Biosphere Environmental Consultants Pty Ltd
Dr. Arthur White - ph & fax: (02) 9599 1161

Mail Address: 69 Bestic St. Rockdale NSW 2216 A.C.N. 065 241 732
e-mail: 1arthur@tpg.com.au A.B.N. 32 065 241 732

FAUNA ASSESSMENT
HANSON WALLGROVE QUARRY SITE
EASTERN CREEK
APRIL 2012

1.0 Introduction

Quarrying activities have been taking place at Eastern Creek, in Sydney's western suburbs, for over 60 years. The quarry site, now operated by Hanson's Construction Materials Pty Ltd is to be further modified by the addition of a new concrete batching plant, asphalt plant, concrete recycling centre and associated infrastructure (Insite 2011). As part of the environmental assessment for the proposed works, a fauna appraisal was commissioned to determine the range of vertebrate species that utilise the site, and in particular, to assess the presence of threatened species in or near the site, particularly the Cumberland Land Snail *Meridolum corneovirens* and the Eastern Bent-wing Bat *Miniopterus schreibersii oceansis*.

In early April, Biosphere Environmental Consultants Pty Ltd commenced the fauna assessment.

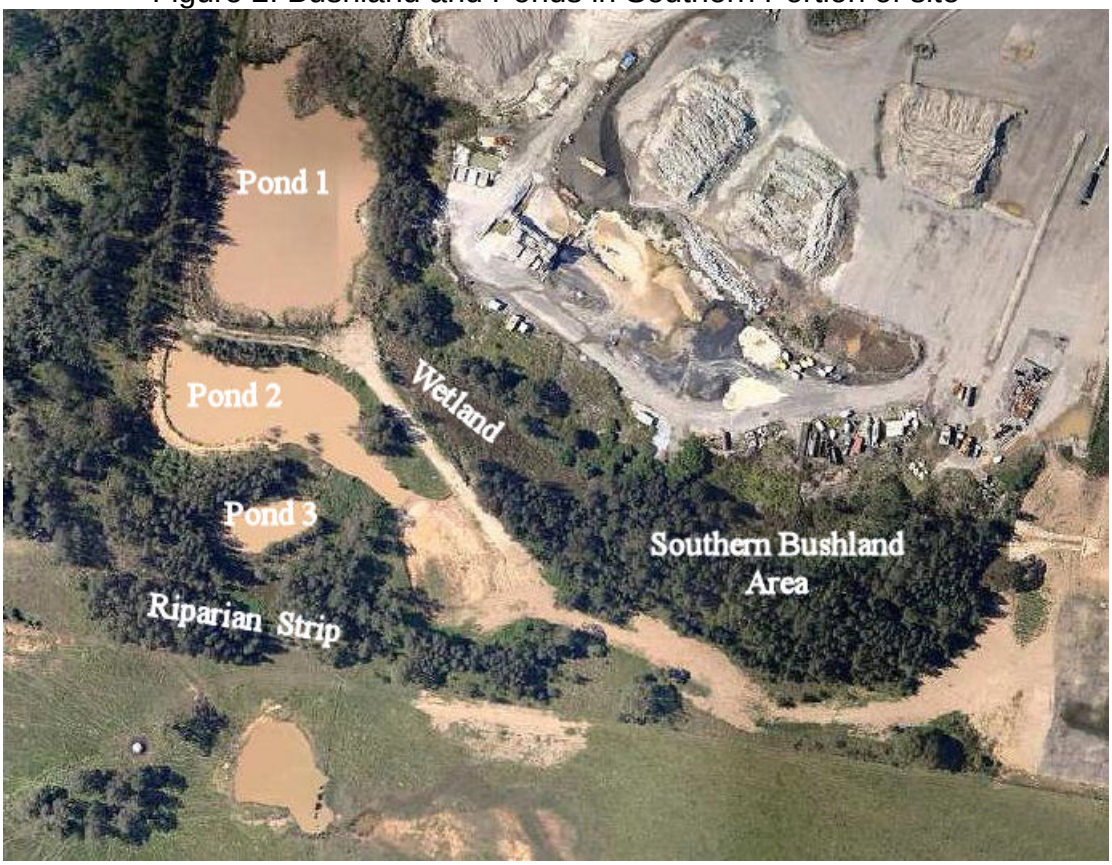
2.0 Study Site

The Wallgrove (Eastern Creek) site occupies a heavily modified unit of industrial land at Eastern Creek, a western suburb of Sydney (Figure 1). The total area of the site is approximately 26 Ha and most of this comprises consolidated hard stand or unconsolidated gravel surfaced work spaces. The site receives sand, gravel and aggregate from various locations and sorts the sands, and gravels through separators before stockpiling the separated materials in outside pits. Trucks receiving sand or gravel are loaded either by a large excavator or by an overhead loader.

