnett & Crowley 2000).

FPA (2008) describes potential habitat for the masked owl as "lowland dry sclerophyll forest with old growth components", a habitat description also used in *Forestry Tasmania* (2007). It is my opinion, based on various discussions with specialists on the species, that this habitat description does not fully encapsulate the potential habitats (and the range of altitudes) used by the species in Tasmania for roosting and/or nesting. Cliffs and caves may also be used for roosting and/or nesting (Bell *et al.* 1997) and temporary roost sites can occur in a number of different situations.

A conservative opinion of potential habitat was therefore applied to the present situation and all areas of native vegetation were considered as potentially suitable for the species, even if only for temporary roost sites. However, it is noted that the permit condition relates only to nest sites for the species, and only this habitat feature is considered in the present report (but if roost sites were detected they might provide an indication of nearby breeding activity).

METHODS

Nomenclature

All grid references in this report are in GDA94, except where otherwise stated.

Preliminary investigation

Available information sources were searched for records of the swift parrot, peregrine falcon and masked owl within the proximity of the study area. These sources include:

- DPIW's *Natural Values Atlas Observation Export 2160 (peregrine falcon), 2520 (masked owl) and 2640 (swift parrot)* (DPIW 2007), which include records from various sources;
- Forest Practices Authority's online fauna database (*fauna values database*) current as at 10 July 2008 (FPA 2008);
- Forestry Tasmania's Conserve database *Conservation Enquiry Report for 493583mE 5444345mN dated 20 August 2007* (FT 2007);
- recent editions of the *Tasmanian Bird Report* (Wakefield & Hayward 2006; Wakefield & Hayward 2005; Wakefield 2002), the annual journal of Birds Tasmania (volume 32 – 2006, volume 31 – 2005, volume 30 - 2002), which provides a systematic list of bird sightings for the preceding year and includes commentary on significant observations of species;
- recent assessments of the study area including those by GHD (2006a) *Gunns Limited Report for Northern Tasmanian Pulp Mill ISS Terrestrial Fauna Report May 2006*, GHD (2006b) *Gunns Limited Proposed Bleached Kraft Pulp Mill in Northern Tasmania Flora Assessment Report May 2006*, and assessments of various parts of the pulp mill footprint including several sections of the proposed pipeline routes (ECOtas 2006a-b; ECOtas 2007a-l; ECOtas 2008a-d);
- other available information as cited in the text of this report.

The initial *Natural Values Atlas* reports (DPIW 2007) were obtained in late 2007 to inform earlier ecological assessments of other parts of the proposed pulp mill footprint (e.g. ECOtas 2007h,i,k). An updated *Natural Values Atlas* report on each of the target species was obtained prior to completing the present report to ensure that any recently databased observations from the vicinity of the proposed pipeline route were not overlooked.

Field assessment

General

GIS shape files provided by Gunns Limited were used to define the extent of the study area. All sections of the study area were assessed by walking the route using field maps and hand-held GPS units.

Field assessment scheduling

Assessment of the study area was undertaken over the following periods by the following people:

11 th -12 th October 2007	M. Wapstra	Chip mill facility, conveyor belt route, pulp mill facility, solid waste disposal area
17 th October 2007	M. Wapstra	Solid waste disposal area, part of pipeline route south of Williams Creek
18 th -19 th October 2007	M Wapstra, J. Edwards	Water supply pipeline and effluent pipeline routes
19 th October 2007	B. French	Effluent pipeline route on private property along Aerodrome Road

