



## **Central Queensland Coal Project**

### **Appendix 9a – 2011-2012 Terrestrial Fauna Reports**

**Central Queensland Coal**

**CQC SEIS, Version 3**

**October 2020**

# **Central Queensland Coal Project**

## **Appendix 9a - Terrestrial Fauna**

### **Reports**

**Supplementary  
Environmental Impact  
Statement**



## A preliminary assessment of faunal values within and adjacent EPC 1029, Styx Basin, central-east Queensland





## **Conditions of use**

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**Front cover:** Fauna recorded from EPC 1029 during March 2011 surveys. Clockwise from upper left: ornamental snake (*Denisonia maculata*); squatter pigeon (southern race) (*Geophaps scripta scripta*); metallic snake-eyed skink (*Cryptoblepharus metallicus*); and eastern sedgefrog (*Litoria fallax*).

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## 1. Summary

The faunal values of land within and adjacent Exploration Permit for Coal (EPC) 1029 were investigated by way of desktop review of existing information as well as field surveys carried out in late March 2011. The key findings of this preliminary assessment of faunal values are as follows:

- Despite extensive tree-clearing, grazing, and the presence of numerous exotic plant and animal species, habitat within and adjacent EPC 1029 supports a highly diverse fauna, reflecting the diversity of dryland and wetland habitats present within and adjacent EPC 1209 (including grass-sedge wetlands, saltmarsh, mangroves, wooded wetlands, eucalypt forest and woodland, semi-evergreen vine thicket, brigalow woodland, riparian forest, and grassland).
- With tree cover in the Styx Basin much reduced, remaining areas of woodland and forest habitat within EPC 1029 are of some importance to native fauna at the local (catchment) level. Of particular importance in this regard are areas of riparian woodland/forest linking more extensive areas of remnant vegetation in the west and east of the Styx River catchment.
- Currently, land within EPC 1029 is known to provide habitat for a number of conservation significant species including:
  - squatter pigeon (southern race) (*Geophaps scripta scripta*), listed as vulnerable under both the *Nature Conservation Act 1992* (NC Act) and *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act);
  - ornamental snake (*Denisonia maculata*), listed as vulnerable under both the NC Act and EPBC Act;
  - square-tailed kite, listed as near threatened under the NC Act;
  - cotton pygmy-geese, listed as near threatened under the NC Act;
  - a number of EPBC Act-listed migratory species including rufous fantail (*Rhipidura rufifrons*), oriental cuckoo (*Cuculus optatus*), rainbow bee-eater (*Merops ornatus*) and fork-tailed swift (*Apus pacificus*);
  - short-beaked echidna, listed as significant least concern under the NC Act; and
  - koala, listed as significant least concern under the NC Act.
- The large number of squatter pigeon records from surveys in March 2011, despite limited site coverage, suggests habitat within EPC 1029 may be of some importance to this species.
- Wetland habitat within Broad Sound, to the near north and east of EPC 1029, provides important habitat for significant numbers of EPBC Act-listed migratory shorebirds.
- Based on current information, land within and adjacent EPC 1029 could provide habitat for many other species of conservation significant species as well, including nationally threatened taxa such as the critically endangered yellow chat (Dawson subspecies), vulnerable Australian painted snipe, vulnerable red goshawk, vulnerable imperial hairstreak and vulnerable northern quoll.
- The value of habitat within EPC 1029 for the aforementioned species requires further investigation by way of targeted surveys and further assessment of habitat suitability.

Key recommendations arising from the current preliminary assessment of faunal values include:

- Additional late dry season surveys to improve knowledge of the faunal values of land within and immediately adjacent EPC 1029.
- Further survey work within and adjacent EPC 1029 targeting conservation significant species, particularly the yellow chat (Dawson subspecies), ornamental snake, brigalow scalyfoot, imperial hairstreak, Australian painted snipe, northern quoll, and red goshawk.

- Further habitat assessment work to better gauge the extent and suitability of habitat within EPC 1029 for conservation significant fauna, particularly in the far south, south-west, north and central-east of EPC 1029.

## 2. Background

The current preliminary assessment of faunal values forms part of a broader baseline study of environmental values of land within Exploration Permit for Coal (EPC) 1029 in the Styx Basin, central east Queensland. The purpose of this assessment is to identify values for terrestrial fauna within and adjacent EPC 1029 which might be impacted by mining activities proposed for the permit area. Of major importance in this regard (particularly with regard to current legislation) are potential impacts on conservation significant species/communities (i.e., species/communities of regional, state, national and international significance listed under state and/or federal legislation). As such, the current assessment places particular emphasis on the value of lands within and adjacent EPC 1029 for fauna of conservation significance.

### Description of study area

EPC 1029 is situated 20 km north-west of Marlborough, on the central Queensland coast, and lies within the Marlborough Plains subregion of the Northern Brigalow Belt (Figure 1). Centred on the town of Ogmoo (22°37'12.53"S/ 149°39'26.57"E), EPC 1029 covers an area of 342 km<sup>2</sup> within the Styx Basin. The majority of land within EPC 1029 lies within the Styx River catchment, east of the Connors and Broadsound Ranges. Water entering the Styx River and its tributaries (including Deep, Granite, Tooloombah and Wellington Creeks) flows out to sea via Broad Sound, to the north-east of EPC 1029.

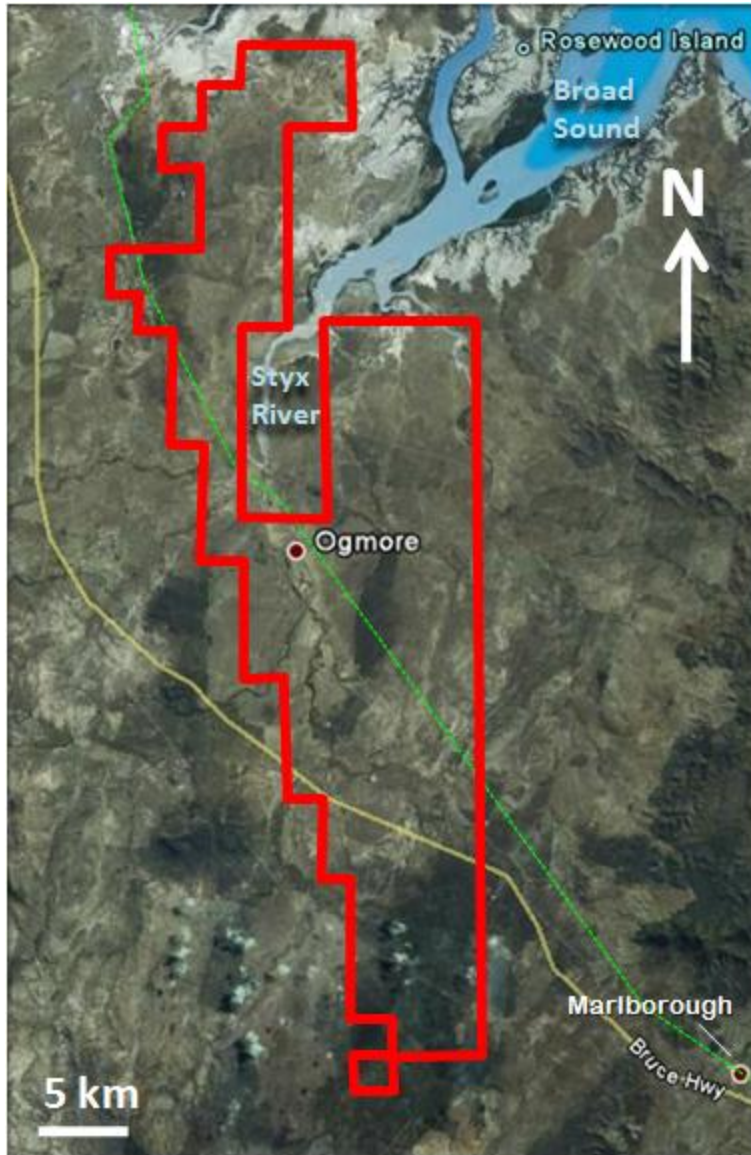
Widespread clearing of lands for grazing within the Styx River Catchment has resulted in significant losses of native vegetation cover with less than 25% of EPC 1029 supporting mapped remnant vegetation. Cattle grazing remains the dominant land use within EPC 1029 and adjacent lands. Lands within EPC 1029 are bisected by the Bruce Highway and a rail line situated east of the highway, which crosses the Styx River north-west of Ogmoo (Figure 1).

### Nomenclature

Scientific, family and common names used in this report are consistent with the following references:

- Christidis, L. and Bowles, W.E. (2008). *Systematics and Taxonomy of Australian Birds*. CSIRO Publishing, Collingwood, Victoria.
- Wilson, S. and Swan, G. (2010). *A Complete Guide to Reptiles of Australia*. New Holland, Chatswood, New South Wales.
- Ingram, G.J., McDonald, K.R., and Natrass, A.E.O. (1999). Revised common names for Queensland frogs. Pp 141-157 In *Frogs in the Community: proceedings of the Brisbane Symposium 13-14 February 1999*, A.E.O Natrass (Ed.) Queensland Frog Society, Brisbane.
- Frost, D. R., T. Grant, J. Faivovich, R. H. Bain, A. Haas, C. F. B. Haddad, R. O. De Sá, A. Channing, M. Wilkinson, S. C. Donnellan, C. J. Raxworthy, J. A. Campbell, B. L. Blotto, P. Moler, R. C. Drewes, R. A. Nussbaum, J. D. Lynch, D. M. Green, and W. C. Wheeler. (2006). *The Amphibian Tree of Life*. Bulletin of the American Museum of Natural History: 370.
- Van Dyck, S. and Straghan, R. (2008). *The Mammals of Australia*. New Holland, Chatswood, New South Wales.

Exceptions to this rule include the use of *Platyplectrum ornatum* instead of *Opsithodon ornatus* for the ornate burrowing frog, and *Nyctophilus corbeni* instead of *Nyctophilus sp (cf timoriensis)* for the south-eastern long-eared bat (sensu Parnaby, H. (2009). A taxonomic review of Australian greater



**Figure 1. Location of Exploratory Permit for Coal (EPC) 1029 in the Styx Basin, central eastern Queensland. Boundary of EPC area shown in red. Bruce Highway shown in light yellow; rail line in green. Base map sourced from Google Earth™ (2010).**

long-eared bats previously known as *Nyctophilus timoriensis* (Chiroptera: Vespertilionidae) and some associated taxa. *Australian Zoologist*. 35:39-81).

### Abbreviations and acronyms

A list of abbreviations and acronyms used in this report is provided below.

- c. = circa/ approximately
- DERM = Queensland Department of Environment and Resource Management
- DSEWPAC = Commonwealth Department of Sustainability, Environment, Populations and Community (formerly the Department of Environment, Water, Heritage and Arts [DEWHA])



- EPBC Act = *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*
- EPC 1029 = permit area for Exploration Permit for Coal 1209
- Et al. = and others
- EVR species = species listed as 'Critically Endangered', 'Endangered', 'Vulnerable', or 'Near Threatened' under the NC act and/or EPBC Act.
- NC Act = *Queensland Nature Conservation Act 1992*
- QM = Queensland Museum
- RE = regional ecosystem

### 3. Methodology

#### General approach

The current preliminary assessment of faunal values is based on a desktop review of existing information and field surveys undertaken in late March 2011. Details of the desktop review and field surveys are provided below.

#### Desktop assessment

A desktop review of existing information was undertaken to inform the current assessment of faunal values. Information reviewed for this assessment included the following:

1. Wildlife Online fauna records within a 100 km radius of Ogmoo (hitherto referred to as the 'Desktop Assessment Study Area')
2. Wildlife Online fauna records within or in closer proximity to EPC 1029 (i.e., within a 25 km radius of Ogmoo)
3. Wetland Info fauna records for the Styx Basin area
4. Queensland Museum (QM) records from the Desktop Assessment Study Area
5. Birds Australia Atlas records from the Desktop Assessment Study Area
6. Fauna records from published sources including:
  - a) Melzer, A., Jaensch, R. and Cook, D. 2008. *Landscape Condition in the Broadsound Basin: A Preliminary Assessment (2006/07) to Guide Investment in Resource Management*. Report for Fitzroy Basin Natural Resource Management Body and Australian Government.
  - b) Jaensch, R. 2009. *Migratory Shorebirds in Western Broadsound, Central Queensland 2008-09*. Report for Fitzroy Basin Association.
  - c) Recovery plans for rare and threatened (EVR) fauna including reptiles of the Brigalow Belt, the northern quoll, water mouse, red goshawk, stream-dwelling wet forest frogs of the Eungella region and south-east Queensland, yellow chat (Dawson subspecies), black-breasted button-quail, and southern long-eared bat.
7. Department of Environment and Resource Management (DERM) mapping of remnant and regrowth native vegetation
8. DERM mapping of Essential Habitat for state-listed EVR fauna
9. Google Earth Satellite imagery
10. Department of Sustainability, Environment, Water, Population and Communities (DSEWPAC) Protected Matters Search Tool results for the Desktop Assessment Study Area
11. Information on the distribution and habitat preferences of conservation significant fauna sourced from:
  - a) Recovery plans for threatened fauna including reptiles of the Brigalow Belt, the northern quoll, water mouse, red goshawk, stream-dwelling wet forest frogs of the Eungella region and south-east Queensland, yellow chat (Dawson subspecies), black-breasted button-quail, and southern long-eared bat
  - b) DSEWPAC survey guidelines for Australia's threatened birds, reptiles, mammals and frogs
  - c) DSEWPAC SPRAT species profiles for EPBC Act-listed fauna
  - d) DERM, 2010. *Fitzroy Natural Resource Management Region Back on Track Actions for Biodiversity*. Department of Environment and Resource Management, Brisbane.
  - e) Melzer, A., Jaensch, R. and Cook, D. 2008. *Landscape Condition in the Broadsound Basin: A Preliminary Assessment (2006/07) to Guide Investment in Resource Management*. Report for Fitzroy Basin Natural Resource Management Body and Australian Government.

- f) Jaensch, R. 2009. *Migratory Shorebirds in Western Broadsound, Central Queensland 2008-09*. Report for Fitzroy Basin Association.
- g) Higgins, P.J., Marchant, S., Davies, S.J.J.F., Peter, J.M., Steele, W.K. and Cowling, S.J. 1990 - 2006. *The Handbook of Australian, New Zealand and Antarctic Birds (HANZAB) (Volumes 1-7)*. Oxford University Press, Sydney.
- h) Wilson, S. and Swan, G. 2010. *A Complete Guide to Reptiles of Australia*. New Holland, Chatswood, New South Wales.
- i) Churchill, S. 2008. *Australia Bats*. Allen and Unwin, Crows Nest, New South Wales.
- j) Van Dyck, S. and Strahan, R. 2008. *The Mammals of Australia*. New Holland, Chatswood, New South Wales.

Information from the above sources was used to assess the likelihood of conservation significant fauna occurring within EPC 1029. The approach used to assess the likelihood of occurrence of fauna within this area is explained below.

### Likelihood of occurrence assessments

Likelihood of occurrence assessments were undertaken for terrestrial fauna of conservation significance known to occur or potentially occurring within the Desktop Assessment Study Area including: (1) EVR taxa (i.e., taxa listed under the *Queensland Nature Conservation Act 1992* (NC Act) and/or Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) as 'Critically Endangered', 'Endangered', 'Vulnerable' or 'Near Threatened'); (2) non-EVR taxa listed as 'Migratory' under the EPBC Act; (3) 'Back on Track' priority taxa (species identified as 'priority' taxa in accordance with DERM's Back on Track species prioritization framework); (4) priority taxa for the Northern Brigalow Belt (species identified as Priority taxa in the Biodiversity Planning Assessment for the Northern Brigalow Belt Bioregion); and (5) species identified as 'Special Least Concern' under the NC Act. The species considered in these assessments were identified as potentially occurring within EPC 1029 based on their current known distribution and/or predicted distribution (as inferred from published distribution maps and/or DSEWPAC Protected Matters Search Tool results). The likelihood of these species occurring on site was assessed against the following criteria:

- Known occurrence within the Styx Basin and broader Desktop Assessment Study Area (having regard to limitations of existing information regarding the occurrence of conservation significant fauna, e.g., limited survey effort within and adjacent EPC 1029 and the low detectability of cryptic fauna);
- The recency and proximity of previous records to EPC 1029;
- Presence, condition and extent of suitable habitat within and immediately adjacent EPC 1029;
- Connectivity of potential habitat with areas of known/likely habitat outside of EPC 1029;
- The mobility and, hence, ability of species to disperse across the broader landscape; and
- Presence of known threats (e.g., feral predators) within or adjacent the study site.

Conservation significant species were assessed against the above criteria using information obtained from the following sources:

- Field-based habitat assessments carried out during surveys in March 2011
- DERM Wildlife Online database
- DSEWPAC SPRAT species profiles for EPBC Act-listed fauna
- DSEWPAC Protected Matters Search Tool
- DERM Wetland Info database

- DERM regional ecosystem (RE) mapping of remnant and regrowth vegetation
- DERM 'Essential Habitat' mapping for state-listed EVR species
- Queensland Museum (QM) vertebrate records database
- Birds Australia Atlas database
- Google Earth satellite Imagery
- Published literature including:
  - Recovery plans for EVR fauna including reptiles of the Brigalow Belt, the northern quoll, water mouse, red goshawk, stream-dwelling wet forest frogs of the Eungella region and south-east Queensland, yellow chat (Dawson subspecies), black-breasted button-quail, and southern long-eared bat
  - DSEWPAC survey guidelines for Australia's threatened birds, reptiles, mammals and frogs
  - DEWPAC SPRAT species profiles for EPBC Act-listed fauna
  - DERM, 2010. *Fitzroy Natural Resource Management Region Back on Track Actions for Biodiversity*. Department of Environment and Resource Management, Brisbane.
  - Melzer, A., Jaensch, R. and Cook, D. 2008. *Landscape Condition in the Broadsound Basin: A Preliminary Assessment (2006/07) to Guide Investment in Resource Management*. Report for Fitzroy Basin Natural Resource Management Body and Australian Government.
  - Jaensch, R. 2009. *Migratory Shorebirds in Western Broadsound, Central Queensland 2008-09*. Report for Fitzroy Basin Association.
  - *The Handbook of Australian, New Zealand and Antarctic Birds (HANZAB) (Volumes 1-6)*. Oxford University Press, Sydney.
  - Wilson, S. and Swan, G. 2010. *A Complete Guide to Reptiles of Australia*. New Holland, Chatswood, New South Wales
  - Churchill, S. 2008. *Australian Bats*. Allen and Unwin, Crows Nest, New South Wales.
  - Van Dyck, S. and Strahan, R. 2008. *The Mammals of Australia*. New Holland, Chatswood, New South Wales.

A fully referenced list of information sources used to assess the likelihood of species occurring within EPC 1029 and the faunal values of the study site is provided in the 'References' section.

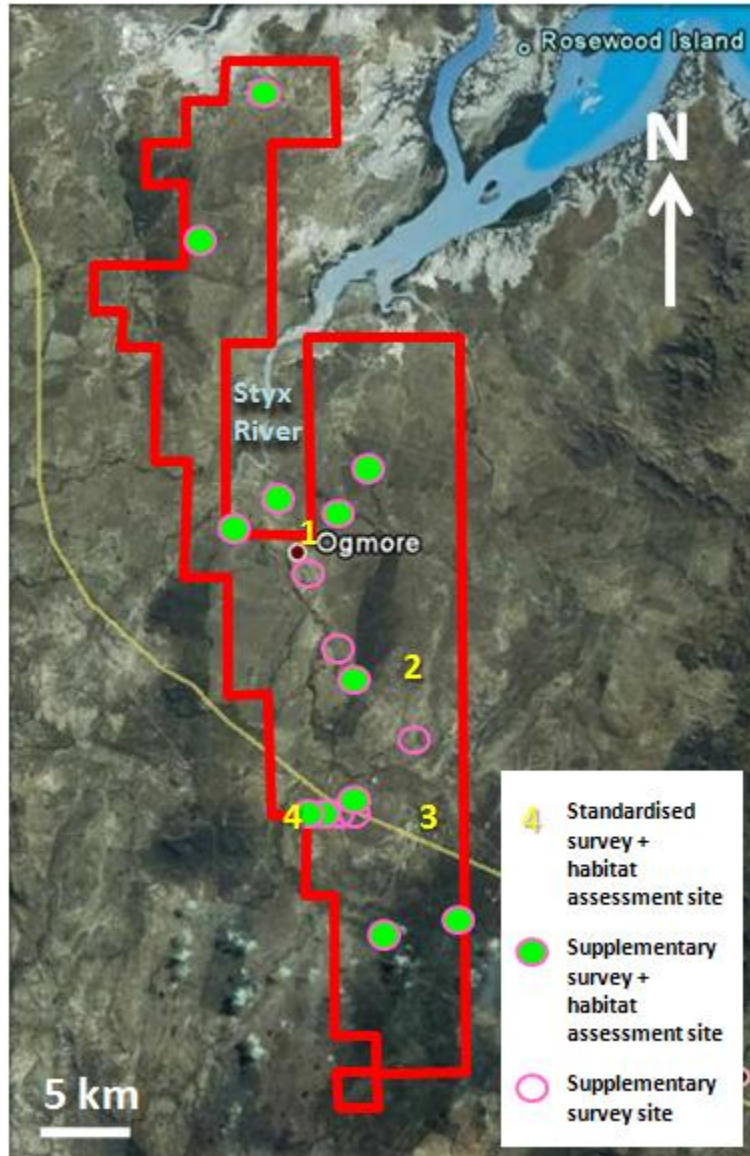
Due to the limitations of existing information and survey work undertaken in March 2011 (see below), accurately assessing the likelihood of occurrence of some conservation significant species has proven difficult. A precautionary approach has therefore been adopted when assessing the likelihood of conservation species occurring within EPC 1029. Further field surveys and assessment of habitat are required to more accurately assess the likelihood of these species occurring within EPC 1029.

### Field surveys

Field surveys were carried out from March 21- 25, at the end of the 2010-2011 wet season. Field work undertaken during this period included (1) systematic surveys at sites broadly representative of mapped remnant vegetation within EPC 1029, (2) supplementary surveys at a number of additional sites within EPC 1029, (3) systematic assessment of habitat values at a range of sites across EPC 1029, and (4) road transects targeting nocturnal fauna. Details of each of these survey components are provided below.

## 1. Systematic surveys

Systematic surveys were undertaken at four sites within or bordering EPC 1029. A brief description of each site (including locality data) is provided in Table 1, below. The approximate location of systematic survey sites is shown in Figure 2 (below).



**Figure 2. Approximate location of survey and habitat assessment sites within EPC 1029, March 2011. Boundary of EPC area shown in red. Base map sourced from Google Earth™ (2010).**

Survey effort at the abovementioned systematic survey sites included the following:

- Two 20 minute x 20 ha bird censuses at each site
- Elliott trapping (with 20 baited Elliott A and B traps deployed over four nights at each site)
- Camera trap surveys (with 5 came traps deployed over four nights at each site)
- Active diurnal searches (1 person hour at each site)

- Nocturnal searches/spotlighting (1 person hour at each site)
- Anabat detection of ultrasonic bat calls (with a single Anabat unit deployed for one night at each site)

Analysis of Anabat call recordings made at systematic and supplementary survey sites was undertaken by Greg Ford, a recognized expert in the analysis of ultrasonic bat calls.

**Table 1. Location and description of standardized survey sites**

Site ID	Latitude	Longitude	Site description
Site 1	22°40'07.9"	149°41'41.1"	Remnant <i>Eucalyptus crebra</i> woodland with sparse shrub layer and dense cover of native grasses, c. 10 km south-east of Ogmores
Site 2	22°37'08.2"	149°39'35.2"	Remnant gilgaid brigalow ( <i>Acacia harpophylla</i> ) woodland, near Ogmores
Site 3	22°43'04.8"	149°40'10.7"	Remnant riparian open forest/woodland along Deep Creek, west of the Bruce Highway
Site 4	22°42'48.8"	149°37'16.9"	Remnant <i>E. crebra</i> / <i>E. exserta</i> woodland/open forest with a mid-dense shrubby understory of <i>Acacia rhodoxylon</i> , adjacent Mt Bison Road, west of the Bruce Highway

## 2. Supplementary surveys

During March surveys, bird censuses, diurnal and nocturnal searches, Anabat surveys, and call playback surveys (targeting barking owl, powerful owl, rufous owl and grass owl) were undertaken at a number of additional sites as well. Details of these sites, including their location and a brief habitat description, are provided in Table 2, below.

**Table 2. Additional survey effort at supplementary survey sites within EPC 1029.**

Site ID	Latitude	Longitude	Site description	Survey method(s) employed
Supplementary site 1	22°42'59.0"	149°40'12.1"	Stock dam in partly-cleared <i>E. crebra</i> woodland, north of Deep Creek	Anabat (1 night)
Supplementary site 2	22°43'04.2"	149°40'10.6"	Remnant riparian forest and adjacent <i>E. crebra</i> woodland	Call playback
Supplementary site 3	22°42'39.4"	149°39'30.7"	Extensive grassy flat with few trees	Call playback
Supplementary site 4	22°42'40.6"	149°38'19.1"	Remnant <i>Corymbia</i> open forest/woodland adjacent pasture	Call playback
Supplementary site 5	22°40'11.1"	149°41'43.7"	Remnant <i>E. crebra</i> woodland	Call playback
Supplementary site 6	22°40'27.5"	149°42'10.3"	Partly-cleared grassy eucalypt woodland	Call playback
Supplementary site 7	22°26'16.9"	149°36'35.4"	Grass-sedge wetland in far north of EPC 1029	20 min x 20 ha bird census
Supplementary site 8	22°29'07.0"	149°35'02.4"	<i>E. crebra</i> woodland with grassy understory comprising mostly native grasses	Diurnal search (30 mins)
Supplementary site 9	22°34'49.4"	149°40'56.6"	Riparian forest/woodland at Stoodleigh Ck	20min x 20 ha bird census
Supplementary site 10	22°36'23.3"	149°40'29.4"	<i>E. moluccana</i> open forest with mid-dense shrub layer and dense grassy understory	20 min x 20 ha bird census



Site ID	Latitude	Longitude	Site description	Survey method(s) employed
Supplementary site 11	22°46'02.8"	149°41'45.8"	Riparian open forest/woodland with scattered <i>Lophostemon suaveolens</i> along Neerim Creek, west of the Bruce Highway.	Diurnal search (1 hour)
Supplementary site 12	22°45'16.4"	149°42'57.7"	Regrowth <i>E. melanophloia</i> woodland on hilltop, west of the Bruce Highway	Diurnal search (30 mins)
Supplementary site 13	22°42'41.3"	149°40'16.2"	<i>E. populnea</i> / <i>E. crebra</i> woodland with grassy understory adjacent the Bruce Highway	Diurnal search(30 mins)
Supplementary site 14	22°42'43.9"	149°37'30.3"	Remnant brigalow woodland abutting <i>E. crebra</i> woodland, adjacent road to Ogmore	Diurnal search (1 hour)
Supplementary site 15	22°36'56.8"	149°37'34.9"	Riparian brigalow/belah forest abutting gilgaied pasture	Diurnal search (1 hour)
Supplementary site 16	22°39'30.8"	149°41'10.2"	Gilgaied brigalow regrowth, adjacent road to Ogmore	Nocturnal search (1 hour)
Supplementary site 17	22°37'32.1"	149°39'46.1"	Gilgaied regrowth brigalow, adjacent road to Ogmore	Nocturnal search
Supplementary site 18	22°35'55.4"	149°38'33.3"	Gilgaied brigalow woodland, north of Ogmore	Nocturnal search (2.5 h)

### 3. Road transects

Nocturnal drive transects were undertaken to allow detection of nocturnal fauna crossing roads within EPC 1029 by night. Whilst traversing roads at night, a 100 W spotlight was used to spotlight nocturnal animals in nearby vegetation as well. Road transects were also used to survey for squatter pigeons foraging along unsealed tracks bisecting grassy woodland. Roads within and adjacent EPC 1029 were also scanned for road-killed fauna.

### 4. Fauna habitat assessments

A systematic assessment of habitat values was undertaken at sites across EPC 1029, the details of which are provided in Table 3, below. For the assessment of habitat values, information on vegetation structure, floristics, ground cover, disturbance and various other habitat attributes (e.g., presence of tree hollows, stags and exfoliating bark) were recorded on a proforma, a copy of which is included in Appendix E.

**Table 3. Details of sites at which habitat assessments were carried out.**

Site #	Latitude	Longitude	Site description
1	22°42'39.0"	149°38'05.4"	<i>Corymbia</i> woodland with mid-dense shrub layer and weedy ground cover, adjacent Mt Bison Rd
2	22°42'41.1"	149°38'16.5"	Wooded wetland with <i>Melaleuca viridiflora</i> , adjacent Mt Bison Rd
3	22°40'07.9"	149°41'41.1"	<i>Eucalyptus crebra</i> woodland with dense grassy understory
4	22°37'08.2"	149°39'35.2"	Remnant gilgaied brigalow ( <i>Acacia harpophylla</i> ) woodland, near Ogmore
5	22°43'04.8"	149°40'10.7"	Riparian open forest along Deep Creek, west of the Bruce Highway
6	22°42'48.8"	149°37'16.9"	<i>Eucalyptus crebra</i> woodland with sparse shrub layer and dense cover of native grasses, south-east of Bowman

Site #	Latitude	Longitude	Site description
7	22°26'16.9"	149°36'35.4"	Grass-sedge wetland on marine plain in far north of EPC 1029
8	22°29'07.0"	149°35'02.4"	<i>E. crebra</i> woodland with grassy understory comprising mostly native grasses
9	22°34'49.4"	149°40'56.6"	Riparian habitat at Stoodleigh Ck
10	22°36'23.3"	149°40'29.4"	Remnant <i>E. moluccana</i> woodland with grassy understory and mid-dense shrub layer
11	22°46'02.8"	149°41'45.8"	Riparian <i>E. tereticornis</i> / <i>E. crebra</i> open forest/woodland with scattered <i>Lophostemon suaveolens</i> , at Neerim, west of Bruce Highway
12	22°45'16.4"	149°42'57.7"	Regrowth <i>E. melanophloia</i> woodland/ <i>A. rhodoxylon</i> , adjacent road to Neerim homestead
13	22°42'41.3"	149°40'16.2"	Remnant <i>E. populnea</i> / <i>E. crebra</i> woodland with grassy understory, adjacent the Bruce Highway
14	22°42'43.9"	149°37'30.3"	Remnant brigalow woodland adjoining <i>E. crebra</i> woodland, near systematic survey site 1
15	22°36'56.8"	149°37'34.9"	Riparian brigalow/belah forest abutting gilgaied pasture
16	22°35'55.4"	149°38'33.3"	Gilgaied brigalow regrowth north of Ogmore

### Survey conditions

Surveys were undertaken at the tail end of an exceptionally wet summer with well-above-average rainfall over most of coastal eastern Queensland. December rainfall totals for Queensland's central coast were especially high with Marlborough recording over 560 mm of rain (more than four times the December average). In the week before surveys, heavy falls were again recorded over the central east coast with Marlborough receiving 145.6 mm of rain. During surveys, Marlborough received another 23.6 mm of rain.

As a result of significant rainfall in the preceding weeks and months, grass cover was thick across much of EPC 1029. Surface water was also plentiful with creeks and drainage lines across the site carrying large volumes of running water.

Despite occasional showers early on, conditions during surveys were reasonably fine and warm. Maximum and minimum daily temperatures during the survey period (March 21 -25) were close to average with daily temperatures for Williamson (to the near east of EPC 1029) ranging from 21.9 to 34.6 °C. During surveys, relative humidity was generally high (above 50 % and often higher), with wind levels remaining low.

Surveys were undertaken shortly after a new moon. Moonrise at the start of surveys was approximately 22:00 h, however by the end of the survey period (March 25) moonrise was considerably later (i.e., 01:40 hours). Levels of night light were therefore high at the start of surveys.

### Survey limitations

With exceptional rainfall in the months and weeks leading up to surveys, site access was greatly restricted. Because of this, site coverage was far from comprehensive.

With conditions already wet and the prospect of further significant rainfall, pitfall trapping was not undertaken during surveys. The detectability of terrestrial fauna (in particular herpetofauna) would

therefore have been significantly reduced. Early on during surveys, the activity and detectability of small mammals may also have been reduced by bright moonlight. Survey results are therefore likely to underestimate the abundance and diversity of terrestrial fauna within EPC 1029. A paucity of flowering eucalypts during surveys is also likely to have affected the abundance of nectarivores including flying-foxes (*Pteropus* spp), lorikeets and honeyeaters. Survey results are therefore likely to underestimate the abundance and diversity of these taxa as well.

The timing of surveys may also have been unsuitable for detection of some migratory bird species within EPC 1029. This would include both summer visitors departing Queensland in March (e.g., spectacled monarch, black faced monarch and various migratory shorebirds) and winter visitors yet to arrive from more southerly latitudes.

Because of the above limitations, survey results cannot be relied upon to accurately assess the likely occurrence or suitability of habitat for all conservation significant species potentially occurring within EPC 1029. For this reason, a precautionary approach has been adopted when assessing the likelihood of conservation significant taxa occurring on site (see above).

## 4. Results

### Desktop assessment findings

Database and literature searches yielded records of 482 terrestrial vertebrate species from the Desktop Assessment Study Area, reflecting the diversity of fauna habitat within the Styx River Basin and surrounds (see Appendix A for full list of species). Significantly fewer species (313 species including 69 species of conservation significance) have been recorded from the Styx Basin, with fewer still (136 species in all) recorded within or near EPC 1029 (see Appendix A).

Amongst those species previously recorded within or near EPC 1029 are 15 species of conservation significance including the squatter pigeon (southern race) (listed as Vulnerable under both the EPBC and NC Act), black-breasted button-quail (listed as Vulnerable under the EPBC and NC Act), beach stone-curlew (listed as Vulnerable under the NC Act), and several EPBC Act-listed Migratory species (see Appendix A). At least two of these - the squatter pigeon and rufous fantail - have previously been recorded within EPC 1029. Despite the known occurrence of NC Act-listed species, no Essential Habitat has been mapped for any listed fauna species in the vicinity of EPC 1029.

EPC 1029 does not occur within or adjacent any Ramsar-listed sites, but does adjoin Broad Sound, an internationally important area for migratory shorebirds including red-necked stint, sharp-tailed sandpiper and marsh sandpiper (Jaensch, 2009). Broad Sound is also of national significance for the great knot, supporting one of the largest aggregations of this species on Australia's east coast (Jaensch, 2009).

### Likelihood of occurrence assessments

Likelihood of occurrence assessments using information obtained from desktop and field-based investigations were undertaken for 95 conservation significant species known to occur or potentially occurring within the broader Desktop Assessment Study Area (see Appendix B for details). Of the 95 species assessed, 48 species of conservation significance were identified as occurring or likely to occur within EPC 1029. A list of these species is provided in Table 4, below.

**Table 4. Preliminary list of conservation significant fauna known or likely to occur within EPC 1029.**

Common name	Scientific name	EPBC Act status	NC Act status	'Back on Track'/ BPA status	Likelihood of occurrence within EPC 1029
Black-necked stork	<i>Ephippiorhynchus asiaticus</i>	-	Near Threatened	Priority	Likely
Red Goshawk	<i>Erythrotriorchis radiatus</i>	Vulnerable	Endangered	Priority	Likely
Beach Stone Curlew	<i>Esacus magnirostris</i>	-	Vulnerable	Priority	Likely
Squatter pigeon (southern race)	<i>Geophaps scripta scripta</i>	Vulnerable	Vulnerable	Priority	Known to occur
Square-tailed kite	<i>Lophoictinia isura</i>	-	Near Threatened	Priority	Known to occur
Black-chinned honeyeater	<i>Melithreptus gularis</i>	-	Near Threatened	Priority	Likely
Cotton pygmy-geese	<i>Nettapus coromandelensis</i>	-	Near Threatened	Priority	Known to occur
Powerful Owl	<i>Ninox strenua</i>	-	Vulnerable	Priority	Likely
Eastern curlew	<i>Numenius madagascarensis</i>	Migratory	Near	Priority	Likely

Common name	Scientific name	EPBC Act status	NC Act status	'Back on Track' / BPA status	Likelihood of occurrence within EPC 1029
			Threatened		
Australian painted snipe	<i>Rostratula australis</i>	Vulnerable/Migratory	Vulnerable	Priority	Likely
Radjah shelduck	<i>Tadorna radjah</i>	-	Near Threatened	Priority	Likely
Northern quoll	<i>Dasyurus hallucatus</i>	Endangered	Least Concern	Priority	Likely
Ornamental snake	<i>Denisonia maculata</i>	Vulnerable	Vulnerable	Priority	Known to occur
Brigalow scaly-foot	<i>Paradelma orientalis</i>	Vulnerable	Vulnerable	Priority	Likely
Common sandpiper	<i>Actitis hypoleucos</i>	Migratory	Special Least Concern	-	Likely
Fork-tailed swift	<i>Apus pacificus</i>	Migratory	Special Least Concern	-	Known to occur
Eastern egret	<i>Ardea alba</i>	Migratory	Special Least Concern	-	Likely
Cattle egret	<i>Ardea ibis</i>	Migratory	Special Least Concern	-	Likely
Sharp-tailed sandpiper	<i>Calidris acuminata</i>	Migratory	Special Least Concern	-	Likely
Curlew sandpiper	<i>Calidris ferruginea</i>	Migratory	Special Least Concern	-	Likely
Red-necked stint	<i>Calidris ruficollis</i>	Migratory	Special Least Concern	-	Likely
Greater sand plover	<i>Charadrius leschenaultii</i>	Migratory	Special Least Concern	-	Likely
Lesser sand plover	<i>Charadrius mongolus</i>	Migratory	Special Least Concern	-	Likely
Oriental cuckoo	<i>Cuculus saturatus</i>	Migratory	Special Least Concern	-	Known to occur
Latham's snipe	<i>Gallinago hardwickii</i>	Migratory	Special Least Concern	-	Likely
White-bellied sea-eagle	<i>Haliaeetus leucogaster</i>	Migratory	Special Least Concern	-	Likely
White-throated needletail	<i>Hirundapus caudacutus</i>	Migratory	Least Concern	-	Likely
Bar-tailed godwit	<i>Limosa lapponica</i>	Migratory	Special Least Concern	-	Likely
Black-tailed godwit	<i>Limosa limosa</i>	Migratory	Special Least Concern	-	Likely
Rainbow bee-eater	<i>Merops ornatus</i>	Migratory	Special Least Concern	-	Known to occur
Black-faced monarch	<i>Monarcha melanopsis</i>	Migratory	Special Least Concern	-	Likely
Spectacled monarch	<i>Monarcha trivirgatus</i>	Migratory	Special Least Concern	-	Likely
Satin flycatcher	<i>Myiagra cyanoleuca</i>	Migratory	Special Least Concern	-	Likely
Little curlew	<i>Numenius minutus</i>	Migratory	Special Least Concern	-	Likely
Whimbrel	<i>Numenius phaeopus</i>	Migratory	Special Least Concern	-	Likely
Osprey	<i>Pandion haliaetus</i>	Migratory	Special Least Concern	-	Likely
Glossy ibis	<i>Plegadis falcinellus</i>	Migratory	Special Least	-	Likely

Common name	Scientific name	EPBC Act status	NC Act status	'Back on Track' / BPA status	Likelihood of occurrence within EPC 1029
			Concern		
Pacific golden plover	<i>Pluvialis fulva</i>	Migratory	Special Least Concern	-	Likely
Grey plover	<i>Pluvialis squatarola</i>	Migratory	Special Least Concern	-	Likely
Rufous fantail	<i>Rhipidura rufifrons</i>	Migratory	Special Least Concern	-	Known to occur
Caspian tern	<i>Sterna caspia</i>	Migratory	Special Least Concern	-	Likely
Grey-tailed tattler	<i>Tringa brevipes</i>	Migratory	Special Least Concern	-	Likely
Common greenshank	<i>Tringa nebularia</i>	Migratory	Special Least Concern	-	Likely
Marsh sandpiper	<i>Tringa stagnatilis</i>	Migratory	Special Least Concern	-	Likely
Terek sandpiper	<i>Xenus cinereus</i>	Migratory	Special Least Concern	-	Likely
Capricorn worm-skink	<i>Anomalopus brevicollis</i>	-	Least Concern	Priority	Likely
Koala	<i>Phascolarctos cinereus</i>	-	Special Least Concern	-	Known
Echidna	<i>Tachyglossus aculeatus</i>	-	Special Least Concern	-	Known

In addition to the abovementioned fauna another 23 species were assessed as possibly occurring within EPC 1029 (see table 5 below). The potential occurrence of these taxa within EPC 1029 will need to be investigated further with field-based surveys and assessment of habitat values.

**Table 5. List of conservation significant fauna possibly occurring within EPC 1029. Further field-based surveys and assessment of habitat within EPC 1029 are needed to more accurately assess the likelihood of these species occurring on site.**

Common name	Scientific name	EPBC Act status	NC Act status	'Back on Track' / BPA status	Likelihood of occurrence within EPC 1029
Rough collared frog	<i>Cyclorana verrucosa</i>	-	Near Threatened	Priority	Possible
Grey goshawk	<i>Accipiter novaehollandiae</i>	-	Near Threatened	Priority	Possible
Glossy black Cockatoo	<i>Calyptorhynchus lathami</i>	-	Vulnerable	Priority	Possible
Yellow chat (Dawson subspecies)	<i>Epthianura crocea macgregori</i>	Critically Endangered	Endangered	Priority	Possible
Rufous owl (southern)	<i>Ninox rufa queenslandica</i>	-	Vulnerable	Priority	Possible
Black-breasted button-quail	<i>Turnix melanogaster</i>	Vulnerable	Vulnerable	Priority	Possible
Ghost bat	<i>Megaderma gigas</i>	-	Vulnerable	Priority	Possible
Water mouse	<i>Xeromys myoides</i>	Vulnerable	Vulnerable	Priority	Possible



Common name	Scientific name	EPBC Act status	NC Act status	'Back on Track' / BPA status	Likelihood of occurrence within EPC 1029
Death adder	<i>Acanthophis antarcticus</i>	-	Near Threatened	Priority	Possible
Collared delma	<i>Delma torquata</i>	Vulnerable	Vulnerable	Priority	Possible
Yakka skink	<i>Egernia rugosa</i>	Vulnerable	Vulnerable	Priority	Possible
Dunmall's snake	<i>Furina dunmali</i>	Vulnerable	Vulnerable	Priority	Possible
Imperial hairstreak	<i>Jalmenus eubulus</i>	Vulnerable	Vulnerable	Priority	Possible
Great knot	<i>Calidris tenuirostris</i>	Migratory	Special Least Concern	-	Possible
Greater sand plover	<i>Charadrius leschenaultii</i>	Migratory	Special Least Concern	-	Possible
White-winged black tern	<i>Chlidonis leucopterus</i>	Migratory	Special Least Concern	-	Possible
Barn swallow	<i>Hirundo rustica</i>	Migratory	Special Least Concern	-	Possible
Pacific golden plover	<i>Pluvialis fulva</i>	Migratory	Special Least Concern	-	Possible
Saltwater crocodile	<i>Crocodylus porosus</i>	Migratory	Special Least Concern	-	Possible
Spectacled hare-wallaby	<i>Lagorchestes hirsutus</i>	-	Least Concern	Priority	Possible
Yellow-bellied glider	<i>Petaurus australis</i>	-	Least Concern	Priority	Possible
Rusty monitor	<i>Varanus semiremex</i>	-	Least Concern	Priority	Possible
Platypus	<i>Ornithorhynchus anatinus</i>	-	Special Least Concern	-	Possible

## Field survey results

### 1. Fauna

A total of 176 vertebrate species were recorded within or immediately adjacent EPC 1029 during wet season surveys (see Table C1, Appendix C for full list). This is significantly more than the number previously recorded in the vicinity of EPC 1029, highlighting the paucity of existing knowledge of fauna in this area.

As census data from systematic survey sites show, abundances of most species recorded during surveys were low (see Tables C2-C5, Appendix C). Frogs, finches and grassland birds (e.g., singing bushlark), however, were highly abundant in parts of EPC 1029, due to the wet conditions and resulting proliferation of seeding grasses before March surveys.

Amongst the fauna recorded during surveys in March 2011 are a number of conservation significant species listed under the NC Act and/or EPBC Act including:

- squatter pigeon (southern race) (*Geophaps scripta scripta*) – listed as vulnerable under both the NC Act and EPBC Act
- ornamental snake (*Denisonia maculata*) – listed as vulnerable under both the NC Act and EPBC Act
- square-tailed kite – listed as near threatened under the NC Act
- cotton pygmy-goose – listed as near threatened under the NC Act

- a number of EPBC Act-listed migratory species including rufous fantail (*Rhipidura rufifrons*), oriental cuckoo (*Cuculs optatus*), rainbow bee-eater (*Merops ornatus*) and fork-tailed swift (*Apus pacificus*)
- koala and short-beaked echidna - listed as significant least concern under the NC Act.

Details of sightings of EVR taxa (i.e., number of individuals seen and habitat in which species were recorded) are provided in Table 6, below. The approximate location of EVR fauna records is shown in Figure 3 (below).

**Table 6. Records of EVR species from surveys undertaken in late March 2011.**

Species	Scientific name	NC Act status	EPBC Act status	Latitude	Longitude	Details
Squatter pigeon (southern)	<i>Geophaps scripta scripta</i>	Vulnerable	Vulnerable	22°41'02.6"	149°42'46.5"	3 birds beside road in mostly-cleared <i>E. melanophloia</i> / <i>E. populnea</i> woodland (21/3/2011)
Squatter pigeon (southern)	<i>Geophaps scripta scripta</i>	Vulnerable	Vulnerable	22°40'29.2"	149°42'11.3"	2 subadult birds beside road in cleared/regrowth eucalypt ( <i>E. melanophloia</i> / <i>E. populnea</i> and <i>Corymbia</i> sp) woodland with grassy understory (21/3/2011)
Squatter pigeon (southern)	<i>Geophaps scripta scripta</i>	Vulnerable	Vulnerable	22°42'42.4"	149°40'15.6"	6 birds (including 2 subadult birds) in remnant <i>E. populnea</i> woodland with grassy understory, opposite main entrance to Mamelon (22/3/2011)
Squatter pigeon (southern)	<i>Geophaps scripta scripta</i>	Vulnerable	Vulnerable	22°27'40.7"	149°35'39.0"	2 birds in <i>E. crebra</i> / <i>C. tessellaris</i> woodland with mid-dense grassy understory including native and pasture grasses; site impacted by grazing (23/3/2011)
Squatter pigeon (southern)	<i>Geophaps scripta scripta</i>	Vulnerable	Vulnerable	22°40'26.5"	149°42'09.6"	2 birds coming to water at creek crossing; creek lined with <i>E. tereticornis</i> (23/3/2011)
Squatter pigeon (southern)	<i>Geophaps scripta scripta</i>	Vulnerable	Vulnerable	22°34'43.2"	149°40'18.1"	4 birds alongside road through cleared eucalypt ( <i>E. populnea</i> ) woodland with dense grassy understory (23/3/2011)
Squatter pigeon (southern)	<i>Geophaps scripta scripta</i>	Vulnerable	Vulnerable	22°41'20.0"	149°43'10.4"	2 birds on edge of road through sparse regrowth <i>E. populnea</i> woodland with grassy understory comprised mostly of exotic grasses (24/3/2011)
Squatter pigeon (southern)	<i>Geophaps scripta scripta</i>	Vulnerable	Vulnerable	22°42'37.4"	149°40'14.1"	Single bird along cattle track through remnant <i>E. populnea</i> / <i>E. crebra</i> woodland with mid-dense grassy understory (24/3/2011)
Squatter pigeon (southern)	<i>Geophaps scripta scripta</i>	Vulnerable	Vulnerable	22°42'43.9"	149°37'30.3"	5 birds on road edge along Mt Bison Rd, in <i>Corymbia</i> woodland with mixed shrubby understory (24/3/2011)

Squatter pigeon (southern)	<i>Geophaps scripta scripta</i>	Vulnerable	Vulnerable	22°42'46.7"	149°40'14.6"	Single bird on track near gate, in cleared <i>E. crebra</i> woodland, just north of Deep Ck (25/3/2011)
Squatter pigeon (southern)	<i>Geophaps scripta scripta</i>	Vulnerable	Vulnerable	22°41'43.0"	149°43'28.5"	Single bird on road to Ogmore, in cleared mixed eucalypt woodland with mid-dense grassy understory (25/3/2011)
Squatter pigeon (southern)	<i>Geophaps scripta scripta</i>	Vulnerable	Vulnerable	22°29'00.8"	149°35'26.5"	3 birds in far north of EPC 1029, at Plain View (24/3/2011)
Cotton pygmy-goose	<i>Nettapus coromandelianus</i>	Near Threatened	-	22°27'35.3"	149°35'39.8"	2 birds on stock dam in far north of EPC 1029 (23/3/2011)
Square-tailed Kite	<i>Lophoictinia isura</i>	Near Threatened	-	22°37'09.2"	149°39'34.0"	Single bird seen high over Trap Site 2, near Ogmore (23/3/2011)
Ornamental snake	<i>Denisonia maculata</i>	Vulnerable	Vulnerable	22°36'56.8"	149°37'34.9"	Single adult animal found under timber in riparian brigalow/belah woodland, adjacent cleared gilgaied brigalow (23/3/2011)

As indicated above, numbers of conservation significant species recorded during surveys were low, with the exception of the squatter pigeon (southern race) which was frequently encountered during surveys. The number of squatter pigeon records from March surveys, despite limited site coverage, suggests habitat within EPC 1029 may be of some importance to this species. The presence of subadult individuals, moreover, suggests habitat within EPC 1029 may be used for breeding as well as foraging.