Approximately 2 Ha of the site contains vegetation and this lies along the southern and western margins of the site, at a level 5 metres below the quarry work surfaces. Gravel and waste rock embankment demarcate the quarry and stockpile area from

Figure 1: Location of Wallgrove Quarry

Figure 2: Bushland and Ponds in Southern Portion of site



the vegetated areas below. The vegetated areas are associated with sediment ponds and settling ponds that receive surface run-off from the higher quarry areas.

There are four water bodies in the vegetated area, three settling ponds and a bulrush (*Typha orientalis*) dominated wetland (Figure 2). Woodland occurs in three sites in the vegetated area: there is a large stand of Grey She-oaks (*Casuarina glauca*) in the south-eastern portion of the site referred to as the Southern Bushland Area; Figure 3), another strip of woodland also dominated by Grey She-oaks but also containing isolated Grey Box *Eucalyptus moluccana* and Forest Red Gums *E. tereticornis* (referred to as the Riparian Strip; Figure 4) is confined to the southwestern corner of the site, and a narrow line of Grey She-oaks bordering the fenceline along the boundary of the site and adjoining pastureland (referred to as the Western Corridor).

Each of the settling ponds contains large expanses of open water but each is also fringed by bulrushes. There are no floating plants or other emergent plants in these ponds. The fringing vegetation consists of a mixture of exotic grasses (such as couch, kikuyu and buffalo grass) and weeds (such as Pampas Grass, Fire Weed, Paddys Lucerene and Cobblers pegs *Bidens pilosa*). The areas between the ponds are sparsely covered by exotic grasses and pasture weeds. A more extensive description of the vegetation throughout the site can be found in Cunningham (2008).