19 th October 2007	M. Wapstra	Extra 4-5 ha area search for <i>C. caudata</i> adjacent to study area near Bell Bay; additional pipeline route near George Town (Lauriston Park)
20 th October 2007	M. Wapstra	Effluent pipeline route on private properties near Five Mile Bluff and Low Head
30 th -31 st October 2007	M. Wapstra, J. Edwards	Further searching in the Williams Creek area for <i>Caladenia caudata</i> (vicinity of known site plus another open grassland patch); additional water supply pipeline route sections (Dilston area); effluent pipeline route (Donovans Bay – <i>Epacris exserta</i> site); and Lake Trevallyn dam wall area (<i>Epacris exserta</i>); detailed surveys for burrowing crayfish at several sites along the pipeline routes
12 th November 2007	J. Edwards, L. Drummond	Perimeter fence location from near Bell Bay power station to existing chip mill access road
14 th November 2007	M. Wapstra	Effluent pipeline route north of Aerodrome Road to the coast – targeted search of potential <i>Prasophyllum secutum</i> habitat identified on 20 th October
30 th January 2008	M. Wapstra, B. French	Effluent pipeline route between Bellbuoy Beach Road (off Aerodrome Road) to end of Aerodrome Road through to dune systems near Five Mile Bluff as part of <i>Xanthorrhoea</i> assessment
30 th April – 2 nd May 2008	B. French	Pipeline route
6 th -9 th May 2008	B. French	Pipeline route
12 th -14 th May 2008	B. French	Pipeline route
26 th -30 th May 2008	B. French	Pipeline route
3 rd , 4 th & 6 th June 2008	B. French	Pipeline route
17 th September 2008	M. Wapstra, B. French	“Dilston bypass” area between Symons Creek and Barnards Creek, principally to undertake additional surveys for burrowing crayfish
14 th October 2008	M. Wapstra	Pipeline route and associated infrastructure near and south of Williams Creek, principally to undertake additional surveys for threatened flora over previously surveyed ground
18 th January 2009	M. Wapstra	“Tamar Cut” assessment

Swift parrot

The potential or actual presence of swift parrots was assessed by reference to habitat features typically associated with foraging and nest sites for the species as described in the introductory section of the present report.

Peregrine falcon

The potential or actual presence of breeding peregrine falcons was assessed by reference to habitat features typically associated with nest sites for the species. These features include: scrape on a cliff ledge or quarry face; old stick nest of another raptor in a tree; old stick nest of another raptor on an electricity pylon; tree hollow; ledge of a structure, such as a building, dam wall or silo. Where such features were present in the study area, they were examined thoroughly for evidence of use by peregrine falcons. It is noted, however, that the peregrine falcon is known only to nest on cliffs in Tasmania (Mooney & Brothers 1987) so it is this habitat feature that was the focus of the assessment.

Masked owl

The potential or actual presence of breeding masked owls was assessed by reference to habitat features typically associated with nest sites for the species i.e. trees with large hollows and cliffs/rocky outcrops. Any hollow-bearing trees with potential as roost/nest sites (i.e. large hollows/spouts) were examined using binoculars and examining the ground at the base of each tree for evidence of use by masked owls.

RESULTS

Preliminary investigation

Figure 2 shows the distribution of database records for the swift parrot, peregrine falcon and masked owl as downloaded from DPIW's *Natural Values Atlas* (DPIW 2007).

Swift parrot

There are several database records for the swift parrot from within c. 5 km of various sections of the proposed pipeline routes. No records lie directly on the proposed route and specifically there are no known listed nest sites for the species from directly on the route or from several kilometres from the route.

There are 52 database records (DPIW 2007) shown within about a 5 km buffer of the proposed pipeline routes. Records shown in the *Natural Values Atlas* are not generally differentiated in regard to their status (e.g. general sighting record, nest site, foraging location, scientific monitoring site, etc.). The online database (*fauna values database*) provided by the Forest Practices Authority (FPA 2008) indicates the location of nest, forage and monitoring locations but not general sighting records. A comparison of these two data sources allows an analysis of which records represent nests (the subject of the present report).

FPA (2008) includes listings of known nests for the relevant 1:25000 TASMALP sheets (which includes Low Head 4845, Bell Bay 4844, Beaconsfield 4843, Lilydale 5043, Dilston 5042, Launceston 5041, Exeter 4842, Greens Beach 4645, Port Sorell 4644). The only listed nest site on any of these mapsheets is from the Four Springs Creek area near Deloraine (c. 10 km west and inland of the proposed pipeline route) so it is reasonable to conclude that the remaining database listings all represent sightings and/or foraging records.