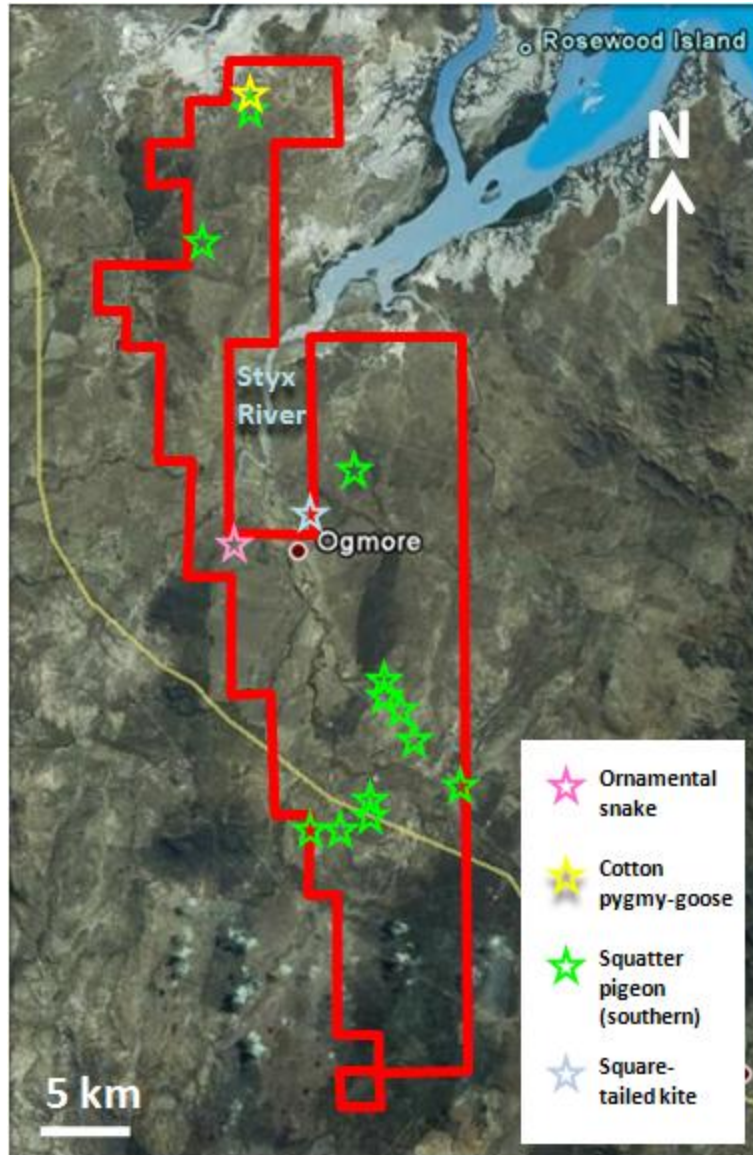
Amongst the vertebrate species recorded within EPC 1029 during surveys were several introduced species: feral cat, house mouse, horse, pig, rabbit, cane toad and cattle. With exception of the cane toad (which was widespread and common due to the unusually wet conditions preceding surveys), abundances of these species were low.

## 2. Fauna habitat

EPC 1029 encompasses a range of wetland and dryland habitats including grass-sedge and wooded wetlands, salt marsh, mangroves, open eucalypt forest and woodland, semi-evergreen vine thicket, brigalow woodland, riparian forest/woodland, and grassland. The condition, extent and value of these habitats to terrestrial fauna (in particular species of conservation significance known to occur or potentially occurring within EPC 1029) are discussed below. Representative photos of habitat within EPC1029 are included in Appendix D.

### a. Wetland habitat

Wetland habitat within EPC 1029 can be broadly divided into freshwater and brackish water/saline wetlands. The latter (i.e., brackish/saline wetlands) include areas of saltmarsh, mangroves and saline or brackish grass-sedge swamp in the far north and north-east of EPC 1029. The former (i.e., freshwater wetland habitat) includes areas of grass-sedge swamp, wooded wetland, ponded pasture and stock dams. The condition, extent and value of these habitats for terrestrial fauna (in particular species of conservation significance known or likely to occur within EPC 1029) are discussed below.



**Figure 3. Approximate location of EVR fauna records within EPC 1029 from surveys in March 2011. Boundary of EPC area shown in red. Base map sourced from Google Earth™ (2010).**

**i. Mangrove wetland**

Due to difficulties with site access, no areas of mangrove vegetation were inspected during March surveys. DERM RE mapping, however, indicates the presence of mangrove forest/woodland (RE 11.1.4) on marine clay plains in the far north-east of EPC 1029. Satellite imagery of this area shows mangrove vegetation associated with an integrated network of stream channels extending 3-4 km, beyond the northern boundary of EPC 1029. Formerly part of a more extensive network, this area of mangrove channels appears to be situated above a bund wall and may no longer be subject to regular tidal inundation. To what extent this has affected the condition of mangrove wetlands in this area is unknown and, as such, the value of this area of mangroves to fauna is difficult to assess. Potentially, mangrove wetland in this part of EPC 1029 could provide habitat for a number of species of conservation significance known to utilise mangroves for foraging and/or roosting including the eastern curlew and

Radjah shelduck (listed as near threatened under the NC Act), beach stone-curlew (listed as vulnerable under the NC Act), and several EPBC Act-listed migratory shorebirds (e.g., whimbrel, common sandpiper, grey-tailed tattler). Further survey work is required to properly assess the value of mangrove habitat in this area for these species and other terrestrial fauna.

#### ii. Grass-sedge wetlands

Marine clay plains in the north of EPC 1029 and adjacent land support extensive areas of saline/ brackish water grassland and sedgeland (REs 11.1.1/11.1.3). Though subject to grazing, these wetland areas appear to be good in good condition with extensive, dense to mid-dense cover of mostly native grasses and sedges. With the exception of olive hymenachne (*Hymenachne amplexicaulis*) forming dense swathes along some drainage lines, invasive weeds appear to be scarce.

While generally species depauperate, sedge-grass wetlands are known to provide foraging and breeding habitat a number of conservation significant fauna including the critically endangered yellow chat (Dawson subspecies) which is known to occur in similar habitat to the east of EPC 1029 (Jaensch, 2009). Sedge-grass swamps may also provide habitat for the vulnerable Australian painted snipe, a species recorded from sedge-grass swamp to the near north of EPC 1029 (Jaensch, 2009). The black-necked stork, a species listed as near threatened under the NC Act, could also utilize grass-sedge wetlands for foraging. Where grass-sedge swamp occurs in close proximity to mangrove vegetation, such habitat may also be utilized by the vulnerable water mouse.

#### iii. Saltmarsh

Though not inspected during surveys, DERM mapping and satellite imagery indicate the presence of extensive areas of saltmarsh (samphire forbland and bare salt flats) in the far north of EPC 1029 and adjacent lands. Samphire forbland within EPC 1029 may provide foraging and/or roosting habitat for a range of bird species including the critically endangered yellow chat, the vulnerable Australian painted snipe and a number of other EPBC Act-listed migratory shorebird species (see Table 8, for details). Where samphire forbland occurs in close proximity to mangrove vegetation, such habitat may also be utilized by the vulnerable water mouse. Though of lesser value to fauna, bare salt flats within and immediately adjacent EPC 1029 also may provide roosting and/or foraging habitat for a range of shorebirds including the vulnerable beach stone-curlew, near threatened eastern curlew and various other EPBC Act-listed migratory species (see Tables 7-9, below, for details).

#### iv. Riparian wetlands

EPC 1029 is bisected by a number of major waterways including several large tributaries of the Styx River (i.e., Deep and Tooloombah Creeks), the Styx River itself, and Stoodleigh Creek to the east of Ogmoo. During the summer wet season, these and many other smaller waterways carry significant amounts of running water. At drier times, flows in most if not all the aforementioned creeks would be significantly reduced, leaving most creek beds dry or mostly dry.

Creeks within EPC 1029 provide breeding and/or foraging habitat for a range of common riverine species including freshwater turtles, frogs and various waterbirds (including ducks, herons and egrets, kingfishers, and black bittern). Riparian habitat in the lower and middle reaches of the Styx River may also be utilised by the white-bellied sea-eagle and estuarine crocodile, both of which are listed as migratory species under the EPBC Act. If present within the Styx Basin, sections of creek with deeper permanent water and undercut banks could possibly provide habitat for platypus (listed as special least concern under the NC Act) as well. Remnant vegetation fringing creeks may also provide important

habitat for a range of terrestrial fauna. The value of riparian vegetation to fauna within EPC 1029 is discussed further, below.

#### v. Wooded wetlands

Though limited in extent and often degraded (due to grazing and the presence of olive hymenachne), wooded wetlands within EPC 1029 provide habitat for a range of terrestrial fauna including wetland birds, frogs and freshwater cheluid turtles. Fauna of conservation significance known or likely to utilise such habitat within EPC 1029 include the black-necked stork and radjah shelduck (both listed as near threatened under the NC Act). Several wetland birds listed as Migratory species under the EPBC Act (including eastern egret, glossy ibis) may also utilize wooded wetlands for foraging and, potentially, breeding.

#### vi. Poned pasture

Low-lying parts of EPC 1029 support extensive areas of poned pasture, particularly in the south of EPC 1029. Within EPC 1029, areas of poned pasture are often dominated by olive hymenachne. Despite this, poned pasture within EPC 1029 provides suitable habitat for a number of common wetland birds (e.g., ibis, herons and egrets, magpie goose and purple swamphen). In areas where olive hymenachne doesn't dominate and grass cover is more open, poned pasture may also provide foraging habitat for a number of conservation significant species including the vulnerable Australian painted snipe, near threatened radjah shelduck, eastern egret and glossy ibis.

#### vii. Stock dams

Stock dams within EPC 1029 provide important feeding and/or breeding habitat for a range of wetland species including frogs, waterfowl and various other wetland birds. During dry times, these dams may also provide a valuable source of drinking water for macropods, bats and woodland/ grassland birds (e.g., honeyeaters, pigeons and finches). Amongst the conservation significant species known or likely to utilise stock dams within EPC 1029 are the vulnerable squatter pigeon (southern race) and several near threatened species including black-chinned honeyeater, cotton pygmy-goose and radjah shelduck. Stock dams with shallow grassy and/or reedy margins, could also provide habitat for the vulnerable Australian painted snipe and a number of other shorebird species listed as migratory under the EPBC Act (see Table 8, below). In the absence of large numbers of cane toads, stock dams situated close to areas of cracking clay soil could also provide foraging habitat for the Vulnerable ornamental snake, a species known to occur within EPC 1029.

### b. Dryland habitat

Dryland habitat within EPC 1029 includes extensive areas of grassland as well as smaller, fragmented areas of remnant and regrowth eucalypt forest and woodland, brigalow scrub and semi-evergreen vine-thicket. The condition, extent and value of these habitats for terrestrial fauna (in particular species of conservation significance known or likely to occur within EPC 1029) are discussed separately below.

#### i. Non-riparian eucalypt forest/woodland

Despite extensive clearing, EPC 1029 contains significant areas of remnant eucalypt woodland mapped as REs 11.3.29, 11.4.2, 11.5.9, 11.10.1, 11.10.7, 11.11.1, 11.11.15, 11.2.25, 11.3.25, 11.4.2, and 11.11.10. Remnant eucalypt/forest woodland within EPC 1029 is generally dominated by narrow-leaved ironbark (*Eucalyptus crebra*) with smaller areas of woodland habitat dominated by other *Eucalyptus* and



bloodwood (*Corymbia*) spp including *E. populnea*, *E. exserta*, *E. tereticornis*, *C. intermedia* and *C. citriodora* (corresponding to REs 11.2.25, 11.3.25, 11.4.2, 11.10.1, 11.11.10).

The condition and faunal values of eucalypt forest and woodland within EPC 1029 varies considerably. In many areas eucalypt forest/woodland has been heavily impacted by grazing, clearing and/or weed invasion to the detriment of native fauna. Elsewhere within EPC 1029 less disturbed areas of eucalypt forest and woodland provide high quality breeding and foraging habitat for a range of native arboreal and terrestrial fauna including microchiropteran bats, reptiles, gliders, and numerous forest/woodland birds. Amongst the latter are a number of conservation significant species known or likely to occur within EPC 1029 including the endangered northern quoll; vulnerable powerful owl, vulnerable yakka skink and squatter pigeon; near threatened black-chinned honeyeater and square-tailed kite; and Oriental cuckoo (a species listed as Migratory under the EPBC Act). In addition to the aforementioned taxa, eucalypt forest/woodland habitat may provide habitat for a number of other conservation significant species possibly occurring within EPC 1029 including the vulnerable collared delma and near threatened death adder. Potential habitat for these taxa within EPC 1029 is identified in Tables 7-9, below.

Within EPC 1029, areas of remnant *E. crebra* woodland contain few hollow-bearing trees or stags and appear to be of limited value to fauna requiring larger hollows for roosting and/or breeding (e.g., possums, gliders and large owls). For these fauna, areas of riparian *Eucalyptus tereticornis* woodland /forest appear to be of greater value (see below).

## ii. Riparian open forest/woodland

Riparian open forest/woodland within EPC 1029 includes areas of remnant vegetation mapped as REs 11.3.4 and 11.3.25. The dominant canopy species in these REs are forest red gum (*Eucalyptus tereticornis*), weeping tea tree (*Melaleuca leucadendra*), and/or Moreton Bay ash (*Corymbia tessellaris*). Within EPC 1029, ground cover in areas of riparian open forest/woodland is frequently dominated by introduced Guinea grass (*Megathyrsus maximus*). The grassy understory typical of these areas provides foraging habitat, and in some cases shelter, for a range of macropods including eastern grey kangaroo, pretty-faced wallaby, agile wallaby, and rufous bettong.

Riparian forest and woodland within EPC 1029 is also likely to provide foraging habitat for a number of raptor species including the near threatened square-tailed kite and vulnerable EPBC Act-listed red goshawk (and possibly the near threatened grey goshawk as well). Large eucalypts, a common feature of riparian forest/ woodland within parts of EPC 1029, may also be used for nesting by these species. Within EPC 1029, large hollow-bearing *E. tereticornis* are of considerable value to hollow-dependent fauna, providing potential breeding habitat and shelter for a range microchiropteran bats, possums, owls and gliders. Owl species which might utilise these trees for nesting include the vulnerable NC Act-listed powerful owl.

In areas of riparian open forest/woodland, flowering *E. tereticornis* and *M. leucadendra* are likely to provide an important food source for megachiropteran bats (flying foxes) and nectivorous birds. Amongst the latter is the near threatened black-chinned honeyeater, a species known to occur in the Styx Basin area. Aside from these taxa, areas of riparian open forest and woodland within EPC 1029 are also likely to provide shelter, foraging and breeding habitat for many other bird species, ground-dwelling mammals, reptiles and koalas.

More generally, riparian forest and woodland within EPC 1029 is considered important for movement of fauna across the broader landscape, with riparian forest/woodland providing the only linkage between areas of remnant vegetation in the west and east of the Styx River catchment.

### iii. Brigalow woodland

Remnant and regrowth shrubby brigalow (*Acacia harpophylla*) woodland (mapped as REs 11.3.1 and 11.4.9), occurs in isolated patches scattered over EPC 1029, mostly in association with clay plains. The condition of these patches varies with disturbance history reflecting past and current grazing practices (including tree clearing and thinning). Less heavily grazed areas support significantly more grass cover than heavily grazed sites, while previously cleared areas (including some areas mapped as remnant vegetation) lack fallen timber and larger trees with exfoliating bark typical of older/ more mature stands of brigalow woodland. The absence of fallen timber and exfoliating bark may render regrowth brigalow less suitable for reptile species commonly associated with older, more mature stands such as *Gehyra catenata* and the vulnerable EPBC Act-listed brigalow scalyfoot, both of which rely on fallen timber or exfoliating bark for cover. (In the case of the latter species, the presence of deep cracking clay soils may however provide suitable cover in the absence of fallen timber/ exfoliating bark). In the absence of such habitat features, regrowth brigalow woodland may still provide habitat for a range of common terrestrial fauna (e.g., ground-dwelling frogs, skinks and snakes) and birds (including the rufous fantail, a species listed as Migratory under the EPBC Act).

Within EPC 1029, brigalow woodland is often found in association with gilgaied vertosols (i.e., gilgaied soils containing shrinking-swelling clays). In areas of gilgaied brigalow, water-filled depressions or gilgais provide breeding habitat for a range of native frog species which serve as prey for the vulnerable ornamental snake, a species known to occur within EPC 1029. Areas of gilgaied brigalow within EPC 1029 are therefore considered important habitat for this species.

In addition to the aforementioned taxa, brigalow woodland may provide habitat for a number of other conservation significant species possibly occurring within EPC 1029 including the nationally endangered pale imperial hair-streak, vulnerable EPBC Act-listed Dunmall's snake, the near threatened rough collared frog, and endangered NC Act-listed grey snake. Potential habitat for these taxa within EPC 1029 is identified in Tables 7-9, below.

### iv. Belah open forest

Remnant vegetation mapped as RE 11.3.1 includes both brigalow and belah (*Casuarina cristata*) open forest on alluvial plains, with the latter occurring in small isolated patches near the center of EPC 1029. While generally species depauperate, belah forest may provide habitat for conservation significant including the glossy black cockatoo (listed as vulnerable under the NC Act) and vulnerable EPBC Act-listed brigalow scalyfoot, with the former known to utilise belah fruit/cones as a food source. Belah forest fringing creeks may also provide habitat for other conservation significant species including the ornamental snake (listed as Vulnerable under the EPBC Act) and, if present, the grey snake (listed as Endangered under the NC Act) as well.

### v. Semi-evergreen thicket

Though highly fragmented and limited in extent, semi-evergreen vine thicket within EPC 1029 is known or likely to provide habitat for a number of bird species favouring closed forest. This includes the spectacled monarch, rufous fantail and black-faced monarch - species listed as migratory under the EPBC Act which may utilise vine thicket within EPC 1029 for foraging and breeding. The nationally

vulnerable black-breasted button-quail is also known to utilise vine thicket for foraging and breeding and therefore could potentially occur within EPC 1029 as well. The likelihood of this, however, appears low due to the limited extent and fragmented/isolated nature of vine thicket remaining within EPC 1092.

#### vi. Grassland

Tree clearing within the Styx Basin has resulted in the creation of extensive areas of grassland habitat. Within EPC 1029, grassland occurs mainly on alluvial flats and sand plains and appears to be dominated by favoured pasture grasses (both native and non-native). During wet season surveys, areas of grassland within EPC 1029 appeared to be in good condition, though heavy grazing and weed invasion has led to the degradation of grasslands in some areas.

Grasslands within EPC 1029 provide foraging and breeding habitat for a variety of common grassland birds (e.g., Australian pipit, Australian bustard, singing bushlark, and quail) as well as common raptors such as the nankeen kestrel and barn owl. The cattle egret, a species listed as migratory under the EPBC Act, is also likely to utilise grassland habitat within EPC 1029 for foraging, as are various macropods (including eastern grey kangaroo, agile wallaby, pretty-faced wallaby and rufous bettong).

#### c. Man-made structures

Buildings, culverts and bridges within EPC 1029 may also provide habitat for native fauna including microchiropteran bats, birds and reptiles. Within EPC 1029, bridges are used for nesting by fairy martins and swallows, with abandoned martin nests likely to provide roosting habitat for microbats as well. Narrow crevices and overhangs under bridges and culverts are also likely to provide roosting habitat for microbats, as may the roofs of old sheds and farm buildings. Sheds and buildings within EPC 1029 may also provide shelter and foraging habitat for various reptiles as well, including the vulnerable EPBC Act-listed yakka skink.

### Habitat for conservation significant fauna

Based on current information, lands within and adjacent EPC 1029 may provide habitat for over 70 conservation significant species known to occur or potentially occurring within EPC 1029. The potential suitability of habitat for each of these species within and adjacent EPC 1029 is summarized in Tables 7-9, below.

**Table 7. Habitat for EVR fauna known to occur or potentially occurring within EPC 1029.**

Common name	Scientific name	EPBC Act status	NC Act status	Likelihood of occurrence within EPC 1029	Habitat within/adjacent EPC 1029
Rough collared frog	<i>Cyclorana verrucosa</i>	-	Near Threatened	Possible	<ul style="list-style-type: none"> <li>Suitable breeding and foraging habitat (remnant and regrowth gilgaied brigalow) within EPC 1029</li> </ul>
Grey goshawk	<i>Accipiter novaehollandiae</i>	-	Near Threatened	Possible	<ul style="list-style-type: none"> <li>Suitable foraging habitat (riparian forest/woodland) within and adjacent EPC 1029</li> </ul>
Glossy black Cockatoo	<i>Calyptorhynchus lathami</i>	-	Vulnerable	Possible	<ul style="list-style-type: none"> <li>Suitable foraging habitat (stands of belah, <i>Casuarina cristata</i>) within EPC 1029, albeit limited in extent</li> <li>Suitable nest trees (i.e., large hollow-bearing trees/stags in close</li> </ul>

Common name	Scientific name	EPBC Act status	NC Act status	Likelihood of occurrence within EPC 1029	Habitat within/adjacent EPC 1029
					proximity to foraging habitat) scarce within EPC 1029
Black-necked stork	<i>Ephippiorhynchus asiaticus</i>	-	Near Threatened	Likely	<ul style="list-style-type: none"> <li>Suitable foraging habitat (shallow freshwater wetlands and adjacent grassland/paddocks, stock dams) within and adjacent EPC 1029</li> </ul>
Yellow chat (Dawson subspecies)	<i>Epthianura crocea macgregori</i>	Critically Endangered	Endangered	Possible	<ul style="list-style-type: none"> <li>Suitable breeding and/or foraging habitat (grassy saline or freshwater wetlands and sedge-swamp) near north-western boundary of EPC 1029</li> <li>Potential habitat (mapped as RE 11.1.3) adjacent mouth of Styx River (c. 5 km NNE of Styx) as well</li> </ul>
Red Goshawk	<i>Erythrotriorchis radiatus</i>	Vulnerable	Endangered	Likely	<ul style="list-style-type: none"> <li>Suitable foraging and roosting habitat (riparian forest/woodland) within EPC 1029, albeit limited in extent</li> <li>Breeding opportunities within EPC 1029 appear to be limited due to the limited extent of foraging habitat available to breeding birds</li> </ul>
Beach Stone Curlew	<i>Esacus magnirostris</i>	-	Vulnerable	Likely	<ul style="list-style-type: none"> <li>Potential habitat (mangrove vegetation and saltmarsh remote from human activity) in the far north of EPC 1029 and adjacent lands to the north and east</li> </ul>
Squatter pigeon (southern race)	<i>Geophaps scripta scripta</i>	Vulnerable	Vulnerable	Known to occur	<ul style="list-style-type: none"> <li>Extensive areas of suitable habitat (grassy eucalypt woodland) within and adjacent EPC1029</li> </ul>
Square-tailed kite	<i>Lophoictinia isura</i>	-	Near Threatened	Known to occur	<ul style="list-style-type: none"> <li>Highly mobile</li> <li>Suitable foraging and breeding habitat (riverine forest and nearby woodland) within and adjacent EPC 1209</li> </ul>
Black-chinned honeyeater	<i>Melithreptus gularis</i>	-	Near Threatened	Likely	<ul style="list-style-type: none"> <li>Suitable habitat (ironbark woodland/forest and <i>E. tereticornis</i> woodland/open forest) within EPC 1029</li> <li>Habitat within EPC 1029 contiguous or near-contiguous with similar suitable habitat outside of EPC 1029</li> </ul>
Cotton pygmy-goose	<i>Nettapus coromandelensis</i>	-	Near Threatened	Known to occur	<ul style="list-style-type: none"> <li>Suitable habitat (stock dams supporting aquatic vegetation) scattered throughout EPC 1029</li> </ul>
Rufous owl (southern)	<i>Ninox rufa queenslandica</i>	-	Vulnerable	Possible	<ul style="list-style-type: none"> <li>Suitable foraging habitat (woodland in proximity to vegetated watercourses) within EPC 1209</li> <li>Suitable roosting habitat (i.e.,</li> </ul>

Common name	Scientific name	EPBC Act status	NC Act status	Likelihood of occurrence within EPC 1029	Habitat within/adjacent EPC 1029
					<p>riparian forest with dense or mid-dense canopy cover) scarce within EPC 1029</p> <ul style="list-style-type: none"> <li>Little suitable breeding habitat within EPC 1029, with little in the way of closed riparian forest or dense <i>Melaleuca</i> woodland, and few large tree hollows near areas of suitable roosting habitat</li> </ul>
Powerful Owl	<i>Ninox strenua</i>	-	Vulnerable	Likely	<ul style="list-style-type: none"> <li>Suitable roosting and foraging habitat (riparian eucalypt and <i>Melaleuca</i> forest/woodland), in the south and central-east of EPC 1029</li> <li>Riparian forest/woodland habitat along Tooloombah Creek, Granite Creek and the upper Styx River (within and immediately adjacent EPC 1029) may also provide suitable habitat for this species</li> <li>Some potential breeding habitat (i.e., large hollow-bearing trees in, or near, areas of open forest/woodland) within EPC 1029</li> </ul>
Eastern curlew	<i>Numenius madagascarensis</i>	-	Near Threatened	Likely	<ul style="list-style-type: none"> <li>Little or no suitable foraging habitat (i.e., muddy intertidal flats) within EPC 1029</li> <li>Suitable roosting habitat (bunded mangroves, salt flats and samphire forbland) in far north of EPC 1029</li> <li>Suitable foraging and roosting habitat to near north of EPC 1029</li> <li>Known roost site (Hoogly Point) to near north of EPC 1029 (Jaensch, 2009)</li> </ul>
Australian painted snipe	<i>Rostratula australis</i>	Vulnerable	Vulnerable	Likely	<ul style="list-style-type: none"> <li>Suitable breeding and/or foraging habitat (grass-sedge swamp) in far north of EPC 1029</li> <li>Potential habitat (mapped as RE 11.1.3) adjacent mouth of Styx River as well (c. 5 km NNE of Styx)</li> <li>Flooded pasture and dam margins with mid-dense grass and sedge cover may also provide habitat for this species elsewhere within EPC 1029</li> </ul>
Radjah shelduck	<i>Tadorna radjah</i>	-	Near Threatened	Likely	<ul style="list-style-type: none"> <li>Suitable foraging habitat within and immediately adjacent EPC 1029 including (but not limited to) stock dams, ponded pasture, wooded wetlands and mangroves</li> </ul>
Black-breasted	<i>Turnix melanogaster</i>	Vulnerable	Vulnerable	Possible	<ul style="list-style-type: none"> <li>Suitable habitat (semi-evergreen vine thicket) near Ogmore, east of</li> </ul>

Common name	Scientific name	EPBC Act status	NC Act status	Likelihood of occurrence within EPC 1029	Habitat within/adjacent EPC 1029
button-quail					<p>the Styx River</p> <ul style="list-style-type: none"> <li>Suitable habitat within EPC 1029 is limited in extent, highly fragmented and largely isolated from nearest known (i.e., occupied) habitat</li> </ul>
Northern quoll	<i>Dasyurus hallucatus</i>	Endangered	Least Concern	Likely	<ul style="list-style-type: none"> <li>Potential denning/shelter, foraging and dispersal habitat (i.e., riparian and non-riparian woodland and open forest) identified in southern and western parts of EPC 1029</li> <li>Potential woodland/forest habitat within EPC 1029 largely contiguous with similar suitable habitat outside of EPC area</li> </ul>
Ghost bat	<i>Megaderma gigas</i>	-	Vulnerable	Possible	<ul style="list-style-type: none"> <li>Potential foraging habitat (grassland, woodland and open forest) within and adjacent EPC 1029</li> <li>No suitable roosting habitat (i.e., caves/ boulder piles or abandoned mines) within EPC 1029</li> <li>Nearest potential roost site (an abandoned mine) c. 12-15 km east of EPC 1029</li> </ul>
Water mouse	<i>Xeromys myoides</i>	Vulnerable	Vulnerable	Possible	<ul style="list-style-type: none"> <li>Potentially suitable habitat (mangroves and nearby saltmarsh) in far north of EPC 1029</li> </ul>
Death adder	<i>Acanthophis antarcticus</i>	-	Near Threatened	Possible	<ul style="list-style-type: none"> <li>Potential habitat (dry open forest and woodland) within EPC 1029</li> <li>Suitability of habitat within EPC 1029 limited due to the widespread occurrence of cane toads (<i>Rhinella marina</i>), often at high densities</li> </ul>
Collared delma	<i>Delma torquata</i>	Vulnerable	Vulnerable	Possible	<ul style="list-style-type: none"> <li>Potential habitat (eucalypt forest/woodland with woody debris, rocks and leaf litter on landzones 3 and 10) within EPC 1029</li> </ul>
Ornamental snake	<i>Denisonia maculata</i>	Vulnerable	Vulnerable	Known to occur	<ul style="list-style-type: none"> <li>Suitable habitat within EPC 1029 includes remnant and regrowth gilgaid brigalow, riparian brigalow-belah (<i>C. cristata</i>) forest/woodland and nearby dams</li> </ul>
Yakka skink	<i>Egernia rugosa</i>	Vulnerable	Vulnerable	Possible	<ul style="list-style-type: none"> <li>Potentially suitable habitat (remnant and partially cleared open forest/ woodland with suitable shelter/cover [e.g., fallen trees, rabbit warrens, abandoned sheds/building]) within EPC 1029</li> </ul>
Dunmall's	<i>Furina dunmali</i>	Vulnerable	Vulnerable	Possible	<ul style="list-style-type: none"> <li>Potentially suitable habitat</li> </ul>

Common name	Scientific name	EPBC Act status	NC Act status	Likelihood of occurrence within EPC 1029	Habitat within/adjacent EPC 1029
snake					(brigalow woodland on cracking clay soil, belah forest/woodland on clay loam, and ironbark [ <i>Eucalyptus crebra</i> ] woodland/open forest on sandstone-derived soils) within EPC 1029
Grey snake	<i>Hemiaspis daemeli</i>	-	Endangered	Possible	<ul style="list-style-type: none"> <li>Potential habitat (i.e., timbered areas of cracking clay soil subject to inundation) within EPC 1029</li> </ul>
Brigalow scaly-foot	<i>Paradelma orientalis</i>	Vulnerable	Vulnerable	Likely	<ul style="list-style-type: none"> <li>Suitable habitat within EPC 1029 includes: patches of remnant/regrowth brigalow (<i>Acacia harpophylla</i>); areas of ironbark eucalypt forest /woodland with deep leaf litter and/or woody debris; and other vegetation (including grassland) on cracking clay and clay-loam soils</li> </ul>
Imperial hairstreak	<i>Jalmenus eubulus</i>	Vulnerable	Vulnerable	Possible	<ul style="list-style-type: none"> <li>Suitable habitat (mature remnant brigalow forest/ woodland) within EPC 1029, albeit patchy and limited in extent</li> </ul>

**Table 8. Habitat for listed non-EVR migratory fauna known to occur or potentially occurring within EPC 1029.**

Common name	Scientific name	Likelihood of occurrence within EPC 1029	Habitat within/adjacent EPC 1029
Common sandpiper	<i>Actitis hypoleucos</i>	Likely	<ul style="list-style-type: none"> <li>Potentially suitable habitat (muddy/rocky river margins, mangrove-lined creeks, and stock dams) within and immediately adjacent EPC 1029</li> </ul>
Fork-tailed swift	<i>Apus pacificus</i>	Known to occur	<ul style="list-style-type: none"> <li>Suitable foraging habitat over much of EPBC 1029</li> </ul>
Eastern egret	<i>Ardea alba</i>	Likely	<ul style="list-style-type: none"> <li>Suitable foraging habitat (permanent and ephemeral fresh- and brackish water wetlands, including larger stock dams and areas of ponded pasture) within and adjacent EPC 1029</li> </ul>
Cattle egret	<i>Ardea ibis</i>	Likely	<ul style="list-style-type: none"> <li>Ample suitable foraging habitat (grassland/pasture subject to grazing) within EPC 1029</li> </ul>
Sharp-tailed sandpiper	<i>Calidris acuminata</i>	Likely	<ul style="list-style-type: none"> <li>Potential foraging habitat (grass sedge-wetlands and banded mangrove vegetation) in far north of EPC 1029</li> <li>Suitable foraging and roosting habitat to near north of EPC 1029 as well (Jaensch, 2009)</li> </ul>
Curlew sandpiper	<i>Calidris ferruginea</i>	Likely	<ul style="list-style-type: none"> <li>Potential foraging and/or roosting habitat (banded mangrove vegetation, margins of grass-sedge wetlands) in far north of EPC 1029</li> </ul>

Common name	Scientific name	Likelihood of occurrence within EPC 1029	Habitat within/adjacent EPC 1029
			<ul style="list-style-type: none"> <li>Suitable foraging and roosting habitat to near north of EPC 1029 as well (Jaensch, 2009)</li> </ul>
Red-necked stint	<i>Calidris ruficollis</i>	Likely	<ul style="list-style-type: none"> <li>Potential foraging and/or roosting habitat (bunded mangrove vegetation) in far north of EPC 1029</li> <li>Suitable foraging and roosting habitat to near north of EPC 1029 as well (Jaensch, 2009)</li> </ul>
Great knot	<i>Calidris tenuirostris</i>	Likely	<ul style="list-style-type: none"> <li>Suitable foraging (i.e., muddy intertidal flats) habitat to near north of EPC 1029</li> <li>Potential roosting habitat (salt flats and samphire forbland) in far north of EPC 1029</li> <li>Known roost site (Hoogly Point) to near north of EPC 1029 (Jaensch, 2009)</li> </ul>
Greater sand plover	<i>Charadrius leschenaultii</i>	Likely	<ul style="list-style-type: none"> <li>Potential foraging habitat (i.e., muddy intertidal flats) to near north of EPC 1029</li> <li>Potential roosting habitat (salt flats and samphire forbland) in far north of EPC 1029</li> <li>Potential foraging and roosting habitat to the north of EPC 1029</li> </ul>
Lesser sand plover	<i>Charadrius mongolus</i>	Likely	<ul style="list-style-type: none"> <li>Potential roosting habitat (salt flats and samphire forbland) in far north of EPC 1029</li> <li>Suitable foraging and roosting habitat north of EPC 1029.</li> <li>Known roost site (Hoogly Point) to near north of EPC 1029 (Jaensch, 2009).</li> </ul>
White-winged black tern	<i>Chlidonis leucopterus</i>	Possible	<ul style="list-style-type: none"> <li>Suitable foraging habitat (coastal waters, estuaries) immediately adjacent EPC 1029</li> </ul>
Oriental cuckoo	<i>Cuculus saturatus</i>	Known to occur	<ul style="list-style-type: none"> <li>Suitable foraging habitat (woodland and open forest) within EPC 1029</li> </ul>
Latham's snipe	<i>Gallinago hardwickii</i>	Likely	<ul style="list-style-type: none"> <li>Suitable foraging habitat (grass-sedge wetlands [including areas of ponded pasture]) within EPC 1029</li> </ul>
White-bellied sea-eagle	<i>Haliaeetus leucogaster</i>	Likely	<ul style="list-style-type: none"> <li>Suitable foraging habitat (large coastal creeks, rivers and estuaries) within and immediately adjacent EPC 1029</li> <li>Potential breeding habitat (large trees in proximity to foraging habitat) within and/or immediately adjacent EPC 1029</li> </ul>
White-throated needletail	<i>Hirundapus caudacutus</i>	Likely	<ul style="list-style-type: none"> <li>Suitable foraging habitat over most if not all of EPBC 1029</li> </ul>
Barn swallow	<i>Hirundo rustica</i>	Possible	<ul style="list-style-type: none"> <li>Suitable foraging habitat (open country, including areas of pasture, near water) within EPC 1209</li> </ul>
Bar-tailed godwit	<i>Limosa lapponica</i>	Likely	<ul style="list-style-type: none"> <li>Potential roosting habitat (salt flats and samphire forbland) in far north of EPC 1029</li> <li>Suitable foraging and roosting habitat to near north of EPC 1029</li> <li>Known roost site (Hoogly Point) to near north of EPC 1029 (Jaensch, 2009)</li> </ul>
Black-tailed godwit	<i>Limosa limosa</i>	Likely	<ul style="list-style-type: none"> <li>Potential roosting habitat (salt flats and samphire forbland) in far north of EPC 1029</li> <li>Suitable foraging habitat (muddy intertidal flats) to near north of EPC 1029</li> </ul>
Rainbow bee-eater	<i>Merops ornatus</i>	Known to occur	<ul style="list-style-type: none"> <li>Suitable breeding and foraging habitat (open</li> </ul>



Common name	Scientific name	Likelihood of occurrence within EPC 1029	Habitat within/adjacent EPC 1029
			forest, riparian forest, woodland, nearby pasture and eroded creek/river banks) within EPC 1209
Black-faced monarch	<i>Monarcha melanopsis</i>	Likely	<ul style="list-style-type: none"> <li>Suitable foraging and breeding habitat (low closed riparian forest/scrub and mangroves) within EPC 1029, albeit limited in extent and highly-fragmented</li> </ul>
Spectacled monarch	<i>Monarcha trivirgatus</i>	Likely	<ul style="list-style-type: none"> <li>Suitable foraging and breeding habitat (low closed riparian forest/scrub and mangroves) within EPC 1029, albeit limited in extent and highly-fragmented</li> </ul>
Satin flycatcher	<i>Myiagra cyanoleuca</i>	Likely	<ul style="list-style-type: none"> <li>Suitable foraging habitat (open forest, taller woodlands associated with drainage lines) within and adjacent EPC 1029</li> </ul>
Little curlew	<i>Numenius minutus</i>	Possible	<ul style="list-style-type: none"> <li>Potential foraging habitat (low dry grassland [including grazed pasture]) within EPC1029</li> </ul>
Whimbrel	<i>Numenius phaeopus</i>	Likely	<ul style="list-style-type: none"> <li>Potential roosting habitat (bunded mangrove vegetation and adjacent saltmarsh) in far north of EPC 1029</li> <li>Suitable foraging habitat (muddy intertidal flats) to near north of EPC 1029</li> <li>Known roost site (Hoogly Point) to near north of EPC 1029 (Jaensch, 2009).</li> </ul>
Osprey	<i>Pandion haliaetus</i>	Likely	<ul style="list-style-type: none"> <li>Suitable foraging and roosting habitat at mouth of Styx River and, potentially lower reaches of Styx River</li> <li>May overfly EPC 1029 when moving between areas of more suitable habitat</li> </ul>
Glossy ibis	<i>Plegadis falcinellus</i>	Likely	<ul style="list-style-type: none"> <li>Suitable foraging habitat (wooded wetland and ponded pasture) within EPC 1029</li> </ul>
Pacific golden plover	<i>Pluvialis fulva</i>	Likely	<ul style="list-style-type: none"> <li>Potential roosting and/or foraging habitat (salt marsh) in far north of EPC 1029</li> </ul>
Grey plover	<i>Pluvialis squatarola</i>	Likely	<ul style="list-style-type: none"> <li>Potential roosting habitat (salt flats and samphire forbland) in far north of EPC 1029</li> <li>Known roost site (Hoogly Point) to near north of EPC 1029 (Jaensch, 2009)</li> <li>Potential foraging habitat (muddy intertidal flats) to near north of EPC 1029</li> </ul>
Rufous fantail	<i>Rhipidura rufifrons</i>	Known to occur	<ul style="list-style-type: none"> <li>Suitable foraging and breeding habitat (low closed riparian forest/scrub) within EPC 1029, albeit limited in extent</li> </ul>
Caspian tern	<i>Sterna caspia</i>	Likely	<ul style="list-style-type: none"> <li>Suitable roosting habitat (bare salt marsh) in north of EPC 1029</li> <li>Foraging habitat (open water in the lower reaches of the Styx River) within EPC 1029</li> <li>Suitable foraging and roosting habitat to near north of EPC 1029 as well</li> </ul>
Grey-tailed tattler	<i>Tringa brevipes</i>	Possible	<ul style="list-style-type: none"> <li>Potential roosting habitat (bunded mangrove vegetation) in far north of EPC 1029</li> <li>Potential foraging habitat (muddy intertidal flats) to the near of EPC 1029</li> </ul>
Common greenshank	<i>Tringa nebularia</i>	Likely	<ul style="list-style-type: none"> <li>Potential foraging and/or roosting habitat (grass-sedge wetlands, saltmarsh and bunded mangrove vegetation) in far north of EPC 1029</li> </ul>

Common name	Scientific name	Likelihood of occurrence within EPC 1029	Habitat within/adjacent EPC 1029
			<ul style="list-style-type: none"> <li>Suitable roosting/ foraging habitat adjacent EPC 1029 as well</li> <li>Known roost site (Hoogly Point) to near north of EPC 1029 (Jaensch, 2009)</li> </ul>
Marsh sandpiper	<i>Tringa stagnatilis</i>	Likely	<ul style="list-style-type: none"> <li>Potential foraging and/or roosting habitat (grass-sedge wetlands, saltmarsh and banded mangrove vegetation) in far north of EPC 1029</li> <li>Suitable roosting/ foraging habitat adjacent EPC 1029 as well</li> </ul>
Terek sandpiper	<i>Xenus cinereus</i>	Likely	<ul style="list-style-type: none"> <li>Potential roosting habitat (banded mangrove vegetation, salt flats and samphire forbland) in far north of EPC 1029</li> <li>Potential foraging and roosting habitat to the north of EPC 1029</li> </ul>
Saltwater crocodile	<i>Crocodylus porosus</i>	Possible	<ul style="list-style-type: none"> <li>Potential habitat along lower reaches of Styx River and mangrove-lined creeks/gutters to the north and east of EPC 1029</li> </ul>

**Table 9. Habitat for other non-EVR conservation significant fauna known to occur or potentially occurring within EPC 1029.**

Common name	Scientific name	Conservation significance	Likelihood of occurrence within EPC 1029	Habitat within/adjacent EPC 1029
Spectacled hare-wallaby	<i>Lagorchestes hirsutus</i>	Brigalow Belt North priority taxon	Possible	<ul style="list-style-type: none"> <li>Suitable habitat (open grassy woodland and open forest habitat) within and adjacent EPC 1029</li> </ul>
Yellow-bellied glider	<i>Petaurus australis</i>	'Back on Track' priority taxon for Fitzroy NRM region	Possible	<ul style="list-style-type: none"> <li>Potential habitat (i.e., eucalypt forest with large hollow-bearing trees) along western boundary and in south-eastern corner of EPC 1029, contiguous with similar habitat adjacent EPC 1029</li> </ul>
Capricorn worm-skink	<i>Anomalopus brevicollis</i>	'Back on Track' priority taxon for Fitzroy NRM region	Likely	<ul style="list-style-type: none"> <li>Potentially suitable habitat (dry sclerorphyll forest with leaf litter and/or woody debris for cover) within EPC 1029</li> </ul>
Rusty monitor	<i>Varanus semiremex</i>	'Back on Track' priority taxon for Fitzroy NRM region	Possible	<ul style="list-style-type: none"> <li>Potential habitat (near-coastal riparian habitat including <i>Melaleuca</i> woodland/forest) within EPC 1029</li> </ul>
Koala	<i>Phascolarctos cinereus</i>	Special Least Concern under NC Act	Known to occur	<ul style="list-style-type: none"> <li>Suitable habitat (<i>E. tereticornis</i> and <i>E. crebra</i> woodland/forest) within EPC 1029</li> </ul>
Platypus	<i>Ornithorhynchus anatinus</i>	Special Least Concern under NC Act	Possible	<ul style="list-style-type: none"> <li>Potential habitat (pools and riffles in larger creeks with permanent water) within and adjacent EPC 1029</li> </ul>
Short-beaked echidna	<i>Tachyglossus aculeatus</i>	Special Least Concern under NC Act	Known to occur	<ul style="list-style-type: none"> <li>Ample suitable habitat (areas of cleared, remnant and regrowth vegetation with a healthy supply of</li> </ul>

				ants and termites) within EPC 1029
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## 5. Summary and conclusions

Despite extensive clearing, impacts associated with grazing, and the presence of numerous introduced plant and animal species, land within EPC 1029 provides habitat for a wide array of terrestrial fauna.

With extensive clearing of tree cover in the Styx Basin, remaining areas of woodland and forest habitat within EPC 1029 are of some importance to native fauna at the local (catchment/basin) level. Of particular importance in this regard are areas of riparian woodland/forest linking more extensive areas of remnant vegetation in the west and east of the Styx River catchment.

Amongst the fauna known or likely to occur to occur within EPC 1029 are a number species of conservation significance including:

- squatter pigeon (southern race) (*Geophaps scripta scripta*), listed as vulnerable under both the *Nature Conservation Act 1992* (NC Act) and *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act);
- ornamental snake (*Denisonia maculata*), listed as vulnerable under both the NC Act and EPBC Act;
- square-tailed kite, listed as near threatened under the NC Act;
- cotton pygmy-goose, listed as near threatened under the NC Act;
- a number of EPBC Act-listed migratory species including rufous fantail (*Rhipidura rufifrons*), oriental cuckoo (*Cuculus optatus*), rainbow bee-eater (*Merops ornatus*) and fork-tailed swift (*Apus pacificus*);
- short-beaked echidna, listed as significant least concern under the NC Act; and
- koala, listed as significant least concern under the NC Act.

The large number of squatter pigeon records from March 2011 surveys suggests habitat within EPC 1029 may be of some importance to this species.

Based on current information, land within and adjacent EPC 1029 could provide habitat for many other species of conservation significant species as well, including nationally threatened taxa such as the critically endangered yellow chat (Dwson subspecies), endangered imperial hairstreak, vulnerable brigalow scalyfoot, vulnerable Australian painted snipe, vulnerable red goshawk and vulnerable northern quoll. The occurrence of these species within EPC 1029 requires further investigation by way of targeted surveys and further habitat assessment work within and adjacent EPC 1029.

Key recommendations arising from the current preliminary assessment of faunal values include:

- Additional late dry season surveys to improve knowledge of the fauna occurring within and immediately adjacent EPC 1029 (in particular migratory species visiting Australia during summer)
- Further survey work within and adjacent EPC 1029 targeting conservation significant species potentially occurring within EPC 1029, in particular EBPC Act-listed EVR species such as the yellow chat (Dawson subspecies), Australian painted snipe, northern quoll, and red goshawk.
- Further habitat assessment work to better gauge the extent and suitability of habitat within adjacent EPC 1029 for conservation significant fauna, particularly in the far south, south-west, north and central-east of EPC 1029.