Figure 3
Southern Bushland Area

Figure 4: Riparian Strip

Figure 5: Pond 1

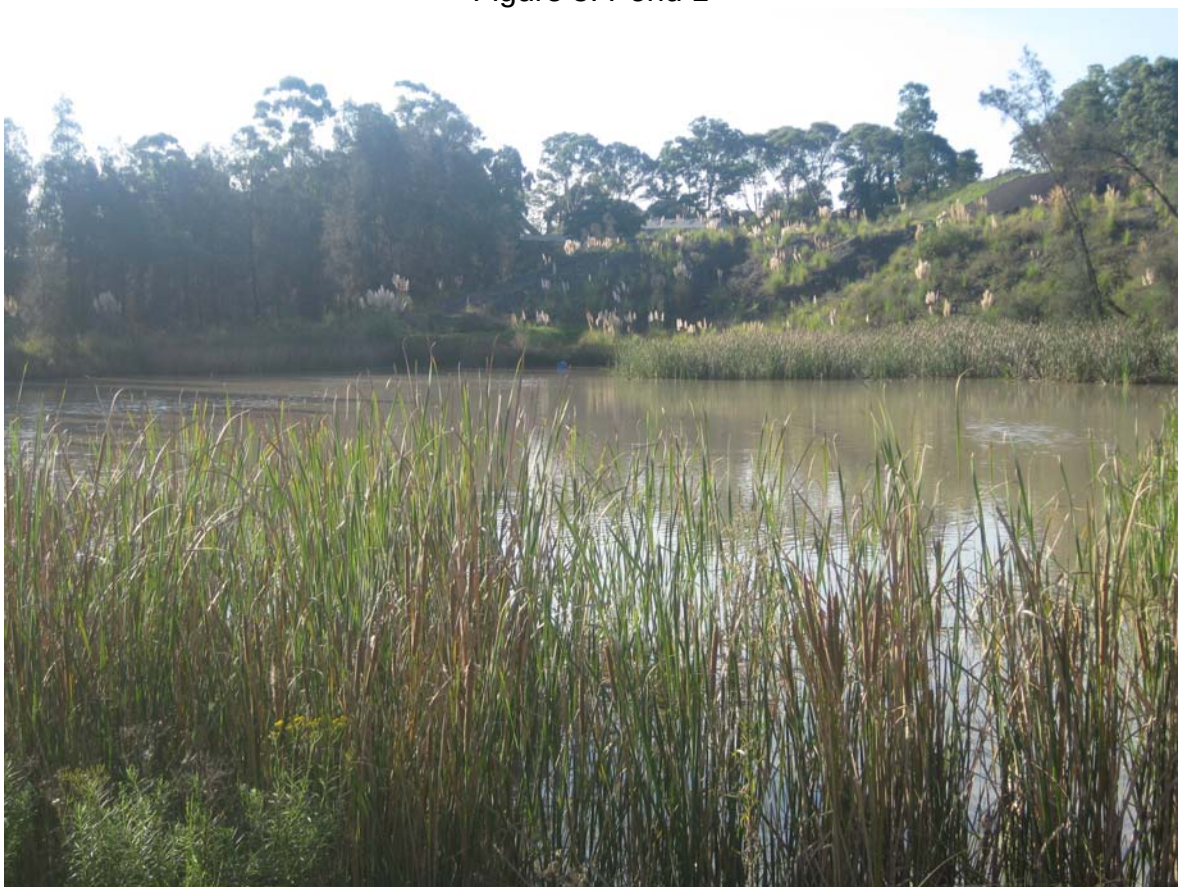


Figure 6: Wetland area

3.0 Threatened Species

A search was carried out of the New South Wales Wildlife Atlas for records of threatened species within a five kilometre radius of the study site. Two threatened species were recorded on the Atlas within this area, they were:

Cumberland Land Snail *Meridolum corneovirens*
Eastern Bent-wing Bat *Miniopterus schreibersii oceansis*

No endangered ecological communities (EEC) occur on the site (Cunningham 2008). The area historically may have supported Cumberland Plain Woodland but the highly degraded nature of the remaining vegetation and the loss of native ground cover plants do not satisfy the requirements of this EEC.

4.0 Fauna Assessment

4.1 Survey Methods

The fauna assessment was aimed at detecting as many vertebrate species as possible utilised a range of non-trapping methods. The assessment included amphibians, reptiles, birds and mammals and specifically targeted the two threatened species known to occur in the vicinity of the site (see 3.0).

The assessment methods included:

Terrestrial Mammals:

Field observations of the site using field binoculars were used to detect larger animals. In addition, tracks, burrows, scratching, scats and other indicators of the presence of these animals was also searched for and noted.

Arboreal Mammals:

Arboreal mammals were detected by spot-lighting at night. Spotlighting occurred on the nights of the 5th , 6th and 7th of April. In addition, daylight examination of trees for scratch marks, bite notches and drays was carried out.

Bats:

Flying foxes were detected by spotlighting at night; insectivorous bats were detected using ultra-sonic bat recorders (ANABAT). Two recorders were set at fixed positions and recorded for the first three hours after dusk. A third, hand-held recorded was carried while spotlighting at night. Recorded bat calls were later analysed using Anabat 5.0 software.

Diurnal Birds:

Bird surveys were carried out site during daylight hours on the 4th and 5th of April. Foot transects were carried out across the site and all birds seen or heard were recorded.

Owls:

Owl surveys were conducted at night using a small portable amplifier. Owl calls were broadcast from the top of the embankment at night. The calls broadcast included the calls of Southern Boobook Owls, Powerful Owls, Masked Owls and Barn Owls.

Reptiles:

Reptiles were searched for by hand during daylight hours. The survey area was walked and all potential reptile shelter sites were examined. If possible, the reptiles were caught, identified and immediately released. The search also examined lizard

burrows, shed skins and droppings.

Frogs:

Frogs surveys were carried out at night, on the evenings of the 5th, 6th and 7th of April. Calling frogs were listened for, potential shelter sites for frogs were examined Playback recordings of the only threatened frog species known from within 10 kilometres of the site (the Green and Golden Bell Frog) were broadcast at sites around the dams.