Commentary on the distribution of the species (Wakefield & Hayward 2006; Wakefield & Hayward 2005; Wakefield 2002) does not indicate any significance of the study area and surrounds to the species. Recent assessments of the study area (GHD 2006a) have also not recorded the species, although it is noted that the survey period of this study did not overlap significantly with the presence of the swift parrot in Tasmania.

FPA (2008) does not list the swift parrot in its "habitat which may contain threatened species" section of its online database for any of the 1:25000 mapsheets listed above (except for the Exeter sheet because of foraging and nest records near the aforementioned Four Springs Creek locality).

However, FPA (2008) does provide maps referred to as *Known Threatened Species Range Boundaries*: the map for the swift parrot shows the entirety of the study area on the eastern fringe of the River Tamar to be within the "potential range" of the species but not within the "core range".

Peregrine falcon

Two database records (DPIW 2007) occur within c. 5 km of the proposed pipeline route. Both of these are attributed to RAOU from 1981 with a precision of 18500 m indicating that they probably represent sightings only (one is from Ecclestone Road c. 1.5 km west of the West Tamar Highway, the other is nominally placed in forest north of the Tasman Highway near Distillery Creek east of Launceston). There are no known nest sites from the proposed pipeline route.

Recent commentary on the distribution of the species (Wakefield & Hayward 2006; Wakefield & Hayward 2005; Wakefield 2002) does not indicate any significance of the study area and surrounds to the species. Recent assessments of the study area (GHD 2006a) have also not recorded the species.

Masked owl

FPA (2008) describes potential habitat for the masked owl as "lowland dry sclerophyll forest with old growth components", a habitat description also used in Forestry Tasmania (2007). It is my opinion, based on various discussions with specialists on the species, that this habitat description does not fully encapsulate the potential habitats used by the species in Tasmania for roosting and/or nesting. Having said this, the present assessment used a very conservative concept of potential habitat and in reality virtually all forested habitats (including remnant paddock trees) were examined in considerable detail. FPA (2008) provides a "known threatened species range boundary" map for the species and the entirety of the study area falls within their concept of "core range".

Data sources (DPIW 2007; FPA 2008; Forestry Tasmania 2007) do not indicate any known nest sites for the masked owl from the proposed route of the pipelines. There are several database records for the masked owl from close to the proposed route (within c. 2 km) but these represent sightings only rather than recorded nest sites. DPIW (2007) indicates if a record refers to a known nest (marked with RND, "raptor nest database") and FPA (2008) lists known nests in their 1:25000 mapsheet listings. There is a known nest on Corminston Creek c. 4.5 km northwest of Lake Trevallyn and a known nest at Native Point c. 6 km west of the East Tamar Highway north of Dilston. Neither of these nest sites will be affected by the proposed pipeline installation and use.

GHD (2006b) reported on a sighting of a masked owl from the of the pulp mill site from the lower to middle section on the unnamed stream flowing into Dirty Bay (493241mE 5444258mN). Subsequent surveys (GHD 2006a; ECOtas 2006a) did not detect any nest sites within the vicinity of the sighting of the individual bird.

North Barker & Associates Ecosystem Services (NBA 2007) has undertaken ecological assessments of the proposed "Dilston bypass" with respect to the public road location but not necessarily the specific proposed location of the water supply pipeline associated with the pulp mill. NBA (2007) report on the sighting of a masked owl in this general area but do not provide details on the specific location of the sighting. They state that "potential nesting habitat...occurs along the [public road] route" but that "no prescriptions are required for additional protection of potential nest sites away from the road route". While NBA (2007) reports on the detection of a potential nest tree on the road route, specific details of its location are not provided (a broader grid location is indicated for which additional searches for nest trees are recommended).

Recent commentary on the distribution of the species (Wakefield & Hayward 2006; Wakefield & Hayward 2005; Wakefield 2002) does not indicate any significance of the study area and surrounds to the species.