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## **APPENDIX A**

### **Fauna previously recorded from Desktop Assessment Study Area**



**Table A1. List of fauna previously recorded from Desktop Assessment Study Area based on database and literature searches (including records from Wildlife Online, Queensland Museum, Wetland Info and Birds Australia Atlas databases). (For further details see methods section of main report.) Fauna species are grouped by class (birds and reptiles) and ordered alphabetically by family and scientific name. EPBC Act status = status under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*; NC Act = *Queensland Nature Conservation Act 1992* and associated regulations (i.e., *Nature Conservation (Wildlife) Regulation 2006*); Back on Track status = status within DERM's 'Back on Track' species prioritisation framework ; BPA status = status under DERM's Biodiversity Planning Assessment for the Northern Brigalow Belt Bioregion; CE = Critically Endangered; E = Endangered; V = Vulnerable; NT = Near Threatened; M = Migratory; LC = Least Concern; SLC = Special Least Concern.**

Class	Family	Scientific name	Common name	EPBC Act status	NC Act status	Back on Track/BPA status	Prior records from Styx Basin	Prior record(s) within 25 km radius of Ogmore
amphibians	Bufo	<i>Rhinella marina</i>	cane toad				X	X
amphibians	Hylidae	<i>Cyclorana alboguttata</i>	greenstripe frog		LC			
amphibians	Hylidae	<i>Cyclorana brevipes</i>	superb collared frog		LC			
amphibians	Hylidae	<i>Cyclorana novaehollandiae</i>	eastern snapping frog		LC			
amphibians	Hylidae	<i>Cyclorana verrucosa</i>	rough frog		NT	Priority		
amphibians	Hylidae	<i>Litoria caerulea</i>	common green treefrog		LC		X	
amphibians	Hylidae	<i>Litoria fallax</i>	eastern sedgefrog		LC		X	
amphibians	Hylidae	<i>Litoria gracilentia</i>	graceful treefrog		LC		X	
amphibians	Hylidae	<i>Litoria inermis</i>	bumpy rocketfrog		LC			X
amphibians	Hylidae	<i>Litoria latopalmata</i>	broad palmed rocketfrog		LC			X
amphibians	Hylidae	<i>Litoria nasuta</i>	striped rocketfrog		LC		X	
amphibians	Hylidae	<i>Litoria rothii</i>	northern laughing treefrog		LC			
amphibians	Hylidae	<i>Litoria rubella</i>	ruddy treefrog		LC		X	X
amphibians	Hylidae	<i>Litoria wilcoxii</i>	eastern stony creek frog		LC		X	X
amphibians	Limnodynastidae	<i>Adelotus brevis</i>	tusked frog		V	Priority		
amphibians	Limnodynastidae	<i>Limnodynastes peronii</i>	striped marshfrog		LC			
amphibians	Limnodynastidae	<i>Limnodynastes salmini</i>	salmon striped frog		LC		X	
amphibians	Limnodynastidae	<i>Limnodynastes tasmaniensis</i>	spotted grassfrog		LC			
amphibians	Limnodynastidae	<i>Limnodynastes terraereginae</i>	scarlet sided pobblebonk		LC			
amphibians	Limnodynastidae	<i>Platyplectrum ornatum</i>	ornate burrowing frog		LC		X	X
amphibians	Myobatrachidae	<i>Crinia deserticola</i>	chirping froglet		LC			X
amphibians	Myobatrachidae	<i>Pseudophryne major</i>	great brown broodfrog		LC			
amphibians	Myobatrachidae	<i>Uperoleia rugosa</i>	chubby gungan		LC		X	
birds	Acanthizidae	<i>Acanthiza chrysorrhoa</i>	yellow-rumped thornbill		LC			
birds	Acanthizidae	<i>Acanthiza lineata</i>	striated thornbill		LC			

Class	Family	Scientific name	Common name	EPBC Act status	NC Act status	Back on Track/BPA status	Prior records from Styx Basin	Prior record(s) within 25 km radius of Ogmoo
birds	Acanthizidae	<i>Acanthiza nana</i>	yellow thornbill		LC		X	X
birds	Acanthizidae	<i>Acanthiza pusilla</i>	brown thornbill		LC		X	X
birds	Acanthizidae	<i>Acanthiza reguloides</i>	buff-rumped thornbill		LC		X	
birds	Acanthizidae	<i>Chthonicola sagittata</i>	speckled warbler		LC		X	
birds	Acanthizidae	<i>Gerygone albogularis</i>	white-throated gerygone		LC		X	X
birds	Acanthizidae	<i>Gerygone fusca</i>	western gerygone		LC		X	
birds	Acanthizidae	<i>Gerygone levigaster</i>	mangrove gerygone		LC		X	
birds	Acanthizidae	<i>Gerygone mouki</i>	brown gerygone		LC		X	
birds	Acanthizidae	<i>Gerygone palpebrosa</i>	fairy gerygone		LC		X	
birds	Acanthizidae	<i>Sericornis frontalis</i>	white-browed scrubwren		LC		X	X
birds	Acanthizidae	<i>Smicronis brevirostris</i>	weebill		LC		X	X
birds	Accipitridae	<i>Accipiter cirrocephalus</i>	collared sparrowhawk		LC		X	
birds	Accipitridae	<i>Accipiter fasciatus</i>	brown goshawk		LC		X	
birds	Accipitridae	<i>Accipiter novaehollandiae</i>	grey goshawk		NT	Priority		
birds	Accipitridae	<i>Aquila audax</i>	wedge-tailed eagle		LC		X	X
birds	Accipitridae	<i>Aviceda subcristata</i>	Pacific baza		LC		X	
birds	Accipitridae	<i>Circus approximans</i>	swamp harrier		LC		X	
birds	Accipitridae	<i>Circus assimilis</i>	spotted harrier		LC			
birds	Accipitridae	<i>Elanus axillaris</i>	black-shouldered kite		LC		X	
birds	Accipitridae	<i>Erythrotriorchis radiatus</i>	red goshawk	V	E	Priority	X	
birds	Accipitridae	<i>Haliaeetus leucogaster</i>	white-bellied sea-eagle	M	SLC		X	
birds	Accipitridae	<i>Haliastur indus</i>	brahminy kite		LC		X	
birds	Accipitridae	<i>Haliastur sphenurus</i>	whistling kite		LC		X	X
birds	Accipitridae	<i>Hieraetus morphnoides</i>	little eagle		LC		X	
birds	Accipitridae	<i>Lophoictinia isura</i>	square-tailed kite		NT	Priority	X	
birds	Accipitridae	<i>Milvus migrans</i>	black kite		LC		X	X
birds	Accipitridae	<i>Pandion cristatus</i>	eastern osprey	M	SLC		X	
birds	Acrocephalidae	<i>Acrocephalus australis</i>	Australian reed-warbler		LC		X	
birds	Aegothelidae	<i>Aegothales cristatus</i>	Australian owl-nightjar		LC		X	X
birds	Alaudidae	<i>Mirafrava javanica</i>	Horsfield's bushlark		LC			
birds	Alcedinidae	<i>Ceyx azureus</i>	azure kingfisher		LC		X	
birds	Anatidae	<i>Anas castanea</i>	chestnut teal		LC			
birds	Anatidae	<i>Anas gracilis</i>	grey teal		LC		X	
birds	Anatidae	<i>Anas platyrhynchos</i>	northern mallard		LC			
birds	Anatidae	<i>Anas rhynchotis</i>	Australasian shoveler		LC		X	

Class	Family	Scientific name	Common name	EPBC Act status	NC Act status	Back on Track/BPA status	Prior records from Styx Basin	Prior record(s) within 25 km radius of Ogmore
birds	Anatidae	<i>Anas superciliosa</i>	Pacific black duck		LC		X	
birds	Anatidae	<i>Aythya australis</i>	hardhead		LC		X	
birds	Anatidae	<i>Chenonetta jubata</i>	Australian wood duck		LC		X	X
birds	Anatidae	<i>Cygnus atratus</i>	black swan		LC		X	
birds	Anatidae	<i>Dendrocygna arcuata</i>	wandering whistling-duck		LC		X	
birds	Anatidae	<i>Dendrocygna eytoni</i>	plumed whistling-duck		LC		X	
birds	Anatidae	<i>Malacorhynchus membranaceus</i>	pink-eared duck		LC			
birds	Anatidae	<i>Nettapus coromandelianus</i>	cotton pygmy-goose		NT	Priority	X	
birds	Anatidae	<i>Nettapus pulchellus</i>	green pygmy-goose		LC		X	
birds	Anatidae	<i>Stictonetta naevosa</i>	freckled duck		NT	Priority		
birds	Anatidae	<i>Tadorna radjah</i>	radjah shelduck		NT	Priority	X	
birds	Anhingidae	<i>Anhinga novaehollandiae</i>	Australasian darter		LC		X	
birds	Anseranatidae	<i>Anseranas semipalmata</i>	magpie goose		LC		X	
birds	Apodidae	<i>Apus pacificus</i>	fork-tailed swift	M	SLC			
birds	Apodidae	<i>Hirundapus caudacutus</i>	white-throated needletail	M	LC		X	
birds	Ardeidae	<i>Ardea ibis</i>	cattle egret	M	SLC		X	
birds	Ardeidae	<i>Ardea intermedia</i>	intermediate egret		LC		X	
birds	Ardeidae	<i>Ardea modesta</i>	eastern great egret	M	SLC		X	
birds	Ardeidae	<i>Ardea pacifica</i>	white-necked heron		LC		X	X
birds	Ardeidae	<i>Butorides striata</i>	striated heron		LC		X	X
birds	Ardeidae	<i>Ardea sumatrana</i>	great-billed heron		LC		X	
birds	Ardeidae	<i>Egretta garzetta</i>	little egret		LC		X	
birds	Ardeidae	<i>Egretta novaehollandiae</i>	white-faced heron		LC		X	X
birds	Ardeidae	<i>Egretta sacra</i>	eastern reef egret	M	LC		X	
birds	Ardeidae	<i>Ixobrychus dubius</i>	Australian little bittern		LC		X	
birds	Ardeidae	<i>Ixobrychus flavicollis</i>	black bittern		LC		X	
birds	Ardeidae	<i>Nycticorax caledonicus</i>	nankeen night-heron		LC		X	
birds	Artamidae	<i>Artamus cinereus</i>	black-faced woodswallow		LC		X	X
birds	Artamidae	<i>Artamus cyanopterus</i>	dusky woodswallow		LC			
birds	Artamidae	<i>Artamus leucorhynchus</i>	white-breasted woodswallow		LC		X	
birds	Artamidae	<i>Artamus minor</i>	little woodswallow		LC		X	
birds	Artamidae	<i>Artamus personatus</i>	masked woodswallow		LC			
birds	Artamidae	<i>Artamus superciliosus</i>	white-browed woodswallow		LC		X	X
birds	Artamidae	<i>Cracticus nigrogularis</i>	pied butcherbird		LC		X	X
birds	Artamidae	<i>Cracticus quoyi</i>	black butcherbird		LC			

Class	Family	Scientific name	Common name	EPBC Act status	NC Act status	Back on Track/BPA status	Prior records from Styx Basin	Prior record(s) within 25 km radius of Ogmoo
birds	Artamidae	<i>Cracticus tibicen</i>	Australian magpie		LC		X	X
birds	Artamidae	<i>Cracticus torquatus</i>	grey butcherbird		LC		X	X
birds	Artamidae	<i>Strepera graculina</i>	pieb currawong		LC		X	X
birds	Burhinidae	<i>Burhinus grallarius</i>	bush stone-curlew		LC		X	
birds	Burhinidae	<i>Esacus magnirostris</i>	beach stone-curlew		V	Priority	X	X
birds	Cacatuidae	<i>Cacatua galerita</i>	sulphur-crested cockatoo		LC		X	X
birds	Cacatuidae	<i>Calyptorhynchus banksii</i>	red-tailed black-cockatoo		LC		X	
birds	Cacatuidae	<i>Calyptorhynchus funereus</i>	yellow-tailed black-cockatoo		LC		X	
birds	Cacatuidae	<i>Calyptorhynchus lathami</i>	glossy black-cockatoo		V	Priority	X	
birds	Cacatuidae	<i>Eolophus roseicapillus</i>	galah		LC		X	
birds	Cacatuidae	<i>Nymphicus hollandicus</i>	cockatiel		LC		X	
birds	Campephagidae	<i>Coracina maxima</i>	ground cuckoo-shrike		LC			
birds	Campephagidae	<i>Corcina lineata</i>	barred cuckoo-shrike		LC		X	
birds	Campephagidae	<i>Coracina novaehollandiae</i>	black-faced cuckoo-shrike		LC		X	X
birds	Campephagidae	<i>Coracina papuensis</i>	white-bellied cuckoo-shrike		LC		X	X
birds	Campephagidae	<i>Coracina tenuirostris</i>	cicadabird		LC		X	
birds	Campephagidae	<i>Lalage leucomela</i>	varied triller		LC		X	X
birds	Campephagidae	<i>Lalage sueurii</i>	white-winged triller		LC		X	
birds	Caprimulgidae	<i>Caprimulgus macrurus</i>	large-tailed nightjar		LC		X	X
birds	Casuariidae	<i>Dromaius novaehollandiae</i>	emu		LC		X	
birds	Charadriidae	<i>Charadrius leschenaultii</i>	greater sand plover	M	SLC		X	
birds	Charadriidae	<i>Charadrius mongolus</i>	lesser sand plover	M	SLC		X	X
birds	Charadriidae	<i>Charadrius ruficapillus</i>	red-capped plover		LC		X	X
birds	Charadriidae	<i>Elseyonis melanops</i>	black-fronted dotterel		LC		X	
birds	Charadriidae	<i>Erythrogonys cinctus</i>	red-kneed dotterel		LC		X	
birds	Charadriidae	<i>Pluvialis fulva</i>	pacific golden plover	M	SLC			
birds	Charadriidae	<i>Pluvialis squatarola</i>	grey plover	M	SLC		X	
birds	Charadriidae	<i>Vanellus miles novaehollandiae</i>	masked lapwing (southern)		LC		X	
birds	Ciconiidae	<i>Ephippiorhynchus asiaticus</i>	black-necked stork		NT	Priority	X	
birds	Cisticolidae	<i>Cisticola exilis</i>	golden-headed cisticola		LC		X	
birds	Cisticolidae	<i>Cisticola juncidis</i>	zitting cisticola		LC			
birds	Climacteridae	<i>Climacteris picumnus</i>	brown tree creeper		LC		X	
birds	Climacteridae	<i>Cormobates leucophaea metastasis</i>	white-throated tree creeper (southern)		LC		X	
birds	Columbidae	<i>Chalcophaps indica</i>	emerald dove		LC		X	X
birds	Columbidae	<i>Columba livia</i>	rock dove		LC		X	

Class	Family	Scientific name	Common name	EPBC Act status	NC Act status	Back on Track/BPA status	Prior records from Styx Basin	Prior record(s) within 25 km radius of Ogmore
birds	Columbidae	<i>Ducula bicolor</i>	pie imperial-pigeon		LC			
birds	Columbidae	<i>Geopelia cuneata</i>	diamond dove		LC			
birds	Columbidae	<i>Geopelia humeralis</i>	bar-shouldered dove		LC		X	X
birds	Columbidae	<i>Geopelia striata</i>	peaceful dove		LC		X	X
birds	Columbidae	<i>Geophaps scripta scripta</i>	squatter pigeon (southern)	V	V	Priority	X	X
birds	Columbidae	<i>Leucosarcia picata</i>	wonga pigeon		LC		X	X
birds	Columbidae	<i>Lopholaimus antarcticus</i>	topknot pigeon		LC		X	
birds	Columbidae	<i>Macropygia amboinensis</i>	brown cuckoo-dove		LC		X	X
birds	Columbidae	<i>Ocyphaps lophotes</i>	crested pigeon		LC		X	X
birds	Columbidae	<i>Phaps chalcoptera</i>	common bronzewing		LC		X	
birds	Columbidae	<i>Ptilinopus magnificus</i>	wompoo fruit-dove		LC		X	
birds	Columbidae	<i>Ptilinopus regina</i>	rose-crowned fruit-dove		LC		X	X
birds	Columbidae	<i>Ptilinopus superbus</i>	superb fruit-dove		LC		X	
birds	Columbidae	<i>Streptopelia chinensis</i>	spotted dove		LC		X	
birds	Coraciidae	<i>Eurystomus orientalis</i>	dollarbird		LC		X	
birds	Corcoracidae	<i>Corcorax melanorhamphos</i>	white-winged chough		LC		X	
birds	Corcoracidae	<i>Struthidea cinerea</i>	apostlebird		LC		X	
birds	Corvidae	<i>Corvus coronoides</i>	Australian raven		LC		X	
birds	Corvidae	<i>Corvus orru</i>	Torresian crow		LC		X	X
birds	Cuculidae	<i>Cacomantis flabelliformis</i>	fan-tailed cuckoo		LC		X	X
birds	Cuculidae	<i>Cacomantis pallidus</i>	pallid cuckoo		LC		X	
birds	Cuculidae	<i>Cacomantis variolosus</i>	brush cuckoo		LC			
birds	Cuculidae	<i>Centropus phasianinus</i>	pheasant coucal		LC		X	X
birds	Cuculidae	<i>Chalcites basalus</i>	horsfield's bronze-cuckoo		LC		X	
birds	Cuculidae	<i>Chalcites lucidus</i>	shining bronze-cuckoo		LC		X	X
birds	Cuculidae	<i>Chalcites minutillus</i>	little bronze-cuckoo		LC		X	
birds	Cuculidae	<i>Cuculus optatus</i>	oriental cuckoo	M	SLC			
birds	Cuculidae	<i>Eudynamys orientalis</i>	eastern koel		LC		X	
birds	Cuculidae	<i>Scythrops novaehollandiae</i>	channel-billed cuckoo		LC		X	
birds	Monarchidae	<i>Carternornis leucotis</i>	white-eared monarch		LC		X	X
birds	Dicruridae	<i>Dicrurus bracteatus</i>	spangled drongo		LC		X	X
birds	Estrildidae	<i>Lonchura castaneothorax</i>	chestnut-breasted mannikin		LC		X	
birds	Estrildidae	<i>Lonchura punctulata</i>	nutmeg mannikin		LC			
birds	Estrildidae	<i>Neochmia modesta</i>	plum-headed finch		LC		X	X
birds	Estrildidae	<i>Neochmia phaeton</i>	crimson finch		LC		X	

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birds	Estrildidae	<i>Neochmia ruficauda ruficauda</i>	star finch (eastern)	E	E	Priority	X	
birds	Estrildidae	<i>Neochmia temporalis</i>	red-browed finch		LC			
birds	Estrildidae	<i>Taeniopygia bichenovii</i>	double-barred finch		LC		X	X
birds	Estrildidae	<i>Taeniopygia guttata</i>	zebra finch		LC		X	
birds	Eurostopodidae	<i>Eurostopodus argus</i>	spotted nightjar		LC		X	
birds	Eurostopodidae	<i>Eurostopodus mystacalis</i>	white-throated nightjar		LC		X	
birds	Falconidae	<i>Falco berigora</i>	brown falcon		LC		X	X
birds	Falconidae	<i>Falco cenchroides</i>	nankeen kestrel		LC		X	X
birds	Falconidae	<i>Falco longipennis</i>	Australian hobby		LC		X	
birds	Falconidae	<i>Falco peregrinus</i>	peregrine falcon		LC		X	
birds	Falconidae	<i>Falco subniger</i>	black falcon		LC		X	
birds	Glareolidae	<i>Stiltia isabella</i>	Australian pratincole		LC			
birds	Gruidae	<i>Grus rubicunda</i>	brolga		LC		X	
birds	Haematopodidae	<i>Haematopus fuliginosus</i>	sooty oystercatcher		NT	Priority	X	
birds	Haematopodidae	<i>Haematopus longirostris</i>	Australian pied oystercatcher		LC		X	X
birds	Halcyonidae	<i>Dacelo leachii</i>	blue-winged kookaburra		LC		X	X
birds	Halcyonidae	<i>Dacelo novaeguineae</i>	laughing kookaburra		LC		X	X
birds	Halcyonidae	<i>Todiramphus chloris</i>	collared kingfisher		LC		X	
birds	Halcyonidae	<i>Todiramphus macleayii</i>	forest kingfisher		LC		X	
birds	Halcyonidae	<i>Todiramphus pyrrohopygius</i>	red-backed kingfisher		LC		X	
birds	Halcyonidae	<i>Todiramphus sanctus</i>	sacred kingfisher		LC		X	
birds	Hirundinidae	<i>Hirundo neoxena</i>	welcome swallow		LC		X	X
birds	Hirundinidae	<i>Petrochelidon ariel</i>	fairy martin		LC		X	
birds	Hirundinidae	<i>Petrochelidon nigricans</i>	tree martin		LC		X	
birds	Jacaniidae	<i>Irediparra gallinacea</i>	comb-crested jacana		LC		X	
birds	Laridae	<i>Anous minutus</i>	black noddy		LC			
birds	Laridae	<i>Chlidonias hybrida</i>	whiskered tern		LC		X	
birds	Laridae	<i>Chlidonias leucopterus</i>	white-winged black tern	M	SLC		X	
birds	Laridae	<i>Chroicocephalus novaehollandiae</i>	silver gull		LC		X	X
birds	Laridae	<i>Gelochelidon nilotica</i>	gull-billed tern		LC		X	X
birds	Laridae	<i>Hydroprogne caspia</i>	Caspian tern	M	SLC		X	X
birds	Laridae	<i>Onychorion fuscata</i>	sooty tern		LC		X	
birds	Laridae	<i>Sterna striata</i>	white-fronted tern		LC			
birds	Laridae	<i>Sternula albifrons</i>	little tern	V/M	E	Priority		
birds	Laridae	<i>Thalasseus bengalensis</i>	lesser crested tern	M	SLC		X	

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birds	Laridae	<i>Thalasseus bergii</i>	crested tern		LC		X	
birds	Maluridae	<i>Malurus lamberti</i>	variegated fairy-wren		LC		X	
birds	Maluridae	<i>Malurus melanocephalus</i>	red-backed fairy-wren		LC		X	X
birds	Megaluridae	<i>Cincloramphus cruralis</i>	brown songlark		LC		X	
birds	Megaluridae	<i>Cincloramphus mathewsi</i>	rufous songlark		LC			
birds	Megaluridae	<i>Megalurus gramineus</i>	little grassbird		LC		X	
birds	Megaluridae	<i>Megalurus timoriensis</i>	tawny grassbird		LC		X	
birds	Megapodiidae	<i>Alectura lathami</i>	Australian brush-turkey		LC		X	X
birds	Megapodiidae	<i>Megapodius reinwardt</i>	orange-footed scrubfowl		LC		X	
birds	Meliphagidae	<i>Acanthagenys rufogularis</i>	spiny-cheeked honeyeater		LC		X	
birds	Meliphagidae	<i>Entomyzon cyanotis</i>	blue-faced honeyeater		LC		X	X
birds	Meliphagidae	<i>Epthianura crocea</i>	yellow chat	CE	E	Priority		
birds	Meliphagidae	<i>Lichenostomus chrysops</i>	yellow-faced honeyeater		LC		X	
birds	Meliphagidae	<i>Lichenostomus fasciogularis</i>	mangrove honeyeater		LC		X	
birds	Meliphagidae	<i>Lichenostomus flavus</i>	yellow honeyeater		LC		X	
birds	Meliphagidae	<i>Lichenostomus fuscus</i>	fuscous honeyeater		LC		X	
birds	Meliphagidae	<i>Lichenostomus penicillatus</i>	white-plumed honeyeater		LC			
birds	Meliphagidae	<i>Lichenostomus versicolor</i>	varied honeyeater		LC		X	
birds	Meliphagidae	<i>Lichenostomus virescens</i>	singing honeyeater		LC			
birds	Meliphagidae	<i>Lichmera indistincta</i>	brown honeyeater		LC		X	X
birds	Meliphagidae	<i>Manorina flavigula</i>	yellow-throated miner		LC		X	X
birds	Meliphagidae	<i>Manorina melanocephala</i>	noisy miner		LC		X	X
birds	Meliphagidae	<i>Meliphaga lewinii</i>	Lewin's honeyeater		LC		X	X
birds	Meliphagidae	<i>Melithreptus albogularis</i>	white-throated honeyeater		LC		X	X
birds	Meliphagidae	<i>Melithreptus gularis</i>	black-chinned honeyeater		LC		X	
birds	Meliphagidae	<i>Melithreptus lunatus</i>	white-naped honeyeater		LC		X	
birds	Meliphagidae	<i>Myzomela obscura</i>	dusky honeyeater		LC		X	
birds	Meliphagidae	<i>Myzomela sanguinolenta</i>	scarlet honeyeater		LC		X	X
birds	Meliphagidae	<i>Philemon buceroides</i>	helmeted friarbird		LC		X	
birds	Meliphagidae	<i>Philemon citreogularis</i>	little friarbird		LC		X	
birds	Meliphagidae	<i>Philemon corniculatus</i>	noisy friarbird		LC		X	X
birds	Meliphagidae	<i>Philydonyris niger</i>	white-eared honeyeater		LC		X	
birds	Meliphagidae	<i>Plectorhyncha lanceolata</i>	striped honeyeater		LC		X	
birds	Meliphagidae	<i>Ramsayornis fasciatus</i>	bar-breasted honeyeater		LC			
birds	Meropidae	<i>Merops ornatus</i>	rainbow bee-eater	M	SLC		X	X



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birds	Monarchidae	<i>Grallina cyanoleuca</i>	magpie-lark		LC		X	X
birds	Monarchidae	<i>Monarcha melanopsis</i>	black-faced monarch	M	SLC		X	
birds	Monarchidae	<i>Myiagra alecto</i>	shining flycatcher		LC		X	
birds	Monarchidae	<i>Myiagra cyanoleuca</i>	satin flycatcher	M	SLC		X	
birds	Monarchidae	<i>Myiagra inquieta</i>	restless flycatcher		LC		X	
birds	Monarchidae	<i>Myiagra rubecula</i>	leaden flycatcher		LC		X	X
birds	Monarchidae	<i>Myiagra ruficollis</i>	broad-billed flycatcher		LC		X	
birds	Monarchidae	<i>Symposiarchus trivirgatus</i>	spectacled monarch	M	SLC			X
birds	Motacillidae	<i>Anthus novaeseelandiae</i>	Australasian pipit		LC			
birds	Nectariniidae	<i>Dicaeum hirundinaceum</i>	mistletoebird		LC		X	X
birds	Nectariniidae	<i>Nectarinia jugularis</i>	olive-backed sunbird		LC		X	
birds	Neosittidae	<i>Daphoenositta chrysoptera</i>	varied sittella		LC		X	
birds	Oriolidae	<i>Oriolus flavocinctus</i>	yellow oriole		LC		X	
birds	Oriolidae	<i>Oriolus sagittatus</i>	olive-backed oriole		LC		X	X
birds	Oriolidae	<i>Sphecotheres vieilloti</i>	Australasian figbird		LC		X	X
birds	Otididae	<i>Ardeotis australis</i>	Australian bustard		LC		X	X
birds	Pachycephalidae	<i>Colluricincla harmonica</i>	grey shrike-thrush		LC		X	X
birds	Pachycephalidae	<i>Colluricincla megarhyncha</i>	little shrike-thrush		LC		X	X
birds	Pachycephalidae	<i>Pachycephala pectoralis</i>	golden whistler		LC		X	X
birds	Pachycephalidae	<i>Pachycephala rufiventris</i>	rufous whistler		LC		X	X
birds	Pardalotidae	<i>Pardalotus punctatus</i>	spotted pardalote		LC		X	
birds	Pardalotidae	<i>Pardalotus striatus</i>	striated pardalote		LC		X	X
birds	Passeridae	<i>Passer domesticus</i>	house sparrow		LC		X	
birds	Pelecanidae	<i>Pelecanus conspicillatus</i>	Australian pelican		LC		X	
birds	Petroicidae	<i>Eopsaltria australis</i>	eastern yellow robin		LC		X	X
birds	Petroicidae	<i>Eopsaltria pulverulenta</i>	mangrove robin		LC		X	
birds	Petroicidae	<i>Microeca fascinans</i>	jacky winter		LC		X	
birds	Petroicidae	<i>Microeca flavigaster</i>	lemon-bellied flycatcher		LC		X	
birds	Petroicidae	<i>Petroica goodenovii</i>	red-capeed robin		LC		X	
birds	Petroicidae	<i>Petroica rosea</i>	rose robin		LC		X	
birds	Petroicidae	<i>Poecilodryas superciliosa</i>	white-browed robin		LC		X	
birds	Phalacrocoracidae	<i>Microcarbo melanoleucos</i>	little pied cormorant		LC			
birds	Phalacrocoracidae	<i>Phalacrocorax carbo</i>	great cormorant		LC		X	
birds	Phalacrocoracidae	<i>Phalacrocorax sulcirostris</i>	little black cormorant		LC		X	
birds	Phalacrocoracidae	<i>Phalacrocorax varius</i>	pied cormorant		LC		X	

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birds	Phasianidae	<i>Coturnix pectoralis</i>	stubble quail		LC		X	
birds	Phasianidae	<i>Coturnix ypsilophora</i>	brown quail		LC		X	X
birds	Phasianidae	<i>Pavo cristatus</i>	indian peafowl		LC		X	
birds	Pittidae	<i>Pitta versicolor</i>	noisy pitta		LC			X
birds	Podargidae	<i>Podargus strigoides</i>	tawny frogmouth		LC			X
birds	Podicipedidae	<i>Podiceps cristatus</i>	great crested grebe		LC		X	
birds	Podicipedidae	<i>Poliiocephalus poliocephalus</i>	hoary-headed grebe		LC		X	
birds	Podicipedidae	<i>Tachybaptus novaehollandiae</i>	Australasian grebe		LC		X	
birds	Pomatostomidae	<i>Pomatostomus temporalis</i>	grey-crowned babbler		LC		X	X
birds	Procellariidae	<i>Ardenna pacifica</i>	wedge-tailed shearwater		LC		X	
birds	Procellariidae	<i>Ardenna tenuirostris</i>	short-tailed shearwater		LC		X	
birds	Procellariidae	<i>Pterodroma nigripennis</i>	black-winged petrel		LC		X	
birds	Psittacidae	<i>Alisterus scapularis</i>	Australian king-parrot		LC			
birds	Psittacidae	<i>Aprosmictus erythropterus</i>	red-winged parrot		LC		X	X
birds	Psittacidae	<i>Glossopsitta concinna</i>	musk lorikeet		LC		X	
birds	Psittacidae	<i>Glossopsitta pusilla</i>	little lorikeet		LC			
birds	Psittacidae	<i>Lathamus discolor</i>	swift parrot	E	E	Priority	X	
birds	Psittacidae	<i>Melopsittacus undulatus</i>	budgerigar		LC			
birds	Psittacidae	<i>Platycercus adscitus</i>	pale-headed rosella		LC			X
birds	Psittacidae	<i>Platycercus eximius</i>	eastern rosella		LC		X	
birds	Psittacidae	<i>Trichoglossus chlorolepidotus</i>	scaly-breasted lorikeet		LC		X	X
birds	Psittacidae	<i>Trichoglossus haematodus</i>	rainbow lorikeet		LC		X	X
birds	Psophodidae	<i>Psophodes olivaceus</i>	eastern whipbird		LC		X	
birds	Ptilonorhynchidae	<i>Ptilonorhynchus maculatus</i>	spotted bowerbird		LC			
birds	Ptilonorhynchidae	<i>Ptilonorhynchus nuchalis</i>	great bowerbird		LC			
birds	Rallidae	<i>Amaurornis moluccana</i>	pale-vented bush-hen		LC			
birds	Rallidae	<i>Fulica atra</i>	eurasian coot		LC			
birds	Rallidae	<i>Gallinula tenebrosa</i>	dusky moorhen		LC		X	
birds	Rallidae	<i>Gallirallus philippensis</i>	buff-banded rail		LC		X	
birds	Rallidae	<i>Porphyrio porphyrio</i>	purple swampphen		LC			
birds	Rallidae	<i>Tribonyx ventralis</i>	black-tailed native-hen		LC		X	
birds	Recurvirostridae	<i>Himantopus himantopus</i>	black-winged stilt		LC			
birds	Recurvirostridae	<i>Recurvirostra novaehollandiae</i>	red-necked avocet		LC		X	
birds	Rhipiduridae	<i>Rhipidura albiscapa</i>	grey fantail		LC			X
birds	Rhipiduridae	<i>Rhipidura leucophrys</i>	willie wagtail		LC		X	X

Class	Family	Scientific name	Common name	EPBC Act status	NC Act status	Back on Track/BPA status	Prior records from Styx Basin	Prior record(s) within 25 km radius of Ogmore
birds	Rhipiduridae	<i>Rhipidura rufifrons</i>	rufous fantail	M	SLC		X	X
birds	Rostratulidae	<i>Rostratula australis</i>	Australian painted snipe	V/M	V	Priority	X	
birds	Scolopacidae	<i>Actitis hypoleucos</i>	common sandpiper	M	SLC		X	
birds	Scolopacidae	<i>Calidris acuminata</i>	sharp-tailed sandpiper	M	SLC		X	
birds	Scolopacidae	<i>Calidris ferruginea</i>	curlew sandpiper	M	SLC		X	
birds	Scolopacidae	<i>Calidris canutus</i>	red-necked stint	M	SLC		X	
birds	Scolopacidae	<i>Calidris ruficollis</i>	red knot	M	SLC		X	X
birds	Scolopacidae	<i>Calidris tenuirostris</i>	great knot	M	SLC		X	
birds	Scolopacidae	<i>Gallinago hardwickii</i>	Latham's snipe	M	SLC		X	X
birds	Scolopacidae	<i>Limosa lapponica</i>	bar-tailed godwit	M	SLC		X	X
birds	Scolopacidae	<i>Limosa limosa</i>	black-tailed godwit	M	SLC		X	
birds	Scolopacidae	<i>Numenius madagascariensis</i>	eastern curlew	M	NT	Priority	X	X
birds	Scolopacidae	<i>Numenius phaeopus</i>	whimbrel	M	SLC		X	X
birds	Scolopacidae	<i>Tringa brevipes</i>	grey-tailed tattler	M	SLC		X	X
birds	Scolopacidae	<i>Tringa nebularia</i>	common greenshank	M	SLC		X	
birds	Scolopacidae	<i>Tringa stagnatilis</i>	marsh sandpiper	M	SLC		X	
birds	Scolopacidae	<i>Xenus cinereus</i>	terek sandpiper	M	SLC		X	
birds	Strigidae	<i>Ninox boobook</i>	southern boobook		LC		X	X
birds	Strigidae	<i>Ninox connivens</i>	barking owl		LC		X	
birds	Strigidae	<i>Ninox rufa queenslandica</i>	rufous owl (southern)		V	Priority		
birds	Strigidae	<i>Ninox strenua</i>	powerful owl		V	Priority		
birds	Sturnidae	<i>Sturnus tristis</i>	common myna				X	
birds	Sturnidae	<i>Sturnus vulgaris</i>	common starling					
birds	Sulidae	<i>Morus serrator</i>	Australasian gannet		LC			
birds	Sulidae	<i>Sula leucogaster</i>	brown booby	M	SLC			
birds	Threskiornithidae	<i>Platalea flavipes</i>	yellow-billed spoonbill		LC			
birds	Threskiornithidae	<i>Platalea regia</i>	royal spoonbill		LC		X	
birds	Threskiornithidae	<i>Plegadis falcinellus</i>	glossy ibis	M	SLC		X	
birds	Threskiornithidae	<i>Threskiornis molucca</i>	Australian white ibis		LC		X	
birds	Threskiornithidae	<i>Threskiornis spinicollis</i>	straw-necked ibis		LC		X	
birds	Timaliidae	<i>Zosterops lateralis</i>	silveryeye		LC		X	X
birds	Turnicidae	<i>Turnix maculosus</i>	red-backed button-quail		LC		X	
birds	Turnicidae	<i>Turnix melanogaster</i>	black-breasted button-quail	V	V	Priority		X
birds	Tytonidae	<i>Tyto javanica</i>	eastern barn owl		LC		X	
mammals	Acrobatidea	<i>Acrobates pygmaeus</i>	feathertail glider		LC		X	

Class	Family	Scientific name	Common name	EPBC Act status	NC Act status	Back on Track/BPA status	Prior records from Styx Basin	Prior record(s) within 25 km radius of Ogmore
mammals	Canidae	<i>Canis lupus dingo</i>	dingo		LC			X
mammals	Dasyuridae	<i>Dasyurus hallucatus</i>	northern quoll	V	LC		X	X
mammals	Dasyuridae	<i>Planigale ingrami</i>	long-tailed planigale		LC			
mammals	Dasyuridae	<i>Sminthopsis murina</i>	common dunnart		LC			
mammals	Dasyuridae	<i>Sminthopsis macroura</i>	stripe-faced dunnart		LC			
mammals	Dasyuridae	<i>Planigale maculata</i>	common planigale		LC			
mammals	Emballonuridae	<i>Saccolaimus flaviventris</i>	yellow-bellied sheathtail bat		LC			
mammals	Emballonuridae	<i>Taphozous troughtoni</i>	Troughton's sheathtail bat		LC			
mammals	Equidae	<i>Equus caballus</i>	horse				X	
mammals	Felidae	<i>Felis catus</i>	cat				X	X
mammals	Leporidae	<i>Lepus capensis</i>	brown hare					
mammals	Leporidae	<i>Oryctolagus cuniculus</i>	rabbit				X	X
mammals	Macropodidae	<i>Macropus agilis</i>	agile wallaby		LC		X	X
mammals	Macropodidae	<i>Macropus dorsalis</i>	black-striped wallaby		LC		X	X
mammals	Macropodidae	<i>Macropus giganteus</i>	eastern grey kangaroo		LC		X	X
mammals	Macropodidae	<i>Macropus parryi</i>	whiptail wallaby		LC		X	X
mammals	Macropodidae	<i>Macropus robustus</i>	common wallaroo		LC			
mammals	Macropodidae	<i>Macropus rufogriseus</i>	red-necked wallaby		LC			
mammals	Macropodidae	<i>Petrogale herberti</i>	Herbert's rock-wallaby		LC			
mammals	Macropodidae	<i>Petrogale inornata</i>	unadorned rock-wallaby		LC			X
mammals	Macropodidae	<i>Wallabia bicolor</i>	swamp wallaby		LC			
mammals	Megadermatidae	<i>Macroderma gigas</i>	ghost bat		V	Priority		
mammals	Molossidae	<i>Chaerephon jobensis</i>	northern freetail bat		LC			
mammals	Molossidae	<i>Mormopterus beccarii</i>	Beccari's freetail bat		LC			
mammals	Molossidae	<i>Mormopterus loriae ridei</i>	little north-eastern freetail bat		LC			
mammals	Molossidae	<i>Tadarida australis</i>	white-striped freetail bat		LC			
mammals	Muridae	<i>Hydromys chrysogaster</i>	water rat		LC			
mammals	Muridae	<i>Melomys cervinipes</i>	fawn-footed melomys		LC			
mammals	Muridae	<i>Mus musculus</i>	house mouse					X
mammals	Muridae	<i>Pseudomys delicatulus</i>	delicate mouse		LC			
mammals	Muridae	<i>Zygomys argurus</i>	common rock-rat		LC			
mammals	Ornithorhynchidae	<i>Ornithorhynchus anatinus</i>	platypus		SLC			
mammals	Peramelidae	<i>Isodon macrourus</i>	northern brown bandicoot		LC		X	
mammals	Peramelidae	<i>Perameles nasuta</i>	long-nosed bandicoot		LC			X
mammals	Petauridae	<i>Petauroides volans</i>	greater glider		LC		X	

Class	Family	Scientific name	Common name	EPBC Act status	NC Act status	Back on Track/BPA status	Prior records from Styx Basin	Prior record(s) within 25 km radius of Ogmore
mammals	Petauridae	<i>Petaurus australis</i>	yellow-bellied glider		LC		X	
mammals	Petauridae	<i>Petaurus breviceps</i>	sugar glider		LC			
mammals	Petauridae	<i>Petaurus norfolcensis</i>	squirrel glider		LC			
mammals	Phalangeridae	<i>Trichosurus vulpecula</i>	common brushtail possum		LC		X	X
mammals	Phascolarctidae	<i>Phascolarctos cinereus</i>	koala		SLC		X	X
mammals	Potoroidae	<i>Aepyprymnus rufescens</i>	rufous bettong		LC		X	X
mammals	Pseudocheiridae	<i>Petauroides volans</i>	greater glider		LC		X	
mammals	Pseudocheiridae	<i>Pseudocheirus peregrinus</i>	common ringtail possum		LC		X	X
mammals	Pteropodidae	<i>Pteropus alecto</i>	black flying-fox		LC			
mammals	Rhinolophidae	<i>Rhinolophus megaphyllus</i>	eastern horseshoe-bat		LC			X
mammals	Suidae	<i>Sus scrofa</i>	pig				X	X
mammals	Tachyglossidae	<i>Tachyglossus aculeatus</i>	short-beaked echidna		SLC		X	X
mammals	Vespertilionidae	<i>Chalinolobus gouldii</i>	Gould's wattled bat		LC			
mammals	Vespertilionidae	<i>Kerivoula papuensis</i>	golden-tipped bat		NT	Priority		
mammals	Vespertilionidae	<i>Miniopterus australis</i>	little bent-wing bat		LC			
mammals	Vespertilionidae	<i>Miniopterus schreibersii oceanensis</i>	eastern bent-wing bat		LC			
mammals	Vespertilionidae	<i>Myotis macropus</i>	large-footed myotis		LC			
mammals	Vespertilionidae	<i>Nyctophilus sp.</i>			LC			
mammals	Vespertilionidae	<i>Scotorepens balstoni</i>	inland broad-nosed bat		LC			
mammals	Vespertilionidae	<i>Scotorepens greyii</i>	little broad-nosed bat		LC			
mammals	Vespertilionidae	<i>Vespadelus troughtoni</i>	eastern cave bat		LC			
reptiles	Agamidae	<i>Amphibolurus burnsi</i>			LC			
reptiles	Agamidae	<i>Amphibolurus nobbi</i>			LC			
reptiles	Agamidae	<i>Chlamydosaurus kingii</i>	frilled lizard		LC		X	
reptiles	Agamidae	<i>Diporiphora australis</i>			LC			
reptiles	Agamidae	<i>Pogona barbata</i>	bearded dragon		LC			
reptiles	Boidae	<i>Antaresia maculosa</i>	spotted python		LC			
reptiles	Boidae	<i>Aspedites melanocephalus</i>	black-headed python		LC		X	
reptiles	Boidae	<i>Morelia spilota</i>	carpet python		LC		X	
reptiles	Carphodactylidae	<i>Nephrurus asper</i>	spiny knob-tailed gecko		LC		X	X
reptiles	Chelidae	<i>Chelodina canni</i>	Cann's long-necked turtle		LC		X	
reptiles	Chelidae	<i>Chelodina longicollis</i>	snake-necked turtle		LC			
reptiles	Chelidae	<i>Emydura macquarii krefftii</i>	Krefft's river turtle		LC		X	X
reptiles	Chelidae	<i>Rheodytes leukops</i>	Fitzroy River turtle	V	V	Priority		
reptiles	Colubridae	<i>Boiga irregularis</i>	brown tree snake		LC			X

Class	Family	Scientific name	Common name	EPBC Act status	NC Act status	Back on Track/BPA status	Prior records from Styx Basin	Prior record(s) within 25 km radius of Ogmoo
reptiles	Colubridae	<i>Dendrelaphis punctulata</i>	common tree snake		LC			
reptiles	Colubridae	<i>Tropidonophis mairii</i>	freshwater snake		LC			
reptiles	Diplodactylidae	<i>Diplodactylus vittatus</i>	wood gecko		LC			
reptiles	Diplodactylidae	<i>Lucasium steindachneri</i>	Steindachner's gecko		LC			
reptiles	Diplodactylidae	<i>Oedura marmorata</i>	marbled velvet gecko		LC			
reptiles	Diplodactylidae	<i>Oedura monilis</i>			LC			
reptiles	Diplodactylidae	<i>Oedura rhombifer</i>	zig-zag gecko		LC			
reptiles	Diplodactylidae	<i>Oedura robusta</i>	robust velvet gecko		LC			
reptiles	Diplodactylidae	<i>Oedura tryoni</i>	southern spotted velvet gecko		LC			
reptiles	Diplodactylidae	<i>Strophurus williamsi</i>	soft-spined gecko		LC			
reptiles	Elapidae	<i>Cacophis harriettae</i>	white-crowned snake		LC			
reptiles	Elapidae	<i>Demansia psammophis</i>	yellow-faced whip snake		LC			
reptiles	Elapidae	<i>Demansia torquata</i>	collared whip snake		LC			
reptiles	Elapidae	<i>Demansia vestigiata</i>	black whip snake		LC			
reptiles	Elapidae	<i>Denisonia maculata</i>	ornamental snake	V	V	Priority	X	
reptiles	Elapidae	<i>Furina diadema</i>	red-naped snake		LC			
reptiles	Elapidae	<i>Furina ornata</i>	orange-naped snake		LC			
reptiles	Elapidae	<i>Hemiaspis damelii</i>	grey snake		E	Priority		
reptiles	Elapidae	<i>Hoplocephalus bitorquatus</i>	pale-headed snake		LC			
reptiles	Elapidae	<i>Oxyuranus scutellatus</i>	coastal taipan		LC			
reptiles	Elapidae	<i>Pseudechis guttatus</i>	spotted black snake		LC			
reptiles	Elapidae	<i>Pseudechis porphyriacus</i>	red-bellied black snake		LC			
reptiles	Elapidae	<i>Pseudonaja textilis</i>	eastern brown snake		LC			X
reptiles	Elapidae	<i>Rhinoplocephalus boschmai</i>	Carpentaria whip snake		LC			
reptiles	Elapidae	<i>Rhinoplocephalus nigrescens</i>	eastern small-eyed snake		LC			
reptiles	Elapidae	<i>Rhinoplocephalus nigrostriatus</i>	black-striped snake		LC			
reptiles	Elapidae	<i>Suta suta</i>	myall snake		LC			
reptiles	Elapidae	<i>Vermicella annulata</i>	bandy-bandy		LC			
reptiles	Gekkonidae	<i>Gehyra catenata</i>			LC			
reptiles	Gekkonidae	<i>Gehyra dubia</i>			LC		X	
reptiles	Gekkonidae	<i>Heteronotia binoei</i>	Bynoe's gecko		LC		X	X
reptiles	Pygopodidae	<i>Delma tinctoria</i>			LC			
reptiles	Pygopodidae	<i>Lialis burtonis</i>	Burton's legless lizard		LC			
reptiles	Pygopodidae	<i>Paradelma orientalis</i>	brigalow scaly-foot	V	V			
reptiles	Pygopodidae	<i>Pygopus lepidopodus</i>	common scaly-foot		LC			

Class	Family	Scientific name	Common name	EPBC Act status	NC Act status	Back on Track/BPA status	Prior records from Styx Basin	Prior record(s) within 25 km radius of Ogmore
reptiles	Pygopodidae	<i>Pygopus schraderi</i>	eastern hooded scaly-foot		LC			
reptiles	Scincidae	<i>Anomalopus brevicollis</i>			LC	Priority		
reptiles	Scincidae	<i>Bellatorias frerei</i>	major skink		LC			
reptiles	Scincidae	<i>Carlia munda</i>			LC		X	X
reptiles	Scincidae	<i>Carlia pectoralis</i>			LC		X	X
reptiles	Scincidae	<i>Carlia rhomboidalis</i>			LC			X
reptiles	Scincidae	<i>Carlia schmeltzii</i>			LC		X	X
reptiles	Scincidae	<i>Carlia vivax</i>			LC			
reptiles	Scincidae	<i>Cryptoblepharus australis</i>	inland snake-eyed skink		LC		X	
reptiles	Scincidae	<i>Cryptoblepharus metallicus</i>	metallic snake-eyed skink		LC			
reptiles	Scincidae	<i>Cryptoblepharus pulcher pulcher</i>	elegant snake-eyed skink		LC			
reptiles	Scincidae	<i>Cryptoblepharus virgatus sensu lato</i>			LC		X	X
reptiles	Scincidae	<i>Ctenotus robustus</i>	eastern striped skink		LC		X	X
reptiles	Scincidae	<i>Ctenotus strauchii</i>			LC			
reptiles	Scincidae	<i>Ctenotus taeniolatus</i>	copper-tailed skink		LC		X	X
reptiles	Scincidae	<i>Cyclodomorphus gerrardii</i>	pink-tongued lizard		LC			
reptiles	Scincidae	<i>Egernia striolata</i>	tree skink		LC			
reptiles	Scincidae	<i>Eremiascincus fasciolatus</i>	narrow-banded sand swimmer		LC			
reptiles	Scincidae	<i>Eulamprus brachysoma</i>			LC			
reptiles	Scincidae	<i>Eulamprus martini</i>			LC			
reptiles	Scincidae	<i>Eulamprus quoyii</i>	eastern water skink		LC			
reptiles	Scincidae	<i>Eulamprus sokosoma</i>			LC			
reptiles	Scincidae	<i>Eulamprus tenuis</i>			LC		X	X
reptiles	Scincidae	<i>Glaphyromorphus punctulatus</i>			LC			X
reptiles	Scincidae	<i>Lampropholis adonis</i>			LC			X
reptiles	Scincidae	<i>Lampropholis delicata</i>			LC			
reptiles	Scincidae	<i>Liburnascincus mundivensis</i>			LC		X	
reptiles	Scincidae	<i>Lygisaurus foliorum</i>			LC		X	X
reptiles	Scincidae	<i>Menetia greyii</i>			LC		X	
reptiles	Scincidae	<i>Menetia timlowi</i>			LC			
reptiles	Scincidae	<i>Morethia boulengeri</i>			LC			
reptiles	Scincidae	<i>Morethia taeniopleura</i>	fire-tailed skink		LC		X	
reptiles	Typhlopidae	<i>Ramphotyphlops wiedii</i>			LC			
reptiles	Typhlopidae	<i>Ramphotyphlops unguirostris</i>			LC			
reptiles	Varanidae	<i>Varanus gouldii</i>	sand goanna		LC			



Class	Family	Scientific name	Common name	EPBC Act status	NC Act status	Back on Track/BPA status	Prior records from Styx Basin	Prior record(s) within 25 km radius of Ogmore
reptiles	Varanidae	<i>Varanus varius</i>	lace monitor		LC			
insects	Lycaenidae	<i>Jalmenus eubulus</i>	pale imperial hairstreak	V	V		X	
insects	Nymphaeidae	<i>Euploea core corinna</i>	common crow		LC		X	