During the daylight hours, a search was carried out for tadpoles. The dams and wetland were sampled using a long-handled dip net. All tadpoles caught were transferred to a shallow tray containing water, identified using Anstis (2002) and released.

Snails:

Snails were searched for during the daylight hours of the 4th and 5th of April. All ground cover items, such as pieces of bark, fallen timber and debris were lifted and the ground searched for shells or live snails.

4.2 Timing of Surveys

The survey commenced on the 4th of April 2012. An initial site inspection was carried out along with a brief bird, reptile and snail search in the southern bushland area. The next day, the bird, reptile and snail search was extended to the remainder of the vegetated parts of the site.

The weather during the surveys was fine and sunny with day temperatures ranging between maxima of 28^0 (on the 7th of April) to 24^0 on the 5th of April. Night temperatures were also quite mild with air temperatures at 9.00 pm being between 17^0 and 19^0.

April was a satisfactory time to carry out the fauna assessments as the days were not too hot to suppress animal activity and the night were still quite mild and allowed nocturnal animals to be actives of each night.

4.3 Potential Habitat for Threatened Species

A visual assessment of the vegetated areas on sites was made to determine whether potential habitat for the Cumberland Land Snail or the Eastern Bent-wing bat was present on site. Habitat for the Cumberland Land Snail comprises sheltered areas in Cumberland Plains Woodland. These sheltered areas are usually close to small watercourses where ground moisture is higher than the surrounding areas. The snails are most often found sheltering under pieces of fallen bark or other solid ground cover items. They feed on small native ground cover plants that grow in the damp hollows in Cumberland Plains Woodland (Shea 1989).

The Eastern Bent-wing bat is a highly mobile microbat species that utilise summer and winter roosting sites around Sydney (Hoye and Spence 2004, White 2011). The

bats typically roost in caves, tunnels or in deep rocky recesses that do not receive direct sunlight. At night, they fly from their roosts and may forage over large distances in search of small, night-flying insects (Hoye and Hall 2008). The bats will fly above the tree canopy in wooded areas, or fly between trees if there is sufficient space. Trees in flower will often be regularly visited by the bats in search of insects attracted to the nectar.

5.0 Results

5.1 Mammals

Only five mammal species were detected on site (Table 1):

Table 1
Mammals Species Detected

Common Name	Scientific Name	Where Found	How Detected
Eastern Grey Kangaroo	*Macropus giganteus*	Southern Bushland Area and Riparian Strip	Field observation and scats.
Little Forest Bat	*Vespedalus vulturnis*	Riparian Strip and Pond b and C	Anabat
Goulds Wattled Bat	*Chalinolobus gouldii*	Riparian Strip and Pond C	Anabat
Rabbit	*Oryctolagus cuniculus*	Quarry boundary and southern bushland area	Field observation and scats
Fox	*Vulpes vulpes*	Quarry boundary and southern bushland area	Field observation and scats

5.2 Birds

Fifteen bird species were detected, all were day birds (Table 2):

Table 2
Birds Detected

Common Name	Scientific Name	4 April	5 April
Pacific Black Duck	*Anas supercilliosa*	Yes	Yes
Maned Duck	*Chenonetta jubata*	No	Yes
Eastern Rosella	*Platycercus eximea*	No	Yes
Galah	*Cacatua rosiecapilla*	No	Yes
Red-rumped Parrot	*Psephotus haematonotus*	Yes	Yes

Spotted Pardalote	*Pardalotus punctata*	No	Yes
Australian Magpie	*Gymnorhina tibicens*	Yes	Yes
Grey Butcherbird	*Cracticus torquatus*	Yes	Yes
Magpielark	*Gral;lina cyanoleuca*	Yes	Yes
Masked Lapwing	*Vanella miles*	No	Yes
Superb Fairy-wren	*Malurus cyaneus*	No	Yes
Australian Raven	*Corvus coronoides*	Yes	Yes
Welcome Swallow	*Hirundo neoxena*	Yes	Yes
Common Myna	*Acridotheres tristis*	No	Yes
Common Starling	*Sternus vulgaris*	Yes	Yes

5.3 Reptiles

Only four species of reptiles were detected (Table 3):