Field assessment

Swift parrot

Foraging habitat

FPA (2008) lists potential foraging habitat as including the following vegetation types and features:

- *Eucalyptus ovata* – *E. viminalis* shrubby forest (OV), noting the use of the *Regional Forest Agreement* (Anon 1997) terminology but this effectively refers to the equivalent TASVEG community *Eucalyptus ovata* forest and woodland (TASVEG code: DOV);
- grassy *E. globulus* forest (GG), noting the use of the *Regional Forest Agreement* (Anon 1997) terminology but this effectively refers to the equivalent TASVEG community *Eucalyptus globulus* dry forest and woodland (TASVEG code: DGL);
- *E. globulus* wet forest floristic communities (subsumed into R), noting the use of the *Regional Forest Agreement* (Anon 1997) terminology but this effectively refers to the equivalent TASVEG community *Eucalyptus globulus* wet forest (TASVEG code: WGL);
- any forest type with >10% *E. globulus* canopy cover.

Of these habitat components, only the first is present within the study area. There are several small patches of DOV present along the proposed pipeline route, but all are too small to show on a single map in the present report. However, all vegetation types dominated by *Eucalyptus ovata*, i.e. DOV and DOW, have been mapped and GIS shape files provided to Gunns Limited as part of other reporting, and more detailed vegetation maps have been produced in ECOTas (2008c), at a readable scale.

It is noted that there are exotic plantings of *Eucalyptus globulus* from several sites around the existing chip mill facility including a small plantation (ECOTas 2006b) and some ornamental and rehabilitation plantings around the woodchip piles (ECOTas 2007b). Neither of these more substantial occurrences of *E. globulus* occur on the pipeline route. There are several ornamental plantings of *Eucalyptus globulus* in the West Riverside suburb and other suburbs of Launceston, which partly explain the numerous database records (representing sightings of swift parrots) but none specifically on the proposed pipeline route. Part of the proposed effluent pipeline route between Bridport Road and George Town passes through regrowth eucalypt forest dominated by *Eucalyptus amygdalina* but there are also localised patches of *E. globulus* present, presumably representing some form of historical rehabilitation because *E. globulus* is not naturally occurring in the East Tamar catchment (Williams & Potts 1996). In my opinion, none of the aforementioned sites supporting *E. globulus* meet the intent of the meaning of the published accounts of potential foraging habitat for the swift parrot (e.g. FPA 2008).

Breeding

FPA (2007) lists potential breeding habitat as simply including the following vegetation feature:

- *Eucalyptus* trees present > 70cm dbh, with hollows present.

This habitat feature is present in several parts of the proposed pipeline route. However, it is noted that the majority of the pipeline route passes through exotic vegetation (e.g. easements and pasture), non-forest vegetation (e.g. heathland) and forested areas represented by regrowth forest generally lacking a significant oldgrowth component of mature hollow-bearing trees.

Most sites supporting nests of the swift parrot occur in distinct vegetation types i.e. forest with a significant mature component, specifically with numerous potential nesting hollows. Trees with hollows are patchily distributed along the majority of the proposed pipeline route. The majority of these trees occurred as isolated trees amongst mainly regrowth forest or pasture and pasture remnants (i.e. sites atypical of known nesting sites of the swift parrot).

Peregrine falcon

Habitat features typically associated with peregrine falcon breeding sites in Tasmania (see introductory sections) were entirely absent from the study area: cliffs with ledges or old quarry faces are not present (most slopes within the study area are gentle and there are only a few localised outcrops of rock but not in the form of substantial cliffs); old stick nests of other raptors (e.g. brown goshawks) in a tree or on an electricity pylon were not located during the present or previous surveys; and buildings and silos providing a ledge are not present.

The dam wall at Lake Trevallyn abuts a steep rocky cliff. This was searched for evidence of peregrine falcon breeding by examination of visible parts of the cliff from the top of the cliff and dam wall. No such evidence was located and database information does not indicate the presence of breeding birds in the vicinity of the dam wall. This part of the cliff system is actually outside the infrastructure footprint (it is understood that water will be extracted from "upstream" of the dam wall) but it was examined nonetheless due to the proximity of the cliff to potential activities. The banks of the dam above the "upstream" of the dam wall are gentle and unsuitable for nest sites for the peregrine falcon.