## **APPENDIX B**

### **Likelihood of occurrence assessments for conservation significant fauna**

**Table B1. Preliminary likelihood of occurrence assessments for state and/or federally listed 'EVR' terrestrial fauna (i.e., species listed as 'Endangered', Critically Endangered', 'Vulnerable' or 'Near Threatened' under the NC Act 1992 and/or EPBC Act 1999). EVR fauna considered here have been identified as potentially occurring within EPC 1029 based on their current known distribution and/or predicted distribution (as indicated by DSEWPAC Protected Matters Search Tool results and/or distribution maps in published literature). Fauna species are grouped by class (amphibians, birds, mammals, reptiles and butterflies) and ordered alphabetically by scientific name. NB. Due to deficiencies in existing information and the limitations of fieldwork so far undertaken within EPC 1029, the likelihood of occurrence of some conservation significant species is difficult to assess. Where such uncertainty exists, species have generally been assessed as possibly occurring on site, pending further field-based surveys and assessment of habitat within EPC 1029.**

Common name	Scientific name	EPBC Act status	NC Act status	Likelihood of occurrence within EPC 1029	Justification
Tusked frog	<i>Adelotus brevis</i>	-	Vulnerable	Unlikely	<ul style="list-style-type: none"> <li>Recorded from Desktop Assessment Study Area, but not from Styx Basin</li> <li>No suitable habitat (i.e., no streams, soaks or ponds in, or near, wet forest) within or adjacent EPC 1029</li> </ul>
Rough collared frog	<i>Cyclorana verrucosa</i>	-	Near Threatened	Possible	<ul style="list-style-type: none"> <li>Recorded from Desktop Assessment Study Area, but not from Styx Basin</li> <li>Nearest record(s) to the near west of Broadsound Range (E. Meyer, unpub. data)</li> <li>Suitable habitat (remnant and regrowth gilgaid brigalow) within EPC 1029</li> </ul>
Eungella dayfrog	<i>Taudactylus eungellensis</i>	Endangered	Endangered	Unlikely	<ul style="list-style-type: none"> <li>No prior records from Desktop Assessment Study Area</li> <li>Currently known only from rainforest streams in the Clarke Range, west of Mackay</li> <li>No records from Styx Basin</li> <li>No suitable habitat (i.e., no rocky wet forest streams) within or adjacent EPC 1029</li> </ul>
Grey goshawk	<i>Accipiter novaehollandiae</i>	-	Near Threatened	Possible	<ul style="list-style-type: none"> <li>Highly mobile</li> <li>Records from Desktop Assessment Study Area, but not the Styx Basin</li> <li>Suitable foraging habitat (riparian forest/woodland) within and adjacent EPC 1029</li> </ul>
Glossy black Cockatoo	<i>Calyptorhynchus lathami</i>	-	Vulnerable	Possible	<ul style="list-style-type: none"> <li>Highly mobile</li> <li>Records from Styx Basin, but not from EPC 1029</li> <li>Suitable foraging habitat (stands of belah, <i>Casuarina cristata</i>) within EPC 1029, albeit limited in extent</li> <li>Suitable nest trees (i.e., large hollow-bearing trees/stags in close proximity to foraging habitat) scarce within EPC 1029</li> </ul>
Black-necked stork	<i>Ephippiorhynchus asiaticus</i>	-	Near Threatened	Likely	<ul style="list-style-type: none"> <li>Highly mobile</li> <li>Records from Styx Basin, but not from EPC 1029</li> <li>Suitable foraging habitat (shallow freshwater wetlands and adjacent</li> </ul>

Common name	Scientific name	EPBC Act status	NC Act status	Likelihood of occurrence within EPC 1029	Justification
					grassland/paddocks, stock dams) within and adjacent EPC 1029
Yellow chat (Dawson subspecies)	<i>Epthianura crocea macgregori</i>	Critically Endangered	Endangered	Possible	<ul style="list-style-type: none"> <li>Recorded from Desktop Assessment Study Area, but not from Styx Basin</li> <li>Nearest records from Torilla Plain, to the far east of EPC 1029 (Jaensch, 2009)</li> <li>Suitable breeding and/or foraging habitat (grassy saline or freshwater wetlands and sedge-swamp) near north-western boundary of EPC 1029</li> <li>Potential habitat (mapped as RE 11.1.3) adjacent mouth of Styx River (c. 5 km NNE of Styx) as well</li> </ul>
Red Goshawk	<i>Erythrotriorchis radiatus</i>	Vulnerable	Endangered	Likely	<ul style="list-style-type: none"> <li>Highly mobile</li> <li>Recorded from Desktop Assessment Study Area and Styx Basin, but not EPC 1029</li> <li>Recent (1999) record from Granite Creek, to the near west of EPC 1029 (Birds Australia Atlas data)</li> <li>Suitable foraging and roosting habitat (riparian forest/woodland) within EPC 1029, albeit limited in extent</li> <li>Breeding opportunities within EPC 1029 appear to be limited due to the limited extent of foraging habitat available to breeding birds</li> </ul>
Beach Stone Curlew	<i>Esacus magnirostris</i>	-	Vulnerable	Likely	<ul style="list-style-type: none"> <li>Records from Styx Basin, within 25 km of Ogmore</li> <li>Recent records from western Broad Sound, north and east of EPC 1029 (Jaensch, 2009)</li> <li>Potential habitat (mangrove vegetation and saltmarsh remote from human activity) in the far north of EPC 1029 and adjacent lands to the north and east</li> </ul>
Squatter pigeon (southern race)	<i>Geophaps scripta scripta</i>	Vulnerable	Vulnerable	Known to occur	<ul style="list-style-type: none"> <li>Records from Styx Basin</li> <li>Recorded from EPC 1029 during surveys in March 2011</li> <li>Extensive areas of suitable habitat (grassy eucalypt woodland) within and adjacent EPC1029</li> </ul>
Painted honeyeater	<i>Grantiella picta</i>	-	Vulnerable	Unlikely	<ul style="list-style-type: none"> <li>No records from Desktop Assessment Area</li> <li>Mostly recorded on or west of Great Dividing Range, rarely recorded near coast (Birds Australia Atlas data; Higgins et al., 2001)</li> <li>Some suitable foraging habitat (mistletoe in eucalypt forest and brigalow scrub) within and adjacent EPC 1029, albeit limited in extent</li> </ul>
Sooty oystercatcher	<i>Haematopus filiginosus</i>	Near Threatened	-	Unlikely	<ul style="list-style-type: none"> <li>Recorded from Styx Basin, but not EPC 1029</li> <li>Little or no suitable foraging habitat (i.e., no rocky coastline or stony beaches) within EPC 1029</li> <li>Potential roosting habitat (exposed mudflats) in far north of EPC 1029</li> </ul>
Swift parrot	<i>Lathamus discolor</i>	Endangered	Endangered	Unlikely	<ul style="list-style-type: none"> <li>Occasional winter visitor to south-east Queensland</li> </ul>

Common name	Scientific name	EPBC Act status	NC Act status	Likelihood of occurrence within EPC 1029	Justification
					<ul style="list-style-type: none"> <li>• Very seldom recorded in coastal central Queensland</li> <li>• Single record from Desktop Assessment Study Area</li> <li>• No records from Styx Basin and EPC 1029</li> <li>• Suitable foraging habitat (<i>E. tereticornis</i> and <i>E. crebra</i> open forest/woodland) within and adjacent EPC 1029</li> </ul>
Square-tailed kite	<i>Lophoictinia isura</i>	-	Near Threatened	Known to occur	<ul style="list-style-type: none"> <li>• Highly mobile</li> <li>• Recorded from Desktop Assessment Study Area and Styx Basin</li> <li>• Recorded flying over EPC 1029 during surveys in March 2011</li> <li>• Suitable foraging and breeding habitat (riverine forest and nearby woodland) within and adjacent EPC 1209</li> </ul>
Black-chinned honeyeater	<i>Melithreptus gularis</i>	-	Near Threatened	Likely	<ul style="list-style-type: none"> <li>• Highly mobile</li> <li>• Recorded from Styx Basin, but not from EPC 1029</li> <li>• Suitable habitat (ironbark woodland/forest and <i>E. tereticornis</i> woodland/open forest) within EPC 1029</li> <li>• Habitat within EPC 1029 contiguous or near-contiguous with similar suitable habitat outside of EPC 1029</li> </ul>
Star finch (eastern race)	<i>Neochmia ruficauda ruficauda</i>	Endangered	Endangered	Unlikely	<ul style="list-style-type: none"> <li>• Presumed extinct with last confirmed record from 1995 (Garnett, 2011)</li> <li>• Historical records (pre-1980) from Styx Basin</li> <li>• Potentially suitable habitat (damp grasslands, sedgeland and grassy woodland near permanent water) within EPC 1029</li> <li>• Suitability of woodland/grassland habitat within EPC 1029 most likely reduced by grazing, a major threat to this species (see Garnett, 2011)</li> </ul>
Cotton pygmy-goose	<i>Nettapus coromandelensis</i>	-	Near Threatened	Known to occur	<ul style="list-style-type: none"> <li>• Highly mobile</li> <li>• Recorded from Styx Basin and elsewhere within broader Desktop Assessment Study Area</li> <li>• Suitable habitat (stock dams supporting aquatic vegetation) scattered throughout EPC 1029</li> </ul>
Rufous owl (southern)	<i>Ninox rufa queenslandica</i>	-	Vulnerable	Possible	<ul style="list-style-type: none"> <li>• Highly mobile</li> <li>• Recorded from Desktop Assessment Study Area, but not from Styx Basin</li> <li>• Nearest record(s) from Byfield area, north of Yeppoon, well to the east and south of EPC 1029</li> <li>• Suitable foraging habitat (woodland in proximity to vegetated watercourses) within EPC 1209</li> <li>• Suitable roosting habitat (i.e., riparian forest with dense or mid-dense canopy cover) scarce within EPC 1029</li> <li>• Little suitable breeding habitat within EPC 1029, with little in the way of closed riparian forest or dense <i>Melaleuca</i> woodland, and few large tree</li> </ul>

Common name	Scientific name	EPBC Act status	NC Act status	Likelihood of occurrence within EPC 1029	Justification
					hollows near areas of suitable roosting habitat
Powerful Owl	<i>Ninox strenua</i>	-	Vulnerable	Likely	<ul style="list-style-type: none"> <li>Highly mobile</li> <li>Recorded from Desktop Assessment Study Area, but not from Styx Basin</li> <li>Suitable roosting and foraging habitat (riparian eucalypt and <i>Melaleuca</i> forest/woodland), in the south and central-east of EPC 1029</li> <li>Riparian forest/woodland habitat along Tooloombah Creek, Granite Greek and the upper Styx River (within and immediately adjacent EPC 1029) may also provide suitable habitat for this species</li> <li>Some potential breeding habitat (i.e., large hollow-bearing trees in, or near, areas of open forest/woodland) within EPC 1029</li> </ul>
Eastern curlew	<i>Numenius madagascarensis</i>	-	Near Threatened	Likely	<ul style="list-style-type: none"> <li>Highly mobile</li> <li>Recorded from Styx Basin, in close proximity to EPC 1029</li> <li>Little or no suitable foraging habitat (i.e., muddy intertidal flats) within EPC 1029</li> <li>Suitable roosting habitat (bunded mangroves, salt flats and samphire forbland) in far north of EPC 1029</li> <li>Suitable foraging and roosting habitat to near north of EPC 1029</li> <li>Known roost site (Hoogly Point) to near north of EPC 1029 (Jaensch, 2009)</li> </ul>
Australian painted snipe	<i>Rostratula australis</i>	Vulnerable	Vulnerable	Likely	<ul style="list-style-type: none"> <li>Highly mobile</li> <li>Recorded from Styx Basin, but not EPC 1029</li> <li>Recorded from grass-sedge swamp near north-western boundary and east of EPC 1029 (Jaensch, 2009)</li> <li>Suitable breeding and/or foraging habitat (grass-sedge swamp) in far north of EPC 1029</li> <li>Potential habitat (mapped as RE 11.1.3) adjacent mouth of Styx River as well (c. 5 km NNE of Styx)</li> <li>Flooded pasture and dam margins with mid-dense grass and sedge cover may also provide habitat for this species elsewhere within EPC 1029</li> </ul>
Little tern	<i>Sterna albifrons</i>	-	Endangered	Unlikely	<ul style="list-style-type: none"> <li>Records from Styx River Basin, but not from EPBC 1029</li> <li>Potential foraging habitat (coastal waters near mouth of Styx River) adjacent to, but not within, EPC 1029</li> </ul>
Freckled duck	<i>Stictonetta naevosa</i>	-		Unlikely	<ul style="list-style-type: none"> <li>Recorded from Desktop Assessment Study Area, but not the Styx Basin</li> <li>Very rarely recorded from central coastal Queensland</li> <li>Little or no suitable habitat (i.e., large, well-vegetated freshwater swamps, with areas of open water) within EPC 1029</li> </ul>
Radjah shelduck	<i>Tadorna radjah</i>	-	Near Threatened	Likely	<ul style="list-style-type: none"> <li>Highly mobile</li> <li>Recorded from Styx Basin, but not EPC 1029</li> </ul>

Common name	Scientific name	EPBC Act status	NC Act status	Likelihood of occurrence within EPC 1029	Justification
					<ul style="list-style-type: none"> <li>Suitable foraging habitat within and immediately adjacent EPC 1029 including (but not limited to) stock dams, ponded pasture, wooded wetlands and mangroves</li> </ul>
Black-breasted button-quail	<i>Turnix melanogaster</i>	Vulnerable	Vulnerable	Possible	<ul style="list-style-type: none"> <li>Records from Styx Basin, but not EPC 1029</li> <li>Recent (post-1999) records 10-15 km east of EPC 1029 (Mathieson and Smith, 2009)</li> <li>Potentially suitable habitat (semi-evergreen vine thicket) near Ogmore, east of the Styx River</li> <li>Suitable habitat within EPC 1029 is limited in extent, highly fragmented and largely isolated from nearest known (i.e., occupied) habitat</li> </ul>
Large-eared pied bat	<i>Chalinolobus dwyeri</i>	Vulnerable	Vulnerable	Unlikely	<ul style="list-style-type: none"> <li>No records from Desktop Assessment Study Area or Styx Basin, with nearest record(s) from Shoalwater Bay, well east of EPC 1029 (DERM, 2010a)</li> <li>Suitable foraging habitat (woodland and open forest) within and adjacent EPC 1029</li> <li>Potential roosting habitat within EPC 1029 includes abandoned fairy martin (<i>Hirundo ariel</i>) nests built under culverts and bridges and, potentially, hollow-bearing trees/stags</li> <li>No suitable maternity roost sites (i.e., no caves or abandoned mines) within EPC area, with nearest potential site (an abandoned mine) c. 12-15 km east of EPC 1029</li> </ul>
Little pied bat	<i>Chalinolobus picatus</i>	-	Near Threatened	Unlikely	<ul style="list-style-type: none"> <li>No records from Desktop Assessment Study Area</li> <li>Suitable roosting and foraging habitat (dry open eucalypt forest and woodland) within and adjacent EPC 1029, however generally absent from coastal areas (Churchill, 2008)</li> </ul>
Northern quoll	<i>Dasyurus hallucatus</i>	Endangered	Least Concern	Likely	<ul style="list-style-type: none"> <li>Recorded near Tooloombah Creek Roadhouse on western boundary of EPC 1029, in 2006 (Woinarski et al., 2008)</li> <li>'Known or likely habitat' near Tooloombah Creek on western boundary of EPC 1029 and in far north of EPC area (DSEWPAC, 2011)</li> <li>Potential denning/shelter, foraging and dispersal habitat (i.e., riparian and non-riparian woodland and open forest) identified in southern and western parts of EPC 1029</li> <li>Potential woodland/forest habitat within EPC 1029 largely contiguous with similar suitable habitat outside of EPC area</li> </ul>
Golden-tipped bat	<i>Kerivoula papuensis</i>	-	Near Threatened	Unlikely	<ul style="list-style-type: none"> <li>Recorded from Desktop Assessment Study Area, but not the Styx Basin</li> <li>Nearest record from western side of Torilla Peninsula, circa 70 km east of EPC 1029 (DERM, 2010).</li> <li>Preferred habitat (i.e., closed forest with hollow-bearing trees and adjacent</li> </ul>

Common name	Scientific name	EPBC Act status	NC Act status	Likelihood of occurrence within EPC 1029	Justification
					areas of open forest/woodland) largely absent from EPC 1029
Ghost bat	<i>Megaderma gigas</i>	-	Vulnerable	Possible	<ul style="list-style-type: none"> <li>Highly mobile</li> <li>Records from Desktop Assessment Study Area, but not from Styx Basin</li> <li>Potential foraging habitat (grassland, woodland and open forest) within and adjacent EPC 1029</li> <li>No suitable roosting habitat (i.e., caves/ boulder piles or abandoned mines) within EPC 1029</li> <li>Nearest potential roost site (an abandoned mine) c. 12-15 km east of EPC 1029</li> </ul>
South-eastern long-eared bat	<i>Nyctophilus corbeni</i>	Vulnerable	Vulnerable	Unlikely	<ul style="list-style-type: none"> <li>No records from Desktop Assessment Study Area</li> <li>Not known from coastal areas with nearest record(s) from Expedition Range, well west of EPC 1029 (Schulz and Lumsden, 2010)</li> </ul>
Bridled nail-tail wallaby	<i>Onychogalea fraenata</i>	Endangered	Endangered	Unlikely	<ul style="list-style-type: none"> <li>Currently known only from Taunton Scientific Reserve and Idalia National Park, near Dingo, central Queensland (DERM, 2011)</li> <li>Not recorded from Styx Basin or Desktop Assessment Study Area</li> <li>Suitable shelter (dense shrub cover) scarce within EPC 1029</li> </ul>
Spectacled flying fox	<i>Pteropus conspicillatus</i>	Vulnerable	Least Concern	Unlikely	<ul style="list-style-type: none"> <li>No records from Desktop Assessment Study Area</li> <li>EPC 1029 well south of known range, with <i>P. conspicillatus</i> reaching its southern limit around Hinchinbrook Island (Churchill, 2008)</li> </ul>
Grey-headed flying fox	<i>Pteropus poliocephalus</i>	Vulnerable	Least Concern	Unlikely	<ul style="list-style-type: none"> <li>No records from Desktop assessment Study Area</li> <li>Range has contracted considerably in past 100 years. Now rarely recorded north of Maryborough (Churchill, 2008), well south of EPC 1029</li> </ul>
Coastal sheath-tail bat	<i>Taphozous australis</i>	-	Vulnerable	Unlikely	<ul style="list-style-type: none"> <li>No records from Desktop Assessment Study Area</li> <li>No suitable roosting habitat (i.e., caves, mines, boulder piles or disused buildings near the sea) within or nearby EPC 1029</li> </ul>
Water mouse	<i>Xeromys myoides</i>	Vulnerable	Vulnerable	Possible	<ul style="list-style-type: none"> <li>No records from Desktop Assessment Study Area with nearest record from Cape Palmerston, circa. 80 km north of EPC 1029 (DERM, 2010a)</li> <li>Paucity of records within Desktop Study Area is likely attributable to limited survey effort</li> <li>Potentially suitable habitat (mangroves and nearby saltmarsh) in far north of EPC 1029</li> </ul>
Death adder	<i>Acanthophis antarcticus</i>	-	Near Threatened	Possible	<ul style="list-style-type: none"> <li>A number of records from Marlborough Plains subregion of the Brigalow Belt (Richardson, 2008), but none from Desktop Assessment Study Area</li> <li>Nearest record from western side of Torilla Peninsula, circa 70 km east of EPC 1029 (DERM, 2010a)</li> <li>Potential habitat (dry open forest and woodland) within EPC 1029</li> <li>Suitability of habitat within EPC 1029 limited due to the widespread</li> </ul>



Common name	Scientific name	EPBC Act status	NC Act status	Likelihood of occurrence within EPC 1029	Justification
					occurrence of cane toads ( <i>Rhinella marina</i> ), often at high densities
Collared delma	<i>Delma torquata</i>	Vulnerable	Vulnerable	Possible	<ul style="list-style-type: none"> <li>Not recorded from Desktop Assessment Study Area</li> <li>Recorded from Marlborough Plains subregion of the Brigalow Belt, but not from Styx Basin (Richardson, 2008; Wetland Info)</li> <li>Potential habitat (eucalypt forest/woodland with woody debris, rocks and leaf litter on landzones 3 and 10) within EPC 1029</li> </ul>
Ornamental snake	<i>Denisonia maculata</i>	Vulnerable	Vulnerable	Known to occur	<ul style="list-style-type: none"> <li>Prior records from Desktop Assessment Study Area and Styx Basin , possibly including EPC 1029</li> <li>Recorded within EPC 1029 during surveys in March 2011, in mixed belah (<i>Casuarina cristata</i>)/brigalow (<i>Acacia harpophylla</i>) forest</li> <li>Suitable habitat within EPC 1029 includes remnant and regrowth gilgaied brigalow, riparian brigalow-belah (<i>C. cristata</i>) forest/woodland and nearby dams</li> </ul>
Yakka skink	<i>Egernia rugosa</i>	Vulnerable	Vulnerable	Possible	<ul style="list-style-type: none"> <li>Records from Marlborough Plains subregion of the Brigalow Belt (Richardson, 2008) , but not from Desktop Assessment Study Area</li> <li>Nearest record(s) from Rockhampton area, over 100 km south-east of EPC 1029 (DERM, 2010a)</li> <li>Paucity of records from Desktop Assessment Study Area may be attributed to low detectability of species</li> <li>Potentially suitable habitat (remnant and partially cleared open forest/woodland with suitable shelter/cover [e.g., fallen trees, rabbit warrens, abandoned sheds/building]) within EPC 1029</li> </ul>
Dunmall's snake	<i>Furina dunmalli</i>	Vulnerable	Vulnerable	Possible	<ul style="list-style-type: none"> <li>Records from Marlborough Plains subregion of the Brigalow Belt (Richardson, 2008) , but not from Desktop Assessment Study Area</li> <li>Paucity of records from Desktop Assessment Study Area may be attributed to low detectability of species</li> <li>Nearest record(s) from Rockhampton-Yeppoon area, over 100 km south-east of EPC 1029 (Richardson, 2008; DSEWPAC SPRAT database)</li> <li>Potentially suitable habitat (brigalow woodland on cracking clay soil, belah forest/woodland on clay loam, and ironbark [<i>Eucalyptus crebra</i>] woodland/open forest on sandstone-derived soils) within EPC 1029</li> </ul>
Grey snake	<i>Hemiaspis daemeli</i>	-	Endangered	Possible	<ul style="list-style-type: none"> <li>Recorded from Desktop Assessment Study Area, but not the Styx Basin</li> <li>Nearest record(s) from Rockhampton area, over 100 km south-east of EPC 1029 (Richardson, 2008)</li> <li>Potential habitat (i.e., timbered areas of cracking clay soil subject to inundation) within EPC 1029</li> </ul>
Brigalow scaly-	<i>Paradelma</i>	Vulnerable	Vulnerable	Likely	<ul style="list-style-type: none"> <li>Records from Desktop Assessment Study Area, but not from Styx Basin</li> </ul>

Common name	Scientific name	EPBC Act status	NC Act status	Likelihood of occurrence within EPC 1029	Justification
foot	<i>orientalis</i>				<ul style="list-style-type: none"> <li>Suitable habitat within EPC 1029 includes: patches of remnant/ regrowth brigalow (<i>Acacia harpophylla</i>); areas of ironbark eucalypt forest /woodland with deep leaf litter and/or woody debris; and other vegetation (including grassland) on cracking clay and clay-loam soils</li> </ul>
Fitzroy River turtle	<i>Rheodytes leukops</i>	Vulnerable	Vulnerable	Unlikely	<ul style="list-style-type: none"> <li>Recorded from Desktop Assessment Area, but not from Styx Basin</li> <li>Known only from Fitzroy River and associated tributaries (Wilson and Swan 2010; DERM, 2010a)</li> <li>Little or no suitable habitat (i.e., creeks with permanent running waters of low turbidity) within EPC 1029</li> </ul>
Golden-tailed gecko	<i>Strophurus taenicauda</i>	-	Near Threatened	Unlikely	<ul style="list-style-type: none"> <li>No records from or near Desktop Assessment Study Area</li> <li>No records from Marlborough Plains subregion of Brigalow Belt and no near-coastal records north of Rockhampton (Richardson, 2008)</li> </ul>
Imperial hairstreak	<i>Jalmenus eubulus</i>	Vulnerable	Vulnerable	Possible	<ul style="list-style-type: none"> <li>Historical (pre-1980) records from Styx River Basin (Eastwood et al., 2008)</li> <li>Suitable habitat (mature remnant brigalow forest/ woodland) within EPC 1029, albeit patchy and limited in extent</li> </ul>

**Table B2. Preliminary likelihood of occurrence assessments for non-EVR, EPBC Act-listed ‘Migratory’ species potentially occurring within EPC 1029. The species considered here have been identified as potentially occurring within EPC 1029 based on their current known distribution and/or predicted distribution (as indicated by DSEWPAC Protected Matters Search Tool results and/or published distribution maps). Fauna species are grouped by class (birds and reptiles) and ordered alphabetically by scientific name. NB. Due to deficiencies in existing information and the limitations of fieldwork so far undertaken within EPC 1029, the likelihood of occurrence of some conservation significant species is difficult to assess. Where such uncertainty exists, species have generally been assessed as possibly occurring on site, pending further field-based surveys and assessment of habitat within EPC 1029.**

Common name	Scientific name	Likelihood of occurrence within EPC 1029	Justification
Common sandpiper	<i>Actitis hypoleucos</i>	Likely	<ul style="list-style-type: none"> <li>Highly mobile</li> <li>Roosts within broader Desktop Assessment Study Area (DSEWPAC Protected Matters Search Tool)</li> <li>Recorded from Styx River Basin, but not EPC 1029</li> <li>Potentially suitable habitat (muddy/rocky river margins, mangrove-lined creeks, and stock dams) within and immediately adjacent EPC 1029</li> </ul>
Fork-tailed swift	<i>Apus pacificus</i>	Known to occur	<ul style="list-style-type: none"> <li>Recorded within EPC 1029 during March 2011 surveys</li> <li>Suitable foraging habitat over much of EPBC 1029</li> </ul>

Common name	Scientific name	Likelihood of occurrence within EPC 1029	Justification
Eastern egret	<i>Ardea alba</i>	Likely	<ul style="list-style-type: none"> <li>• Highly mobile</li> <li>• Recorded from Styx River Basin, but not from EPC 1029</li> <li>• Suitable foraging habitat (permanent and ephemeral fresh- and brackish water wetlands, including larger stock dams and areas of ponded pasture) within and adjacent EPC 1029</li> <li>• Breeding likely to occur within broader Desktop Assessment Study Area (DSEWPAC Protected Matters Search Tool)</li> </ul>
Cattle egret	<i>Ardea ibis</i>	Likely	<ul style="list-style-type: none"> <li>• Highly mobile</li> <li>• Recorded from Styx River Basin, but not EPC 1029</li> <li>• Ample suitable foraging habitat (grassland/pasture subject to grazing) within EPC 1029</li> </ul>
Ruddy turnstone	<i>Arenaria interpres</i>	Unlikely	<ul style="list-style-type: none"> <li>• No records from the Styx River Basin or broader Desktop Assessment Study Area</li> <li>• Little or no suitable foraging habitat within or adjacent EPC 1029</li> </ul>
Sharp-tailed sandpiper	<i>Calidris acuminata</i>	Likely	<ul style="list-style-type: none"> <li>• Highly mobile</li> <li>• Recorded from Styx River Basin, but not EPC 1029</li> <li>• Potential foraging habitat (grass sedge-wetlands and banded mangrove vegetation) in far north of EPC 1029</li> <li>• Suitable foraging and roosting habitat to near north of EPC 1029 as well (Jaensch, 2009)</li> </ul>
Curlew sandpiper	<i>Calidris ferruginea</i>	Likely	<ul style="list-style-type: none"> <li>• Highly mobile</li> <li>• Recorded from Styx River Basin, but not EPC 1029</li> <li>• Potential foraging and/or roosting habitat (banded mangrove vegetation, margins of grass-sedge wetlands) in far north of EPC 1029</li> <li>• Suitable foraging and roosting habitat to near north of EPC 1029 as well (Jaensch, 2009)</li> </ul>
Red-necked stint	<i>Calidris ruficollis</i>	Likely	<ul style="list-style-type: none"> <li>• Highly mobile</li> <li>• Recorded from Styx River Basin, but not EPC 1029</li> <li>• Potential foraging and/or roosting habitat (banded mangrove vegetation) in far north of EPC 1029</li> <li>• Suitable foraging and roosting habitat to near north of EPC 1029 as well (Jaensch, 2009)</li> </ul>
Great knot	<i>Calidris tenuirostris</i>	Likely	<ul style="list-style-type: none"> <li>• Highly mobile</li> <li>• Known to roost within Desktop Assessment Study Area (DSEWPAC Protected Matters Search Tool)</li> <li>• Recorded from Styx Basin, but not from EPC 1029</li> <li>• Suitable foraging (i.e., muddy intertidal flats) habitat to near north of EPC 1029</li> <li>• Potential roosting habitat (salt flats and samphire forland) in far north of</li> </ul>

Common name	Scientific name	Likelihood of occurrence within EPC 1029	Justification
			<ul style="list-style-type: none"> <li>EPC 1029</li> <li>Known roost site (Hoogly Point) to near north of EPC 1029 (Jaensch, 2009)</li> </ul>
Greater sand plover	<i>Charadrius leschenaultii</i>	Likely	<ul style="list-style-type: none"> <li>Roosting known to occur within Desktop Assessment Study Area (DSEWPAC Protected Matters Search Tool)</li> <li>Recorded from Styx River Basin, but not within EPC 1029</li> <li>Potential foraging habitat (i.e., muddy intertidal flats) to near north of EPC 1029</li> <li>Potential roosting habitat (salt flats and samphire forbland) in far north of EPC 1029</li> <li>Potential foraging and roosting habitat to the north of EPC 1029</li> </ul>
Lesser sand plover	<i>Charadrius mongolus</i>	Likely	<ul style="list-style-type: none"> <li>Highly mobile</li> <li>Recorded from Styx Basin, near EPC 1029</li> <li>Potential roosting habitat (salt flats and samphire forbland) in far north of EPC 1029</li> <li>Suitable foraging and roosting habitat north of EPC 1029.</li> <li>Known roost site (Hoogly Point) to near north of EPC 1029 (Jaensch, 2009).</li> </ul>
White-winged black tern	<i>Chlidonis leucopterus</i>	Possible	<ul style="list-style-type: none"> <li>Highly mobile</li> <li>Recorded from Styx Basin, but not EPC 1029</li> <li>Suitable foraging habitat (coastal waters, estuaries) immediately adjacent EPC 1029</li> </ul>
Oriental cuckoo	<i>Cuculus saturatus</i>	Known to occur	<ul style="list-style-type: none"> <li>Recorded within EPC 1029 during surveys in March 2011</li> <li>Suitable foraging habitat (woodland and open forest) within EPC 1029</li> </ul>
Eastern reef egret	<i>Egretta sacra</i>	Unlikely	<ul style="list-style-type: none"> <li>Recorded from Styx Basin, but not within EPC 1029</li> <li>Little or no suitable foraging habitat (i.e., rocky reef, mudflats and mangrove vegetation subject to regular tidal inundation) within EPC 1029</li> </ul>
Latham's snipe	<i>Gallinago hardwickii</i>	Likely	<ul style="list-style-type: none"> <li>Highly mobile</li> <li>Recorded from Styx Basin, within or near EPC 1029</li> <li>Suitable foraging habitat (grass-sedge wetlands [including areas of ponded pasture]) within EPC 1029</li> </ul>
White-bellied sea-eagle	<i>Haliaeetus leucogaster</i>	Likely	<ul style="list-style-type: none"> <li>Highly mobile</li> <li>Recorded from Styx Basin, but not EPC 1029</li> <li>Suitable foraging habitat (large coastal creeks, rivers and estuaries) within and immediately adjacent EPC 1029</li> <li>Potential breeding habitat (large trees in proximity to foraging habitat) within and/or immediately adjacent EPC 1029</li> </ul>
White-throated needletail	<i>Hirundapus caudacutus</i>	Likely	<ul style="list-style-type: none"> <li>Highly mobile</li> <li>Forages and rests on the wing</li> <li>Recorded from Styx Basin, but not EPC 1029</li> </ul>

Common name	Scientific name	Likelihood of occurrence within EPC 1029	Justification
			<ul style="list-style-type: none"> <li>Suitable foraging habitat over most if not all of EPBC 1209</li> </ul>
Barn swallow	<i>Hirundo rustica</i>	Possible	<ul style="list-style-type: none"> <li>Highly mobile</li> <li>Not recorded from Desktop Assessment Study Area</li> <li>Suitable foraging habitat (open country, including areas of pasture, near water) within EPC 1209</li> </ul>
Bar-tailed godwit	<i>Limosa lapponica</i>	Likely	<ul style="list-style-type: none"> <li>Recorded from Styx Basin, within or near EPC 1029</li> <li>Potential roosting habitat (salt flats and samphire forbland) in far north of EPC 1029</li> <li>Suitable foraging and roosting habitat to near north of EPC 1029</li> <li>Known roost site (Hoogly Point) to near north of EPC 1029 (Jaensch, 2009)</li> </ul>
Black-tailed godwit	<i>Limosa limosa</i>	Likely	<ul style="list-style-type: none"> <li>Recorded from Styx Basin, but not within or near EPC 1209</li> <li>Potential roosting habitat (salt flats and samphire forbland) in far north of EPC 1029</li> <li>Suitable foraging habitat (muddy intertidal flats) to near north of EPC 1029</li> </ul>
Rainbow bee-eater	<i>Merops ornatus</i>	Known to occur	<ul style="list-style-type: none"> <li>Recorded from EPC 1209 during surveys in March 2011</li> <li>Suitable breeding and foraging habitat (open forest, riparian forest, woodland, nearby pasture and eroded creek/river banks) within EPC 1209</li> </ul>
Black-faced monarch	<i>Monarcha melanopsis</i>	Likely	<ul style="list-style-type: none"> <li>Highly mobile</li> <li>Recorded from Styx Basin, but not EPC 1029</li> <li>Suitable foraging and breeding habitat (low closed riparian forest/scrub and mangroves) within EPC 1029, albeit limited in extent and highly-fragmented</li> </ul>
Spectacled monarch	<i>Monarcha trivirgatus</i>	Likely	<ul style="list-style-type: none"> <li>Highly mobile</li> <li>Recorded from Styx Basin, within or near EPC 1029</li> <li>Suitable foraging and breeding habitat (low closed riparian forest/scrub and mangroves) within EPC 1029, albeit limited in extent and highly-fragmented</li> </ul>
Satin flycatcher	<i>Myiagra cyanoleuca</i>	Likely	<ul style="list-style-type: none"> <li>Highly mobile</li> <li>Recorded from Styx Basin , but not EPC 1029</li> <li>Suitable foraging habitat (open forest, taller woodlands associated with drainage lines) within and adjacent EPC 1029</li> </ul>
Little curlew	<i>Numenius minutus</i>	Possible	<ul style="list-style-type: none"> <li>Highly mobile</li> <li>Known to occur within Desktop Assessment Study Area (DSEWPAC Protected Matters Search Tool results), but not recorded from Styx Basin</li> <li>Potential foraging habitat (low dry grassland [including grazed pasture]) within EPC1029</li> </ul>
Whimbrel	<i>Numenius phaeopus</i>	Likely	<ul style="list-style-type: none"> <li>Highly mobile</li> <li>Recorded from Styx Basin, near EPC 1029</li> <li>Potential roosting habitat (bunded mangrove vegetation and adjacent saltmarsh) in far north of EPC 1029</li> </ul>

Common name	Scientific name	Likelihood of occurrence within EPC 1029	Justification
			<ul style="list-style-type: none"> <li>Suitable foraging habitat (muddy intertidal flats) to near north of EPC 1029</li> <li>Known roost site (Hoogly Point) to near north of EPC 1029 (Jaensch, 2009).</li> </ul>
Osprey	<i>Pandion haliaetus</i>	Likely	<ul style="list-style-type: none"> <li>Highly mobile</li> <li>Recorded from Styx Basin, but not EPC 1029</li> <li>Suitable foraging and roosting habitat at mouth of Styx River and, potentially lower reaches of Styx River</li> <li>May overfly EPC 1029 when moving between areas of more suitable habitat</li> </ul>
Glossy ibis	<i>Plegadis falcinellus</i>	Likely	<ul style="list-style-type: none"> <li>Highly mobile</li> <li>Recorded from Styx Basin, but not EPC 1029</li> <li>Suitable foraging habitat (wooded wetland and ponded pasture) within EPC 1029</li> </ul>
Pacific golden plover	<i>Pluvialis fulva</i>	Likely	<ul style="list-style-type: none"> <li>Highly mobile</li> <li>Recorded from Desktop Assessment Study Area, but not the Styx Basin</li> <li>Potential roosting and/or foraging habitat (salt marsh) in far north of EPC 1029</li> </ul>
Grey plover	<i>Pluvialis squatarola</i>	Likely	<ul style="list-style-type: none"> <li>Highly mobile</li> <li>Recorded from Styx Basin, but not EPC 1029</li> <li>Potential roosting habitat (salt flats and samphire forbland) in far north of EPC 1029</li> <li>Known roost site (Hoogly Point) to near north of EPC 1029 (Jaensch, 2009)</li> <li>Potential foraging habitat (muddy intertidal flats) to near north of EPC 1029</li> </ul>
Rufous fantail	<i>Rhipidura rufifrons</i>	Known to occur	<ul style="list-style-type: none"> <li>Recorded from EPC 1029 during surveys in March 2011</li> <li>Suitable foraging and breeding habitat (low closed riparian forest/scrub) within EPC 1029, albeit limited in extent</li> </ul>
Caspian tern	<i>Sterna caspia</i>	Likely	<ul style="list-style-type: none"> <li>Previously recorded from Styx Basin, within or near EPC 1029</li> <li>Suitable roosting habitat (bare salt marsh) in north of EPC 1029</li> <li>Foraging habitat (open water in the lower reaches of the Styx River) within EPC 1029</li> <li>Suitable foraging and roosting habitat to near north of EPC 1029 as well</li> <li>Breeding known to occur within Desktop Assessment Study Area (DSEWPAC Protected Matters Search Tool)</li> </ul>
Black-naped tern	<i>Sterna sumatrana</i>	Unlikely	<ul style="list-style-type: none"> <li>No records from Desktop Assessment Study Area</li> <li>Associated with offshore waters/open coastal waters</li> </ul>
Grey-tailed tattler	<i>Tringa brevipes</i>	Possible	<ul style="list-style-type: none"> <li>Highly mobile</li> <li>Recorded from Styx Basin, within or near EPC 1029</li> <li>No suitable foraging habitat (i.e., muddy intertidal flats or rock platforms) within EPC 1029</li> <li>Potential roosting habitat (bunded mangrove vegetation) in far north of EPC</li> </ul>

Common name	Scientific name	Likelihood of occurrence within EPC 1029	Justification
			<ul style="list-style-type: none"> <li>1029</li> <li>Potential foraging habitat (muddy intertidal flats) to the near of EPC 1029</li> </ul>
Common greenshank	<i>Tringa nebularia</i>	Likely	<ul style="list-style-type: none"> <li>Highly mobile</li> <li>Recorded from Styx Basin, but not EPC 1029</li> <li>Potential foraging and/or roosting habitat (grass-sedge wetlands, saltmarsh and banded mangrove vegetation) in far north of EPC 1029</li> <li>Suitable roosting/ foraging habitat adjacent EPC 1029 as well</li> <li>Known roost site (Hoogly Point) to near north of EPC 1029 (Jaensch, 2009)</li> </ul>
Marsh sandpiper	<i>Tringa stagnatilis</i>	Likely	<ul style="list-style-type: none"> <li>Highly mobile</li> <li>Recorded from Styx Basin, but not EPC 1029</li> <li>Potential foraging and/or roosting habitat (grass-sedge wetlands, saltmarsh and banded mangrove vegetation) in far north of EPC 1029</li> <li>Suitable roosting/ foraging habitat adjacent EPC 1029 as well</li> </ul>
Terek sandpiper	<i>Xenus cinereus</i>	Likely	<ul style="list-style-type: none"> <li>Recorded from Styx Basin, but not EPC 1029</li> <li>Potential roosting habitat (banded mangrove vegetation, salt flats and samphire forland) in far north of EPC 1029</li> <li>Potential foraging and roosting habitat to the north of EPC 1029</li> </ul>
Saltwater crocodile	<i>Crocodylus porosus</i>	Possible	<ul style="list-style-type: none"> <li>Not recorded from Desktop Assessment Study Area</li> <li>Potential habitat along lower reaches of Styx River and mangrove-lined creeks/gutters to the north and east of EPC 1029</li> </ul>

**Table B3. Preliminary likelihood of occurrence assessments for non-EVR ‘priority’ terrestrial fauna potentially occurring within EPC 1029 (i.e., ‘Back on Track’ priority taxa for the Fitzroy Basin Natural Resource Management region [DERM, 2010] and/or priority taxa for the Brigalow Belt North Bioregion [Northern Brigalow Belt Biodiversity Planning Assessment]). Fauna species are grouped by class (amphibians, birds, mammals, reptiles and butterflies) and ordered alphabetically by scientific name. NB. Due to deficiencies in existing information and the limitations of fieldwork so far undertaken within EPC 1029, the likelihood of occurrence of some conservation significant species is difficult to assess. Where such uncertainty exists, species have generally been assessed as possibly occurring on site, pending further field-based surveys and assessment of habitat within EPC 1029.**

Common name	Scientific name	Conservation significance	Likelihood of occurrence within EPC 1029	Justification
Diamond firetail	<i>Stagnopleura guttata</i>	‘Back on Track’ priority taxon for Fitzroy NRM region	Unlikely	<ul style="list-style-type: none"> <li>No records from Desktop Assessment Study Area</li> <li>Nearest record south-west of Mt Morgan, over 100km south of EPC 1029 (DERM, 2010a)</li> <li>Habitat within EPC 1029 (dry woodland/open forest with a</li> </ul>

Common name	Scientific name	Conservation significance	Likelihood of occurrence within EPC 1029	Justification
				grassy and/or shrubby understory), limited in extent, highly fragmented and isolated from nearest known (i.e., occupied) habitat
Spectacled hare-wallaby	<i>Lagorchestes hirsutus</i>	Brigalow Belt North BPA priority taxon	Possible	<ul style="list-style-type: none"> <li>No records from Desktop Assessment Study Area</li> <li>Suitable habitat (open grassy woodland and open forest habitat) within and adjacent EPC 1029</li> </ul>
Yellow-bellied glider	<i>Petaurus australis</i>	'Back on Track' priority taxon for Fitzroy NRM region	Possible	<ul style="list-style-type: none"> <li>Recorded from Styx Basin, but not EPC 1029</li> <li>Nearest known record(s) roughly 50-60 km west of EPC 1029 (DERM,2010a)</li> <li>Potential habitat (i.e., eucalypt forest with large hollow-bearing trees) along western boundary and in south-eastern corner of EPC 1029, contiguous with similar habitat adjacent EPC 1029</li> </ul>
Capricorn worm-skink	<i>Anomalopus brevicollis</i>	'Back on Track' priority taxon for Fitzroy NRM region	Likely	<ul style="list-style-type: none"> <li>Recorded from Styx Basin, but not EPC 1029</li> <li>Potentially suitable habitat (dry sclerophyll forest with leaf litter and/or woody debris for cover) within EPC 1029</li> </ul>
White-throated snapping turtle	<i>Eseya albagula</i>	'Back on Track' priority taxon for Fitzroy NRM region	Unlikely	<ul style="list-style-type: none"> <li>Not known from Styx River catchment (Wilson, 2005)</li> <li>No records from Desktop Assessment Study Area</li> <li>Little or no suitable habitat (i.e., permanent running water) within EPC 1029</li> </ul>
Stephen's banded snake	<i>Hoplocephalus stephensii</i>	'Back on Track' priority taxon for Fitzroy NRM region	Unlikely	<ul style="list-style-type: none"> <li>Northern limit of species' distribution (Kroombit Tops) well south of EPC 1029</li> <li>No records from Desktop Assessment Study Area</li> <li>No suitable habitat (tall open forest/ rainforest) within EPC 1029</li> </ul>
Ringed thin-tailed gecko	<i>Phyllurus caudiannulatus</i>	'Back on Track' priority taxon for Fitzroy NRM region	Unlikely	<ul style="list-style-type: none"> <li>Known only from Bulburin area (Wilson and Swan, 2010), well south of EPC 1029</li> <li>No suitable rainforest habitat within EPC 1029</li> </ul>
Leaf-tailed gecko	<i>Phyllurus championae</i>	'Back on Track' priority taxon for Fitzroy NRM region	Unlikely	<ul style="list-style-type: none"> <li>Known only from Cameron Creek and Blue Mountain (Wilson and Swan, 2010), to the far north-west of EPC 1029</li> <li>No suitable habitat (i.e., rainforest associated with boulders and scree) within EPC 1029</li> </ul>
Rusty monitor	<i>Varanus semiremex</i>	'Back on Track' priority taxon for Fitzroy NRM region	Possible	<ul style="list-style-type: none"> <li>No records from Desktop Assessment Study Area</li> <li>Nearest record from eastern side of Torilla Peninsula, well east of EPC 1029 (DERM, 2010a)</li> <li>Potential habitat (near-coastal riparian habitat including <i>Melaleuca</i> woodland/forest) within EPC 1029</li> </ul>



**Table B4. Preliminary likelihood of occurrence assessments for ‘Special Least Concern’ taxa (excluding migratory birds) listed under the NC Act.**

Common name	Scientific name	Likelihood of occurrence within EPC 1029	Justification
Koala	<i>Phascolarctos cinereus</i>	Known to occur	<ul style="list-style-type: none"> <li>Recorded from Styx Basin, within or near EPC 1029</li> <li>Evidence of koalas (scratches/scats) recorded during surveys in March 2011</li> <li>Suitable habitat (<i>E. tereticornis</i> and <i>E. crebra</i> woodland/forest) within EPC 1029</li> </ul>
Platypus	<i>Ornithorhynchus anatinus</i>	Possible	<ul style="list-style-type: none"> <li>Recorded from Desktop Assessment Study Area, but not the Styx Basin</li> <li>Potential habitat (pools and riffles in larger creeks [e.g., Deep and Stoodleigh Creeks]) within and adjacent EPC 1029</li> </ul>
Short-beaked echidna	<i>Tachyglossus aculeatus</i>	Known to occur	<ul style="list-style-type: none"> <li>Scats and diggings recorded within EPC 1029 during surveys in March 2011</li> <li>Ample suitable habitat (areas of cleared, remnant and regrowth vegetation with a healthy supply of ants and termites) within EPC 1029</li> </ul>

## **APPENDIX C**

### **March 2011 survey results**

**Table C1. List of vertebrate fauna recorded within and/or immediately adjacent EPC 1029 during surveys in March 2011. Fauna species are grouped by class (birds and reptiles) and ordered alphabetically by scientific name. EPBC Act status = status under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*; NC Act = *Queensland Nature Conservation Act 1992* and associated regulations (i.e., *Nature Conservation (Wildlife) Regulation 2006*); Back on Track status = status within DERM's 'Back on Track' species prioritisation framework ; BPA status = status under DERM's Biodiversity Planning Assessment for the Northern Brigalow Belt Bioregion; CE = Critically Endangered; E = Endangered; V = Vulnerable; NT = Near Threatened; M = Migratory; LC = Least Concern; SLC = Special Least Concern.**

Class	Family	Scientific name	Common name	NC Act Status	EPBC Act Status	Back on Track/BPA status
amphibians	Bufonidae	<i>Bufo marinus</i>	cane toad	–	–	–
amphibians	Hylidae	<i>Cyclorana alboguttata</i>	greenstripe frog	LC	–	–
amphibians	Hylidae	<i>Cyclorana novaehollandiae</i>	eastern snapping frog	LC	–	–
amphibians	Hylidae	<i>Litoria caerulea</i>	common green treefrog	LC	–	–
amphibians	Hylidae	<i>Litoria fallax</i>	eastern sedgefrog	LC	–	–
amphibians	Hylidae	<i>Litoria inermis</i>	bumpy rocketfrog	LC	–	–
amphibians	Hylidae	<i>Litoria latopalmata</i>	broad palmed rocketfrog	LC	–	–
amphibians	Hylidae	<i>Litoria nasuta</i>	striped rocketfrog	LC	–	–
amphibians	Hylidae	<i>Litoria rothii</i>	northern laughing treefrog	LC	–	–
amphibians	Hylidae	<i>Litoria rubella</i>	ruddy treefrog	LC	–	–
amphibians	Myobatrachidae	<i>Crinia deserticola</i>	chirping froglet	LC	–	–
amphibians	Myobatrachidae	<i>Limnodynastes ornatus</i>	ornate burrowing frog	LC	–	–
amphibians	Myobatrachidae	<i>Limnodynastes salmini</i>	salmon striped frog	LC	–	–
amphibians	Myobatrachidae	<i>Limnodynastes tasmaniensis</i>	spotted grassfrog	LC	–	–
amphibians	Myobatrachidae	<i>Limnodynastes terraereginae</i>	scarlet sided pobblebonk	LC	–	–
birds	Acanthizidae	<i>Gerygone albogularis</i>	white-throated gerygone	LC	–	–
birds	Acanthizidae	<i>Smicronis brevirostris</i>	weebill	LC	–	–
birds	Accipitridae	<i>Accipiter cirrocephalus</i>	collared sparrowhawk	LC	–	–
birds	Accipitridae	<i>Accipiter fasciatus</i>	brown goshawk	LC	–	–
birds	Accipitridae	<i>Aquila audax</i>	wedge-tailed eagle	LC	–	–
birds	Accipitridae	<i>Haliastur sphenurus</i>	whistling kite	LC	–	–
birds	Accipitridae	<i>Lophoictinia isura</i>	square-tailed kite	NT	–	–
birds	Accipitridae	<i>Milvus migrans</i>	black kite	LC	–	–
birds	Aegothelidae	<i>Aegotheles cristatus</i>	Australian owlet-nightjar	LC	–	–
birds	Alaudidae	<i>Mirafra javanica</i>	singing bushlark	LC	–	–
birds	Alcedinidae	<i>Ceyx azureus</i>	azure kingfisher	LC	–	–

