coffey environments
SPECIALISTS IN ENVIRONMENTAL, SOCIAL AND SAFETY PERFORMANCE

16 April 2013

Department of Health
C/- Busselton Hospital
Locked Bag 3
BUSSELTON WA 6280

Attention: Rory Stemp

Dear Rory,

RE: Western Ringtail Possum Survey, Busselton Health Campus, March 2013, EP2013/026

This letter reports the results of the Western Ringtail Possum (WRP) survey conducted within the remnant vegetation of the Busselton Health Campus in March 2013. The survey was conducted as part of monitoring surveys following the commencement of vegetation clearing, construction and development of the proposed new Busselton Health Campus, as required in the WRP Management Plan (Coffey Environments, 2012), that was a condition of approval under the *Environmental Protection and Biodiversity Conservation Act, 1999* (EPBC 2011/6011).

Survey methodology was consistent with previous surveys conducted on site in February and November 2009, February and December 2010, March and November 2011 and March and October 2012. The survey conducted during March 2013 consisted of a two-night nocturnal survey to estimate the number of possums within the site and a daytime survey to determine the presence of WRP dreys. The survey also addressed management action *M17* from the WRP Management Plan (Coffey Environments, 2012), which states:

> ***M17*** *Monitor the WRP population twice a year during construction, twice per year for two years following construction and then annually until year 5 (post-construction) and again at year 10 (post-construction) using ground-based methods. If during the period of twice yearly monitoring there is a greater than 20% reduction in the baseline population, twice yearly monitoring will be extended for a period agreed between DEC, DSEWPaC and Department of Health.*
>
> - *Undertake a WRP survey within two months of the completion of the translocation program to establish a baseline population remaining on the site.*

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- *Following each WRP monitoring survey the results will be compared with the baseline survey described above (with consideration of seasonal variation) and where there is a reduction in the number of individuals recorded, the DSEWPaC and DEC will be notified by the Department of Health. The information will be made available on the Department of Health's website for transparency purposes. Summary of the monitoring data will be reported annually to the DEC and DSEWPaC.*
- *Monitoring will be consistent with baseline monitoring completed by Coffey Environments (Coffey Environments, 2009). It will involve traversing the site by foot during the day time hours searching for possum dreys, and nocturnal spotlighting over two evenings using head torches. The location of dreys and WRPs will be recorded using a hand-held GPS. Monitoring will be conducted twice per year (nominally in February/March and November/December) and undertaken by personnel with demonstrated experience in conducting WRP surveys.*

Dr Paul Mitrovski and Mr Svein van Oyen undertook nocturnal surveys and daytime assessment of dreys on 5 and 6 March 2013, immediately following the vegetation clearing.

The survey builds on the following information collected since February 2009.

- February 2009 WRP survey as part of the 'Significant Fauna and Flora Values – Busselton Hospital Redevelopment Site' report (Coffey Environments, 2009; P2009-121, V1).
- November 2009 WRP survey (Coffey Environments letter report; ENVIPERT00629AA_Environmental Assessment_008_gf).
- February 2010 WRP survey (Coffey Environments letter report; ENVIPERT00629AA_Environmental Assessment_011_gf).
- December 2010 WRP survey (Coffey Environments letter report; ENVIPERT00629AA_Environmental Assessment_018_1nr).
- March 2011 WRP survey (Coffey Environments letter report; ENVIPERT00629AA_Environmental Assessment_020_gf).
- November 2011 WRP survey (Coffey Environments letter report; ENVIPERT00629AA_WRP Survey Nov 2011_001_gf).
- March 2012 WRP survey (Coffey Environments letter report; ENVIPERT00629CC_WRP Survey March 2012_001_gf).
- October 2012 WRP survey (Coffey Environments letter report; ENVIPERT00629DD_WRP Survey October 2012_001_pm).

METHODOLOGY

Spotlighting was conducted over two evenings. The project area (excluding construction areas) was traversed on foot using head torches. Locations of WRP sightings were recorded using a hand-held GPS. The weather on both nights of the survey was fine and cool and was considered suitable for undertaking a possum survey. Coffey Environments acknowledges that it is unlikely all possums inhabiting the area were sighted on any given night. Whilst spotlighting, possums often turn their heads or close their eyes when light is shone nearby. These actions can make spotlighting counts difficult

given that eye-shine is the primary method of locating individuals. There are also areas of habitat on site that contain thick canopy and are likely to reduce possum detection rates.

Daytime searches were conducted by searching the site for dreys or possums that could be observed in the canopy. Dreys were assigned to one of four categories;

1. Flat bed of vegetative material.
2. Slightly concave nest of vegetative material.
3. Dome shape nest with an open top.
4. Completely conical nest that is fully-enclosed.