Trees with hollows are present throughout several sections of the proposed pipeline routes. During the present assessment, any tree with a hollow that was noted was examined using binoculars. No evidence of use of the trees for breeding by peregrine falcons was recorded.

Masked owl

The study area does not support any substantial cliffs or rocky outcrops with sites suitable for roosting and/or nesting by masked owls. Comments made above in regard to the Lake Trevallyn area in relation to the peregrine falcon are also applicable to the masked owl.

As mentioned under the section of swift parrot, trees with hollows are patchily distributed along the majority of the proposed pipeline route. In specific reference to trees with hollows potentially suitable for nesting by masked owls, very few of the trees observed had suitably large hollows. Most such trees occurred as paddock trees or within paddock remnants and were easily examined with binoculars and from the ground for evidence of use. No masked owls or evidence of nests of masked owls were observed as part of the present assessment.

The forest/woodland remnants associated with the pasture east of the East Tamar Highway behind Dilston (the "Dilston by-pass" route) was specifically assessed with respect to the masked owl on an additional occasion because of the potential nesting habitat identified in a previous assessment of the area (NBA 2007). Our initial assessment indicated that the proposed pipeline route in this area will pass mainly through paddocks and occasionally through patches of trees, most lacking trees with hollows suitable nesting by masked owls. A follow-up survey of all standing trees in an approximate 150 m radius around the grid reference suggested by NBA (2007) as requiring additional assessment was undertaken on 17 September 2008. In fact, the entire pipeline route between Symons Creek and Barnards Creek was re-assessed because of the necessity to undertake surveys for burrowing crayfish (ECOtas 2008e). While that assessment was based on riparian areas, adjacent wooded slopes were also re-assessed to determine the possible presence of masked owl nests.

DISCUSSION

Swift parrot

The study area (specifically the water supply pipeline, the effluent pipeline and access road near Williams Creek) does not support breeding habitat of the swift parrot because of the lack of oldgrowth forest types typically associated with the species. Mature trees with hollows are very patchily distributed, mainly within regrowth forest and amongst pasture remnants.

The study area (specifically the water supply pipeline, the effluent pipeline and access road near Williams Creek) does support marginal potential foraging habitat of the swift parrot because of the presence of the TASVEG community *Eucalyptus ovata* forest and woodland (TASVEG code DOV). This community mainly occurs as distinct linear strips associated with drainage features. The loss of potential foraging habitat for the swift parrot has been previously considered in ECOtas (2008f) as part of reporting on other Commonwealth pulp mill permit conditions. The prime foraging habitat for the species (*Eucalyptus globulus* dry forest and woodland) is entirely absent from the study area.

The absence of a large number of sightings of individual swift parrots from the majority of the The study area (specifically the water supply pipeline, the effluent pipeline and access road near Williams Creek) does not imply that it is not utilised by the species at some level (e.g. as part of the migratory flight path, occasional foraging and/or perching habitat), although the presence of several records from the wider Launceston area suggests foraging in suburban areas is occurring, which could extend into more natural vegetation types.

Peregrine falcon

The study area (specifically the water supply pipeline, the effluent pipeline and access road near Williams Creek) does not support breeding habitat of the peregrine falcon. The absence of sightings of individual birds does not imply that the study area is not utilised by the peregrine falcon for foraging, or that the study area does not form part of the wider territory and/or home range of one or more breeding pairs. However, no evidence has been found that the installation and use of the pipelines will directly or indirectly affect known or potential nest sites for the species.

Masked owl

The study area (specifically the water supply pipeline, the effluent pipeline and access road near Williams Creek) does not support breeding masked owls, and potential breeding habitat is virtually absent from the proposed pipeline route because of the lack of overmature trees with large hollows.

Given the length of the proposed pipeline route compared to the potential size of the territory of a breeding pair of masked owls (c. 400-1200 ha, sources cited in Bell *et al.* 1997), it is possible to postulate that at least part of the proposed pipeline route will fall within one or more territories of the species. However, there is no evidence that actual nest sites are present along the proposed pipeline routes.