Class	Family	Scientific name	Common name	NC Act Status	EPBC Act Status	Back on Track/BPA status
birds	Anatidae	<i>Anas superciliosa</i>	Pacific black duck	LC	—	—
birds	Anatidae	<i>Chenonetta jubata</i>	Australian wood duck	LC	—	—
birds	Anatidae	<i>Dendrocygna arcuata</i>	wandering whistling-duck	LC	—	—
birds	Anatidae	<i>Dendrocygna eytoni</i>	plumed whistling-duck	LC	—	—
birds	Anatidae	<i>Nettapus coromandelianus</i>	cotton pygmy-goose	NT	—	—
birds	Anatidae	<i>Anas gracilis</i>	grey teal	LC	—	—
birds	Anhingidae	<i>Anhinga novaehollandiae</i>	dartar	LC	—	—
birds	Anseranatidae	<i>Anseranas semipalmata</i>	maggie goose	LC	—	—
birds	Apodidae	<i>Apus pacificus</i>	fork-tailed swift	SLC	M	—
birds	Ardeidae	<i>Ardea intermedia</i>	intermediate egret	LC	—	—
birds	Ardeidae	<i>Ardea pacifica</i>	white-necked heron	LC	—	—
birds	Ardeidae	<i>Egretta novaehollandiae</i>	white-faced heron	LC	—	—
birds	Ardeidae	<i>Ixobrychus flavicollis</i>	black bittern	LC	—	—
birds	Ardeidae	<i>Nycticorax caledonicus</i>	nankeen night heron	LC	—	—
birds	Artamidae	<i>Artamus personatus</i>	masked woodswallow	LC	—	—
birds	Artamidae	<i>Cracticus nigrogularis</i>	pied butcherbird	LC	—	—
birds	Artamidae	<i>Cracticus tibicen</i>	Australian magpie	LC	—	—
birds	Artamidae	<i>Cracticus torquatus</i>	grey butcherbird	LC	—	—
birds	Artamidae	<i>Artamus leucorhynchus</i>	white-breasted woodswallow	LC	—	—
birds	Burhinidae	<i>Burhinus grallarius</i>	bush stone-curlew	LC	—	—
birds	Cacatuidae	<i>Cacatua galerita</i>	sulphur-crested cockatoo	LC	—	—
birds	Cacatuidae	<i>Eolophus roseicapillus</i>	galah	LC	—	—
birds	Campephagidae	<i>Coracina novaehollandiae</i>	black-faced cuckoo-shrike	LC	—	—
birds	Campephagidae	<i>Coracina papuensis</i>	white-bellied cuckoo-shrike	LC	—	—
birds	Campephagidae	<i>Lalage leucomela</i>	varied triller	LC	—	—
birds	Campephagidae	<i>Coracina maxima</i>	ground cuckoo-shrike	LC	—	—
birds	Campephagidae	<i>Coracina tenuirostris</i>	cicadabird	LC	—	—
birds	Casuariidae	<i>Dromaius novaehollandiae</i>	emu	LC	—	—
birds	Caprimulgidae	<i>Caprimulgus macrurus</i>	large-tailed nightjar	LC	—	—
birds	Charadriidae	<i>Vanellus miles novaehollandiae</i>	masked lapwing (southern subspecies)	LC	—	—
birds	Cisticolidae	<i>Cisticola exilis</i>	golden-headed cisticola	LC	—	—
birds	Cisticolidae	<i>Cisticola juncidis laveryi</i>	zitting cisticola	LC	—	—
birds	Columbidae	<i>Chalcophaps indica</i>	emerald dove	LC	—	—

Class	Family	Scientific name	Common name	NC Act Status	EPBC Act Status	Back on Track/BPA status
birds	Columbidae	<i>Geopelia humeralis</i>	bar-shouldered dove	LC	—	—
birds	Columbidae	<i>Geopelia striata</i>	peaceful dove	LC	—	—
birds	Columbidae	<i>Geophaps scripta scripta</i>	squatter pigeon (southern subspecies)	V	V	Priority
birds	Columbidae	<i>Ocyphaps lophotes</i>	crested pigeon	LC	—	—
birds	Coraciidae	<i>Eurystomus orientalis</i>	dollarbird	LC	—	—
birds	Corcoracidae	<i>Struthidea cinerea</i>	apostlebird	LC	—	—
birds	Corvidae	<i>Corvus orru</i>	Torresian crow	LC	—	—
birds	Cuculidae	<i>Centropus phasianinus</i>	pheasant coucal	LC	—	—
birds	Cuculidae	<i>Scythrops novaehollandiae</i>	channel-billed cuckoo	LC	—	—
birds	Cuculidae	<i>Chalcites minutillus minutillus</i>	little bronze-cuckoo	LC	—	—
birds	Cuculidae	<i>Cuculus optatus</i>	oriental cuckoo	SLC	M	—
birds	Dicruridae	<i>Dicrurus bracteatus bracteatus</i>	spangled drongo (eastern Australia)	LC	—	—
birds	Estrildidae	<i>Lonchura castaneothorax</i>	chestnut-breasted mannikin	LC	—	—
birds	Estrildidae	<i>Neochmia modesta</i>	plum-headed finch	LC	—	—
birds	Estrildidae	<i>Taeniopygia bichenovii</i>	double-barred finch	LC	—	—
birds	Estrildidae	<i>Taeniopygia guttata</i>	zebra finch	LC	—	—
birds	Falconidae	<i>Falco berigora</i>	brown falcon	LC	—	—
birds	Falconidae	<i>Falco cenchroides</i>	nankeen kestrel	LC	—	—
birds	Gruidae	<i>Grus rubicunda</i>	brolga	LC	—	—
birds	Halcyonidae	<i>Dacelo leachii</i>	blue-winged kookaburra	LC	—	—
birds	Halcyonidae	<i>Dacelo novaeguineae</i>	laughing kookaburra	LC	—	—
birds	Halcyonidae	<i>Todiramphus macleayii</i>	forest kingfisher	LC	—	—
birds	Halcyonidae	<i>Todiramphus pyrrhopygius</i>	red-backed kingfisher	LC	—	—
birds	Halcyonidae	<i>Todiramphus sanctus</i>	sacred kingfisher	LC	—	—
birds	Hirundinidae	<i>Hirundo neoxena</i>	welcome swallow	LC	—	—
birds	Maluridae	<i>Malurus melanocephalus</i>	red-backed fairy-wren	LC	—	—
birds	Megaluridae	<i>Cincloramphus cruralis</i>	brown songlark	LC	—	—
birds	Megaluridae	<i>Megalurus timoriensis</i>	tawny grassbird	LC	—	—
birds	Megapodiidae	<i>Alectura lathami</i>	Australian brush-turkey	LC	—	—
birds	Meliphagidae	<i>Entomyzon cyanotis</i>	blue-faced honeyeater	LC	—	—
birds	Meliphagidae	<i>Lichenostomus flavus</i>	yellow honeyeater	LC	—	—
birds	Meliphagidae	<i>Lichmera indistincta</i>	brown honeyeater	LC	—	—
birds	Meliphagidae	<i>Manorina flavigula</i>	yellow-throated miner	LC	—	—

Class	Family	Scientific name	Common name	NC Act Status	EPBC Act Status	Back on Track/BPA status
birds	Meliphagidae	<i>Manorina melanocephala</i>	noisy miner	LC	–	–
birds	Meliphagidae	<i>Meliphaga lewinii</i>	Lewin's honeyeater	LC	–	–
birds	Meliphagidae	<i>Melithreptus albogularis</i>	white-throated honeyeater	LC	–	–
birds	Meliphagidae	<i>Myzomela sanguinolenta</i>	scarlet honeyeater	LC	–	–
birds	Meliphagidae	<i>Philemon citreogularis</i>	little friarbird	LC	–	–
birds	Meliphagidae	<i>Philemon corniculatus</i>	noisy friarbird	LC	–	–
birds	Meropidae	<i>Merops ornatus</i>	rainbow bee-eater	SLC	M	–
birds	Monarchidae	<i>Grallina cyanoleuca</i>	maggie-lark	LC	–	–
birds	Monarchidae	<i>Myiagra rubecula</i>	leaden flycatcher	LC	–	–
birds	Motacillidae	<i>Anthus novaeseelandiae</i>	Australasian pipit	LC	–	–
birds	Nectariniidae	<i>Dicaeum hirundinaceum</i>	mistletoebird	LC	–	–
birds	Oriolidae	<i>Oriolus sagittatus</i>	olive-backed oriole	LC	–	–
birds	Otididae	<i>Ardeotis australis</i>	Australian bustard	LC	–	–
birds	Pachycephalidae	<i>Colluricincla harmonica</i>	grey shrike-thrush	LC	–	–
birds	Pachycephalidae	<i>Pachycephala rufiventris</i>	rufous whistler	LC	–	–
birds	Pardalotidae	<i>Pardalotus striatus</i>	striated pardalote	LC	–	–
birds	Pelecanidae	<i>Pelecanus conspicillatus</i>	Australian pelican	LC	–	–
birds	Petroicidae	<i>Microeca flavigaster</i>	lemon-bellied flycatcher	LC	–	–
birds	Phalacrocoracidae	<i>Phalacrocorax sulcirostris</i>	little black cormorant	LC	–	–
birds	Phalacrocoracidae	<i>Microcarbo melanoleucos</i>	little pied cormorant	LC	–	–
birds	Phasianidae	<i>Coturnix ypsilophora</i>	brown quail	LC	–	–
birds	Podargidae	<i>Podargus strigoides</i>	tawny frogmouth	LC	–	–
birds	Podicipedidae	<i>Tachybaptus novaehollandiae</i>	Australasian grebe	LC	–	–
birds	Pomatostomidae	<i>Pomatostomus temporalis rubeculus</i>	grey-crowned babbler (north-western)	LC	–	–
birds	Psittacidae	<i>Aprosmictus erythropterus</i>	red-winged parrot	LC	–	–
birds	Psittacidae	<i>Platycercus adscitus</i>	pale-headed rosella (southern form)	LC	–	–
birds	Psittacidae	<i>Trichoglossus haematodus moluccanus</i>	rainbow lorikeet	LC	–	–
birds	Ptilonorhynchidae	<i>Ptilonorhynchus maculatus</i>	spotted bowerbird	LC	–	–
birds	Rallidae	<i>Gallirallus philippensis</i>	buff-banded rail	LC	–	–
birds	Rallidae	<i>Porphyrio porphyrio</i>	purple swamphen	LC	–	–
birds	Rhipiduridae	<i>Rhipidura leucophrys leucophrys</i>	willie wagtail (southern)	LC	–	–

Class	Family	Scientific name	Common name	NC Act Status	EPBC Act Status	Back on Track/BPA status
birds	Rhipiduridae	<i>Rhipidura rufifrons</i>	rufous fantail	LC	M	—
birds	Strigidae	<i>Ninox novaeseelandiae</i>	southern boobook	LC	—	—
birds	Turnicidae	<i>Turnix varius</i>	painted button-quail	LC	—	—
birds	Tytonidae	<i>Tyto javanica</i>	barn owl	LC	—	—
birds	Hirundinidae	<i>Petrochelidon ariel</i>	fairy martin	LC	—	—
mammals	Bovidae	<i>Bos taurus</i>	European cattle	—	—	—
mammals	Canidae	<i>Canis lupus dingo</i>	dingo	—	—	—
mammals	Emballonuridae	<i>Saccolaimus flaviventris</i>	yellow-bellied sheath-tail bat	LC	—	—
mammals	Equidae	<i>Equus caballus</i>	horse	—	—	—
mammals	Felidae	<i>Felis catus</i>	cat	—	—	—
mammals	Leporidae	<i>Oryctolagus cuniculus</i>	rabbit	—	—	—
mammals	Macropodidae	<i>Macropus agilis</i>	agile wallaby	LC	—	—
mammals	Macropodidae	<i>Macropus giganteus</i>	eastern grey kangaroo	LC	—	—
mammals	Macropodidae	<i>Macropus parryi</i>	whiptail wallaby	LC	—	—
mammals	Molossidae	<i>Tadarida australis</i>	white-striped freetail bat	LC	—	—
mammals	Molossidae	<i>Chaerephon jobensis</i>	northern freetail bat	LC	—	—
mammals	Molossidae	<i>Mormopterus beccarii</i>	Beccari's freetail bat	LC	—	—
mammals	Muridae	<i>Hydromys chrysogaster</i>	water rat	LC	—	—
mammals	Muridae	<i>Mus musculus</i>	house mouse	—	—	—
mammals	Peramelidae	<i>Isoodon macrourus</i>	northern brown bandicoot	LC	—	—
mammals	Petauridae	<i>Petaurus breviceps</i>	sugar glider	LC	—	—
mammals	Phalangeridae	<i>Trichosurus vulpecula</i>	common brushtail possum	LC	—	—
mammals	Phascolarctidae	<i>Phascolarctos cinereus</i>	koala	SLC	—	—
mammals	Potoroidae	<i>Aepyprymnus rufescens</i>	rufous bettong	LC	—	—
mammals	Pteropodidae	<i>Pteropus alecto</i>	black flying-fox	LC	—	—
mammals	Pteropodidae	<i>Pteropus scapulatus</i>	little red flying-fox	LC	—	—
mammals	Suidae	<i>Sus scrofa</i>	pig	—	—	—
mammals	Tachyglossidae	<i>Tachyglossus aculeatus</i>	short-beaked echidna	SLC	—	—
mammals	Vespertilionidae	<i>Chalinolobus gouldii</i>	Gould's wattled bat	LC	—	—
mammals	Vespertilionidae	<i>Chalinolobus nigrogriseus</i>	hoary wattled bat	LC	—	—
mammals	Vespertilionidae	<i>Scotorepens balstoni</i>	inland broad-nosed bat	LC	—	—
mammals	Vespertilionidae	<i>Scotorepens greyii/sanborni</i>	little/northern broad-nosed bat	LC	—	—
mammals	Vespertilionidae	<i>Nyctophilus sp</i>	long-eared bat	LC	—	—

Class	Family	Scientific name	Common name	NC Act Status	EPBC Act Status	Back on Track/BPA status
mammals	Vespertilionidae	<i>Vespardelus troughtoni</i>	eastern cave bat	LC	–	–
reptiles	Boidae	<i>Antaresia maculosa</i>	spotted python	LC	–	–
reptiles	Chelidae	<i>Chelodina canni</i>	Cann's longneck turtle	LC	–	–
reptiles	Chelidae	<i>Chelodina longicollis</i>	eastern snake-necked turtle	LC	–	–
reptiles	Colubridae	<i>Boiga irregularis</i>	brown tree snake	LC	–	–
reptiles	Colubridae	<i>Dendrelaphis punctulata</i>	common tree snake	LC	–	–
reptiles	Colubridae	<i>Tropidonophis mairii</i>	freshwater snake	LC	–	–
reptiles	Diplodactylidae	<i>Oedura monilis</i>	velvet gecko	LC	–	–
reptiles	Elapidae	<i>Denisonia maculata</i>	ornamental snake	V	V	Priority
reptiles	Elapidae	<i>Hoplocephalus bitorquatus</i>	pale-headed snake	LC	–	–
reptiles	Gekkonidae	<i>Gehyra dubia</i>	common dtella	LC	–	–
reptiles	Gekkonidae	<i>Heteronotia binoei</i>	Bynoe's gecko	LC	–	–
reptiles	Scincidae	<i>Carlia pectoralis</i>	lively skink	LC	–	–
reptiles	Scincidae	<i>Cryptoblepharus pulcher pulcher</i>	snake-eyed skink	LC	–	–
reptiles	Scincidae	<i>Cryptoblepharus metallicus</i>	metallic snake-eyed skink	LC	–	–
reptiles	Scincidae	<i>Ctenotus taeniolatus</i>	copper-tailed skink	LC	–	–
reptiles	Scincidae	<i>Carlia munda</i>	lively skink	LC	–	–
reptiles	Scincidae	<i>Carlia foliorum</i>	lively skink	LC	–	–

**Table C2. Maximum counts for bird species recorded during 20 min x 20 ha censuses at systematic survey sites. Fauna species are grouped by class (birds and reptiles) and ordered alphabetically by scientific name. EPBC Act status = status under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*; NC Act = *Queensland Nature Conservation Act 1992* and associated regulations (i.e., *Nature Conservation (Wildlife) Regulation 2006*); Back on Track status = status within DERM's 'Back on Track' species prioritisation framework ; BPA status = status under DERM's Biodiversity Planning Assessment for the Northern Brigalow Belt Bioregion; CE = Critically Endangered; E = Endangered; V = Vulnerable; NT = Near Threatened; M = Migratory; LC = Least Concern; SLC = Special Least Concern.**

Family	Scientific name	Common name	EPBC Act status	NC Act status	Back on Track/BPA status	Site 1	Site 2	Site 3	Site 4
Acanthizidae	<i>Smicrornis brevirostris</i>	weebill	–	LC	–	6			3
Alcedinidae	<i>Ceyx azureus</i>	azure kingfisher	–	LC	–			1	



Family	Scientific name	Common name	EPBC Act status	NC Act status	Back on Track/BPA status	Site 1	Site 2	Site 3	Site 4
Ardeidae	<i>Ixobrychus flavicollis</i>	black bittern	–	LC	–			1	
Artamidae	<i>Cracticus tibicen</i>	Australian magpie	–	LC	–				4
Artamidae	<i>Cracticus torquatus</i>	grey butcherbird	–	LC	–	1			
Campephagidae	<i>Coracina novaehollandiae</i>	black-faced cuckoo-shrike	–	LC	–	1		2	
Campephagidae	<i>Coracina papuensis</i>	white-bellied cuckoo-shrike	–	LC	–	1			2
Campephagidae	<i>Lalage leucomela</i>	varied triller	–	LC	–				1
Campephagidae	<i>Coracina tenuirostris</i>	cidcabird	–	LC	–				1
Cisticolidae	<i>Cisticola exilis</i>	golden-headed cisticola	–	LC	–		1		
Columbidae	<i>Geopelia humeralis</i>	bar-shouldered dove	–	LC	–	1	1		
Columbidae	<i>Geopelia striata</i>	peaceful dove	–	LC	–	1	1	2	1
Columbidae	<i>Ocyphaps lophotes</i>	crested pigeon	–	LC	–			1	
Coraciidae	<i>Eurystomus orientalis</i>	dollarbird	–	LC	–			1	
Corvidae	<i>Corvus orru</i>	Torresian crow	–	LC	–				2
Cuculidae	<i>Centropus phasianinus</i>	pheasant coucal	–	LC	–		1	1	
Cuculidae	<i>Chalcites minutillus minutillus</i>	little bronze-cuckoo	–	LC	–	1			
Cuculidae	<i>Cuculus optatus</i>	oriental cuckoo	M	LC	–				1
Dicruridae	<i>Dicrurus bracteatus bracteatus</i>	spangled drongo (eastern Australia)	–	LC	–		1	1	1
Estrildidae	<i>Lonchura castaneothorax</i>	chestnut-breasted mannikin	–	LC	–	1		1	
Estrildidae	<i>Taeniopygia bichenovii</i>	double-barred finch	–	LC	–		4	2	1
Halcyonidae	<i>Dacelo novaeguineae</i>	laughing kookaburra	–	LC	–		1		
Halcyonidae	<i>Todiramphus macleayii</i>	forest kingfisher	–	LC	–	1	1	2	
Halcyonidae	<i>Todiramphus sanctus</i>	sacred kingfisher	–	LC	–		1		
Hirundinidae	<i>Hirundo neoxena</i>	welcome swallow	–	LC	–			1	
Maluridae	<i>Malurus melanocephalus</i>	red-backed fairy-wren	–	LC	–	6	1		
Meliphagidae	<i>Entomyzon cyanotis</i>	blue-faced honeyeater	–	LC	–			2	
Meliphagidae	<i>Lichenostomus flavus</i>	yellow honeyeater	–	LC	–		2	1	
Meliphagidae	<i>Lichmera indistincta</i>	brown honeyeater	–	LC	–		5		
Meliphagidae	<i>Meliphaga lewinii</i>	Lewin's honeyeater	–	LC	–		1	1	

Family	Scientific name	Common name	EPBC Act status	NC Act status	Back on Track/BPA status	Site 1	Site 2	Site 3	Site 4
Meliphagidae	<i>Melithreptus albogularis</i>	white-throated honeyeater	–	LC	–	1		3	3
Meliphagidae	<i>Myzomela sanguinolenta</i>	scarlet honeyeater	–	LC	–			1	
Meliphagidae	<i>Philemon citreogularis</i>	little friarbird	–	LC	–				1
Meropidae	<i>Merops ornatus</i>	rainbow bee-eater	M	LC	–	7			
Nectariniidae	<i>Dicaeum hirundinaceum</i>	mistletoebird	–	LC	–		1	1	1
Oriolidae	<i>Oriolus sagittatus</i>	olive-backed oriole	–	LC	–	1			
Pachycephalidae	<i>Colluricincla harmonica</i>	grey shrike-thrush	–	LC	–		1		1
Pachycephalidae	<i>Pachycephala rufiventris</i>	rufous whistler	–	LC	–		2		1
Pardalotidae	<i>Pardalotus striatus</i>	striated pardalote	–	LC	–	2		2	5
Petroicidae	<i>Microeca flavigaster</i>	lemon-bellied flycatcher	–	LC	–		1		
Podargidae	<i>Podargus strigoides</i>	tawny frogmouth	–	LC	–		1		
Pomatostomidae	<i>Pomatostomus temporalis rubeculus</i>	grey-crowned babbler (north-western)	–	LC	–				2
Psittacidae	<i>Aprosmictus erythropterus</i>	red-winged parrot	–	LC	–		1		
Psittacidae	<i>Platycercus adscitus</i>	pale-headed rosella (southern form)	–	LC	–	2	1	2	2
Psittacidae	<i>Trichoglossus haematodus moluccanus</i>	rainbow lorikeet	–	LC	–				1
Rhipiduridae	<i>Rhipidura leucophrys leucophrys</i>	willie wagtail (southern)	–	LC	–		1		
Turnicidae	<i>Turnix varius</i>	painted button-quail	–	LC	–	1			
<b>Total species</b>						<b>16</b>	<b>21</b>	<b>19</b>	<b>19</b>

**Table C3. Count data for species recorded during diurnal searches ( 1 person hour) at each systematic surveys site. Fauna species are grouped by class (birds and reptiles) and ordered alphabetically by scientific name. EPBC Act status = status under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*; NC Act = *Queensland Nature Conservation Act 1992* and associated regulations (i.e., *Nature Conservation (Wildlife) Regulation 2006*); Back on Track status = status within DERM's 'Back on Track' species prioritisation framework ; BPA status = status under DERM's Biodiversity Planning Assessment for the Northern Brigalow Belt Bioregion; CE = Critically Endangered; E = *Endangered*; V = *Vulnerable*; NT = *Near Threatened*; M = *Migratory*; LC = *Least Concern*; SLC = *Special Least Concern*.**

Class	Family	Scientific name	Common name	NC Act status	EPBC Act status	Back on Track/BPA status	Site 1	Site 2	Site 3	Site 4
amphibians	Hylidae	<i>Cyclorana novaehollandiae</i>	eastern snapping frog	LC	–	–				1
amphibians	Hylidae	<i>Litoria inermis</i>	bumpy rocketfrog	LC	–	–			1	
amphibians	Hylidae	<i>Litoria latopalmata</i>	broad palmed rocketfrog	LC	–	–	1		2	
amphibians	Myobatrachidae	<i>Crinia deserticola</i>	chirping froglet	LC	–	–	1			
mammals	Macropodidae	<i>Macropus giganteus</i>	eastern grey kangaroo	LC	–	–			1	
mammals	Peramelidae	<i>Isodon macrourus</i>	northern brown bandicoot	LC	–	–	S			
mammals	Phalangeridae	<i>Trichosurus vulpecula</i>	common brushtail possum	LC	–	–	S			
mammals	Phascolarctidae	<i>Phascolarctos cinereus</i>	koala	LC	–	–	S			
reptiles	Gekkonidae	<i>Gehyra dubia</i>	common dtella	LC	–	–			1	
reptiles	Gekkonidae	<i>Heteronotia binoei</i>	Bynoe's gecko	LC	–	–	4	2		4
reptiles	Scincidae	<i>Carlia foliorum</i>	lively skink	LC	–	–	1		2	2
reptiles	Scincidae	<i>Carlia pectoralis</i>	lively skink	LC	–	–	1			
reptiles	Scincidae	<i>Cryptoblepharus pulcher pulcher</i>	snake-eyed skink	LC	–	–			1	
reptiles	Scincidae	<i>Cryptoblepharus metallicus</i>	metallic snake-eyed skink	LC	–	–	1			
<b>Total species</b>							9	1	6	3

**Table C4. Count data for species recorded during nocturnal searches (one perron hour) at systematic survey sites. Fauna species are grouped by class (birds and reptiles) and ordered alphabetically by scientific name. EPBC Act status = status under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*; NC Act = *Queensland Nature Conservation Act 1992* and associated regulations (i.e., *Nature Conservation (Wildlife) Regulation 2006*); Back on Track status = status within DERM's 'Back on Track' species prioritisation framework ; BPA status = status under DERM's Biodiversity Planning Assessment for the Northern Brigalow Belt Bioregion; CE = Critically Endangered; E = Endangered; V = Vulnerable; NT = Near Threatened; M = Migratory; LC = Least Concern; SLC = Special Least Concern.**

Class	Family	Scientific name	Common name	NC Act Status	EPBC Act Status	Back on Track/ BPA status	Site 1	Site 2	Site 3	Site 4
amphibians	Bufonidae	<i>Bufo marinus</i>	cane toad	LC	–	–	2			4
amphibians	Hylidae	<i>Cyclorana alboguttata</i>	greenstripe frog	LC	–	–	1			1
amphibians	Hylidae	<i>Cyclorana novaehollandiae</i>	eastern snapping frog	LC	–	–				1
amphibians	Hylidae	<i>Litoria caerulea</i>	common green treefrog	LC	–	–	26	20		16
amphibians	Hylidae	<i>Litoria fallax</i>	eastern sedgefrog	LC	–	–		40		
amphibians	Hylidae	<i>Litoria inermis</i>	bumpy rocketfrog	LC	–	–	2			
amphibians	Hylidae	<i>Litoria latopalmata</i>	broad palmed rocketfrog	LC	–	–	1			
amphibians	Hylidae	<i>Litoria rothii</i>	northern laughing treefrog	LC	–	–		6	2	
amphibians	Hylidae	<i>Litoria rubella</i>	ruddy treefrog	LC	–	–	2			
amphibians	Myobatrachidae	<i>Limnodynastes ornatus</i>	ornate burrowing frog	LC	–	–				1
amphibians	Myobatrachidae	<i>Limnodynastes salmini</i>	salmon striped frog	LC	–	–		1		
amphibians	Myobatrachidae	<i>Limnodynastes tasmaniensis</i>	spotted grassfrog	LC	–	–		2		
birds	Columbidae	<i>Geopelia striata</i>	peaceful dove	LC	–	–		1		
birds	Podargidae	<i>Podargus strigoides</i>	tawny frogmouth	LC	–	–		1		
birds	Monarchidae	<i>Grallina cyanoleuca</i>	magpie-lark	LC	–	–				2
mammals	Molossidae	<i>Tadarida australis</i>	white-striped freetail bat	LC	–	–	1			
reptiles	Diplodactylidae	<i>Oedura monilis</i>	velvet gecko	LC	–	–	1			

reptiles	Gekkonidae	<i>Gehyra dubia</i>	common dtella	LC	–	–	1			4
<b>Total species</b>							9	7	1	7

**Table C5. Count data for species captured at systematic surveys sites using camera and Elliott traps. Fauna species are grouped by class (birds and reptiles) and ordered alphabetically by scientific name. EPBC Act status = status under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*; NC Act = *Queensland Nature Conservation Act 1992* and associated regulations (i.e., *Nature Conservation (Wildlife) Regulation 2006*); Back on Track status = status within DERM's 'Back on Track' species prioritisation framework ; BPA status = status under DERM's Biodiversity Planning Assessment for the Northern Brigalow Belt Bioregion; CE = Critically Endangered; E = Endangered; V = Vulnerable; NT = Near Threatened; M = Migratory; LC = Least Concern; SLC = Special Least Concern.**

Class	Family	Scientific name	Common name	NC Act status	EPBC Act status	Back on Track/ BPA status	Site 1	Site 2	Site 3	Site 4
amphibians	Bufo	<i>Bufo marinus</i>	cane toad	–	–	–	2	3	2	2
amphibians	Hylidae	<i>Litoria caerulea</i>	common green treefrog	LC	–	–		1		
birds	Corvidae	<i>Corvus orru</i>	Torresian crow	LC	–	–		1	1	2
mammals	Bovidae	<i>Bos taurus</i>	European cattle	–	–	–				
mammals	Canidae	<i>Canis lupus dingo</i>	dingo	–	–	–	1			3
mammals	Felidae	<i>Felis catus</i>	cat	–	–	–		1		
mammals	Macropodidae	<i>Macropus agilis</i>	agile wallaby	LC	–	–	3	1	2	
mammals	Macropodidae	<i>Macropus giganteus</i>	eastern grey kangaroo	LC	–	–		1		
mammals	Muridae	<i>Mus musculus</i>	house mouse	–	–	–		5		
mammals	Peramelidae	<i>Isoodon macrourus</i>	northern brown bandicoot	LC	–	–		1		
<b>Total species</b>							3	8	3	3

## **Appendix D**

### **Habitat photos**



**Above:** Grass-sedge swamp in far north of EPC 1029. Potential habitat for Australian painted snipe and yellow chat (Dawson subspecies). **Below:** Grass-sedge swamp in far north of EPC 1029 (with saltwater couch, *Sporobolus virginicus*, in foreground).







**Above:** Wooded wetland with understory of *Melaleuca viridiflora* and emergent olive hymenachne (*Hymenachne acutigluma*) in foreground. **Below:** Riparian habitat, Stoodleigh Creek.







**Above:** Riparian habitat at systematic survey site 1, Deep Creek. **Below:** Styx River, west of Ogmore.







**Above:** Stock dam with shallow grassy margins and emergent vegetation (olive hymenachne).  
**Below:** Steep-sided stock dam with little emergent vegetation. Known habitat for the cotton pygmy-goose.







**Above:** Ox-bow on alluvial flat with *Eucalyptus tereticornis* woodland surrounds, Neerim Creek.  
**Below:** Tall *E. tereticornis*/*Corymbia tessellaris* woodland adjacent Deep Creek, at systematic survey site 3.







**Above:** Belah (*Casuarina cristata*) open forest along creek. **Below:** Brigalow (*A. harpophylla*) and belah (*C. cristata*) adjacent creek. Known habitat for the ornamental snake.







**Above:** Remnant brigalow (*A. harpophylla*) with sparse shrubby understory and mid-dense grass cover. **Below:** Regrowth brigalow (*A. harpophylla*), looking west from train line.







**Above:** Gilgaided brigalow (*A. harpophylla*) woodland with dense grassy understory at standardised survey site 2. **Below:** Remnant semi-evergreen vine thicket adjacent road, near Styx River.







**Above:** Remnant *Eucalyptus crebra*/*E. populnea* woodland with mid-dense grassy understory. Known habitat for the squatter pigeon (southern race). **Below:** *E. crebra* woodland with mid-dense/dense native grassy understory at standardised survey site 1.







**Above:** Mixed eucalypt woodland with shrubby understory of *Acacia rhodoxylon* and sparse to mid-dense native grass cover, systematic survey site 4. **Below:** Woody debris at systematic survey site 4.







**Above:** *E. moluccana* woodland with well-developed shrub layer and dense grassy understory.  
**Below:** Heavily-grazed grassland dominated by exotic pasture grasses and weeds.







**Above:** Grassland with dense cover of native and introduced grasses. **Below:** Partially cleared eucalypt woodland with grassy understory comprising native and introduced grass species. Known habitat for the squatter pigeon (southern race).







**Above:** Heavily-grazed woodland with dense weedy ground cover dominated by *Sida* spp. **Below:** Regrowth *E. populnea* woodland immediately adjacent EPC 1029. Known habitat for the squatter pigeon (southern race).







**Above:** Bridge crossing at Deep Creek. Nesting habitat for fairy martin and welcome swallow; potential roosting habitat for microchiropteran bats. **Below:** fairy martin (*Hirundo aerial*) nests under bridge at Deep Creek: potential roosting habitat for microchiropteran bats.





## **Appendix E**

### **Habitat assessment proforma**

**Styx EPC – Active Searching and Habitat Assessment Proforma**

Surveyed by: \_\_\_\_\_ Date: \_\_\_\_\_

Time start: \_\_\_\_\_ Time finish: \_\_\_\_\_

Location: \_\_\_\_\_

Site Number: \_\_\_\_\_ GPS Co-ordinates/waypoint: \_\_\_\_\_

Photo Numbers:  
(include brief description of photo)

**Weather Conditions:** (if spotlighting insert moon and cloud cover)  
(insert the temp, wind, cloud cover, rain etc for each day of sampling)

**Vegetation Structure:** (circle appropriate – use figure on back page as a guide)

Life form and height of tallest stratum*	Projective cover of tallest stratum*			
	Very dense (70-100)	Dense (30-70%)	Open (10-30%)	Very Open (0-10%)
Trees 30m Trees 10-30m Trees 6-10m	Tall closed-forest* Closed-forest* Thicket*	Tall open-forest Open-forest Low open-forest	Tall woodland Woodland Low woodland	Tall open-woodland Open-woodland Low open-woodland
Shrubs 2-8m Shrubs 0-2m	Closed-scrub Closed-heath	Open-scrub Open-heath	Shrubland Low shrubland	Open-shrubland Low open-shrubland
Herbs (including moss, ferns and grasses)	Closed tussock grassland Continuous grassland Closed herbfield Closed sedgeland Closed fernland	Tussock grassland Herbfield Sedgeland Fernland	Hummock grassland Open herbfield Open sedgeland Open fernland	Open hummock grassland - - -

\*isolated emergents may project from the canopy of some communities

**Site topography and physical properties of soil**

**Floristics description:** (i.e., dominant tree species)

Ground Cover:

Understorey :

Shrub layer:

Canopy layer:

**Ground complexity:** (% of 1m x 1m quadrat covered)

% bare (soil):

% and depth of leaf litter:

% and type woody debris:

% vegetation (e.g grass or other cover):

% rocks:

**Disturbance:**

Weeds:

Adjacent land use:

Evidence of feral animals (grazing etc.):

**Presence of noteworthy flora and tree hollows:** (provide GPS for significant features:

**Habitat Value (circle):** (based on above – provide a qualitative assessment of the habitat value. See notes below to ensure uniformity of qualitative assessment)

High

Moderate

Low

**High:** Ground flora containing a high number of indigenous species; vegetation community structure, ground, log and litter layer intact and undisturbed; a high level of breeding, nesting, feeding and roosting resources available; a high richness and diversity of native fauna species.

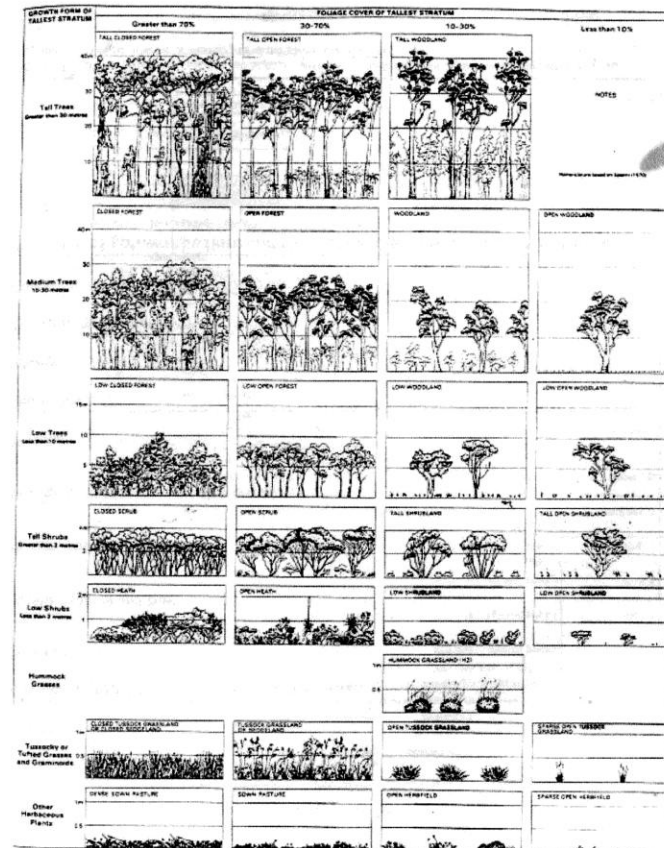
**Moderate:** Ground flora containing a moderate number of indigenous species; vegetation community structure, ground log and litter layer moderately intact and undisturbed; a moderate level of breeding, nesting, feeding and roosting resources available; a moderate richness and diversity of native fauna species.

**Low:** Ground flora containing a low number of indigenous species, vegetation community structure, ground log and litter layer disturbed and modified; a low level of breeding, nesting, feeding and roosting resources available; a low richness and diversity of native fauna species.

**Time spent searching (person hours):**

**Fauna recorded:** Note : O (observed), H (heard), S (scat), T (trace)

**Pictorial representation of Specht's structural classification**





**September 2011 fauna survey results for EPC 1029, Styx Basin,  
central-east Queensland (DRAFT 30/11/2011)**



## **Conditions of use**

This report may only be used for the purposes for which it was commissioned. The use of this report, or part thereof, for any other reason or purpose is prohibited without the written consent of the author.

**Front cover:** Fauna recorded from EPC 1029 during September 2011 surveys. Clockwise from upper left: tommy roundhead (*Diporiphora australis*); squatter pigeon (southern race) (*Geophaps scripta scripta*); ornamental snake (*Denisonia maculata*) (inside hollow log); and *Glaphyromorphus punctulatus*.

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**Version 1 – 30 November 2011**

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## 1. Summary

In late September 2011, surveys targeting terrestrial fauna were undertaken on lands within Exploration Permit for Coal (EPC) 1029 in the Styx Basin, central-east Queensland. During these surveys, 168 vertebrate species were recorded within and/or immediately adjacent EPC 1029 including 48 species not recorded during wet season surveys in March 2011, bringing the total number of species recorded during surveys to 224.

Amongst those species recorded during September surveys are a number of species of conservation significance including:

- squatter pigeon (southern race) (*Geophaps scripta scripta*) (listed as vulnerable under both the *Nature Conservation Act 1992* [NC Act] and *Environment Protection and Biodiversity Conservation Act 1999* [EPBC Act]);
- ornamental snake (*Denisonia maculata*) (listed as vulnerable under both the NC Act and EPBC Act);
- little pied bat (*Chalinolobus picatus*) (listed as near threatened under the NC Act);
- radjah shelduck (*Tadorna radjah*) (listed as near threatened under the NC Act);
- eastern curlew (*Numenius madagascariensis*) (listed as near threatened under the NC Act);
- a number of EPBC Act-listed migratory species including glossy ibis (*Plegadis falcinellus*), cattle egret (*Ardea ibis*), eastern great egret (*Ardea alba*) eastern curlew (*Numenius madagascariensis*), and rainbow bee-eater (*Merops ornatus*);
- short-beaked echidna (*Tachyglossus aculeatus*) (listed as significant least concern under the NC Act); and
- koala (*Phascolarctos cinereus*) (also listed as significant least concern under the NC Act).

Combined with records from surveys in March 2011, this brings the total number of conservation significant species currently known from EPC 1029 to 15 (excluding eastern curlew and fork-tailed swift which were only recorded adjacent EPC 1029). Though not recorded during surveys, land within EPC 1029 could provide habitat for other conservation significant species as well including other EPBC Act-listed EVR species such as the yellow chat (Dawson subspecies), Australian painted snipe, brigalow scalyfoot, northern quoll, and red goshawk. Further targeted survey work is required to investigate the occurrence of these taxa within EPC 1029.

With extensive clearing of native vegetation in the Styx Basin and elsewhere in the northern Brigalow Belt, remaining areas of woodland and forest habitat within EPC 1029 are of considerable importance to native fauna at the local and regional level (as indicated in the 'Biodiversity Planning Assessment for the Brigalow Belt' [DERM, 2008]). Of particular importance in this regard are areas of riparian woodland/forest linking more extensive areas of remnant vegetation in the west and east of the Styx River catchment including riparian vegetation along Deep and Tooloombah Creeks.

With survey work in the far north-east of EPC 1029 restricted due to problems with site access, further field work is needed to better gauge the extent and suitability of habitat within and adjacent EPC 1029 for conservation significant fauna in the far north-east of EPC 1029.

## 2. Background

In late September 2011 additional surveys targeting terrestrial fauna were carried out within Exploratory Permit for Coal (EPC) 1029 in the Styx Basin, central east Queensland. Results of these surveys complement an earlier assessment of faunal values within EPC 1029 (Meyer, 2011) based in part on survey work carried out in March 2011. The results of September 2011 surveys (and those of the preliminary assessment in Meyer, 2011) form part of a broader baseline assessment of environmental values of land within EPC 1029 which might be impacted by mining activities proposed for the permit area.

### Description of study area

EPC 1029 is situated 20 km north-west of Marlborough, on the central Queensland coast, and lies within the Marlborough Plains subregion of the Northern Brigalow Belt (Figure 1). Centred on the town of Ogmoo (22°37'12.53"S/ 149°39'26.57"E), EPC 1029 covers an area of 342 km<sup>2</sup> within the Styx Basin. The majority of land within EPC 1029 lies within the Styx River catchment, east of the Connors and Broadsound Ranges. Water entering the Styx River and its tributaries (including Deep, Granite, Tooloombah and Wellington Creeks) flows out to sea via Broad Sound, to the north-east of EPC 1029.

Widespread clearing of lands for grazing within the Styx River Catchment has resulted in significant loss of native vegetation cover with less than 25% of EPC 1029 supporting mapped remnant vegetation. Cattle grazing remains the dominant land use within EPC 1029 and adjacent lands. Lands within EPC 1029 are bisected by the Bruce Highway and a rail line situated east of the highway which crosses the Styx River north-west of Ogmoo (Figure 1).

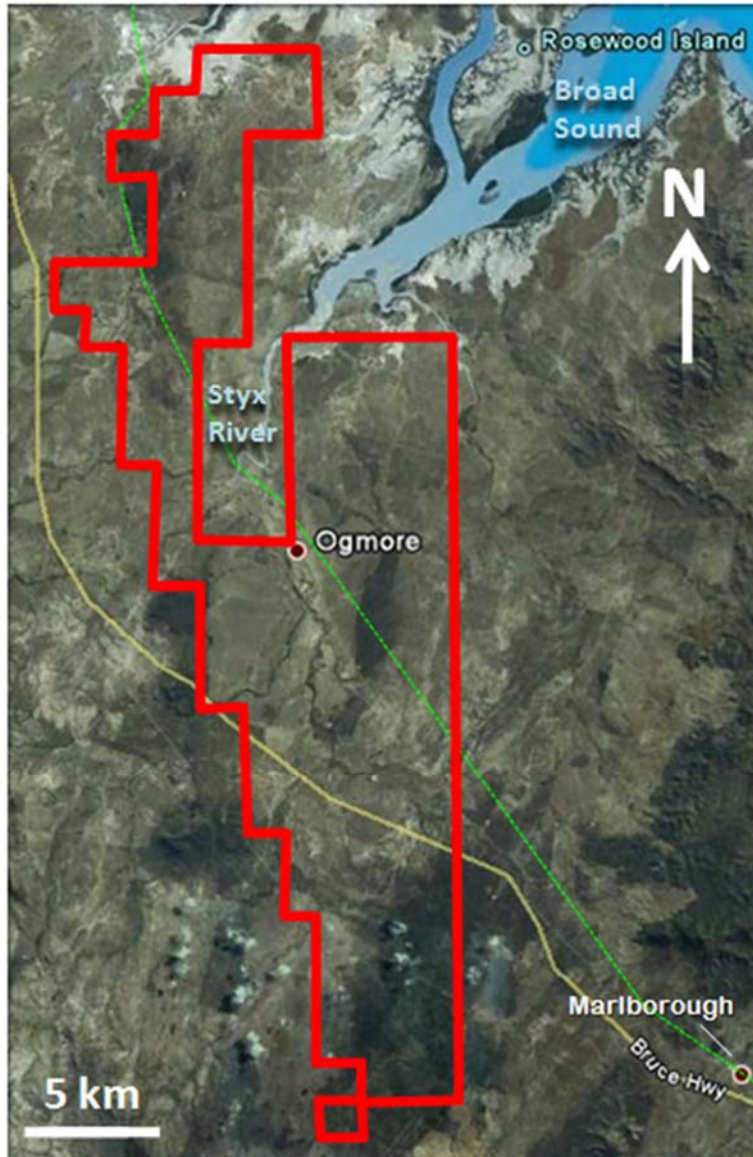
### Nomenclature

Scientific, family and common names used in this report are consistent with the following references:

- Christidis, L. and Bowles, W.E. (2008). *Systematics and Taxonomy of Australian Birds*. CSIRO Publishing, Collingwood, Victoria.
- Wilson, S. and Swan, G. (2010). *A Complete Guide to Reptiles of Australia*. New Holland, Chatswood, New South Wales.
- Ingram, G.J., McDonald, K.R., and Natrass, A.E.O. (1999). Revised common names for Queensland frogs. Pp 141-157 In *Frogs in the Community: proceedings of the Brisbane Symposium 13-14 February 1999*, A.E.O Natrass (Ed.) Queensland Frog Society, Brisbane.
- Frost, D. R., T. Grant, J. Faivovich, R. H. Bain, A. Haas, C. F. B. Haddad, R. O. De Sá, A. Channing, M. Wilkinson, S. C. Donnellan, C. J. Raxworthy, J. A. Campbell, B. L. Blotto, P. Moler, R. C. Drewes, R. A. Nussbaum, J. D. Lynch, D. M. Green, and W. C. Wheeler. (2006). *The Amphibian Tree of Life*. Bulletin of the American Museum of Natural History: 370.
- Van Dyck, S. and Strahan, R. (2008). *The Mammals of Australia*. New Holland, Chatswood, New South Wales.

Exceptions include the use of *Platyplectrum ornatum* instead of *Opsithodon ornatulus* for the ornate burrowing frog, and *Nyctophilus corbeni* instead of *Nyctophilus sp (cf timoriensis)* for the south-eastern long-eared bat (*sensu* Parnaby, 2009).





**Figure 1. Location of Exploratory Permit for Coal (EPC) 1029 in the Styx Basin, central eastern Queensland. Boundary of EPC area shown in red. Bruce Highway shown in light yellow; rail line in green. Base map sourced from Google Earth™ (2010).**

### Abbreviations and acronyms

A list of abbreviations and acronyms used in this report is provided below.

- c. = circa/ approximately
- DERM = Queensland Department of Environment and Resource Management
- DSEWPAC = Commonwealth Department of Sustainability, Environment, Populations and Community (formerly the Department of Environment, Water, Heritage and Arts [DEWHA])
- EPBC Act = *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*
- EPC 1029 = permit area for Exploration Permit for Coal 1209
- et al. = and others

- EVR species = species listed as 'Critically Endangered', 'Endangered', 'Vulnerable', or 'Near Threatened' under the NC act and/or EPBC Act.
- NC Act = *Queensland Nature Conservation Act 1992*
- QM = Queensland Museum
- RE = regional ecosystem

### 3. Methodology

#### Field surveys

Field surveys were carried out from September 25-29, 2011. Field work undertaken during this period included: (1) systematic surveys at sites broadly representative of mapped remnant vegetation within EPC 1029; (2) supplementary surveys at a number of other sites within EPC 1029; (3) systematic assessment of habitat values at a range of sites across EPC 1029; and (4) drive transects targeting nocturnal fauna and the vulnerable EPBC Act-listed squatter pigeon (southern race). Details of each of these survey components are provided below.

#### 1. Systematic surveys

Systematic surveys were undertaken at four sites within EPC 1029. A brief description of each site (including locality data) is provided in Table 1, below. The approximate location of systematic survey sites is shown in Figure 2 (below).