All dreys were recorded with a hand-held GPS. Additional information collected during the daytime surveys included the height of the drey, the tree species and the presence or absence of a possum. Locations of possums that were either not in a drey or in a hollow were also recorded.

RESULTS

A total of 118 WRPs were recorded during the two night survey (Figure 1). Sixty one WRPs were recorded on the first night, with 57 WRPs recorded on the second night. WRPs were located as individuals, in pairs and as a group of three, which is likely to be associated with the breeding season and young animals that are yet to disperse. Most groups of 2 or more individuals consisted of an adult with large back young or sub-adults that had not yet dispersed. Location points shown in Figure 1 sometimes represent more than one individual.

A total of 12 dreys were located during the daytime survey (Figure 1) with 9 occupied by WRPs. Of the 12 dreys, two dreys were classified as category 1 dreys; seven were classified as category 2, three as category 3 and two as category 4. An additional two dreys were recorded as inactive and appeared to be abandoned. There were hollows throughout the site but no WRPs were recorded in hollows. Thirteen WRPs were located during the day that were not in dreys, but perched in a tree branch.

DISCUSSION

Coffey Environments have completed seven baseline surveys over a three and a half year period on the Busselton Hospital Site prior to vegetation clearing (pre-clearance). Results from the baseline surveys revealed a resident population of WRPs within the site ranging from 44 to 82 individuals (Table 1). The trend for WRPs to be present on site tends to follow seasonal breeding with an increase in local abundance during November/December followed by a decrease in numbers around late-February/March. Based on the pre-clearance survey data (highest and lowest estimates) and canopy area (4.4204 ha), the density of WRPs on site ranged from 18.55 individuals/ha of canopy to 9.96 individuals/ha of canopy (Chart 1).

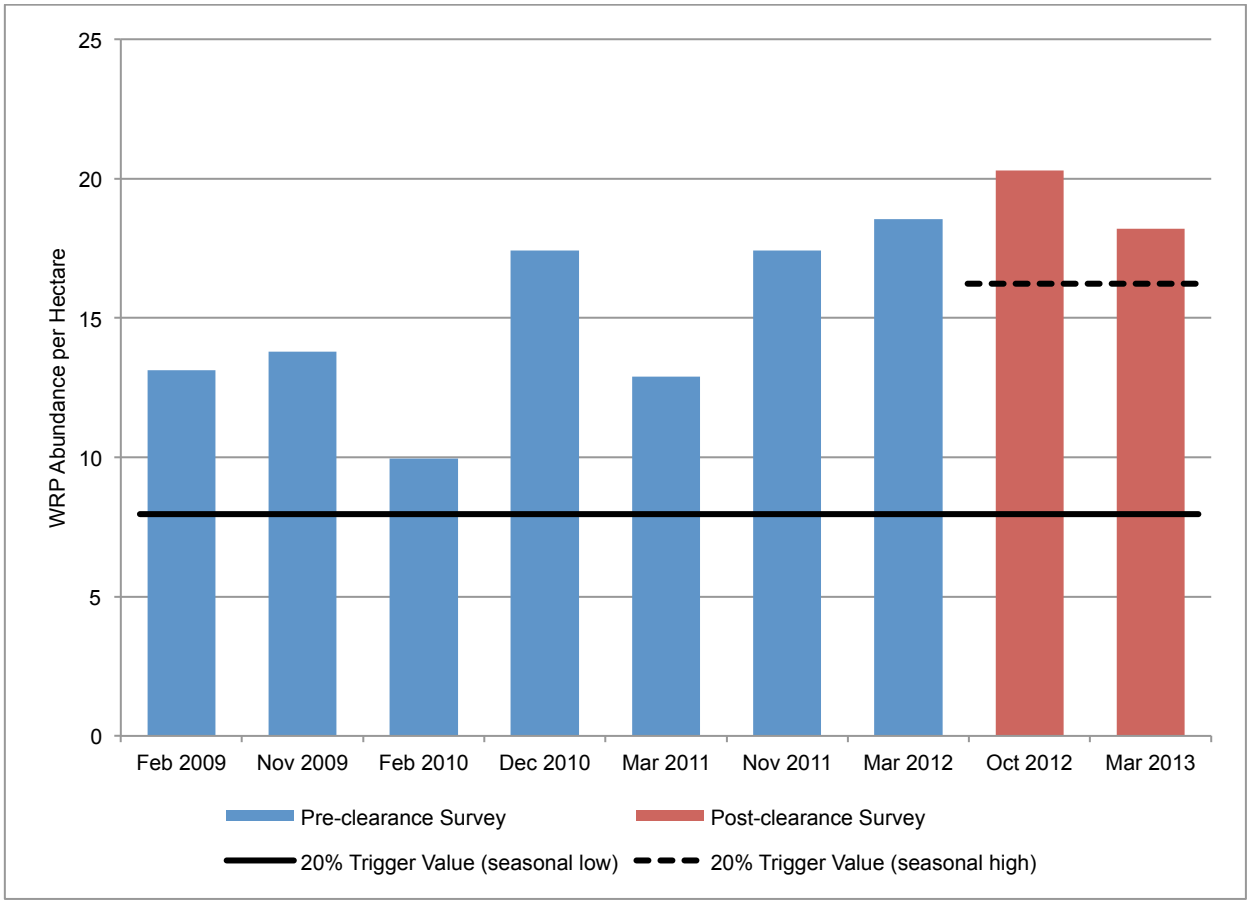
Following vegetation clearing within the Busselton Hospital Site, Coffey Environments undertook a WRP survey in October 2012 to establish a baseline population estimate of the possums remaining on site. The post-clearance WRP baseline survey recorded a high of 68 individuals and low of 64 individuals (Table 1). The drop in WRP numbers from a high of 82 individuals in March 2012 to 68 individuals in October 2012 is most likely due to the translocation of 20 individuals to Tone-Perup Nature Reserve and the different timing of the surveys. Based on the reduced canopy area (3.3518 ha) and high and low estimates of WRPs present at the site, the baseline density of WRPs on site immediately post clearing ranged from 20.29 individuals/ha of canopy to 17.01 individuals/ha of canopy (Chart 1). Despite the translocation of 20 adult WRPs, this WRP density is slightly higher than compared with that of the seven baseline surveys and may be attributed to a number of factors