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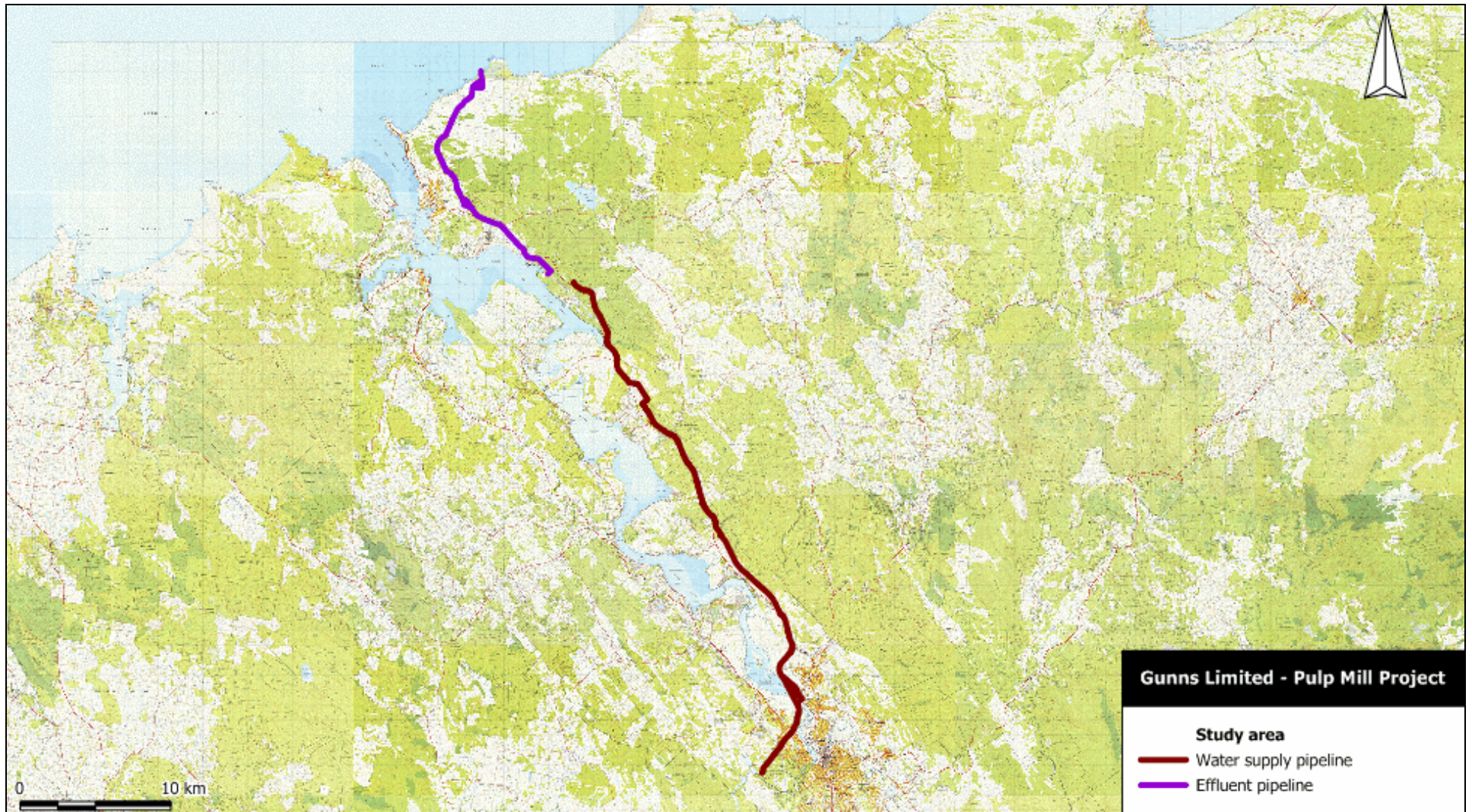


Figure 1. General location of study area showing both sections of the proposed pipeline route.