Survey effort at the abovementioned systematic survey sites included the following:

- Two 20 minute x 20 ha bird censuses at each site
- 4 nights Elliott trapping at each site (with 20 baited Elliott A and B traps deployed at each site)
- 4 days and 4 nights pitfall trapping at each site (with a single trap line comprising four 20 L buckets, 4 funnel traps and a 30 m drift fence at each site)
- Camera trap surveys (with 2 camera traps deployed over four nights at each site)
- Active diurnal searches (1 person hour at each site)
- Nocturnal searches/spotlighting (1 person hour at each site using a headlamp and 50 W spotlight)
- Anabat detection of ultrasonic bat calls (with a single Anabat unit deployed for one night at each site)

Analysis of Anabat call recordings made at systematic and supplementary survey sites was undertaken by Greg Ford, a recognized expert in the analysis of ultrasonic bat calls.

**Table 1. Location and description of standardized survey sites**

Site ID	Latitude	Longitude	Site details
Site 1	22°42'40.9"	149°37'50.7"	<i>Eucalyptus crebra</i> woodland with dense grassy understory, upslope from watercourse
Site 2	22°44'14.7"	149°38'55.8"	Mixed eucalypt woodland/open forest on hill slope with sparse shrub layer and sparse grass cover, on sandy soil with small areas of exposed rock; centre west of EPC area
Site 3	22°41'02.2"	149°38'56.5"	Semi-evergreen vine thicket with emergent <i>Eucalyptus tereticornis</i> and <i>Corymbia tessellaris</i> fringing Tooloombah Creek
Site 4	22°41'58.2"	149°40'58.9"	Remnant gilgjaed brigalow woodland with dense to mid-dense shrub layer dominated by <i>Carissa ovate</i> , to the near east of Deep Creek



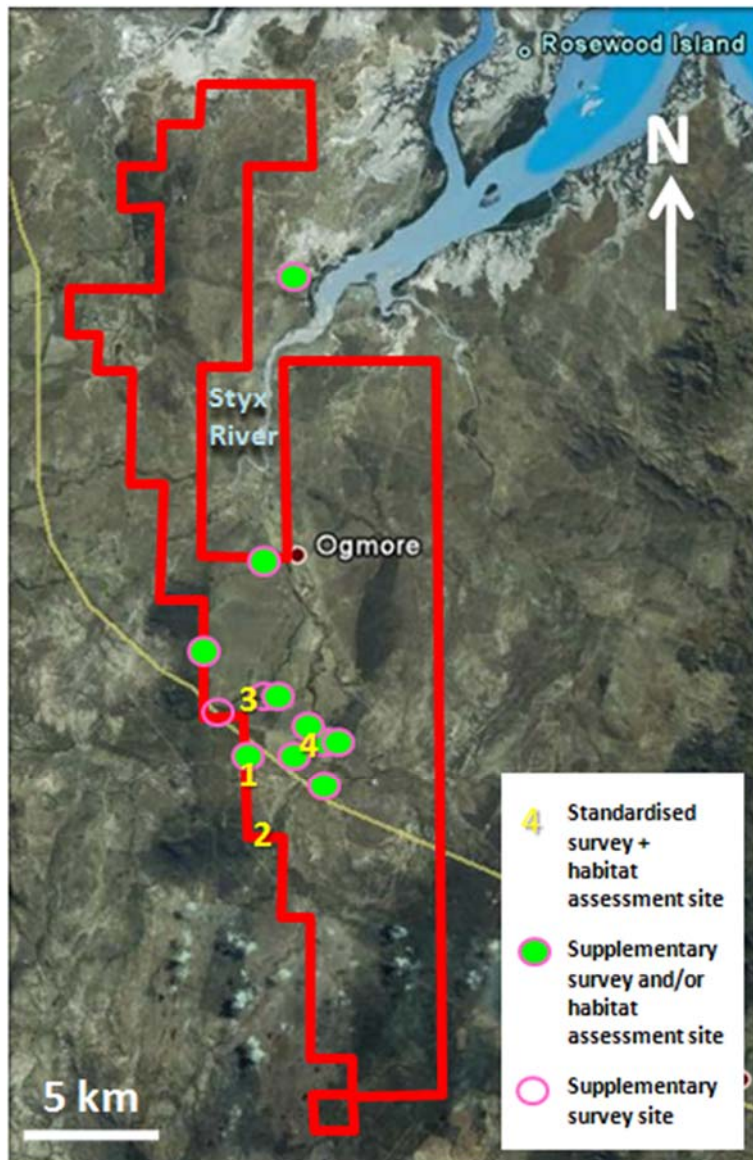


Figure 2. Approximate location of survey and habitat assessment sites within EPC 1029, September 2011. Boundary of EPC area shown in red. Bruce Highway shown in yellow. Base map sourced from Google Earth™ (2010).

## 2. Supplementary surveys

During March surveys, bird censuses, diurnal searches, Anabat surveys, and call playback surveys (targeting barking owl, powerful owl and yellow-bellied glider) were undertaken at a number of additional sites as well. Details of these sites, including their location and a brief habitat description, are provided in Table 2 below.

**Table 2. Additional survey effort at supplementary survey sites within EPC 1029.**

Site ID	Latitude	Longitude	Site details	Survey method
Supplementary site 1	22°42'17.19"	149°39'44.9"	Stock dam to near north of Bruce Highway, on Mamelon	20 min bird census
Supplementary site 2	22°39'53.6"	149°37'27.6"	Remnant gilgiald belah/brigalow open forest on 'Bar H' property, along central-western boundary of EPC area	30 min diurnal search
Supplementary site 3	22°41'01.9"	149°38'59.8"	Riparian vegetation (semi-evergreen vine thicket with tall emergent <i>E. tereticornis</i> ) at Tooloombah Creek, east of standardised survey site 3	Call playback (owls and yellow-bellied glider)
Supplementary site 4	22°41'37.5"	149°40'45.5"	Riparian habitat ( <i>E. tereticornis</i> woodland/open forest) at Deep Creek; north of standardised survey site 4	Call playback (owls and yellow-bellied glider)
Supplementary site 5	22°41'44.6"	149°41'03.98"	Riparian habitat ( <i>E. tereticornis</i> woodland/open forest) at Deep Creek; north of standardised survey site 4	Call playback (owls and yellow-bellied glider)
Supplementary site 6	22°40'49.4"	149°39'44.0"	Site near un-named tributary of Deep Creek, south of Tooloombah Creek; north-east of Bruce Highway	Call playback (owls and yellow-bellied glider)
Supplementary site 7	22°40'59.3"	149°39'42.8"	Riparian woodland/open forest along un-named tributary of Deep Creek, on Mamelon, to the north-east of Bruce Highway	Anabat detector survey (1 night)
Supplementary site 8	22°43'02.9"	149°41'00.7"	Brigalow woodland on creek flat adjacent steeply-eroded drainage line, to near north-east of Bruce Highway, south of Deep Creek	30 min diurnal search
Supplementary site 9	22°41'22.09"	149°37'46.9"	Tooloombah Creek crossing on Bruce Highway	Anabat detector survey (1 night)

### 3. Drive transects

During surveys, drive transects were undertaken on an ad hoc basis with a 100 W spotlight used to spot nocturnal animals in vegetation near roads and access tracks. Drive transects were also used to survey for squatter pigeons foraging along unsealed tracks bisecting grassy woodland. Roads within and adjacent EPC 1029 were also scanned for road-killed fauna.

### 4. Fauna habitat assessments

A systematic assessment of habitat values was undertaken at sites across EPC 1029, the details of which are provided in Table 3 (below). For the assessment of habitat values, information on vegetation structure, floristics, ground cover, disturbance and various other habitat attributes (e.g., presence of tree hollows, stags and exfoliating bark) were recorded on a proforma (see Meyer, 2011 for details).

**Table 3. Details of sites at which habitat assessments were carried out.**

Site ID	Latitude	Longitude	Site details
1	22°41'56.4"	149°41'05.2"	<i>E. tereticornis</i> woodland on alluvium near Deep Creek, to the near east of standardised survey site 4
2	22°41'47.8"	149°41'01.4"	Billabong with mixed eucalypt woodland surrounds, to the near east of standardised survey site 4
3	22°41'46.6"	149°40'37.3"	Billabong with dense cover of emergent sedges and tall <i>E. tereticornis</i> woodland surrounds, to the near east of Deep Creek;
4	22°42'17.19"	149°39'44.9"	Stock dam to the near north of Bruce Highway, on 'Mamelon' station
5	22°39'53.6"	149°37'27.6"	Remnant gilgiaed belah/brigalow ( <i>Acacia harpophylla/Casuarina cristata</i> ) open forest on 'Bar H' station; along central-western boundary of EPC area
6	22°37'16.3"	149°38'30.6"	Semi-evergreen vine thicket with emergent <i>E. tereticornis/C. tessellaris</i> along an un-named tributary of the Styx River, to the near west of Ogmore
7	22°28'44.8"	149°39'27.6"	Grass-sedge wetland on extensive marine plain with grassland/saltmarsh surrounds; to the near east of EPC 1029, north of the Styx River
8	22°43'02.9"	149°41'00.7"	Brigalow woodland adjacent eroded drainage line, to near north of Bruce Highway, south of Deep Creek
9	22°42'33.3"	149°38'06.6"	Large wooded wetland with emergent <i>Melaleuca</i> trees and reeds, surrounded by mixed eucalypt woodland on 'Mamelon' station, to the near east of systematic survey site 1
10	22°40'59.3"	149°39'42.8"	Mixed riparian woodland/open forest along an un-named tributary of Deep Creek, on 'Mamelon' station, to the north-east of Bruce Highway
11	22°42'40.9"	149°37'50.7"	Systematic survey site 1: <i>Eucalyptus crebra</i> woodland with dense grassy understory, upslope from watercourse and narrow alluvial flat with <i>E. platyphylla</i>
12	22°44'14.7"	149°38'55.8"	Systematic survey site 2: Mixed eucalypt woodland/open forest on hill slope with sparse shrub layer and sparse grass cover along central western boundary of EPC area
13	22°41'02.2"	149°38'56.5"	Systematic survey site 3: Riparian habitat (semi-evergreen vine thicket with emergent <i>E. tereticornis</i> ) along Tooloombah Creek
14	22°41'58.2"	149°40'58.9"	Systematic survey site 4: Remnant gilgiaed brigalow woodland with dense to mid-dense shrub layer dominated by <i>Carissa ovate</i> , to the near east of Deep Creek
15	22°41'22.8"	149°38'23.8"	Gilgiaed belah/brigalow woodland to the near north of Bruce Highway, on 'Mamelon' station.

### Survey conditions

With the exception of August 2011 (when most of the Capricorn Coast received above average rainfall) monthly rainfall totals for Marlborough (to the near south of EPC 1029) were close to average in the 6 months prior to surveys. Virtually no rain was recorded at Marlborough in the month preceding surveys and no rain was recorded during the survey period. In contrast with surveys in March 2011, surface water was restricted to larger creeks, stock dams and wetlands. Soils within the study area were also generally dry.

Maximum and minimum daily temperatures during the survey period were close to average for September with temperatures at Williamson (to the near east of EPC 1029) ranging from 26.8 to a minimum of 10.8 °C. With overnight temperatures dropping below 18 °C, nocturnal searches were only undertaken in the warmest part of the evening (i.e., in the first 3-4 hours after sunset). For the most part, wind levels and relative humidity remained low during surveys. Surveys were undertaken shortly

before and during a new moon and, as such, detectability of nocturnal animals is unlikely to have been affected by bright moon light.

At the time of surveys, grass cover was still plentiful albeit less dense than in March 2011. Flowering amongst dominant canopy/subcanopy trees was largely restricted to creeklines with *Eucalyptus tereticornis*, *E. playthylla* and *Melaleuca (Callistemon) viminalis* flowering well during surveys.

### Survey limitations

With conditions mostly dry, site access was much improved compared with surveys in March 2011. Access to 'Plain View' (a property in the far north-east corner of EPC 1029), however, remained problematic due to conditions/constraints imposed by the property owner. As such, land in the far north-east of EPC 1029 (including a sizeable area of grass-sedge wetland, mangroves and adjoining salt marsh) could not be surveyed.

Because of the generally dry conditions during and preceding surveys, frog activity was significantly reduced during the survey period. Results of September surveys are therefore likely to underestimate the diversity and abundance of frog species within EPC 1029. With frog activity reduced, detectability of the vulnerable ornamental snake (a frog specialist) would also have been reduced. As such, survey results are likely to underestimate the abundance of this species as well.

## 4. Results

### 1. Fauna surveys

A total of 169 vertebrate species were recorded within or immediately adjacent EPC 1029 during surveys including 48 species not recorded during surveys in March 2011 (see Table A1, Appendix A for full list). Most of these species were recorded at low abundances. However, a small number (e.g., *Rhinella marina*, *Lygisaurus foliorum* and *Limnodynastes tasmaninesis*) were locally abundant at some survey sites (see Appendix A). Species diversity at systematic survey sites was generally high with over 50 species recorded at Sites 1 and 3 (see Appendix A).

Amongst the fauna recorded during September surveys are a number of conservation significant species listed under the NC Act and/or EPBC Act including:

- squatter pigeon (southern race) (*Geophaps scripta scripta*) (listed as vulnerable under both the NC Act and EPBC Act);
- ornamental snake (*Denisonia maculata*), listed as vulnerable under both the NC Act and EPBC Act;
- little pied bat (*Chalinolobus picatus*), listed as near threatened under the NC Act;
- radjah shelduck (*Tadorna radjah*), listed as near threatened under the NC Act;
- eastern curlew (*Numenius madagascariensis*), listed as near threatened under the NC Act;
- a number of EPBC Act-listed migratory species including glossy ibis (*Plegadis falcinellus*), cattle egret (*Ardea ibis*), eastern great egret (*Ardea alba*), eastern curlew (*Numenius madagascariensis*), and rainbow bee-eater (*Merops ornatus*); and
- koala (*Phascolarctos cinereus*) and short-beaked echidna (*Tachyglossus aculeatus*)- listed as significant least concern under the NC Act.

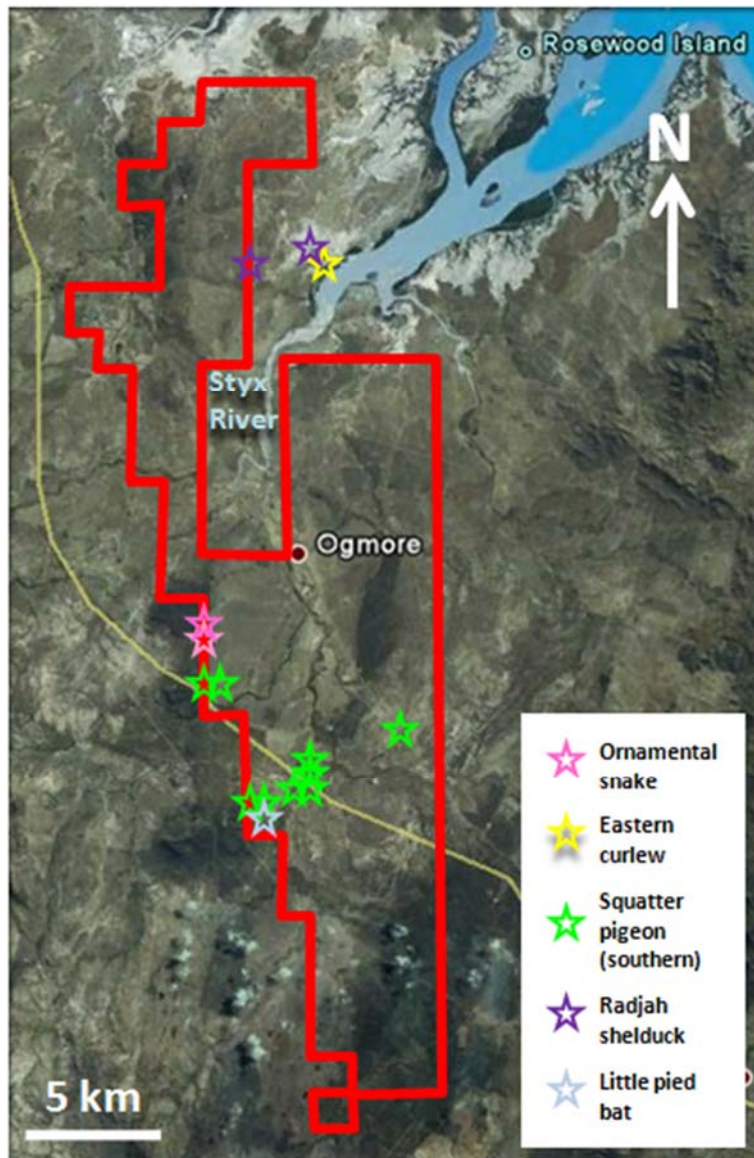
Details of sightings of EVR taxa (i.e., number of individuals seen and habitat in which species were recorded) are provided in Table 4, below. The approximate location of EVR fauna records is shown in Figure 3 (below).

**Table 4. Records of EVR species from surveys undertaken in late March 2011. V= vulnerable; NT = near threatened; M = migratory.**

Species	Scientific name	NC Act status	EPBC Act status	Latitude	Longitude	Details
Squatter pigeon (southern)	<i>Geophaps scripta scripta</i>	V	V	22°42'40.9"	149°38'16.9"	2 birds alongside Mt Bison Rd, foraging near wooded wetland adjoining pasture (27/09/2011)
Squatter pigeon (southern)	<i>Geophaps scripta scripta</i>	V	V	22°42'55.6"	149°40'14.4"	2 birds in partly cleared <i>E. crebra</i> woodland, near Turkey nest dam, to near north of Deep Creek (27/09/2011)
Squatter pigeon (southern)	<i>Geophaps scripta scripta</i>	V	V	22°40'32.4"	149°42'12.7"	Single bird flushed from roadside along Ogmores Connection Road in partly cleared <i>E. crebra</i> / <i>E. tereticornis</i> woodland (27/09/2011)

Species	Scientific name	NC Act status	EPBC Act status	Latitude	Longitude	Details
Squatter pigeon (southern)	<i>Geophaps scripta scripta</i>	V	V	22°42'59.1"	149°40'12.9"	Single adult bird in partly cleared <i>E. crebra</i> woodland, near Turkey nest dam, to near north of Deep Creek (27/09/2011)
Squatter pigeon (southern)	<i>Geophaps scripta scripta</i>	V	V	22°42'40.7"	149°38'18.0"	6 adult birds alongside Mt Bison Rd, drinking/foraging at wooded wetland adjoining pasture (28/09/2011)
Squatter pigeon (southern)	<i>Geophaps scripta scripta</i>	V	V	22°42'41.9"	149°40'16.2"	Single adult bird in <i>E. populnea</i> / <i>E. crebra</i> woodland, across from entrance to 'Mamelon' station, to near the north of Deep Creek (28/09/2011)
Squatter pigeon (southern)	<i>Geophaps scripta scripta</i>	V	V	22°42'24.2"	149°40'22.7"	2 birds along dirt track through pasture, to the near east of <i>E. populnea</i> / <i>E. crebra</i> woodland remnant, across from Mamelon entrance (28/09/2011)
Squatter pigeon (southern)	<i>Geophaps scripta scripta</i>	V	V	22°42'59.1"	149°40'12.9"	Single adult bird in partly cleared <i>E. crebra</i> woodland, near Turkey nest dam, to near north of Deep Creek (29/09/2011)
Squatter pigeon (southern)	<i>Geophaps scripta scripta</i>	V	V	22°42'55.2"	149°40'14.4"	2 birds in partly cleared <i>E. crebra</i> woodland, near Turkey nest dam, to near north of Deep Creek (27/09/2011)
Squatter pigeon (southern)	<i>Geophaps scripta scripta</i>	V	V	22°31'07.24"	149°35'35.1"	2 birds on access track through <i>E. crebra</i> - <i>Melaleuca viridis</i> woodland, adjacent ponded pasture at Granite Vale (27/09/2011)
Squatter pigeon (southern)	<i>Geophaps scripta scripta</i>	V	V	22°42'55.2"	149°35'35.1"	6 birds beside track in area of cleared woodland, near an ephemeral gully with <i>Melaleuca leucadendra</i> (27/09/2011)
Radjah shelduck	<i>Tadorna radjah</i>	–	NT	22°31'06.9"	149°34'11.3"	10 birds seen in sedge-grassland wetland on marine plain, to near east of EPC 1029, north of Styx River (28/09/2011)
Radjah shelduck	<i>Tadorna radjah</i>	–	NT	22°28'40.9"	149°36'49.2"	2 birds seen in inundated grassy/sedge wetland fringed with <i>Melaleuca</i> trees, in north- east of EPC 1029, north of the Styx River (28/09/2011)
Eastern curlew	<i>Numenius madagascariensis</i>	M	NT	22°28'58.9"	149°39'32.9"	2 birds seen in area of salt marsh abutting mangroves, to the near east of EPC 1029, north of the Styx River (28/09/2011)
Little pied bat	<i>Chalinolobus picatus</i>	–	NT	22°42'40.9"	149°37'50.7"	Recorded along an ephemeral creek through mixed eucalypt open forest/woodland at Systematic Survey Site 1
Ornamental snake	<i>Denisonia maculata</i>	V	V	22°39'53.6"	149°37'27.6"	Single adult animal found under timber near remnant gilgaied brigalow/belah open forest, in cleared gilgaied paddock (27/09/2011)
Ornamental snake	<i>Denisonia maculata</i>	V	V	22°39'45.6"	149°37'30.3"	Single adult animal found under timber at edge of gilgaied brigalow/belah open forest (27/09/2011)





**Figure 3. Approximate location of EVR fauna records within EPC 1029 from surveys in March 2011. Boundary of EPC area shown in red. Bruce Highway shown in yellow. Base map sourced from Google Earth™ (2010).**

As indicated in Table 4 (above), numbers of EVR species recorded during surveys were low, with the exception of the squatter pigeon (southern race) which was frequently encountered during surveys. Numbers of other (non-EVR) conservation significant fauna recorded during surveys were also generally low with glossy ibis, eastern great egret, rainbow bee-eater and koala recorded only once or twice during surveys. Cattle egret, however, were recorded on a number of occasions foraging alongside cattle at 'Mamelon' station. A single flock of around 40 cattle egret was also seen roosting in trees surrounding a stock dam on 'Mamelon', to the near north of the Bruce Highway. Though rarely seen during surveys, indirect evidence of the short-beaked echidna was plentiful with fresh diggings and/or scats recorded at most survey sites. The abundance of echidna diggings and scats during surveys suggest this species is common and widespread within EPC 1029.

Amongst the vertebrate species recorded within EPC 1029 during surveys were several introduced species: house mouse, horse, pig, rabbit, cane toad and cattle. At the time of surveys, abundances of these species were generally low across EPC 1029, though cattle were locally abundant in some areas (e.g., on 'Mamelon').

## 2. Habitat assessment

During surveys in September 2011 the suitability of habitat for fauna was assessed at a range of sites across EPC 1029. Habitat at a number of sites was assessed as having high value for fauna including:

- remnant brigalow woodland and adjacent gilgaied pasture near Deep Creek, north of the Bruce Highway on 'Mamelon' station (habitat assessment sites 8 and 14);
- gilgaied belah/brigalow open forest along the central-western boundary of EPC 1029, on 'Bar H' station (habitat assessment site 5)
- riparian semi-evergreen vine thicket with emergent *E. tereticornis* along Tooloombah Creek (habitat assessment site 13);
- mixed riparian woodland/open forest along un-named tributary of Deep Creek, on 'Mamelon' station, to the north-east of Bruce Highway (habitat assessment site 10); and
- wooded wetland on 'Mamelon' station, to the near east of systematic survey site 1 (habitat assessment site 1).

Representative photos of high value habitat are provided in Appendix B. The value of habitat at these sites (in particular its value to conservation significant fauna) is discussed below.

### a. Remnant gilgaied brigalow woodland and adjacent gilgaied pasture to the near north of Deep Creek on 'Mamelon' station (habitat assessment sites 8 and 14)

Though limited in extent, remnant brigalow woodland and adjacent gilgaied pasture on 'Mamelon' is likely to provide habitat for a range of terrestrial fauna particularly herpetofauna. This includes the EPBC Act-listed vulnerable ornamental snake, a species recorded in similar habitat elsewhere within EPC 1029. In addition, remnant gilgaied brigalow and adjacent pasture could provide habitat for the vulnerable brigalow scalyfoot as well as the NC Act-listed rough frog.

### b. Gilgaied belah/brigalow open forest, along the central-western boundary of EPC 1029, on 'Bar H' (habitat assessment site 5)

While limited in extent, remnant gilgaied belah/brigalow woodland and adjacent gilgaied pasture on 'Bar H' station provides high quality habitat for the vulnerable EPBC At-listed ornamental snake and may also provide habitat for a range of other herpetofauna occurring within EPC 1029 (including the vulnerable brigalow scalyfoot as well as the NC Act-listed rough frog).

### c. Riparian habitat (semi-evergreen vine thicket with emergent *E. tereticornis*) along Tooloombah Creek (habitat assessment site 13)

Semi-evergreen vine thicket along Tooloombah Creek provides habitat for a wide range of fauna. Amongst those species likely to utilize vine thicket habitat for foraging (and, potentially, breeding as well) are several EPBC Act-listed migratory species including the spectacled monarch, black-faced monarch flycatcher and rufous fantail. The vulnerable EPBC Act-listed Black-breasted Button-quail could



potentially utilise riparian vine thicket along Tooloombah Creek for foraging as well, depending on the extent and depth of leaf litter normally available for foraging. At the time of surveys, the depth of leaf litter appeared insufficient to provide quality foraging habitat for the black-breasted button-quail, though this may have been due to unusually heavy flooding over summer.

Tall emergent *E. tereticornis* along Tooloombah Creek provide nesting also opportunities for a range of raptors, as evidenced by the presence of a large wedge-tailed eagle nest near site 12 (see photo Appendix B). Numerous large hollow-baring *E. tereticornis* also provide habitat for a range of arboreal mammals including sugar and squirrel glider, both of which were recorded along Tooloombah Creek during surveys. Given the presence of gliders, large hollow-baring trees, and dense cover (in the form of semi-evergreen vine thicket), riparian vegetation along Tooloombah Creek could also provide suitable foraging and breeding habitat for the vulnerable NC Act-listed powerful owl. This assessment is supported by the discovery of prey remains attributable to the powerful owl (i.e., the tail of a sugar glider) at Tooloombah Creek during surveys.

More generally, riparian vegetation along Tooloombah Creek forms an important link between areas of remnant vegetation to the west and in the east of EPC 1029, facilitating the movement of fauna east-west across the Styx River Catchment.

d. [Riparian vegetation along an un-named tributary of Deep Creek, to the near south of Tooloombah Creek, on 'Mamelon' station \(habitat assessment site 10\)](#)

Remnant riparian vegetation along an un-named tributary of Deep Creek, to the near south of Tooloombah Creek, is likely to be important for movement of fauna east-west across the Styx River catchment (albeit of lesser importance than Tooloombah and Deep Creeks in this regard). Riparian vegetation along this creek may also provide foraging and shelter habitat for Koala and the vulnerable EPBC Act-listed ornamental snake, both of which have been recorded elsewhere within EPC 1029. For the latter species, remnant riparian habitat in this part of the study area may provide shelter for animals foraging in areas of nearby gilgaied paddock, as seen elsewhere in EPC 1029 (see Meyer, 2011).

e. [Wooded wetland on 'Mamelon' station, to the near east of systematic survey site 1 \(habitat assessment site 1\)](#)

A large wooded wetland to the near east of systematic survey site 1 provides suitable foraging habitat for a range of wetland birds. Bird species potentially utilizing this wetland include EPBC Act-listed migratory species such as the glossy ibis, Latham's snipe, wood sandpiper and sharp-tailed sandpiper. Other conservation significant wetland species likely to utilise habitat at this site for foraging include the near threatened NC Act-listed cotton pygmy-goose and radjah shelduck, both of which have been recorded elsewhere within EPC 1029. The wetland at this site could also provide drinking water for a range of bird species foraging in surrounding woodland including (amongst other species) the vulnerable EPC Act-listed squatter pigeon (southern race), a species recorded nearby during surveys in September and March 2011.

## 5. Summary and conclusions

Despite extensive clearing, land within EPC 1029 provides habitat for a diverse array of terrestrial fauna with 168 vertebrate species recorded within and/or immediately adjacent EPC 1029 during surveys. This includes including 48 species not recorded during wet season surveys in March 2011, bringing the total number of species recorded during surveys to with 224. Amongst those species recorded during September surveys are a number of fauna species of conservation significance including:

- squatter pigeon (southern race) (*Geophaps scripta scripta*) (listed as vulnerable under both the NC Act and EPBC Act);
- ornamental snake (*Denisonia maculata*) (listed as vulnerable under both the NC Act and EPBC Act);
- little pied bat (*Chalinolobus picatus*) (listed as near threatened under the NC Act);
- radjah shelduck (*Tadorna radjah*) (listed as near threatened under the NC Act);
- eastern curlew (*Numenius madagascariensis*) (listed as near threatened under the NC Act);
- a number of EPBC Act-listed migratory species including glossy ibis (*Plegadis falcinellus*), cattle egret (*Ardea ibis*) eastern curlew (*Numenius madagascariensis*), rainbow bee-eater (*Merops ornatus*);
- short-beaked echidna (*Tachyglossus aculeatus*) (listed as significant least concern under the NC Act); and
- koala (*Phascolarctos cinereus*) (also listed as significant least concern under the NC Act).

As in March 2011, numbers of most conservation significant species were low. Squatter pigeons, however, were frequently encountered during surveys while cattle egret were locally abundant in the southern half of EPC 1029. The short-beaked echidna was also detected at large number of sites across the study area during surveys.

With the combined results of March and September surveys the number of conservation significant species currently known from EPC 1029 stands at 15 (excluding eastern curlew and fork-tailed swift which were only recorded adjacent EPC 1029). Land within and adjacent EPC 1029 could however provide habitat for many other species of conservation significant species as well including nationally threatened taxa such as the critically endangered yellow chat (Dawson subspecies), endangered imperial hairstreak, vulnerable brigalow scalyfoot, vulnerable Australian painted snipe, vulnerable red goshawk and vulnerable northern quoll (see Meyer, 2011). The occurrence of these species within EPC 1029 requires further investigation by way of targeted surveys and further habitat assessment work within and adjacent EPC 1029.

With extensive clearing of native vegetation in the Styx Basin and Brigalow Belt, remaining areas of woodland and forest habitat within EPC 1029 are of considerable importance to native fauna at the local and regional level (as reflected in Biodiversity Planning Assessment for the Brigalow Belt [DERM, 2008]). Of particular importance in this regard are areas of riparian woodland/forest linking more extensive areas of remnant vegetation in the west and east of the Styx River catchment including riparian vegetation along Deep and Tooloombah Creeks.

With survey work in the far north-east of EPC 1029 restricted due to problems with site access, further field work is needed to better gauge the extent and suitability of habitat within and adjacent EPC 1029 for conservation significant fauna in the far north-east of EPC 1029. This includes targeted surveys for migratory shorebirds, the yellow chat (Dawson subspecies), water mouse and Australian painted snipe.

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**APPENDIX A**

**September 2011 survey results**

**Table A1. List of vertebrate fauna recorded within and/or immediately adjacent EPC 1029 during surveys in September 2011. Fauna species are grouped by class (birds and reptiles) and ordered alphabetically by scientific name. EPBC Act status = status under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*; NC Act = *Queensland Nature Conservation Act 1992* and associated regulations (i.e., *Nature Conservation (Wildlife) Regulation 2006*); Back on Track status = status within DERM's 'Back on Track' species prioritisation framework ; BPA status = status under DERM's Biodiversity Planning Assessment for the Northern Brigalow Belt Bioregion; CE = Critically Endangered; E = Endangered; V = Vulnerable; NT = Near Threatened; M = Migratory; LC = Least Concern; SLC = Special Least Concern.**

Class	Family	Scientific name	Common name	NC Act Status	EPBC Act Status	Back on Track/ BPA status
amphibians	Bufo	<i>Rhinella (Bufo) marina</i>	cane toad	–	–	–
amphibians	Hylidae	<i>Cyclorana alboguttata</i>	greenstripe frog	LC	–	–
amphibians	Hylidae	<i>Litoria caerulea</i>	common green treefrog	LC	–	–
amphibians	Hylidae	<i>Litoria fallax</i>	eastern sedgefrog	LC	–	–
amphibians	Hylidae	<i>Litoria inermis</i>	bumpy rocketfrog	LC	–	–
amphibians	Hylidae	<i>Litoria latopalmata</i>	broad palmed rocketfrog	LC	–	–
amphibians	Hylidae	<i>Litoria rothii</i>	northern laughing treefrog	LC	–	–
amphibians	Hylidae	<i>Litoria rubella</i>	ruddy treefrog	LC	–	–
amphibians	Hylidae	<i>Litoria wilcoxii</i>	stony creek frog	LC	–	–
amphibians	Myobatrachidae	<i>Crinia deserticola</i>	chirping froglet	LC	–	–
amphibians	Myobatrachidae	<i>Limnodynastes salmini</i>	salmon striped frog	LC	–	–
amphibians	Myobatrachidae	<i>Limnodynastes tasmaniensis</i>	spotted grassfrog	LC	–	–
amphibians	Myobatrachidae	<i>Limnodynastes terraereginae</i>	scarlet sided pobblebonk	LC	–	–
birds	Acanthizidae	<i>Gerygone albogularis</i>	white-throated gerygone	LC	–	–
birds	Acanthizidae	<i>Sericornis frontalis</i>	white-browed scrub-wren	LC	–	–
birds	Acanthizidae	<i>Smicromis brevirostris</i>	weebill	LC	–	–
birds	Accipitridae	<i>Aquila audax</i>	wedge-tailed eagle	LC	–	–
birds	Accipitridae	<i>Aviceda subcristata</i>	Pacific baza	LC	–	–
birds	Accipitridae	<i>Elanus axillaris</i>	black-shouldered kite	LC	–	–
birds	Acrocephalidae	<i>Acrocephalus australis</i>	Australian reed-warbler	LC	–	–
birds	Anatidae	<i>Anas gracilis</i>	grey teal	LC	–	–
birds	Anatidae	<i>Anas superciliosa</i>	Pacific black duck	LC	–	–
birds	Anatidae	<i>Chenonetta jubata</i>	Australian wood duck	LC	–	–
birds	Anatidae	<i>Tadorna radjah</i>	radjah shelduck	NT	–	–
birds	Anhingidae	<i>Anhinga novaehollandiae</i>	darther	LC	–	–
birds	Ardeidae	<i>Ardea modesta</i>	eastern great egret	LC	–	–
birds	Ardeidae	<i>Ardea ibis</i>	cattle egret	LC	M	–

Class	Family	Scientific name	Common name	NC Act Status	EPBC Act Status	Back on Track/ BPA status
birds	Ardeidae	<i>Ardea intermedia</i>	intermediate egret	LC	–	–
birds	Ardeidae	<i>Ardea pacifica</i>	white-necked heron	LC	–	–
birds	Ardeidae	<i>Nycticorax caledonicus</i>	nankeen night heron	LC	–	–
birds	Artamidae	<i>Artamus cinereus</i>	black-faced woodswallow	LC	–	–
birds	Artamidae	<i>Cracticus nigrogularis</i>	ped butcherbird	LC	–	–
birds	Artamidae	<i>Cracticus tibicen</i>	Australian magpie	LC	–	–
birds	Artamidae	<i>Strepera graculina</i>	ped currawong	LC	–	–
birds	Burhinidae	<i>Burhinus grallarius</i>	bush stone-curlew	LC	–	–
birds	Cacatuidae	<i>Cacatua galerita</i>	sulphur-crested cockatoo	LC	–	–
birds	Cacatuidae	<i>Calyptorhynchus banksii</i>	red-tailed black cockatoo	LC	–	–
birds	Campephagidae	<i>Coracina novaehollandiae</i>	black-faced cuckoo-shrike	LC	–	–
birds	Campephagidae	<i>Coracina papuensis</i>	white-bellied cuckoo-shrike	LC	–	–
birds	Campephagidae	<i>Coracina tenuirostris</i>	cicadabird	LC	–	–
birds	Campephagidae	<i>Lalage leucomela</i>	varied triller	LC	–	–
birds	Campephagidae	<i>Lalage sueurii</i>	white-winged triller	LC	–	–
birds	Casuariidae	<i>Dromaius novaehollandiae</i>	emu	LC	–	–
birds	Caprimulgidae	<i>Eurostopodus myiastacalis</i>	white-throated night-jar	LC	–	–
birds	Charadriidae	<i>Vanellus miles novaehollandiae</i>	masked lapwing (southern)	LC	–	–
birds	Cisticolidae	<i>Cisticola exilis</i>	golden-headed cisticola	LC	–	–
birds	Columbidae	<i>Geopelia humeralis</i>	bar-shouldered dove	LC	–	–
birds	Columbidae	<i>Geopelia striata</i>	peaceful dove	LC	–	–
birds	Columbidae	<i>Geophaps scripta scripta</i>	squatter pigeon (southern)	V	V	Priority
birds	Columbidae	<i>Ocyphaps lophotes</i>	crested pigeon	LC	–	–
birds	Corvidae	<i>Corvus orru</i>	Torresian crow	LC	–	–
birds	Cuculidae	<i>Centropus phasianinus</i>	pheasant coucal	LC	–	–
birds	Cuculidae	<i>Cuculus pallidus</i>	pallid cuckoo	LC	–	–
birds	Cuculidae	<i>Chalcites basalis</i>	Horsfield's bronze-cuckoo	LC	–	–
birds	Cuculidae	<i>Chalcites minutillus minutillus</i>	little bronze-cuckoo	LC	–	–
birds	Cuculidae	<i>Scythrops novaehollandiae</i>	channel-billed cuckoo	LC	–	–
birds	Dicruridae	<i>Dicrurus bracteatus bracteatus</i>	spangled drongo (eastern Australia)	LC	–	–
birds	Estrildidae	<i>Neochmia modesta</i>	plum-headed finch	LC	–	–
birds	Estrildidae	<i>Taeniopygia bichenovii</i>	double-barred finch	LC	–	–
birds	Estrildidae	<i>Taeniopygia guttata</i>	zebra finch	LC	–	–
birds	Gruidae	<i>Grus rubicunda</i>	brilga	LC	–	–

Class	Family	Scientific name	Common name	NC Act Status	EPBC Act Status	Back on Track/ BPA status
birds	Halcyonidae	<i>Dacelo leachii</i>	blue-winged kookaburra	LC	–	–
birds	Halcyonidae	<i>Dacelo novaeguineae</i>	laughing kookaburra	LC	–	–
birds	Halcyonidae	<i>Todiramphus macleayii</i>	forest kingfisher	LC	–	–
birds	Halcyonidae	<i>Todiramphus sanctus</i>	sacred kingfisher	LC	–	–
birds	Hirundinidae	<i>Hirundo neoxena</i>	welcome swallow	LC	–	–
birds	Jacanidae	<i>Irediparra gallinacea</i>	comb-crested jacana	LC	–	–
birds	Laridae	<i>Sterna nilotica</i>	gull-billed tern	LC	–	–
birds	Maluridae	<i>Malurus melanocephalus</i>	red-backed fairy-wren	LC	–	–
birds	Megaluridae	<i>Cinchorhamphus mathewsi</i>	rufous songlark	LC	–	–
birds	Megaluridae	<i>Megalurus timoriensis</i>	tawny grassbird	LC	–	–
birds	Meliphagidae	<i>Entomyzon cyanotis</i>	blue-faced honeyeater	LC	–	–
birds	Meliphagidae	<i>Lichenostomus flavus</i>	yellow honeyeater	LC	–	–
birds	Meliphagidae	<i>Lichmera indistincta</i>	brown honeyeater	LC	–	–
birds	Meliphagidae	<i>Manorina flavigula</i>	yellow-throated miner	LC	–	–
birds	Meliphagidae	<i>Meliphaga lewinii</i>	Lewin's honeyeater	LC	–	–
birds	Meliphagidae	<i>Melithreptus albogularis</i>	white-throated honeyeater	LC	–	–
birds	Meliphagidae	<i>Myzomela sanguinolenta</i>	scarlet honeyeater	LC	–	–
birds	Meliphagidae	<i>Philemon citreogularis</i>	little friarbird	LC	–	–
birds	Meliphagidae	<i>Philemon corniculatus</i>	noisy friarbird	LC	–	–
birds	Meliphagidae	<i>Plectorhyncha lanceolata</i>	striped honeyeater	LC	–	–
birds	Meropidae	<i>Merops ornatus</i>	rainbow bee-eater	SLC	M	–
birds	Monarchidae	<i>Grallina cyanoleuca</i>	magpie-lark	LC	–	–
birds	Monarchidae	<i>Myiagra rubecula</i>	leaden flycatcher	LC	–	–
birds	Motacillidae	<i>Anthus novaeseelandiae</i>	Australasian pipit	LC	–	–
birds	Nectariniidae	<i>Dicaeum hirundinaceum</i>	mistletoebird	LC	–	–
birds	Nectariniidae	<i>Nectarina jugularis</i>	olive-backed sunbird	LC	–	–
birds	Oriolidae	<i>Sphecotheres vielloti</i>	Australian figbird	LC	–	–
birds	Otididae	<i>Ardeotis australis</i>	Australian bustard	LC	–	–
birds	Pachycephalidae	<i>Colluricincla harmonica</i>	grey shrike-thrush	LC	–	–
birds	Pachycephalidae	<i>Colluricincla megarhyncha</i>	little shrike-thrush	LC	–	–
birds	Pachycephalidae	<i>Pachycephala rufiventris</i>	rufous whistler	LC	–	–
birds	Pardalotidae	<i>Pardalotus striatus</i>	striated pardalote	LC	–	–
birds	Petroicidae	<i>Microeca flavigaster</i>	lemon-bellied flycatcher	LC	–	–
birds	Phalacrocoracidae	<i>Phalacrocorax sulcirostris</i>	little black cormorant	LC	–	–

Class	Family	Scientific name	Common name	NC Act Status	EPBC Act Status	Back on Track/ BPA status
birds	Phalacrocoracidae	<i>Microcarbo melanoleucos</i>	little pied cormorant	LC	–	–
birds	Podargidae	<i>Podargus strigoides</i>	tawny frogmouth	LC	–	–
birds	Psittacidae	<i>Aprosmictus erythropterus</i>	red-winged parrot	LC	–	–
birds	Psittacidae	<i>Platycercus adscitus</i>	pale-headed rosella (southern form)	LC	–	–
birds	Psittacidae	<i>Trichoglossus haematodus moluccanus</i>	rainbow lorikeet	LC	–	–
birds	Rallidae	<i>Gallinulatenebrosa</i>	dusky moorhen	LC	–	–
birds	Rallidae	<i>Gallirallus philippensis</i>	buff-banded rail	LC	–	–
birds	Rallidae	<i>Porphyrio porphyrio</i>	purple swamphen	LC	–	–
birds	Recurvirostridae	<i>Himantopus himantopus</i>	black-winged stilt	LC	–	–
birds	Rhipiduridae	<i>Rhipidura leucophrys leucophrys</i>	Willie wagtail (southern)	LC	–	–
birds	Scolopacidae	<i>Numenius madagascariensis</i>	eastern curlew	NT	M	–
birds	Strigidae	<i>Ninox connivens</i>	barking owl	LC	–	–
birds	Threksiornithidae	<i>Plegadis falcinellus</i>	glossy ibis	LC	M	–
birds	Threksiornithidae	<i>Threskiornis spinicollis</i>	straw-necked ibis	LC	–	–
birds	Threksiornithidae	<i>Threskiornis molucca</i>	Australian white ibis	LC	–	–
birds	Threksiornithidae	<i>Platalea regia</i>	royal spoonbill	LC	–	–
birds	Tytonidae	<i>Tyto javanica</i>	eastern barn owl	LC	–	–
birds	Hirundinidae	<i>Petrochelidon ariel</i>	fairy martin	LC	–	–
mammals	Bovidae	<i>Bos taurus</i>	European cattle	–	–	–
mammals	Canidae	<i>Canis lupus dingo</i>	dingo	–	–	–
mammals	Dasyuridae	<i>Plaingale maculata</i>	common planigale	LC	–	–
mammals	Emballonuridae	<i>Saccolaimus flaviventrus</i>	yellow-bellied sheath-tail bat	LC	–	–
mammals	Macropodidae	<i>Macropus agilis</i>	agile wallaby	LC	–	–
mammals	Macropodidae	<i>Macropus giganteus</i>	eastern grey kangaroo	LC	–	–
mammals	Macropodidae	<i>Wallabia bicolor</i>	swamp wallaby	LC	–	–
mammals	Miniopteridae	<i>Miniopterus australis</i>	little bentwing bat	LC	–	–
mammals	Miniopteridae	<i>Miniopterus orianae oceanensis</i>	eastern bentwing bat	LC	–	–
mammals	Molossidae	<i>Austronomus (Tadarida) australis</i>	white-striped freetail bat	LC	–	–
mammals	Molossidae	<i>Chaerophon jobensis</i>	northern freetail bat	LC	–	–
mammals	Molossidae	<i>Mormopterus beccari</i>	Beccari's freetail bat	LC	–	–
mammals	Molossidae	<i>Mormopterus ridei</i>	eastern freetail bat	LC	–	–
mammals	Muridae	<i>Melomys cervinipes</i>	fawn-footed melomys	LC	–	–
mammals	Muridae	<i>Mus musculus</i>	house mouse	–	–	–
mammals	Muridae	<i>Pseudomys gracilicaudatus</i>	eastern chestnut mouse	LC	–	–



Class	Family	Scientific name	Common name	NC Act Status	EPBC Act Status	Back on Track/ BPA status
mammals	Peramelidae	<i>Isoodon macrourus</i>	northern brown bandicoot	LC	–	–
mammals	Petauridae	<i>Petaurus norfolcensis</i>	sugar glider	LC	–	–
mammals	Petauridae	<i>Petaurus breviceps</i>	squirrel glider	LC	–	–
mammals	Phalangeridae	<i>Trichosurus vulpecula</i>	common brushtail possum	LC	–	–
mammals	Phascolarctidae	<i>Phascolarctos cinereus</i>	koala	SLC	–	–
mammals	Pseudocheiridae	<i>Petauroides volans</i>	greater glider	LC	–	–
mammals	Pteropodidae	<i>Pteropus alecto</i>	black flying-fox	LC	–	–
mammals	Pteropodidae	<i>Pteropus scapulatus</i>	little red flying-fox	LC	–	–
mammals	Suidae	<i>Sus scrofa</i>	pig	–	–	–
mammals	Tachyglossidae	<i>Tachyglossus aculeatus</i>	short-beaked echidna	SLC	–	–
mammals	Vespertilionidae	<i>Chalinilobus gouldii</i>	Gould's wattled bat	LC	–	–
mammals	Vespertilionidae	<i>Chalinilobus morio</i>	Chocolate wattled bat	LC	–	–
mammals	Vespertilionidae	<i>Chalinilobus picatus</i>	little pied bat	NT	–	–
mammals	Vespertilionidae	<i>Nyctophilus sp</i>	long-eared bat	–	–	–
mammals	Vespertilionidae	<i>Vespadelus trougtoni</i>	eastern cave bat	LC	–	–
reptiles	Agamidae	<i>Diporiphora australis</i>	tommy roundhead	LC	–	–
reptiles	Agamidae	<i>Physignathus lesueurii</i>	water dragon	LC	–	–
reptiles	Agamidae	<i>Pogona barbata</i>	bearded dragon	LC	–	–
reptiles	Boidae	<i>Antaresia maculosa</i>	spotted python	LC	–	–
reptiles	Boidae	<i>Aspidites melanocephalus</i>	black-headed python	LC	–	–
reptiles	Boidae	<i>Morelia spilota</i>	carpet python	LC	–	–
reptiles	Chelidae	<i>Chelodina longicollis</i>	eastern snake-necked turtle	LC	–	–
reptiles	Colubridae	<i>Tropidonophis mairii</i>	freshwater snake	LC	–	–
reptiles	Diplodactylidae	<i>Oedura monilis</i>	velvet gecko	LC	–	–
reptiles	Elapidae	<i>Demansia psammophis</i>	yellow-faced whip-snake	LC	–	–
reptiles	Elapidae	<i>Demansia vestigiata</i>	lesser black whip-snake	LC	–	–
reptiles	Elapidae	<i>Denisonia maculata</i>	ornamental snake	V	V	Priority
reptiles	Gekkonidae	<i>Gehyra dubia</i>	common dtella	LC	–	–
reptiles	Gekkonidae	<i>Gehyra sp</i>	unidentified dtella	LC	–	–
reptiles	Gekkonidae	<i>Heteronotia binoei</i>	Bynoe's gecko	LC	–	–
reptiles	Scincidae	<i>Carlia pectoralis</i>	lively skink	LC	–	–
reptiles	Scincidae	<i>Carlia munda</i>		LC	–	–
reptiles	Scincidae	<i>Carlia schmeltzii</i>		LC	–	–
reptiles	Scincidae	<i>Cryptoblepharus pulcher pulcher</i>	snake-eyed skink	LC	–	–