including a successful breeding season with many juveniles at heel (on their mothers back) and the remaining WRPs occupying a smaller area.

Table 1 Number of Western Ringtail Possums recorded on site during baseline surveys

Survey	Night 1	Night 2
February 2009	58	47
November 2009	61	52
February 2010	44	44
December 2010	77	68
March 2011	47	57
November 2011	72	77
March 2012	75	82
October 2012	64	68
March 2013	61	57

Chart 1 Density of Western Ringtail Possums recorded on site



* Data presented is based on the maximum number of WRPs recorded on one night from each survey.

The number of possums recorded during the March 2013 survey (61 individuals) was slightly lower than previous surveys at a similar time of year (Table 1). Despite the loss of approximately one hectare of canopy and translocation of 20 adult WRPs, the density of WRPs was similar to previous results from the same season pre-clearance (18.2 individuals/ha of canopy in March 2013 to 18.55 individuals/ha of canopy in March 2012) (Chart 1).

Management action *M17* also requires that a reduction in baseline population of greater than 20%, with consideration for seasonal variation, will require additional WRP monitoring. Two assessments for baseline population estimate are used in these WRP surveys: number of WRPs and density of WRPs. The number of WRPs is an estimate of individuals within the site, while density of WRPs is an estimate of abundance of WRPs per hectare of canopy. The density estimate is considered a better estimate of WRPs on site as it takes into account the reduction in canopy cover. Furthermore, due to seasonal variation in WRP abundance, two baseline population estimates were calculated: a seasonal high estimate and a seasonal low estimate. The baseline seasonal high population estimate was based on the post-clearance WRP survey, as required by management action *M17*, and was undertaken during local peak times (October/ November/ December) in the population on site (October 2013; 68 individuals). The seasonal low population estimate was based on the seven pre-clearance WRP surveys that recorded seasonal variation in the population on site over a three year period (February 2010; 44 individuals). Preclearance values were used to determine the seasonal low trigger value, as no past clearing baseline surveys have been undertaken for the February/March period. Therefore, the 20% reduction in baseline population estimates (seasonal high trigger value) is a seasonal high of 54.4 individuals or 16.23 individuals/ha of canopy (October/ November/ December) and seasonal low of 35.2 individuals or 7.96 individuals/ha of canopy (February/March) (seasonal low trigger value) within the site (Chart 1).

Results from the post-clearance March 2013 WRP survey show the abundance and density of WRPs was above the seasonal high trigger value.

The results of the October 2012 and March 2013 surveys suggest that the construction activities at the Busselton Hospital site have had little impact on the WRP population compared with baseline surveys undertaken in 2009, 2010, 2011 and 2012. The density at the site varied from 9.96 individuals/ha of canopy to a maximum of 18.2 individuals/ha of canopy, which is comparable to previous surveys conducted for WRPs in the Busselton area (Jones *et al*., 2007).

It is recommended that surveys continue throughout the redevelopment of the Busselton Health Campus to determine any impacts on the resident WRP population.