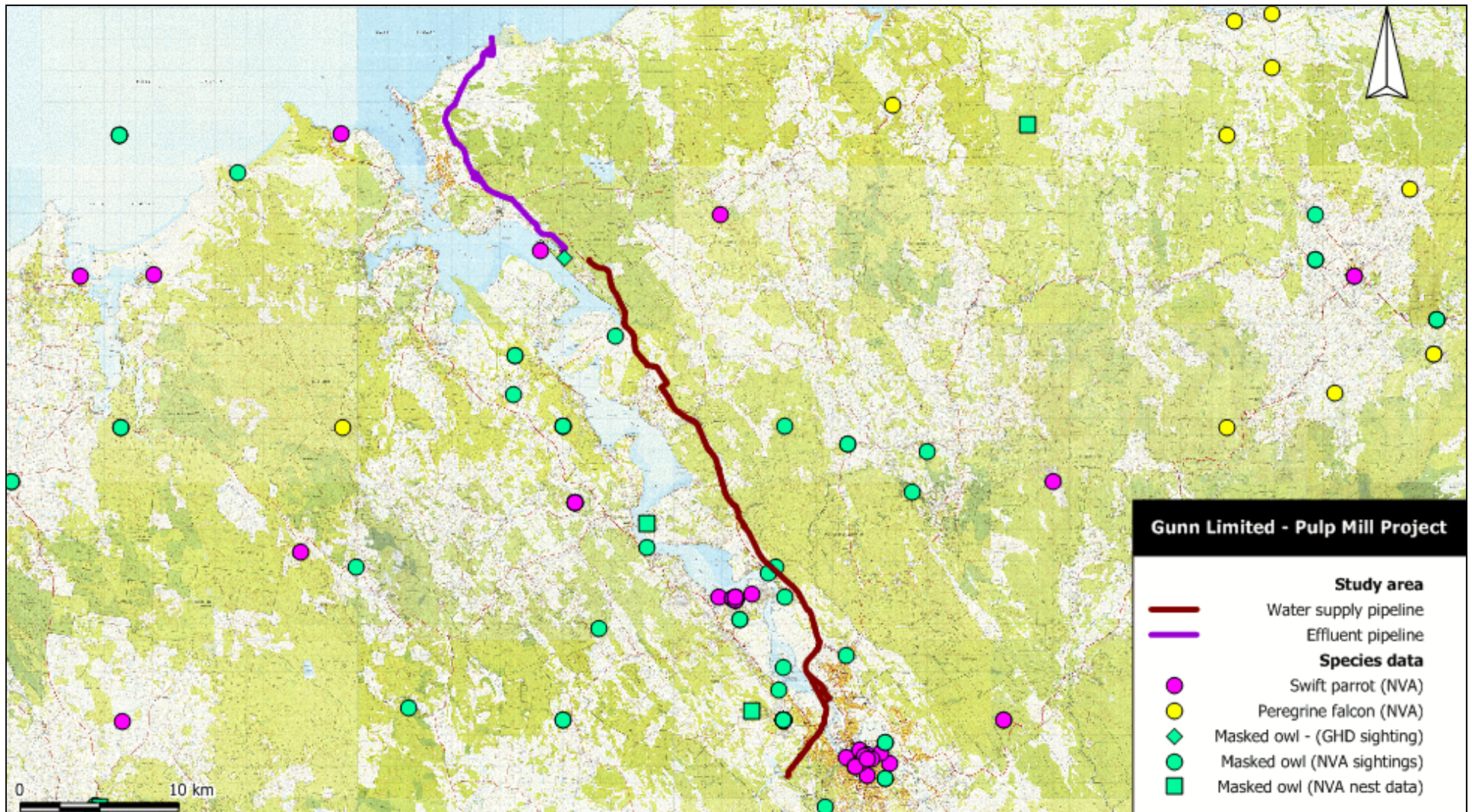


Figure 2. Distribution of records for the swift parrot, peregrine falcon and masked owl based on records from DPIW's *Natural Values Atlas* database. Masked owl records are shown as sightings and nest records (note that the sighting reported by GHD (2006a) is also shown).