Class	Family	Scientific name	Common name	NC Act Status	EPBC Act Status	Back on Track/ BPA status
reptiles	Scincidae	<i>Cryptoblepharus metallicus</i>	metallic snake-eyed skink	LC	–	–
reptiles	Scincidae	<i>Ctenotus taeniolatus</i>	copper-tailed skink	LC	–	–
reptiles	Scincidae	<i>Eulamprus sp. cf tenuis</i>		LC	–	–
reptiles	Scincidae	<i>Glaphyromorphus punctulatus</i>		LC	–	–
reptiles	Scincidae	<i>Lygisaurus (Carlia) foliorum</i>		LC	–	–
reptiles	Scincidae	<i>Morethia taeniopleura</i>		LC	–	–

**Table A2. Maximum counts for bird species recorded during 20 min x 20 ha censuses at systematic survey sites. Fauna species are grouped by class (birds and reptiles) and ordered alphabetically by scientific name. EPBC Act status = status under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*; NC Act = *Queensland Nature Conservation Act 1992* and associated regulations (i.e., *Nature Conservation (Wildlife) Regulation 2006*); Back on Track status = status within DERM's 'Back on Track' species prioritisation framework ; BPA status = status under DERM's Biodiversity Planning Assessment for the Northern Brigalow Belt Bioregion; CE = Critically Endangered; E = Endangered; V = Vulnerable; NT = Near Threatened; M = Migratory; LC = Least Concern; SLC = Special Least Concern.**

Family	Scientific name	Common name	NC Act Status	EPBC Act Status	Back on Track/ BPA status	Site 1	Site 2	Site 3	Site 4
Acanthizidae	<i>Smicromis brevirostris</i>	weebill	LC	–	–				2
Accipitridae	<i>Aviceda subcristata</i>	Pacific baza	LC	–	–		1		
Artamidae	<i>Cracticus tibicen</i>	Australian magpie	LC	–	–	1			1
Artamidae	<i>Strepera graculina</i>	pied currawong	LC	–	–				1
Cacatuidae	<i>Cacatua galerita</i>	sulphur-crested cockatoo	LC	–	–				1
Cacatuidae	<i>Calyptorhynchus banksii</i>	red-tailed black cockatoo	LC	–	–		2		
Campephagidae	<i>Coracina novaehollandiae</i>	black-faced cuckoo-shrike	LC	–	–	1	1	1	2
Campephagidae	<i>Coracina papuensis</i>	white-bellied cuckoo-shrike	LC	–	–				1
Campephagidae	<i>Lalage sueurii</i>	white-winged triller	LC	–	–	2			
Corvidae	<i>Corvus orru</i>	Torresian crow	LC	–	–		1		
Cuculidae	<i>Cuculus pallidus</i>	pallid cuckoo	LC	–	–	1			
Cuculidae	<i>Chalcites basalis</i>	Horsfield's bronze-cuckoo	LC	–	–	1			
Cuculidae	<i>Chalcites minutillus minutillus</i>	little bronze-cuckoo	LC	–	–			1	1
Halcyonidae	<i>Dacelo novaeguineae</i>	laughing kookaburra	LC	–	–				2
Halcyonidae	<i>Todiramphus macleayii</i>	forest kingfisher	LC	–	–	1			1
Maluridae	<i>Malurus melanocephalus</i>	red-backed fairy-wren	LC	–	–			1	1

Family	Scientific name	Common name	NC Act Status	EPBC Act Status	Back on Track/ BPA status	Site 1	Site 2	Site 3	Site 4
Megaluridae	<i>Cinclorhampus mathewsi</i>	rufous songlark	LC	–	–				1
Megaluridae	<i>Megalurus timoriensis</i>	tawny grassbird	LC	–	–			1	
Meliphagidae	<i>Entomyzon cyanotis</i>	blue-faced honeyeater	LC	–	–			3	2
Meliphagidae	<i>Lichenostomus flavus</i>	yellow honeyeater	LC	–	–			2	1
Meliphagidae	<i>Lichmera indistincta</i>	brown honeyeater	LC	–	–	1			
Meliphagidae	<i>Manorina flavigula</i>	yellow-throated miner	LC	–	–	2			2
Meliphagidae	<i>Meliphaga lewinii</i>	Lewin's honeyeater	LC	–	–			1	
Meliphagidae	<i>Melithreptus albogularis</i>	white-throated honeyeater	LC	–	–	2	1	1	1
Meliphagidae	<i>Myzomela sanguinolenta</i>	scarlet honeyeater	LC	–	–	1			
Meliphagidae	<i>Philemon citreogularis</i>	little friarbird	LC	–	–	1			3
Meliphagidae	<i>Philemon corniculatus</i>	noisy friarbird	LC	–	–	2		2	
Meliphagidae	<i>Plectrohyncha lanceolata</i>	striped honeyeater	LC	–	–				1
Meropidae	<i>Merops ornatus</i>	rainbow bee-eater	SLC	M	–	1			
Monarchidae	<i>Myiagra rubecula</i>	leaden flycatcher	LC	–	–	2	1		
Nectariniidae	<i>Dicaeum hirundinaceum</i>	mistletoebird	LC	–	–		1		
Oriolidae	<i>Sphecotheres vielloti</i>	Australian figbird	LC	–	–	1		2	1
Pachycephalidae	<i>Colluricincla harmonica</i>	grey shrike-thrush	LC	–	–	1	1	1	
Pachycephalidae	<i>Colluricincla megarhyncha</i>	little shrike-thrush	LC	–	–			2	
Pachycephalidae	<i>Pachycephala rufiventris</i>	rufous whistler	LC	–	–	2	1		
Pardalotidae	<i>Pardalotus striatus</i>	striated pardalote	LC	–	–	1	1		1
Petroicidae	<i>Microeca flavigaster</i>	lemon-bellied flycatcher	LC	–	–	1			
Phalacrocoracidae	<i>Phalacrocorax sulcirostris</i>	little black cormorant	LC	–	–			1	
Psittacidae	<i>Aprosmictus erythropterus</i>	red-winged parrot	LC	–	–	1			
Psittacidae	<i>Platycercus adscitus</i>	pale-headed rosella (southern form)	LC	–	–	2			1
Psittacidae	<i>Trichoglossus haematodus moluccanus</i>	rainbow lorikeet	LC	–	–	2	2	3	4
<b>Total species</b>						<b>22</b>	<b>11</b>	<b>14</b>	<b>21</b>

**Table A3. Count data for species recorded during diurnal searches (1 person hour) at each systematic surveys site. Fauna species are grouped by class (birds and reptiles) and ordered alphabetically by scientific name. EPBC Act status = status under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*; NC Act = *Queensland Nature Conservation Act 1992* and associated regulations (i.e., *Nature Conservation (Wildlife) Regulation 2006*); Back on Track status = status within DERM's 'Back on Track' species prioritisation framework ; BPA status = status under DERM's Biodiversity Planning Assessment for the Northern Brigalow Belt Bioregion; CE = Critically Endangered; E = Endangered; V = Vulnerable; NT = Near Threatened; M = Migratory; LC = Least Concern; SLC = Special Least Concern; S = scats, tracks or other signs.**

Class	Family	Scientific name	Common name	NC Act Status	EPBC Act Status	Back on Track/ BPA status	Site 1	Site 2	Site 3	Site 4
amphibians	Bufonidae	<i>Rhinella marina</i>	cane toad	–	–	–	1		1	
amphibians	Hylidae	<i>Litoria fallax</i>	eastern sedgefrog	LC	–	–	4			2
amphibians	Hylidae	<i>Litoria rubella</i>	ruddy treefrog	LC	–	–	1			
amphibians	Myobatrachidae	<i>Crinia deserticola</i>	chirping froglet	LC	–	–				2
amphibians	Myobatrachidae	<i>Limnodynastes salmini</i>	salmon striped frog	LC	–	–				1
amphibians	Myobatrachidae	<i>Limnodynastes tasmaniensis</i>	spotted grassfrog	LC	–	–				6
birds	Caprimulgidae	<i>Eurostpodous myystacalis</i>	white-throated night-jar	LC	–	–		2		
mammals	Bovidae	<i>Bos taurus</i>	European cattle	–	–	–	S			
mammals	Canidae	<i>Canis lupus dingo</i>	dingo	–	–	–		S		
mammals	Peramelidae	<i>Isoodon macrourus</i>	northern brown bandicoot	LC	–	–	S	S		
mammals	Phascolarctidae	<i>Phascolarctos cinereus</i>	koala	SLC	–	–		S		
mammals	Suidae	<i>Sus scrofa</i>	pig	–	–	–	S			
mammals	Tachyglossidae	<i>Tachyglossus aculeatus</i>	short-beaked echidna	SLC	–	–	S	S	S	S
reptiles	Agamidae	<i>Diporiphora australis</i>	tommy roundhead	LC	–	–		1		
reptiles	Agamidae	<i>Physignathus lesueurii</i>	water dragon	LC	–	–			1	
reptiles	Gekkonidae	<i>Heteronotia binoei</i>	Bynoe's gecko	LC	–	–	3	2	1	4
reptiles	Scincidae	<i>Carlia sp cf pectoralis</i>	lively skink	LC	–	–		1		3
reptiles	Scincidae	<i>Carlia munda</i>		LC	–	–	1			1
reptiles	Scincidae	<i>Cryptoblepharus pulcher pulcher</i>	snake-eyed skink	LC	–	–	1	1	1	9
reptiles	Scincidae	<i>Cryptoblepharus metallicus</i>	metallic snake-eyed skink	LC	–	–				
reptiles	Scincidae	<i>Lygisaurus (Carlia) foliorum</i>		LC	–	–	1	3	1	
<b>Total species</b>							<b>11</b>	<b>10</b>	<b>6</b>	<b>9</b>

**Table A4. Count data for species recorded during nocturnal searches (one person hour) at systematic survey sites. Fauna species are grouped by class (birds and reptiles) and ordered alphabetically by scientific name. EPBC Act status = status under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*; NC Act = *Queensland Nature Conservation Act 1992* and associated regulations (i.e., *Nature Conservation (Wildlife) Regulation 2006*); Back on Track status = status within DERM's 'Back on Track' species prioritisation framework ; BPA status = status under DERM's Biodiversity Planning Assessment for the Northern Brigalow Belt Bioregion; CE = Critically Endangered; E = Endangered; V = Vulnerable; NT = Near Threatened; M = Migratory; LC = Least Concern; SLC = Special Least Concern.**

Class	Family	Scientific name	Common name	NC Act Status	EPBC Act Status	Back on Track/ BPA status	Site 1	Site 2	Site 3	Site 4
amphibians	Bufo	<i>Rhinella marina</i>	cane toad	–	–	–	12	4	1	2
amphibians	Hylidae	<i>Litoria caerulea</i>	common green treefrog	LC	–	–	2		1	
amphibians	Hylidae	<i>Litoria fallax</i>	eastern sedgefrog	LC	–	–			3	
amphibians	Hylidae	<i>Litoria inermis</i>	bumpy rocketfrog	LC	–	–	3			
amphibians	Hylidae	<i>Litoria latopalmata</i>	broad palmed rocketfrog	LC	–	–	3		1	
amphibians	Hylidae	<i>Litoria rothii</i>	northern laughing treefrog	LC	–	–	1			
amphibians	Hylidae	<i>Litoria rubella</i>	ruddy treefrog	LC	–	–				1
amphibians	Hylidae	<i>Litoria wilcoxii</i>	stony creek frog	LC	–	–			2	
amphibians	Myobatrachidae	<i>Limnodynastes tasmaniensis</i>	spotted grassfrog	LC	–	–				6
amphibians	Myobatrachidae	<i>Limnodynastes terraereginae</i>	scarlet sided pobblebonk	LC	–	–		1		
birds	Anatidae	<i>Anas superciliosa</i>	Pacific black duck	LC	–	–			2	
birds	Campephagidae	<i>Coracina novaehollandiae</i>	black-faced cuckoo-shrike	LC	–	–	2			
birds	Caprimulgidae	<i>Eurostopodus myiostacalis</i>	white-throated night-jar					1		
birds	Halcyonidae	<i>Dacelo novaeguineae</i>	laughing kookaburra	LC	–	–			1	
mammals	Dasyuridae	<i>Plaingale maculata</i>	common planigale	LC	–	–	1			
mammals	Molossidae	<i>Tadarida australis</i>	white-striped freetail bat	LC	–	–	1		1	
mammals	Muridae	<i>Melomys cervinipes</i>	fawn-footed melomys	LC	–	–			1	
mammals	Peramelidae	<i>Isodon macrourus</i>	northern brown bandicoot	LC	–	–			3	
mammals	Petauridae	<i>Petaurus norfolcensis</i>	sugar glider	LC	–	–			4	
mammals	Petauridae	<i>Petaurus breviceps</i>	squirrel glider	LC	–	–			1	
mammals	Phalangeridae	<i>Trichosurus vulpecula</i>	common brushtail possum	LC	–	–	1		1	
mammals	Pteropodidae	<i>Pteropus alecto</i>	black flying-fox	LC	–	–	1			
mammals	Pteropodidae	<i>Pteropus scapulatus</i>	little red flying-fox	LC	–	–			1	
reptiles	Diplodactylidae	<i>Oedura monilis</i>	velvet gecko	LC	–	–				1
reptiles	Gekkonidae	<i>Gehyra dubia</i>	common dtella	LC	–	–				3
reptiles	Gekkonidae	<i>Gehyra sp</i>	unidentified dtella	LC	–	–			1	5
<b>Total species</b>							<b>10</b>	<b>3</b>	<b>15</b>	<b>5</b>

Table A5. Count data for species captured at systematic surveys sites using camera and Elliott traps. Fauna species are grouped by class (birds and reptiles) and ordered alphabetically by scientific name. EPBC Act status = status under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*; NC Act = *Queensland Nature Conservation Act 1992* and associated regulations (i.e., *Nature Conservation (Wildlife) Regulation 2006*); Back on Track status = status within DERM's 'Back on Track' species prioritisation framework ; BPA status = status under DERM's Biodiversity Planning Assessment for the Northern Brigalow Belt Bioregion; CE = Critically Endangered; E = Endangered; V = Vulnerable; NT = Near Threatened; M = Migratory; LC = Least Concern; SLC = Special Least Concern.

Class	Family	Scientific name	Common name	NC Act Status	EPBC Act Status	Back on Track/ BPA status	Site 1	Site 2	Site 3	Site 4
amphibians	Bufo	<i>Rhinella marina</i>	cane toad	–	–	–	5		2	
amphibians	Hylidae	<i>Litoria inermis</i>	bumpy rocketfrog	LC	–	–				1
amphibians	Myobatrachidae	<i>Limnodynastes tasmaniensis</i>	spotted grassfrog	LC	–	–	1			9
birds	Corvidae	<i>Corvus orru</i>	Torresian crow	LC	–	–	1	1		
mammals	Bovidae	<i>Bos taurus</i>	European cattle	–	–	–	7			
mammals	Dasyuridae	<i>Plaingale maculata</i>	common planigale	LC	–	–			1	2
mammals	Macropodidae	<i>Macropus agilis</i>	agile wallaby	LC	–	–	2		1	
mammals	Macropodidae	<i>Macropus giganteus</i>	eastern grey kangaroo	LC	–	–	2	1		
mammals	Macropodidae	<i>Wallabia bicolor</i>	swamp wallaby	LC	–	–		1		
mammals	Muridae	<i>Mus musculus</i>	house mouse	–	–	–	1		2	4
mammals	Muridae	<i>Pseudomys gracilicaudatus</i>	eastern chestnut mouse	LC	–	–	1			
reptiles	Agamidae	<i>Diporiphora australis</i>	tommy roundhead	LC	–	–	3	1		
reptiles	Elapidae	<i>Demansia psammophis</i>	yellow-faced whip-snake	LC	–	–		1	1	
reptiles	Scincidae	<i>Carlia pectoralis</i>	lively skink	LC	–	–				1
reptiles	Scincidae	<i>Carlia munda</i>		LC	–	–		1	1	
reptiles	Scincidae	<i>Carlia schmeltzii</i>		LC	–	–				1
reptiles	Scincidae	<i>Cryptoblepharus metallicus</i>	metallic snake-eyed skink	LC	–	–	3			
reptiles	Scincidae	<i>Eulamprus sp. cf tenuis</i>		LC	–	–			1	
reptiles	Scincidae	<i>Glaphyromorphus punctulatus</i>		LC	–	–			1	2
reptiles	Scincidae	<i>Lygisaurus (Carlia) foliorum</i>	lively skink	LC	–	–	3	12	4	1
reptiles	Scincidae	<i>Morethia taeniopleura</i>		LC	–	–		1		
<b>Total species</b>							<b>11</b>	<b>8</b>	<b>8</b>	<b>8</b>

**Table A6. Microbat species detected at systematic and supplementary survey sites via Anabat. NB. An Anabat unit was not deployed at site 2 and, hence, data for this site are lacking. Analysis of Anabat data was undertaken by Greg Ford, a recognised expert in the identification of microbat calls.**

Family	Scientific name	Common name	NC Act Status	EPBC Act Status	Back on Track/ BPA status	Site 1	Site 2	Site 3	Site 4	Supplementary survey sites
Emballonuridae	<i>Saccolaimus flaviventrus</i>	yellow-bellied sheathtail bat	LC	–	–	X		X	X	X
Miniopteridae	<i>Miniopterus australis</i>	little bentwing bat	LC	–	–	X				X
Miniopteridae	<i>Miniopterus orianae oceanensis</i>	eastern bentwing bat	LC	–	–			X	X	X
Molossidae	<i>Austronomus (Tadarida) australis</i>	white-striped freetail bat	LC	–	–	X		X		X
Molossidae	<i>Chaerophon jobensis</i>	northern freetail bat	LC	–	–	X		X	X	X
Molossidae	<i>Mormopterus beccari</i>	Beccari's freetail bat	LC	–	–				X	
Molossidae	<i>Mormopterus ridei</i>	eastern freetail bat	LC	–	–				X	
Vespertilionidae	<i>Chalinilobus gouldii</i>	Gould's wattled bat	LC	–	–	X			X	X
Vespertilionidae	<i>Chalinilobus morio</i>	Chocolate wattled bat	LC	–	–				X	X
Vespertilionidae	<i>Chalinilobus picatus</i>	little pied bat	NT	–	–	X				
Vespertilionidae	<i>Nyctophilus sp</i>	long-eared bat	–	–	–				X	X
Vespertilionidae	<i>Vespadelus troughtoni</i>	eastern cave bat	LC	–	–					X
<b>Total species</b>						<b>6</b>	<b>–</b>	<b>4</b>	<b>8</b>	<b>9</b>

## **Appendix B**

### **Habitat photos**





**Above:** Grass-sedge swamp on marine plain, to the near north-east of EPC 1029. Known habitat for the radjah shelduck and glossy ibis. **Below:** Grass-sedge swamp in the far north-east corner of EPC 1029. Known habitat for the radjah shelduck.







**Above:** Large wooded wetland with emergent *Melaleuca* and sedges, to near east of systematic survey site 1 (habitat assessment site 9). **Below:** Billabong with eucalypt woodland surrounds, near Deep Creek (habitat assessment site 2).







**Above:** Large billabong with emergent sedges and *E. tereticornis* woodland surrounds, to the near east of Deep Creek (habitat assessment site 3). **Below:** Riparian habitat near systematic survey site 3, Tooloombah Creek.







**Above:** Riparian vegetation along an un-named tributary of Deep Creek, to the near east of Tooloombah Creek (habitat assessment site 10). **Below:** Stock dam to the near north of the Bruce Highway surrounded by scattered trees. Roosting habitat for the cattle egret.







**Above:** Ponded pasture in the north of EPC 1029. Foraging habitat for cattle egret. **Below:** Gilgaied pasture adjoining gilgaied belah/brigalow (*Acacia harpophylla*/*Casuarina cristata*) woodland on 'Mamelon' station, south of Tooloombah Creek.







**Above:** Gilgaied belah/brigalow woodland to the near north of the Bruce Highway (habitat assessment site 15). **Below:** Gilgaied belah/brigalow forest on 'Bar H' station (habitat assessment site 5). Known habitat for the ornamental snake.







**Above:** Riparian vegetation (semi-evergreen vine thicket and emergent *E. tereticornis*) at Tooolombah Creek (systematic survey site 3). **Below:** Semi-evergreen vine thicket with emergent *E. tereticornis* and *C. tessellaris* near Styx River (habitat assessment site 6).







**Above:** *E. crebra* woodland on 'Mamelon' station (systematic survey site 1). **Below:** Mixed eucalypt open forest (with *E. exserta*) on hill slope at standardised survey site 2.







**Above:** Remnant gilgaid brigalow woodland to the near west of Deep Creek at systematic survey site 4. **Below:** *E. platyphylla* woodland on alluvial flat adjacent Deep Creek, to the near north of systematic survey site 4.







**Above:** Remnant brigalow woodland to the near north of the Bruce Highway (habitat assessment site 8). **Below:** Buffel grass pasture with scattered regrowth brigalow on 'Mamelon' station.







**Above:** Wedge-tailed eagle nest in tall *E. tereticornis* at systematic survey site 4, Tooloombah Creek.



**February 2012 fauna survey results for EPC 1029, Styx Basin,  
central-east Queensland (DRAFT 31/3/2012)**



### **Conditions of use**

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**Front cover (clockwise from upper left):** Remnant brigalow adjacent an un-named tributary of Deep Creek; cattle on 'Plain View' station, in the far north-east of EPC 1029; squatter pigeon (*Geophaps scripta scripta*) photographed at 'Mamelon' station; brigalow scalyfoot (*Paradelma orientalis*).

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Version 1 – 31 March 2012

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## 1. Summary

In early February 2012, surveys targeting conservation significant fauna were undertaken within and adjacent Exploration Permit for Coal (EPC) 1029 in the Styx Basin, central-east Queensland. During these surveys, 131 vertebrate species were recorded within or immediately adjacent EPC 1029. Conservation significant fauna recorded during surveys included:

- squatter pigeon (southern race) listed as vulnerable under both the *Nature Conservation Act 1992* [NC Act] and *Environment Protection and Biodiversity Conservation Act 1999* [EPBC Act];
- brigalow scalyfoot (listed as vulnerable under both the NC Act and EPBC Act);
- cotton pygmy-goose (listed as near threatened under the NC Act);
- eastern curlew (listed as near threatened under the NC Act);
- EPBC Act-listed migratory species including whimbrel, bar-tailed godwit, cattle egret, eastern great egret, fork-tailed swift, eastern curlew, white-bellied sea-eagle, and rainbow bee-eater; and
- short-beaked echidna (listed as significant least concern under the NC Act).

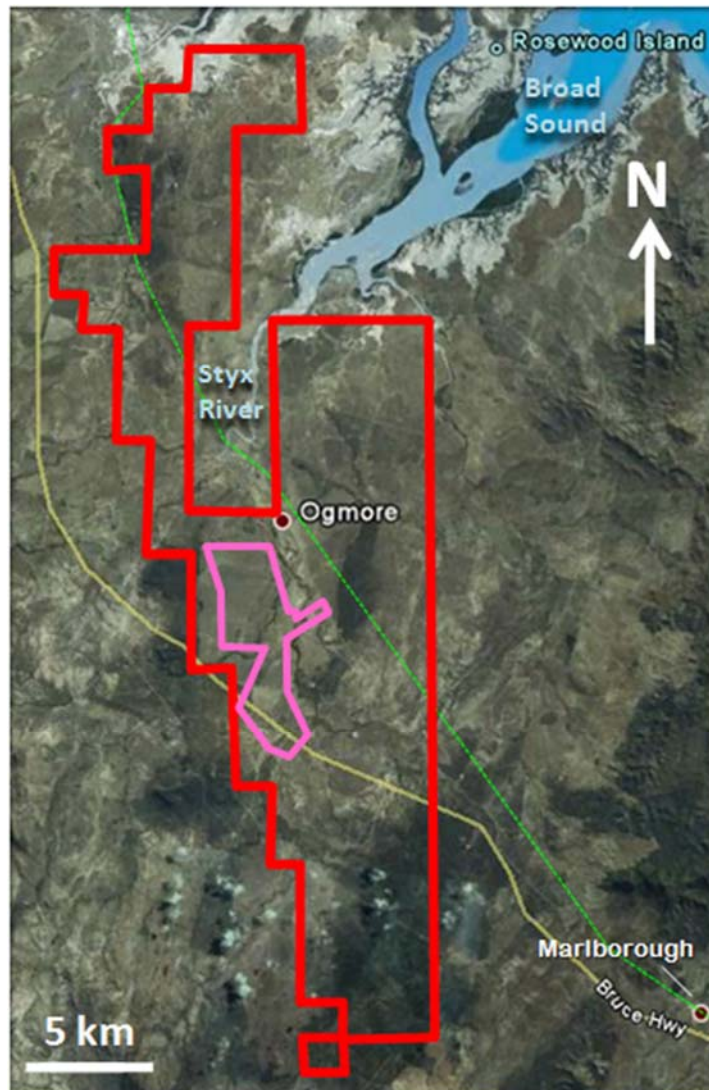
With the addition of brigalow scalyfoot, the total number of conservation significant species currently known from EPC 1029 stands at 16, with another 6 species (eastern curlew, white-bellied sea-eagle, Caspian tern, whimbrel and bar-tailed godwit) recorded immediately adjacent EPC 1029. Though not recorded during surveys, land within EPC 1029 may also provide habitat for other EPBC Act-listed EVR species such as the yellow chat (Dawson subspecies), Australian painted snipe, black-breasted button-quail, pale imperial hairstreak butterfly, collared delma, northern quoll, and red goshawk. The value of habitat within EPC 1029 for these species requires further investigation by way of targeted surveys

A proposed mine near the centre of EPC 1029 will likely impact upon EPBC Act and NC Act-listed species occurring within and/or adjacent EPC 1029. Given the potential for impacts on EPBC Act-listed species (including potential significant impacts on one or more vulnerable species), it is recommended that the project be referred to The Department of Sustainability, Environment and Water, Population and Communities for assessment.

Additional survey work is recommended to help clarify the potential for significant impacts on EPBC Act-listed species. Of particular importance in this regard are: (1) additional targeted surveys for ornamental snake within remnant riparian vegetation and adjoining gilgaid brigalow regrowth, near the centre of the proposed disturbance area; (2) surveys targeting black-breasted button-quail along Tooloombah Creek (within and adjacent the proposed disturbance area); (3) additional targeted surveys for collared delma and Dunmall's snake within remnant brigalow and eucalypt woodland in the south-west of the proposed disturbance area; and (4) surveys targeting migratory species along the lower (tidal) reaches of the Styx River.

## 2. Background

In early February 2012, following surveys in March and September of 2011, additional survey work targeting terrestrial fauna was carried out within and adjacent Exploratory Permit for Coal (EPC) 1029 in the Styx Basin, central east Queensland. The purpose of these surveys was: (1) to assess the faunal values of land in parts of EPC 1029 not accessed during previous surveys (including land in the far north-east and centre-east of EPC 1029); and (2) to better assess faunal values impacted by a proposed mine near the centre of EPC 1029. Results of these and previous surveys form part of a broader baseline assessment of environmental values informing development of an Environmental Management Plan for mining activities proposed for EPC 1029 (see below).



**Figure 1. Location of Exploratory Permit for Coal (EPC) 1029 in the Styx Basin, central eastern Queensland. Boundary of EPC area shown in red. Disturbance area of proposed mine shown in pink. Bruce Highway shown in light yellow; North Coast rail line in green. Base map sourced from Google Earth™ (2010).**



## Description of study area

EPC 1029 is situated 20 km north-west of Marlborough, on the central Queensland coast, and lies within the Marlborough Plains subregion of the Northern Brigalow Belt (Figure 1). Centred on the town of Ogmore (22°37'12.53"S/ 149°39'26.57"E), EPC 1029 covers an area of 342 km<sup>2</sup> within the Styx Basin. The majority of land within EPC 1029 lies within the Styx River catchment, east of the Connors and Broadsound Ranges. Water entering the Styx River and its tributaries (including Deep, Granite, Tooloombah and Wellington Creeks) flows out to sea via Broad Sound, to the north-east of EPC 1029.

Widespread clearing of lands for grazing within the Styx River Catchment has resulted in significant loss of native vegetation cover with less than 25% of EPC 1029 supporting mapped remnant vegetation. Cattle grazing remains the dominant land use within EPC 1029 and adjacent lands. Lands within EPC 1029 are bisected by the Bruce Highway and a rail line situated east of the highway which crosses the Styx River north-west of Ogmore (Figure 1).

## Proposed mining activity within EPC 1029

Waratah Coal, in partnership with Queensland Nickel Pty Ltd, is proposing to establish an open cut mine near the centre of EPC 1029. Centred on 'Mamelon' station, the proposed mine straddles the Bruce Highway to the near east of Tooloombah Creek, extending south across Deep Creek and north across Tooloombah Creek (see Figure 1). The proposed mine includes a number of extraction areas north and south of the Bruce Highway, a coal handling/ processing facility, a coal stockpile, a loading facility and a rail loop linking the mine with existing rail infrastructure to the near north. Additional infrastructure associated with the proposed mine includes an access road and tailings dam in the north and centre-east of the disturbance area.

## Nomenclature

Scientific, family and common names used in this report are consistent with the following references:

- Christidis, L. and Bowles, W.E. (2008). *Systematics and Taxonomy of Australian Birds*. CSIRO Publishing, Collingwood, Victoria.
- Wilson, S. and Swan, G. (2010). *A Complete Guide to Reptiles of Australia*. New Holland, Chatswood, New South Wales.
- Ingram, G.J., McDonald, K.R., and Natrass, A.E.O. (1999). Revised common names for Queensland frogs. Pp 141-157 In *Frogs in the Community: proceedings of the Brisbane Symposium 13-14 February 1999*, A.E.O Natrass (Ed.) Queensland Frog Society, Brisbane.
- Frost, D. R., T. Grant, J. Faivovich, R. H. Bain, A. Haas, C. F. B. Haddad, R. O. De Sá, A. Channing, M. Wilkinson, S. C. Donnellan, C. J. Raxworthy, J. A. Campbell, B. L. Blotto, P. Moler, R. C. Drewes, R. A. Nussbaum, J. D. Lynch, D. M. Green, and W. C. Wheeler. (2006). *The Amphibian Tree of Life*. Bulletin of the American Museum of Natural History: 370.
- Van Dyck, S. and Strahan, R. (2008). *The Mammals of Australia*. New Holland, Chatswood, New South Wales.

The one exception in this regard is the use of *Platyplectrum ornatum* instead of *Opsithodon ornatus* for the ornate burrowing frog.

## Abbreviations and acronyms

A list of abbreviations and acronyms used in this report is provided below.

- c. = circa/ approximately

- DERM = Queensland Department of Environment and Resource Management
- DSEWPAC = Commonwealth Department of Sustainability, Environment, Populations and Community (formerly the Department of Environment, Water, Heritage and Arts [DEWHA])
- EPBC Act = *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*
- EPC 1029 = permit area for Exploration Permit for Coal 1209
- et al. = and others
- EVR species = species listed as 'Critically Endangered', 'Endangered', 'Vulnerable', or 'Near Threatened' under the NC act and/or EPBC Act.
- NC Act = *Queensland Nature Conservation Act 1992*
- QM = Queensland Museum
- RE = regional ecosystem

### 3. Methodology

#### Field surveys

Field work was undertaken from the 7<sup>th</sup> to the 10<sup>th</sup> of February, 2012 with survey effort concentrated on areas which had not been surveyed in March or September 2011 (including land in the north-east and centre-east of EPC 1029). Additional targeted survey work was also undertaken within the proposed disturbance area (near the centre of EPC 1029) to improve knowledge of faunal values of land within this area. Surveys undertaken at this time targeted EVR species known to occur, or potentially occurring, within EPC 1029 including squatter pigeon (southern subspecies) (*Geophaps scripta scripta*), ornamental snake (*Denisonia maculata*), brigalow scalyfoot (*Paradelma orientalis*), yellow chat (Dawson subspecies) (*Epthianura crocea macgregori*), black-breasted button-quail (*Turnix melanogaster*), collared delma (*Delma torquata*), and pale imperial hairstreak butterfly (*Jalmenus eubulus*). Details of survey techniques employed for detection of the latter species are provided below.

#### 1. Fauna survey techniques

Fauna surveys undertaken in February 2012 involved a range of survey techniques including nocturnal searches and spotlighting, active diurnal searches (including log and rock-rolling) and drive transects. In contrast with previous surveys in March and September 2011, surveys in February 2012 did not involve any trapping of fauna or Anabat detection of bats. Survey sites and the survey methods employed at each site are described in Table 1 below. The approximate location of survey areas is shown in Figure 2 (below).

**Table 1. Survey sites, target species and survey method(s)**

Site ID	Location	Latitude	Longitude	Habitat description	Target species	Survey method(s)
1	Plain View (north-east)	22°25'10.2"	149°38'00.4"	Extensive mosaic of grassland, sedgeland and herbfield on marine plain	Yellow chat, Australian painted snipe and various migratory waders	Walked transects, aural census and scanning of vegetation with binoculars (3 person hours total)
2	Plain View (north-west)	22°26'53.1"	149°35'45.4"	Extensive sedge/grassland wetland on marine plain	Yellow chat, Australian Painted Snipe and various migratory waders	Walked transects, aural census and scanning of vegetation with binoculars (3 person hours total)
3	Riparian habitat along an un-named tributary of Deep Creek on Mamelon station	22°41'45.3"	149°39'14.4"	Remnant riparian woodland/open forest including <i>Eucalyptus tereticornis</i> , <i>E. crebra</i> , <i>Acacia harpophylla</i> , <i>Casuarina cristata</i> and vine thicket species	Ornamental snake and brigalow scalyfoot	Active diurnal searches (4 person hours)
4	Gilgaied pasture adjacent un-named tributary of Deep Creek on Mamelon station	22°41'17.7"	149°39'23.0"	Gilgaied pasture with brigalow ( <i>A. harpophylla</i> ) regrowth	Ornamental snake	Active diurnal search (4 person hours) and nocturnal search (4 person hours)
5	Gilgaied pasture to the near west of rail line on Oakdean station	22°39'38.1"	149°41'04.1"	Gilgaied pasture with sparse brigalow ( <i>A. harpophylla</i> ) regrowth	Ornamental snake	Active diurnal search (2 person hours) and nocturnal search (3 person hours)
6	Gilgaied brigalow along Charon's	22°36'33.9"	149°40'20.9"	Small area of gilgaied brigalow ( <i>A. harpophylla</i> ) adjoining poplar box ( <i>E. populnea</i> ) woodland	Ornamental snake	Nocturnal search (1.5 hours)

Site ID	Location	Latitude	Longitude	Habitat description	Target species	Survey method(s)
	Ferry Rd, west of Ogmoo					
7	Abandoned infrastructure on Mamelon station	22°42'53.6"	149°40'16.3"	Abandoned shed and milled timber to the near north of Deep Creek	Yakka skink	Active diurnal search (1 person hour)
8	Marine Plain adjoining Styx River on Charon's Ferry station	22°32'01.4"	149°39'13.2"	Sedge-grass wetland and saline herbfield on marine plain, with low <i>Avicennia marina</i> along drainage lines	Yellow chat and water mouse	Active diurnal search (4 person hours)
9	Remnant brigalow adjoining marine plain on Charon's Ferry station	22°32'21.3"	149°39'16.2"	Remnant brigalow shrubland/ woodland with deep cracking clay soil	Brigalow scalyfoot and pale imperial hairstreak	Active diurnal search (3 person hours)
10	Semi-evergreen vine thicket near Styx River	22°37'13.1"	149°38'30.9"	Remnant riparian semi-evergreen vine thicket with tall emergent <i>E. terebinthifolia</i> and <i>Corymbia tessellaris</i> .	Black-breasted button-quail	Diurnal search (1.5 person hours)
11	Wooded hill slope on Mamelon station	22°42'47.0"	149°37'21.4"	Remnant mixed eucalypt woodland on hill slope with timber and rock	Collared delma, yakka skink and brigalow scalyfoot	Diurnal search (1.5 person hours)

## 2. Fauna habitat assessments

A systematic assessment of habitat values was undertaken at all sites surveyed within EPC 1029. For the assessment of habitat values, information on vegetation structure, floristics, ground cover, disturbance and various other habitat attributes (e.g., presence of tree hollows, stags and exfoliating bark) were recorded on a proforma (see Meyer, 2011a for details).

### Survey conditions

Surveys were undertaken under warm humid and, at times, wet conditions. At Williamson (to the near east of EPC 1029) daily maximum temperatures over the survey period ranged from 30.7 to 33.2 °C with minimum temperatures between 21.8 and 25.7° C (Bureau of Meteorology, 2012). Following unusually heavy rain in August 2011 (when most of the Capricorn Coast received above average rainfall), rainfall in the months preceding surveys was generally at or below average. With significant rainfall in late January and storms on the 7<sup>th</sup> and 8<sup>th</sup> of February, surface water was nevertheless plentiful in low-lying parts of EPC 1029.

Surveys were undertaken shortly after a full moon with the moon rising between 18:05 and 20:09 h. Light levels during nocturnal surveys however were low, due to the presence of thick cloud cover. At the time of surveys, grass cover was plentiful across the study area, however flowering trees were scarce.

### Survey limitations

With conditions wet, vehicular access proved problematic in some areas. Most areas of interest could however be accessed by foot. With significant cloud cover during surveys, night light is unlikely to have significantly affected the detectability of nocturnal fauna. The paucity of flowering trees is, however, likely to have affected the abundance of nectarivorous species during surveys and, as such, survey results are likely to underestimate the diversity and abundance of honeyeaters, lorikeets and flying-fox (*Pteropus* spp) utilising habitat at survey sites.

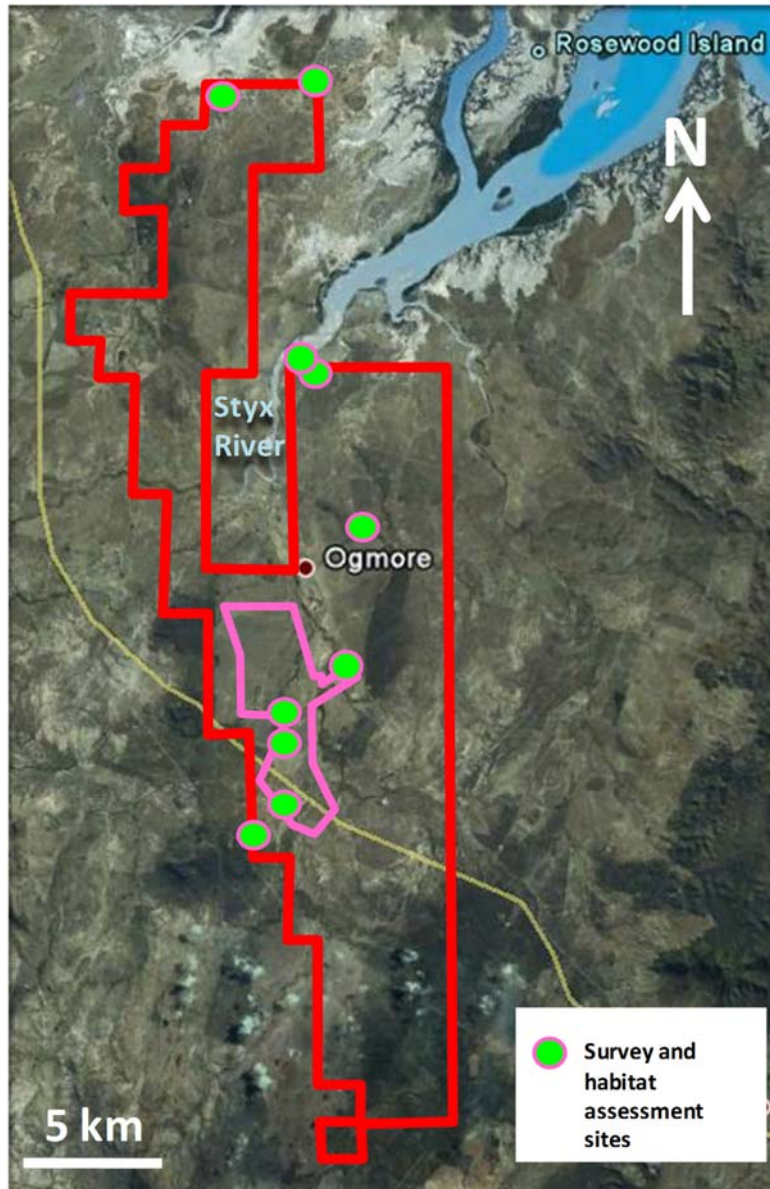


Figure 2. Approximate location of survey and habitat assessment sites within EPC 1029, February 2012. Boundary of EPC area shown in red, the Bruce Highway in yellow, and proposed disturbance area in pink. Base map sourced from Google Earth™ (2010).



## 4. Results

### Fauna surveys

A total of 131 vertebrate species were recorded within or immediately adjacent EPC 1029 during surveys. Included in this tally are another 15 species not recorded on previous surveys in March and September of 2011 (see Appendix A for full list of fauna recorded during surveys). Amongst the fauna recorded during February surveys are a number of conservation significant species listed under the NC Act and/or EPBC Act, including:

- squatter pigeon (southern race) (*Geophaps scripta scripta*) (listed as vulnerable under both the *Nature Conservation Act 1992* [NC Act] and *Environment Protection and Biodiversity Conservation Act 1999* [EPBC Act]);
- brigalow scalyfoot (*Paradelma orientalis*) (listed as vulnerable under both the NC Act and EPBC Act);
- cotton pygmy-goose (*Nettapus coromandelianus*) (listed as near threatened under the NC Act);
- eastern curlew (*Numenius madagascariensis*) (listed as near threatened under the NC Act);
- EPBC Act-listed migratory species including whimbrel (*Numenius phaeopus*), bar-tailed godwit (*Plegadis falcinellus*), cattle egret (*Ardea ibis*), eastern great egret (*Ardea alba*), fork-tailed swift (*Apus pacificus*) eastern curlew (*Numenius madagascariensis*), white-bellied sea-eagle (*Haliaeetus leucogaster*) and rainbow bee-eater (*Merops ornatus*); and
- short-beaked echidna (*Tachyglossus aculeatus*) (listed as significant least concern under the NC Act).

Details of EVR fauna records (i.e., number of individuals seen and habitat in which species were recorded) are provided in Table 2, below. The approximate location of EVR fauna records is shown in Figure 3, below.

**Table 2. Records of EVR species from surveys undertaken in late March 2011. V= vulnerable; NT = near threatened; M = migratory.**

Species	Scientific name	NC Act status	EPBC Act status	Latitude	Longitude	Details
Squatter pigeon (southern)	<i>Geophaps scripta scripta</i>	V	V	22°42'39.1"	149°39'22.3"	Single adult bird on vehicular access track through pasture, on Mamelon station (8/02/2012).
Squatter pigeon (southern)	<i>Geophaps scripta scripta</i>	V	V	22°42'45.9"	149°40'13.3"	Single adult bird on vehicular access track in partly cleared <i>E. crebra</i> woodland, near stock dam on Mamelon station, to the near north of Deep Creek (9/02/2012).
Squatter pigeon (southern)	<i>Geophaps scripta scripta</i>	V	V	22°33'20.4"	149°39'50.2"	4 adult birds near drainage line with pasture and eucalypt woodland surrounds, at Charon's Ferry station (10/2/2012)
Brigalow scalyfoot	<i>Paradelma orientalis</i>	V	V	22°41'45.4"	149°39'12.9"	Single animal under bark, beside fallen tree in narrow brigalow remnant adjoining <i>E. crebra</i> woodland, to the near west of an un-named tributary of Deep Creek, on Mamelon station (8/02/2012).
Cotton pygmy-goose	<i>Nettapus coromandelianus</i>	M	NT	22°31'07.24"	149°35'35.1"	2 birds on stock dam adjacent unsealed road through Plain View station (7/02/2012)

Species	Scientific name	NC Act status	EPBC Act status	Latitude	Longitude	Details
Eastern curlew	<i>Numenius madagascariensis</i>	M	NT	22°31'39.4"	149°39'13.4"	2 birds seen foraging along the Styx River, immediately adjacent EPC 1029, north of Charon's Ferry station (10/02/2012)

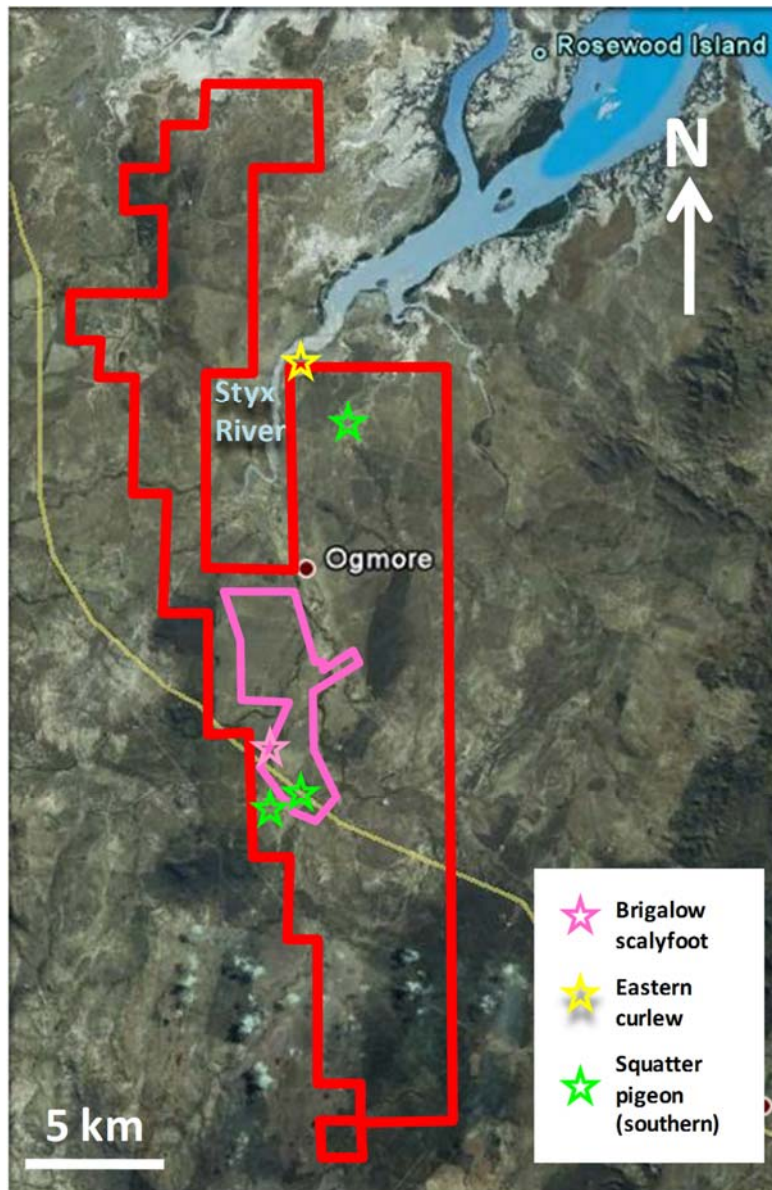


Figure 3. Approximate location of EVR fauna records within and adjacent EPC 1029 from surveys in February 2012. Boundary of EPC area shown in red, the Bruce Highway in yellow, and proposed disturbance area in pink. Base map sourced from Google Earth™ (2010).

As shown in Table 2 (above), numbers of EVR species recorded during surveys were low, with numbers of squatter pigeon significantly lower than wet season surveys in March 2011. Numbers of other (non-EVR) conservation significant fauna recorded during surveys were also generally low, though cattle egret were recorded in reasonable numbers (upwards of 50 birds) in ponded pasture to the near west of EPC 1029. The maximum flock size for migratory shorebird species recorded during surveys was 20 (for bar-tailed godwit). Numbers of other migratory shorebird species were significantly lower than this (i.e., between 1 and 4 birds).

### Habitat assessment

Habitat at a number of survey sites was assessed as having high value for fauna including:

- gilgaied brigalow woodland to the near east of Charon's Ferry Rd (habitat assessment site 5);
- remnant gilgaied brigalow adjoining marine plain on Charon's Ferry Station (habitat assessment site 9);
- riparian semi-evergreen vine thicket with emergent *E. tereticornis* along an un-named tributary of the Styx River (habitat assessment site 10);
- mixed riparian woodland/open forest along un-named tributary of Deep Creek, on 'Mamelon' station, to the north-east of Bruce Highway (habitat assessment site 3);
- marine plains supporting grass-sedge wetland and saline herbfield at Plain View station (habitat assessment site 1) and Charon's Ferry (habitat assessment site 8) ;
- rocky hill slope with remnant mixed eucalypt woodland, on the western side of Mamelon station (habitat assessment site 11); and
- tidal flats near the mouth of the Styx River, north of Charon's Ferry

Representative photos of high value habitat are provided in Appendix B. The value of habitat at these sites (in particular its value to conservation significant fauna) is discussed below.