Please do not hesitate to contact the undersigned on 08 9355 7100 if you require any further information regarding this letter.

For and on behalf of Coffey Environments Australia Pty Ltd

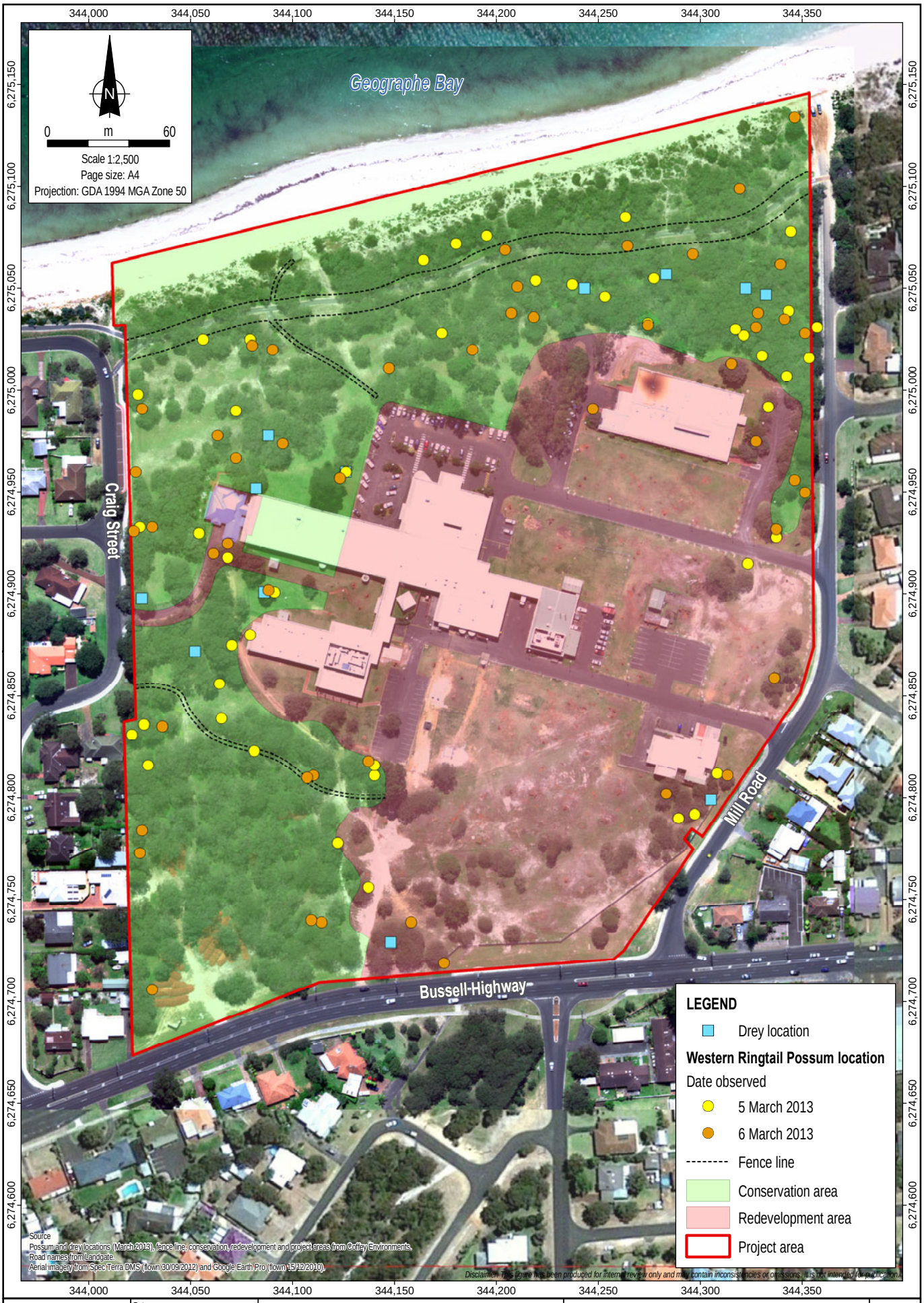
Paul Mitrovski
Senior Environmental Scientist – Zoology

Martine Scheltema
Principal Environmental Consultant

cc Erica Pilgrim
Caesar D'Adamo

Attachments:

Figure 1 – WRP Survey Results, March 2013



coffey environments	Date: 08.03.2013 MXD: 0629GG_01_GIS001_v0_1 File Name: 0629GG_01_F001_GIS	Department of Treasury and Finance Western Ringtail Possum Survey, Busselton Hospital	Western Ringtail Possum observations and drey locations – March 2013	Figure No: 1