Table 3
Reptiles Detected

Mammals Species Detected

Common Name	Scientific Name	Where Found	How Detected
Eastern Snake-necked Turtle	*Chelodina longicollis*	Pond 3	Field observation and scats.
Red-bellied Black Snake	*Pseudechis porphryiacus*	Wetland	Anabat
Grass Skink	*Lampropholis delicate*	Riparian Strip and Southern Bushland	Anabat
Wall Skink	*Cryptoblepharus virgata*	Riparian Strip	Field observation and scats

5.4 Frogs

Only four species of frogs were detected (Table 4):

Table 4
Frogs Detected

Mammals Species Detected

Common Name	Scientific Name	Where Found	How Detected

Common Eastern Froglet	*Crinia signifera*	Wetland and Pond 3	Field observation and calls.
Striped Marsh Frog	*Limnodynastes peronei*	Wetland and Pond 3	Field observation and calls.
Perons Tree Frog	*Litoria peronei*	Riparian Strip	Field observation and calls.
Verreauxs Frog	*Litoria verreauxii*	Pond 3	Field observation and calls.

5.5 Snails

Only one species of snail was found on the site: namely the European land Snail *Helix aspersa*.

6.0 Discussion

6.1 Fauna Diversity

Only a modest selection of animal species were detected on the survey site. The relative paucity of species is undoubtedly due to the extensive clearing of the site and surrounding areas, the ongoing industrial activities in the neighbourhood and the highly disturbed nature of the remaining vegetated areas. The Southern Bushland area is dominated by Grey She-oak and the understorey contains few native plants. This area will be lost during the re-development of the site. The Riparian strip is unfortunately also dominated by Grey She-oaks and the understorey has also been suppressed. As a consequence there are no areas where the vegetation remains in an intact state.

An example of the paucity of wildlife reflecting the disturbed nature of the habitat is best illustrated by the lack of water birds on the site. The area contains three sizable ponds, each with ample fringing vegetation yet only two species of water birds are using these ponds. The lack of small passerine birds is also understandable given the isolation of the woodland area and their easy access by birds of prey.

Feral mammals and birds are quite common on the site, again indicative of the disturbed nature of the site. No small native mammals appear to be present.

6.2 Threatened Species

No threatened animal species were detected on site. Two species of microbat were detected about the ponds in the bushland areas but neither species appeared to be roosting on site. The bats were detected for a short time only each night and departed the site to the south.

The Cumberland Land Snail was not detected and this was not unexpected given the lack of ground cover and native vegetation in the area. The leaf waste from the Grey She-oaks had suppressed most ground covers in the vegetated areas and few snails of any species were found.

6.3 Potential Habitat for Threatened Animal Species

The dominance of Grey She-oaks in the vegetated areas of the sites has greatly diminished the potential habitat value for both the Cumberland Land Snail and the Eastern Bent-wing Bat. The loss of most of the native ground cover vegetation and the suppression of the remaining vegetation by the leaf-mats from the She-oaks means that little (if any) habitat still remains) in this area.

She-oaks also have diminutive flowers and are not a noted attractant of small flying insects. In addition, the small size of the woodland in the Southern Bushland Area and Riparian Strip means that bats are unlikely to be drawn to this site when foraging. Furthermore, the extensive night-lighting of the industrial sites nearby would be a major deterrent to bats that are travelling over large distance sin search of feed. Overall, the woodland areas at the Wallgrove site contain a very small area of potential habitat but the external factors probably would prevent Bent-wing bats from being able to exploit it.

6.4 Site protection

The proposed changes to the structure and operation of the quarry site will not impact on the Riparian strip but the Southern Bushland area will be lost. The concrete batching plant, asphalt plant and concrete recycling area and associated infrastructure have been designed to be separated from the riparian corridor. The system of sediment ponds will be replaced by one dam, however this will remain to continue to trap sediment before it can enter local waterways.

7.0 Conclusion

The Wallgrove site contains remnant and highly disturbed vegetation areas that support relatively little wildlife. There are no threatened fauna species on the site and there does not appear to be any habitat that could support threatened species (namely the Cumberland Land Snail and the Eastern Bent-wing bat) on site. The proposed changes to the quarry will not impact on the remnant bushland areas.

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Dr Arthur White
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