#### 1. Remnant brigalow woodland on Charon's Ferry station, to the near south of the Styx River (habitat assessment site 9)

With cracking clay soil and extensive woody debris and leaf litter, remnant brigalow woodland in the far north of Charon's Ferry provides suitable habitat for a range of herpetofauna including the EPBC Act-listed vulnerable brigalow scalyfoot. Though not recorded during surveys of EPC 1029, remnant brigalow in this area could also provide habitat for the vulnerable EPBC Act-listed pale imperial hairstreak butterfly, a species associated with mature brigalow.

#### 2. Gilgaied brigalow woodland to the near east of Charon's Ferry Rd (habitat assessment site 5)

While limited in extent, gilgaied brigalow woodland adjacent Charon's Ferry Rd may provide suitable habitat for the vulnerable EPBC Act-listed ornamental snake, which is known to occur in remnant gilgaied brigalow/belah elsewhere within EPC 1029. With coarse woody debris, leaf litter and cracking clay soil, gilgaied brigalow in this area may also provide habitat for the brigalow scalyfoot.

#### 3. Mixed riparian woodland/open forest along un-named tributary of Deep Creek, on Mamelon station, to the north-east of Bruce Highway (habitat assessment site 3);

Riparian woodland/open forest near the centre of the proposed disturbance area provides habitat for a range of arboreal and terrestrial fauna including the vulnerable EPBC Act listed brigalow scaly foot (see results section above for details). As seen elsewhere in EPC 1029, riparian woodland in this area may also provide shelter for ornamental snakes foraging in adjoining gilgaied paddock (see

Meyer, 2011a). Further targeted survey work is needed to determine whether or not this is the case.

4. Riparian semi-evergreen vine thicket with emergent *E. tereticornis* along an un-named tributary of the Styx River (site 10);

Within EPC 1029, remnant semi-evergreen vine thicket provides suitable habitat for a range of fauna including the rufous fantail (a species listed as 'migratory' under the EPBC Act) (see Meyer, 2011a and 2011b). Though not recorded during surveys, semi-evergreen vine thicket within this area could also provide habitat for the vulnerable EPBC Act-listed black-breasted button-quail. The fragmented nature of remnant vine thicket within EPC 1029, however, may limit usage of such habitat by black-breasted button-quail. Further targeted survey work is required to properly assess the usage of remnant vine thicket by this species, especially along Tooloombah Ck (at the centre of the proposed disturbance area).

5. Extensive mosaic of marine plains with grass-sedge wetland and saline herbfield at Plain View station (habitat assessment site 1) and 'Charon's Ferry' (habitat assessment site 8)

Grass-sedge wetland and saline herbfield in the far north-east corner and centre-east of EPC 1029 provide habitat for significant numbers of grassland birds (e.g., golden-headed cisticola). Though not recorded during surveys, grass-sedge wetland in these areas could also provide foraging habitat for the endangered EPBC Act-listed yellow chat and vulnerable Australian painted snipe. Taller and denser sedge/grass cover on Plain View may also support breeding by these species. Further targeted survey work is needed to determine if and how these species might utilize grass-sedge wetland habitat in the north and centre-east of EPC 1029.

6. Rocky hill slope with remnant mixed eucalypt woodland on Mamelon station (habitat assessment site 11).

With abundant loose rock, leaf litter and fallen timber, eucalypt woodland in the west of Mamelon station appears highly suitable for a number of EPBC Act-listed EVR species including the yakka skink, collared delma and brigalow scalyfoot. Further targeted survey work is required to determine whether or not these species occupy habitat within this part of EPC 1029.

7. Tidal flats near the mouth of the Styx River

Tidal flats near the mouth of the Styx River (adjacent EPC 1029) provide foraging habitat for a number of EPBC Act-listed migratory shorebird species including eastern curlew, bar-tailed godwit, and whimbrel. Open water and tidal flats along the Styx River provide foraging habitat for other listed migratory species as well, including the white-bellied sea-eagle and Caspian tern. The NC Act-listed vulnerable beach stone curlew could also potentially utilize tidal flats along the Styx River for foraging.

Though recorded in low numbers during surveys, significantly more shorebirds could utilize tidal flats along the Styx River for foraging given the extent of suitable habitat in this area. Accurate assessment of the number of shorebirds utilising tidal flats along the Styx River will require additional targeted survey work.

## 5. Summary and conclusions

### Faunal values of EPC area

Despite extensive clearing for grazing, lands within and adjacent EPC 1029 support a diverse range of fauna with 236 terrestrial vertebrate species recorded during targeted surveys in 2011 and early 2012. Amongst the species known to occur within and/or immediately adjacent EPC 1029 are a number of conservation significant species including:

- squatter pigeon (southern race) (*Geophaps scripta scripta*) (listed as vulnerable under both the NC Act and EPBC Act);
- brigalow scalyfoot (*Paradelma orientalis*) (listed as vulnerable under both the NC Act and EPBC Act);
- ornamental snake (*Denisonia maculata*) (listed as vulnerable under both the NC Act and EPBC Act);
- little pied bat (*Chalinolobus picatus*) (listed as near threatened under the NC Act);
- radjah shelduck (*Tadorna radjah*) (listed as near threatened under the NC Act);
- eastern curlew (*Numenius madagascariensis*) (listed as near threatened under the NC Act);
- cotton pygmy-goose (*Nettapus coromandelianus*) (listed as near threatened under the NC Act);
- EPBC Act-listed migratory species including glossy ibis (*Plegadis falcinellus*), cattle egret (*Ardea ibis*), eastern curlew (*Numenius madagascariensis*), rufous fantail (*Rhipidura rufifrons*) whimbrel (*Numenius phaeopus*), bar-tailed godwit (*Plegadis falcinellus*), cattle egret (*Ardea ibis*), eastern great egret (*Ardea alba*), fork-tailed swift (*Apus pacificus*), white-bellied sea-eagle (*Haliaeetus leucogaster*) and rainbow bee-eater (*Merops ornatus*); Caspian tern (*Sterna caspia*), Oriental cuckoo (*Cuculus saturatus*) and rainbow bee-eater (*Merops ornatus*);
- short-beaked echidna (*Tachyglossus aculeatus*) (listed as significant least concern under the NC Act); and
- koala (*Phascolarctos cinereus*) (also listed as significant least concern under the NC Act).

In addition to the aforementioned species, parts of EPC 1029 may provide suitable habitat for other conservation significant fauna. Amongst the latter are EPBC Act-listed EVR species such as the yellow chat, Australian painted snipe, yakka skink, black-breasted button-quail, northern quoll, red goshawk, collared delma and the pale imperial hairstreak butterfly. Further targeted survey work is necessary to determine the value of habitat within and adjacent EPC 1029 for these species.

Tidal wetlands downstream of the proposed disturbance area provide foraging habitat for a number of EPBC Act-listed migratory species. At present, tidal areas downstream of the Styx River are known to provide important foraging and roosting habitat for a number of EPBC Act-listed migratory shorebirds including red-necked stint, sharp-tailed sandpiper, marsh sandpiper and great knot (see Jaensch, 2009). Whether tidal flats further upstream (i.e., along the Styx River) are of importance to these species as well will require further investigation.

### Significant faunal values within and adjacent the proposed disturbance area

Land within and adjacent the proposed mine disturbance area is known or likely to provide habitat for fauna of state and national significance. Habitat values for these fauna within and adjacent the proposed disturbance area are discussed below.



## 1. Matters of National Environmental Significance

The proposed disturbance area encompasses known and/or likely habitat for a number of EPBC Act-listed species recorded within EPC 1029 during surveys in 2011 and 2012, including:

- squatter pigeon (southern race) (listed as vulnerable under both the NC Act and EPBC Act);
- brigalow scalyfoot (listed as vulnerable under both the NC Act and EPBC Act);
- ornamental snake (listed as vulnerable under both the NC Act and EPBC Act); and
- several EPBC Act-listed migratory species including cattle egret, rainbow bee-eater, and rufous fantail.

Mining activities proposed for the disturbance area will impact on known and/or likely habitat for these species. As such, mining within the disturbance area will impact upon 'Matters of National Environmental Significance', as defined under the *EPBC Act 1999*. The importance and value of habitat for EPBC Act-listed species within and adjacent the proposed disturbance area (including habitat downstream of the disturbance area) is discussed in more detail below.

### a. Squatter pigeon

The proposed disturbance area encompasses known and likely habitat for the squatter pigeon (southern race) including:

- Mapped remnant eucalypt woodland and adjacent pasture to the near north of the Bruce Highway, west of an un-named tributary of Deep Creek
- Remnant eucalypt woodland and adjoining non-remnant woodland and pasture to the near east of Deep Creek, to the near south and north of the Bruce Highway
- Stock dams to the near north and south of the Bruce Highway, to the near west of Deep Creek and near east of an un-named tributary of Deep Creek
- Cattle yards near a stock dam to the near north of the Bruce Highway, east of an un-named tributary of Deep Creek.

Remnant woodland and adjoining pasture adjacent the proposed disturbance area is also known to provide habitat for this species (see above, and also Meyer, 2011a and 2011b).

On Mamelon station (at the centre of the proposed disturbance area), eucalypt woodland and adjacent areas of cleared vegetation appear to provide habitat for squatter pigeons year round (as evidenced by the presence of squatter pigeons during wet and dry season surveys). While most observations of squatter pigeons have been of birds foraging or drinking, woodland habitat on Mamelon may be used for breeding as well (as indicated by the presence subadult birds during surveys in March 2011) (see Meyer, 2011a). Habitat on Mamelon station may therefore be of particular importance for squatter pigeons within the Styx River catchment. Elsewhere within EPC 1029, woodland and adjacent pasture may provide habitat for squatter pigeons only occasionally (as evidenced by the absence of squatter pigeons from most areas of known habitat within EPC 1029 during surveys in September 2011 and February 2012).

Current understanding of the population dynamics and movement of squatter pigeons in central and southern Queensland is poor and, as such, the importance of habitat within the Styx River catchment for the species as a whole is difficult to ascertain. Woodland habitat within the Styx Basin and other areas of coastal woodland south to Gladstone do however appear to support significant numbers of squatter pigeon (E. Meyer, unpub. data) and may therefore be considered important for the species. Mining activity within the proposed disturbance area could therefore impact upon habitat supporting part of a sizeable and potentially 'important' coastal population of squatter pigeons.

#### b. Brigalow scalyfoot

The proposed disturbance area encompasses known and likely brigalow scalyfoot habitat including:

- Unmapped remnant brigalow woodland and adjoining mapped remnant *E. crebra* woodland to the near east of un-named tributary of Deep Creek, on the north side of the Bruce Highway; and
- Mapped and unmapped remnant vegetation (including patches of brigalow *Acacia harpophylla*) along the aforementioned tributary of Deep Creek.

Remnant vegetation adjacent the proposed disturbance area (particularly remnant brigalow and ironbark woodland) may also provide habitat for this species.

With most native vegetation cleared for grazing, remaining woodland habitat within the Styx Basin (including woodland habitat within the proposed disturbance area) provides important habitat for the brigalow scalyfoot. Remnant riparian vegetation linking remaining areas of suitable woodland habitat within the Styx River catchment may be particularly important in facilitating movement of animals between patches of higher quality habitat (i.e., remnant woodland with coarse woody debris, including fallen trees and bark). Thus, in accordance with the 'Draft Referral Guidelines for Nationally Listed Brigalow Belt Reptiles' (DSEWPAC, 2011), remnant riparian vegetation within the disturbance area may qualify as 'important' habitat for the species.

#### c. Ornamental snake

Despite the presence of suitable habitat along an un-named tributary of Deep Creek, north of the Bruce Highway, no ornamental snakes were recorded from the disturbance area during targeted surveys. Given similarities with known (i.e., occupied) habitat elsewhere within EPC 1029, this species may well occur within the disturbance area, albeit at low densities. If present within the disturbance area, occupied habitat within this area (i.e., remnant riparian vegetation and adjacent gilgaied pasture) would be considered 'important' habitat for the species. In accordance with the 'Draft Referral Guidelines for Nationally Listed Brigalow Belt Reptiles' (DSEWPAC, 2011), mining activity within the disturbance area could therefore result in 'significant' loss of 'important' habitat for the ornamental snake. Additional targeted survey work within the disturbance area would provide greater certainty regarding the presence of ornamental snake and the potential for a 'significant' impact on this species.

#### d. Migratory bird species

Land within and adjacent the proposed disturbance area includes known habitat for several EPBC Act-listed migratory species including cattle egret, great eastern egret, and rainbow bee-eater. Other migratory species likely to utilize habitat within this area include the rufous fantail, oriental cuckoo, and glossy ibis, and fork-tailed swift (all of which have been recorded elsewhere within EPC 1029). Under the current significant impact guidelines for Matters of National Environmental Significance (DEWHA, 2009), suitable habitat within and adjacent the disturbance area would not be considered 'important' or 'critical' habitat for these bird species. As such, mining within the disturbance area is unlikely to result in a 'significant' impact on these species.

Open water and tidal flats downstream of the proposed disturbance area provide foraging habitat for additional EPBC Act-listed migratory species including Caspian tern, white-bellied sea-eagle and various shorebirds. Tidal wetlands within Broad Sound (downstream of the Styx River) are of international importance for at least three migratory shorebird species: the red-necked stint, sharp-tailed sandpiper and marsh sand-piper. Habitat within Broad Sound is also of national importance for the great knot (see Jaensch, 2009). Whether tidal flats further upstream (i.e., upstream of Broad

Sound and along the Styx River) are of similar importance to these and other migratory species is presently unclear.

#### e. Other EPBC Act-listed species

In addition to the aforementioned taxa, land within the disturbance may provide suitable habitat for other EPBC Act-listed EVR fauna identified as potentially occurring within EPC 1029, including red goshawk, black-breasted button-quail, northern quoll, collared delma, Dunmall's snake and pale imperial hairstreak butterfly (see Meyer, 2011a). Targeted surveys, however, have so far failed to detect any of these species in areas of suitable habitat within or immediately adjacent EPC 1029 (including areas of more suitable habitat than that found within the disturbance area). The likelihood of these species occurring within the disturbance area therefore appears low, however further survey effort within the disturbance area is necessary to confirm this.

## 2. Matters of state, regional and local Significance

In addition to the aforementioned EPBC Act-listed taxa, land within and adjacent the disturbance area is known or likely to provide habitat for a number of state-listed species, including square-tailed kite, koala and echidna.

The echidna (listed as 'Special Least Concern' under the *NC Act*) appears to be widely distributed and common within better-vegetated parts of EPC 1029. This includes parts of the disturbance area, where riparian vegetation and non-riparian woodland provide foraging habitat for this species.

Both koala and square-tailed kite have been recorded within EPC 1029 and, given the presence of suitable habitat (particularly remnant riparian eucalypt woodland), are likely to occur within the disturbance area. Suitable habitat for the former (i.e., koala) includes areas of remnant *E. crebra* woodland and riparian vegetation (including *E. tereticornis*) along Deep Creek, an un-named tributary of Deep Creek, and Tooloombah Creek. The square-tailed kite is also likely to utilize similar habitat within and adjacent the proposed disturbance area for foraging and, potentially, breeding. Remnant riparian vegetation within the proposed disturbance area (particularly along Deep Creek and an un-named tributary of Deep Creek near the centre of the disturbance area) is also of considerable importance for movement of Koala across the Styx River catchment.

Riparian habitat within the disturbance area is considered to be of importance to native fauna generally at both the local and regional level (as reflected in mapping supporting the Biodiversity Planning Assessment for the Brigalow Belt [DERM, 2008]). Of particular importance in this regard are areas of riparian woodland/forest along Deep Creek, an un-named tributary of Deep Creek, and Tooloombah Creeks providing connectivity between remnant woodland in the west and east of the Styx River catchment. It is expected that the loss of vegetation along these drainages would significantly restrict movement of woodland/forest-dependent fauna across part of the Styx River Catchment.

### Recommendations

Given the potential for impacts on EPBC Act-listed species within and adjacent the proposed disturbance area (including potential significant impacts on one or more vulnerable species), it is recommended that the project be referred to The Department of Sustainability, Environment and Water, Population and Communities for assessment.

To help clarify the potential for significant impacts on EPBC Act-listed species it is recommended that additional survey work be undertaken within and adjacent EPC 1029. Of particular importance in this regard are: (1) additional targeted surveys for ornamental snake within remnant riparian vegetation and adjoining gilgaied pasture, near the centre of the proposed disturbance area; (2)

surveys targeting black-breasted button-quail along Tooloombah Creek (within and adjacent the proposed disturbance area); (3) additional targeted surveys for collared delma and Dunmall's snake within remnant brigalow and eucalypt woodland in the south-west of the proposed disturbance area; and (4) surveys targeting migratory species along the lower (tidal) reaches of the Styx River.

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## **APPENDIX A**

**Combined survey results for March 2011, September 2011 and February 2012**

**Table A1. List of vertebrate fauna recorded within and/or immediately adjacent EPC 1029 during surveys in February 2012, September 2011 and March 2011. Fauna species are grouped by class (birds and reptiles) and ordered alphabetically by scientific name. EPBC Act status = status under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*; NC Act = *Queensland Nature Conservation Act 1992* and associated regulations (i.e., *Nature Conservation (Wildlife) Regulation 2006*); Back on Track status = status within DERM's 'Back on Track' species prioritisation framework ; BPA status = status under DERM's Biodiversity Planning Assessment for the Northern Brigalow Belt Bioregion; CE = Critically Endangered; E = Endangered; V = Vulnerable; NT = Near Threatened; M = Migratory; LC = Least Concern; SLC = Special Least Concern.**

Class	Family	Scientific name	Common name	NC Act Status	EPBC Act Status	Back on Track/ BPA status	Mar 2011	Sept 2011	Feb 2012
amphibians	Bufonidae	<i>Rhinella marina</i>	cane toad	-	-	-	X	X	X
amphibians	Hylidae	<i>Cyclorana alboguttata</i>	greenstripe frog	LC	-	-	X		X
amphibians	Hylidae	<i>Cyclorana novaehollandiae</i>	eastern snapping frog	LC	-	-	X		
amphibians	Hylidae	<i>Litoria caerulea</i>	common green treefrog	LC	-	-	X	X	X
amphibians	Hylidae	<i>Litoria fallax</i>	eastern sedgefrog	LC	-	-	X	X	X
amphibians	Hylidae	<i>Litoria inermis</i>	bumpy rocketfrog	LC	-	-	X	X	X
amphibians	Hylidae	<i>Litoria latopalmata</i>	broad palmed rocketfrog	LC	-	-	X	X	X
amphibians	Hylidae	<i>Litoria nasuta</i>	striped rocketfrog	LC	-	-	X		
amphibians	Hylidae	<i>Litoria rothii</i>	northern laughing treefrog	LC	-	-	X	X	X
amphibians	Hylidae	<i>Litoria rubella</i>	ruddy treefrog	LC	-	-	X	X	X
amphibians	Hylidae	<i>Litoria wilcoxii</i>	stony creek frog	LC	-	-		X	
amphibians	Myobatrachidae	<i>Crinia deserticola</i>	chirping froglet	LC	-	-	X	X	X
amphibians	Myobatrachidae	<i>Platyplectron orantum</i>	ornate burrowing frog	LC	-	-	X		X
amphibians	Myobatrachidae	<i>Limnodynastes salmini</i>	salmon striped frog	LC	-	-	X	X	X
amphibians	Myobatrachidae	<i>Limnodynastes tasmaniensis</i>	spotted grassfrog	LC	-	-	X	X	X
amphibians	Myobatrachidae	<i>Limnodynastes terraereginae</i>	scarlet sided pobblebonk	LC	-	-	X	X	
birds	Acanthizidae	<i>Gerygone albogularis</i>	white-throated gerygone	LC	-	-	X	X	
birds	Acanthizidae	<i>Sericornis frontalis</i>	white-browed scrub-wren	LC	-	-		X	
birds	Acanthizidae	<i>Smicromis brevirostris</i>	weebill	LC	-	-	X	X	X
birds	Accipitridae	<i>Accipiter cirrocephalus</i>	collared sparrowhawk	LC	-	-	X		X
birds	Accipitridae	<i>Accipiter fasciatus</i>	brown goshawk	LC	-	-	X		
birds	Accipitridae	<i>Aquila audax</i>	wedge-tailed eagle	LC	-	-	X	X	X
birds	Accipitridae	<i>Aviceda subcristata</i>	Pacific baza	LC	-	-		X	
birds	Accipitridae	<i>Circus assimilis</i>	spotted harrier	LC	-	-			X
birds	Accipitridae	<i>Circus approximans</i>	swamp harrier	LC	-	-			X
birds	Accipitridae	<i>Elanus axillaris</i>	black-shouldered kite	LC	-	-		X	

Class	Family	Scientific name	Common name	NC Act Status	EPBC Act Status	Back on Track/ BPA status	Mar 2011	Sept 2011	Feb 2012
birds	Accipitridae	<i>Haliaeetus leucogaster</i>	white-bellied sea-eagle	LC	M	–			X
birds	Accipitridae	<i>Haliastur sphenurus</i>	whistling kite	LC	–	–	X		X
birds	Accipitridae	<i>Lophoictinia isura</i>	square-tailed kite	NT	–	–	X		
birds	Accipitridae	<i>Milvus migrans</i>	black kite	LC	–	–	X		X
birds	Acrocephalidae	<i>Acrocephalus australis</i>	Australian reed-warbler	LC	–	–		X	X
birds	Aegothelidae	<i>Aegotheles cristatus</i>	Australian owl-nightjar	LC	–	–	X		X
birds	Alaudidae	<i>Mirafra javanica</i>	Horsfield's bushlark	LC	–	–	X		X
birds	Alcedinidae	<i>Ceyx azureus</i>	azure kingfisher	LC	–	–	X		
birds	Anatidae	<i>Anas gracilis</i>	grey teal	LC	–	–	X	X	X
birds	Anatidae	<i>Anas superciliosa</i>	Pacific black duck	LC	–	–	X	X	X
birds	Anatidae	<i>Chenonetta jubata</i>	Australian wood duck	LC	–	–	X	X	X
birds	Anatidae	<i>Dendrocygna arcuata</i>	wandering whistling-duck	LC	–	–	X		X
birds	Anatidae	<i>Dendrocygna eytoni</i>	plumed whistling-duck	LC	–	–	X		X
birds	Anatidae	<i>Nettapus coromandelianus</i>	cotton pygmy-goose	NT	–	–	X		X
birds	Anatidae	<i>Tadorna radjah</i>	radjah shelduck	NT	–	–		X	
birds	Anhingidae	<i>Anhinga novaehollandiae</i>	darther	LC	–	–	X	X	X
birds	Anseranatidae	<i>Anseranas semipalmata</i>	magpie goose	LC	–	–	X		X
birds	Apodidae	<i>Apus pacificus</i>	fork-tailed swift	SLC	M	–	X		X
birds	Ardeidae	<i>Ardea modesta</i>	eastern great egret	LC	M	–		X	X
birds	Ardeidae	<i>Ardea ibis</i>	cattle egret	LC	M	–		X	X
birds	Ardeidae	<i>Ardea intermedia</i>	intermediate egret	LC	–	–	X	X	X
birds	Ardeidae	<i>Ardea pacifica</i>	white-necked heron	LC	–	–	X	X	X
birds	Ardeidae	<i>Egretta novaehollandiae</i>	white-faced heron	LC	–	–	X		X
birds	Ardeidae	<i>Ixobrychus flavicollis</i>	black bittern	LC	–	–	X		X
birds	Ardeidae	<i>Nycticorax caledonicus</i>	nankeen night heron	LC	–	–	X	X	X
birds	Artamidae	<i>Artamus cinereus</i>	black-faced woodswallow	LC	–	–	X	X	X
birds	Artamidae	<i>Artamus leucorhynchus</i>	white-breasted woodswallow	LC	–	–	X		X
birds	Artamidae	<i>Cracticus nigrogularis</i>	piebald butcherbird	LC	–	–	X	X	X
birds	Artamidae	<i>Cracticus tibicen</i>	Australian magpie	LC	–	–	X	X	X
birds	Artamidae	<i>Cracticus torquatus</i>	grey butcherbird	LC	–	–	X		
birds	Artamidae	<i>Strepera graculina</i>	piebald currawong	LC	–	–		X	
birds	Burhinidae	<i>Burhinus grallarius</i>	bush stone-curlew	LC	–	–	X	X	
birds	Cacatuidae	<i>Cacatua galerita</i>	sulphur-crested cockatoo	LC	–	–	X	X	
birds	Cacatuidae	<i>Calyptrorhynchus banksii</i>	red-tailed black cockatoo	LC	–	–		X	

Class	Family	Scientific name	Common name	NC Act Status	EPBC Act Status	Back on Track/ BPA status	Mar 2011	Sept 2011	Feb 2012
birds	Cacatuidae	<i>Eolophus roseicapillus</i>	galah	LC	–	–	X		X
birds	Campephagidae	<i>Coracina maxima</i>	ground cuckoo-shrike	LC	–	–	X		
birds	Campephagidae	<i>Coracina novaehollandiae</i>	black-faced cuckoo-shrike	LC	–	–	X	X	X
birds	Campephagidae	<i>Coracina papuensis</i>	white-bellied cuckoo-shrike	LC	–	–	X	X	
birds	Campephagidae	<i>Coracina tenuirostris</i>	cicadabird	LC	–	–	X	X	X
birds	Campephagidae	<i>Lalage leucomela</i>	varied triller	LC	–	–	X	X	X
birds	Campephagidae	<i>Lalage sueurii</i>	white-winged triller	LC	–	–		X	
birds	Casuariidae	<i>Dromaius novaehollandiae</i>	emu	LC	–	–	X	X	X
birds	Caprimulgidae	<i>Caprimulgus macrurus</i>	large-tailed nightjar	LC	–	–	X		
birds	Caprimulgidae	<i>Eurostopodus myiostacalis</i>	white-throated night-jar					X	
birds	Charadriidae	<i>Vanellus miles novaehollandiae</i>	masked lapwing (southern)	LC	–	–	X	X	X
birds	Cisticolidae	<i>Cisticola exilis</i>	golden-headed cisticola	LC	–	–	X	X	X
birds	Cisticolidae	<i>Cisticola juncidis laveryi</i>	zitting cisticola	LC	–	–	X		X
birds	Columbidae	<i>Chalcophaps indica</i>	emerald dove	LC	–	–	X		
birds	Columbidae	<i>Geopelia humeralis</i>	bar-shouldered dove	LC	–	–	X	X	X
birds	Columbidae	<i>Geopelia striata</i>	peaceful dove	LC	–	–	X	X	X
birds	Columbidae	<i>Geophaps scripta scripta</i>	squatter pigeon (southern)	V	V	Priority	X	X	X
birds	Columbidae	<i>Ocyphaps lophotes</i>	crested pigeon	LC	–	–	X	X	X
birds	Coraciidae	<i>Eurystomus orientalis</i>	dollarbird	LC	–	–	X		X
birds	Corcoracidae	<i>Struthidea cinerea</i>	apostlebird	LC	–	–	X		X
birds	Corvidae	<i>Corvus orru</i>	Torresian crow	LC	–	–	X	X	X
birds	Cuculidae	<i>Centropus phasianinus</i>	pheasant coucal	LC	–	–	X	X	X
birds	Cuculidae	<i>Cuculus pallidus</i>	pallid cuckoo	LC	–	–		X	
birds	Cuculidae	<i>Chalcites basalis</i>	Horsefield's bronze-cuckoo	LC	–	–		X	X
birds	Cuculidae	<i>Chalcites minutillus minutillus</i>	little bronze-cuckoo	LC	–	–	X	X	X
birds	Cuculidae	<i>Cuculus optatus</i>	oriental cuckoo	SLC	M	–	X		
birds	Cuculidae	<i>Eudynamys scolopacea</i>	common koel	LC	–	–			X
birds	Cuculidae	<i>Scythrops novaehollandiae</i>	channel-billed cuckoo	LC	–	–	X	X	X
birds	Dicruridae	<i>Dicrurus bracteatus bracteatus</i>	spangled drongo (eastern Australia)	LC	–	–	X	X	X
birds	Estrildidae	<i>Lonchura castaneothorax</i>	chestnut-breasted mannikin	LC	–	–	X		X
birds	Estrildidae	<i>Neochmia modesta</i>	plum-headed finch	LC	–	–	X	X	X
birds	Estrildidae	<i>Taeniopygia bichenovii</i>	double-barred finch	LC	–	–	X	X	X
birds	Estrildidae	<i>Taeniopygia guttata</i>	zebra finch	LC	–	–	X	X	

Class	Family	Scientific name	Common name	NC Act Status	EPBC Act Status	Back on Track/ BPA status	Mar 2011	Sept 2011	Feb 2012
birds	Falconidae	<i>Falco berigora</i>	brown falcon	LC	–	–	X		X
birds	Falconidae	<i>Falco cenchroides</i>	nankeen kestrel	LC	–	–	X		X
birds	Gruidae	<i>Grus rubicunda</i>	brolga	LC	–	–	X	X	X
birds	Halcyonidae	<i>Dacelo leachii</i>	blue-winged kookaburra	LC	–	–	X	X	X
birds	Halcyonidae	<i>Dacelo novaeguineae</i>	laughing kookaburra	LC	–	–	X	X	X
birds	Halcyonidae	<i>Todiramphus macleayii</i>	forest kingfisher	LC	–	–	X	X	X
birds	Halcyonidae	<i>Todiramphus pyrrhopygius</i>	red-backed kingfisher	LC	–	–	X		
birds	Halcyonidae	<i>Todiramphus sanctus</i>	sacred kingfisher	LC	–	–	X	X	
birds	Hirundinidae	<i>Hirundo neoxena</i>	welcome swallow	LC	–	–	X	X	
birds	Jacanidae	<i>Irediparra gallinacea</i>	comb-crested jacana	LC	–	–		X	X
birds	Laridae	<i>Strena caspia</i>	Caspian tern	LC	M	–			X
birds	Laridae	<i>Sterna nilotica</i>	gull-billed tern	LC	–	–		X	
birds	Maluridae	<i>Malurus melanocephalus</i>	red-backed fairy-wren	LC	–	–	X	X	X
birds	Megaluridae	<i>Cinclorhamphus cruralis</i>	brown songlark	LC	–	–	X		X
birds	Megaluridae	<i>Cinclorhamphus mathewsi</i>	rufous songlark	LC	–	–		X	
birds	Megaluridae	<i>Megalurus gramineus</i>	little grassbird	LC	–	–			X
birds	Megaluridae	<i>Megalurus timoriensis</i>	tawny grassbird	LC	–	–	X	X	X
birds	Megapodiidae	<i>Alectura lathami</i>	Australian brush-turkey	LC	–	–	X		
birds	Meliphagidae	<i>Entomyzon cyanotis</i>	blue-faced honeyeater	LC	–	–	X	X	X
birds	Meliphagidae	<i>Lichenostomus fasciogularis</i>	mangrove honeyeater	LC	–	–			X
birds	Meliphagidae	<i>Lichenostomus flavus</i>	yellow honeyeater	LC	–	–	X	X	X
birds	Meliphagidae	<i>Lichmera indistincta</i>	brown honeyeater	LC	–	–	X	X	
birds	Meliphagidae	<i>Manorina flavigula</i>	yellow-throated miner	LC	–	–	X	X	X
birds	Meliphagidae	<i>Manorina melanocephala</i>	noisy miner	LC	–	–	X		X
birds	Meliphagidae	<i>Meliphaga lewinii</i>	Lewin's honeyeater	LC	–	–	X	X	X
birds	Meliphagidae	<i>Melithreptus albogularis</i>	white-throated honeyeater	LC	–	–	X	X	X
birds	Meliphagidae	<i>Myzomela sanguinolenta</i>	scarlet honeyeater	LC	–	–	X	X	
birds	Meliphagidae	<i>Philemon citreogularis</i>	little friarbird	LC	–	–	X	X	X
birds	Meliphagidae	<i>Philemon corniculatus</i>	noisy friarbird	LC	–	–	X	X	X
birds	Meliphagidae	<i>Plectrohyncha lanceolata</i>	striped honeyeater	LC	–	–		X	
birds	Meropidae	<i>Merops ornatus</i>	rainbow bee-eater	SLC	M	–	X	X	X
birds	Monarchidae	<i>Grallina cyanoleuca</i>	magpie-lark	LC	–	–	X	X	X
birds	Monarchidae	<i>Myiagra rubecula</i>	leaden flycatcher	LC	–	–	X	X	X
birds	Motacillidae	<i>Anthus novaeseelandiae</i>	Australasian pipit	LC	–	–	X	X	X



Class	Family	Scientific name	Common name	NC Act Status	EPBC Act Status	Back on Track/ BPA status	Mar 2011	Sept 2011	Feb 2012
birds	Nectariniidae	<i>Dicaeum hirundinaceum</i>	mistletoebird	LC	–	–	X	X	X
birds	Nectariniidae	<i>Nectarina jugularis</i>	olive-backed sunbird	LC	–	–		X	
birds	Oriolidae	<i>Oriolus sagittatus</i>	olive-backed oriole	LC	–	–	X		
birds	Oriolidae	<i>Sphecotheres vielloti</i>	Australian figbird	LC	–	–		X	
birds	Otididae	<i>Ardeotis australis</i>	Australian bustard	LC	–	–	X	X	X
birds	Pachycephalidae	<i>Colluricincla harmonica</i>	grey shrike-thrush	LC	–	–	X	X	X
birds	Pachycephalidae	<i>Colluricincla megarhyncha</i>	little shrike-thrush	LC	–	–		X	X
birds	Pachycephalidae	<i>Pachycephala rufiventris</i>	rufous whistler	LC	–	–	X	X	
birds	Pardalotidae	<i>Pardalotus striatus</i>	striated pardalote	LC	–	–	X	X	X
birds	Pelecanidae	<i>Pelecanus conspicillatus</i>	Australian pelican	LC	–	–	X		
birds	Petroicidae	<i>Microeca flavigaster</i>	lemon-bellied flycatcher	LC	–	–	X	X	
birds	Phalacrocoracidae	<i>Phalacrocorax sulcirostris</i>	little black cormorant	LC	–	–	X	X	
birds	Phalacrocoracidae	<i>Microcarbo melanoleucos</i>	little pied cormorant	LC	–	–	X	X	X
birds	Phasianidae	<i>Coturnix ypsilophora</i>	brown quail	LC	–	–	X		X
birds	Podargidae	<i>Podargus strigoides</i>	tawny frogmouth	LC	–	–	X	X	
birds	Podicipedidae	<i>Tachybaptus novaehollandiae</i>	Australasian grebe	LC	–	–	X		
birds	Pomatostomidae	<i>Pomatostomus temporalis rubeculus</i>	grey-crowned babbler	LC	–	–	X		X
birds	Psittacidae	<i>Aprosmictus erythropterus</i>	red-winged parrot	LC	–	–	X	X	X
birds	Psittacidae	<i>Platycercus adscitus</i>	pale-headed rosella (southern form)	LC	–	–	X	X	X
birds	Psittacidae	<i>Trichoglossus haematodus moluccanus</i>	rainbow lorikeet	LC	–	–	X	X	X
birds	Ptilonorhynchidae	<i>Ptilonorhynchus maculatus</i>	spotted bowerbird	LC	–	–	X		
birds	Rallidae	<i>Gallinulatenebrosa</i>	dusky moorhen	LC	–	–		X	
birds	Rallidae	<i>Gallirallus philippensis</i>	buff-banded rail	LC	–	–	X	X	
birds	Rallidae	<i>Porphyrio porphyrio</i>	purple swamphen	LC	–	–	X	X	X
birds	Recurvirostridae	<i>Himantopus himantopus</i>	black-winged stilt	LC	–	–		X	
birds	Rhipiduridae	<i>Rhipidura leucophrys leucophrys</i>	willie wagtail (southern)	LC	–	–	X	X	X
birds	Rhipiduridae	<i>Rhipidura rufifrons</i>	rufous fantail	LC	M	–	X		
birds	Scolopacidae	<i>Limosa lapponica</i>	bar-tailed godwit	LC	M	–			X
birds	Scolopacidae	<i>Numenius madagascariensis</i>	Eastern curlew	NT	M	–		1	X
birds	Scolopacidae	<i>Numenius phaeopus</i>	whimbrel	LC	M	–			X
birds	Strigidae	<i>Ninox connivens</i>	barking owl	LC	–	–		X	
birds	Strigidae	<i>Ninox novaeseelandiae</i>	southern boobook	LC	–	–	X		

Class	Family	Scientific name	Common name	NC Act Status	EPBC Act Status	Back on Track/ BPA status	Mar 2011	Sept 2011	Feb 2012
birds	Threksiornithidae	<i>Plegadis falcinellus</i>	glossy ibis	LC	M	–		X	
birds	Threksiornithidae	<i>Threskiornis spinicollis</i>	straw-necked ibis	LC	–	–		X	X
birds	Threksiornithidae	<i>Threskiornis molucca</i>	Australian white ibis	LC	–	–		X	X
birds	Threksiornithidae	<i>Platalea regia</i>	royal spoonbill	LC	–	–		X	
birds	Turnicidae	<i>Turnix varius</i>	painted button-quail	LC	–	–	X		
birds	Turnicidae	<i>Turnix velox</i>	little button-quail	LC	–	–			X
birds	Tytonidae	<i>Tyto javanica</i>	eastern barn owl	LC	–	–	X	X	
birds	Hirundinidae	<i>Petrochelidon ariel</i>	fairy martin	LC	–	–	X	X	
mammals	Bovidae	<i>Bos taurus</i>	European cattle	–	–	–	X	X	X
mammals	Canidae	<i>Canis lupus dingo</i>	dingo	–	–	–	X	X	X
mammals	Dasyuridae	<i>Plaingale maculata</i>	common planigale	LC	–	–		X	
mammals	Emballonuridae	<i>Saccolaimus flaviventris</i>	yellow-bellied sheath-tail bat	LC	–	–	X	X	
mammals	Equidae	<i>Equus caballus</i>	horse	–	–	–	X		
mammals	Felidae	<i>Felis catus</i>	cat	–	–	–	X		X
mammals	Leporidae	<i>Oryctolagus cuniculus</i>	rabbit	–	–	–	X		
mammals	Macropodidae	<i>Macropus agilis</i>	agile wallaby	LC	–	–	X	X	X
mammals	Macropodidae	<i>Macropus giganteus</i>	eastern grey kangaroo	LC	–	–	X	X	X
mammals	Macropodidae	<i>Macropus parryi</i>	whiptail wallaby	LC	–	–	X		
mammals	Macropodidae	<i>Wallabia bicolor</i>	swamp wallaby	LC	–	–		X	X
mammals	Miniopteridae	<i>Miniopterus australis</i>	little bentwing bat	LC	–	–		X	
mammals	Miniopteridae	<i>Miniopterus orianae oceanensis</i>	eastern bentwing bat	LC	–	–		X	
mammals	Molossidae	<i>Austronomus (Tadarida) australis</i>	white-striped freetail bat	LC	–	–	X	X	
mammals	Molossidae	<i>Chaerephon jobensis</i>	northern freetail bat	LC	–	–	X	X	
mammals	Molossidae	<i>Mormopterus beccarii</i>	Beccari's freetail bat	LC	–	–	X	X	
mammals	Molossidae	<i>Mormopterus ridei</i>	northern freetail bat	LC	–	–		X	
mammals	Muridae	<i>Hydromys chrysogaster</i>	water rat	LC	–	–	X		
mammals	Muridae	<i>Melomys cervinipes</i>	fawn-footed melomys	LC	–	–		X	
mammals	Muridae	<i>Mus musculus</i>	house mouse	–	–	–	X	X	
mammals	Muridae	<i>Pseudomys gracilicaudatus</i>	eastern chestnut mouse	LC	–	–		X	
mammals	Peramelidae	<i>Isoodon macrourus</i>	northern brown bandicoot	LC	–	–	X	X	X
mammals	Petauridae	<i>Petaurus norfolcensis</i>	sugar glider	LC	–	–	X	X	
mammals	Petauridae	<i>Petaurus breviceps</i>	squirrel glider	LC	–	–		X	
mammals	Phalangeridae	<i>Trichosurus vulpecula</i>	common brushtail possum	LC	–	–	X	X	X
mammals	Phascolarctidae	<i>Phascolarctos cinereus</i>	koala	SLC	–	–	X	X	

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mammals	Potoroidae	<i>Aepyprymnus rufescens</i>	rufous bettong	LC	–	–	X		
mammals	Pseudocheiridae	<i>Petauroides volans</i>	greater glider	LC	–	–		X	
mammals	Pteropodidae	<i>Pteropus alecto</i>	black flying-fox	LC	–	–	X	X	
mammals	Pteropodidae	<i>Pteropus scapulatus</i>	little red flying-fox	LC	–	–	X	X	
mammals	Suidae	<i>Sus scrofa</i>	pig	–	–	–	X	X	
mammals	Tachyglossidae	<i>Tachyglossus aculeatus</i>	short-beaked echidna	SLC	–	–	X	X	X
mammals	Vespertilionidae	<i>Chalinolobus gouldii</i>	Gould's wattled bat	LC	–	–	X	X	
mammals	Vespertilionidae	<i>Chalinolobus morio</i>	chocolotae wattled bat	LC	–	–		X	
mammals	Vespertilionidae	<i>Chalinolobus nigrogriseus</i>	hoary wattled bat	LC	–	–	X	X	
mammals	Vespertilionidae	<i>Chalinolobus picatus</i>	little pied bat	NT	–	–		X	
mammals	Vespertilionidae	<i>Scotorepens balstoni</i>	inland broad-nosed bat	LC	–	–	X		
mammals	Vespertilionidae	<i>Scotorepens greyii/sanborni</i>	little/northern broad-nosed bat	LC	–	–	X	X	
mammals	Vespertilionidae	<i>Nyctophilus sp</i>	long-eared bat	LC	–	–	X	X	
mammals	Vespertilionidae	<i>Vespadelus troughtoni</i>	eastern cave bat	LC	–	–	X	X	
reptiles	Agamidae	<i>Diporiphora australis</i>	tommy roundhead	LC	–	–		X	
reptiles	Agamidae	<i>Physignathus lesueurii</i>	water dragon	LC	–	–		X	
reptiles	Agamidae	<i>Pogona barbata</i>	bearded dragon	LC	–	–		X	
reptiles	Boidae	<i>Antaresia maculosa</i>	spotted python	LC	–	–	X	X	
reptiles	Boidae	<i>Aspidites melanocephalus</i>	black-headed python	LC	–	–		X	
reptiles	Boidae	<i>Morelia spilota</i>	carpet python	LC	–	–		X	
reptiles	Chelidae	<i>Chelodina canni</i>	Cann's longneck turtle	LC	–	–	X		
reptiles	Chelidae	<i>Chelodina longicollis</i>	eastern snake-necked turtle	LC	–	–	X	X	
reptiles	Colubridae	<i>Boiga irregularis</i>	brown tree snake	LC	–	–	X		
reptiles	Colubridae	<i>Dendrelaphis punctulata</i>	common tree snake	LC	–	–	X		X
reptiles	Colubridae	<i>Tropidonophis mairii</i>	freshwater snake	LC	–	–	X	X	
reptiles	Diplodactylidae	<i>Oedura monilis</i>	velvet gecko	LC	–	–	X	X	
reptiles	Elapidae	<i>Demansia psammophis</i>	yellow-faced whip-snake	LC	–	–		X	
reptiles	Elapidae	<i>Demansia vestigiata</i>	lesser black whip-snake	LC	–	–		X	
reptiles	Elapidae	<i>Denisonia maculata</i>	ornamental snake	V	V	Priority	X	X	
reptiles	Elapidae	<i>Hoplocephalus bitorquatus</i>	pale-headed snake	LC	–	–	X		
reptiles	Elapidae	<i>Pseudonaja textilis</i>	eastern brown snake	LC	–	–			X
reptiles	Elapidae	<i>Oxyuranus scutellatus</i>	coastal taipan	LC	–	–			X
reptiles	Gekkonidae	<i>Gehyra dubia</i>	common dtella	LC	–	–	X	X	X
reptiles	Gekkonidae	<i>Heteronotia binoei</i>	Bynoe's gecko	LC	–	–	X	X	X

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reptiles	Pygopodidae	<i>Paradelma orientalis</i>	Brigalow Scaly-foot	V	V				X
reptiles	Scincidae	<i>Carlia pectoralis</i>	lively skink	LC	-	-	X	X	X
reptiles	Scincidae	<i>Carlia munda</i>		LC	-	-	X	X	
reptiles	Scincidae	<i>Carlia schmeltzii</i>		LC	-	-		X	
reptiles	Scincidae	<i>Cryptoblepharus pulcher pulcher</i>	snake-eyed skink	LC	-	-	X	X	X
reptiles	Scincidae	<i>Cryptoblepharus metallicus</i>	metallic snake-eyed skink	LC	-	-	X	X	
reptiles	Scincidae	<i>Ctenotus taeniolatus</i>	copper-tailed skink	LC	-	-	X	X	
reptiles	Scincidae	<i>Eulamprus sp. cf tenuis</i>		LC	-	-		X	
reptiles	Scincidae	<i>Glaphyromorphus punctulatus</i>		LC	-	-		X	
reptiles	Scincidae	<i>Lygisaurus (Carlia) foliorum</i>		LC	-	-	X	X	X
reptiles	Scincidae	<i>Morethia boulengeri</i>		LC	-	-			X
reptiles	Scincidae	<i>Morethia taeniopleura</i>		LC	-	-		X	X

## **Appendix B**

### **Habitat photos**





**Above:** Grass-sedge swamp on marine plain, to the near north-east of EPC 1029 (habitat assessment site 1). **Below:** Grass-sedge swamp on marine plain, in the far north-east corner of EPC 1029 (habitat assessment site 1).







**Above:** *Sporobolus virginicus* grassland adjoining the Styx River (habitat assessment site 8). **Below:** Low *Avicennia marina* shrubland and saline herbland adjoining the Styx River (habitat assessment site 8).







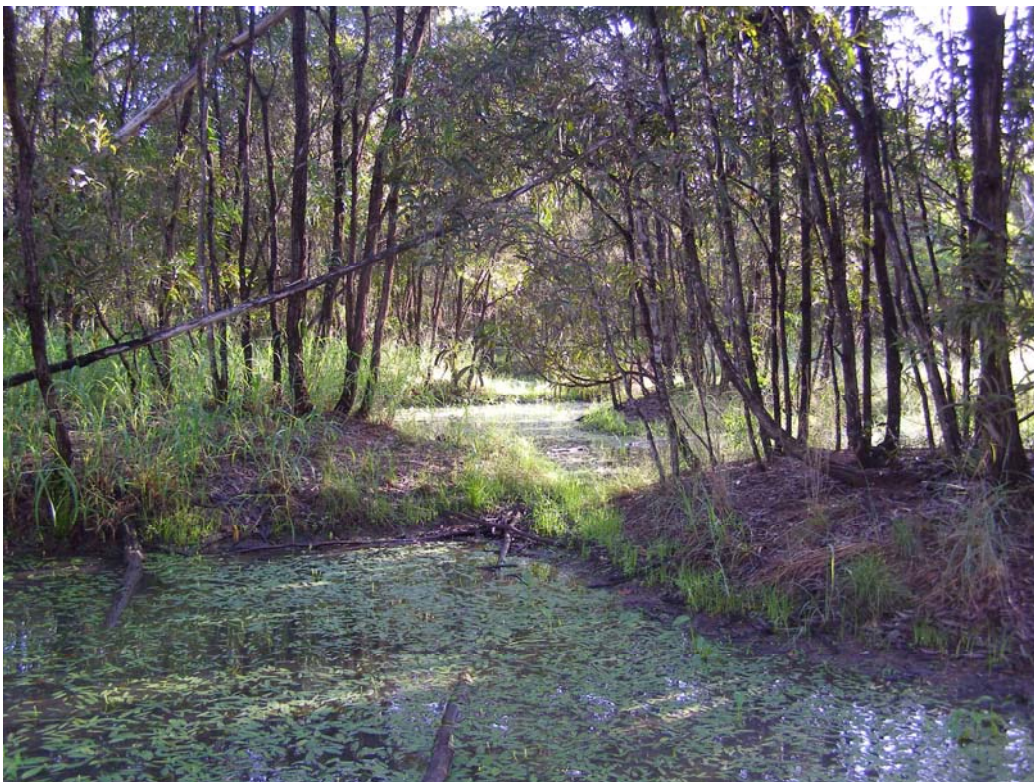
**Above:** Brigalow scaly foot habitat - remnant brigalow woodland adjoining un-named tributary of Deep Creek. **Below:** Riparian habitat within proposed disturbance area, along and un-named tributary of Deep Creek (habitat assessment site 3)







**Above:** Gilgaied regrowth brigalow near an un-named tributary of Deep Creek (habitat assessment site 4). **Below:** Gilgaied brigalow woodland adjacent Charon's Ferry Road, east of Ogmoo (habitat assessment site 6).







**Above:** Remnant brigalow woodland near the Styx River, on Charon's Ferry station (habitat assessment site 6). **Below:** Open water and exposed tidal flats along the Styx River.







**Above:** Remnant *Eucalyptus crebra* woodland within the proposed disturbance area (to the near west of an un-named tributary of Deep Creek). **Below:** Riparian semi-evergreen vine-thicket along an un-named tributary of the Styx River, to the near west of Ogmoo (habitat assessment site 10)

