An Assessment

of the

Distribution & Abundance

of

Western Ringtail Possums

(***Pseudocheirus occidentalis***)

in

Busselton

Urban Public Reserves

NOVEMBER 2008

Version 3

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EXECUTIVE SUMMARY

This report details the results of a series of surveys for Western Ringtail Possums (WRPs) (*Pseudocheirus occidentalis*) carried out over selected urban reserves within an area of Busselton, Western Australia. The main aim of the survey work was to obtain a "snapshot" of the distribution and abundance of WRPs within the areas surveyed in order to determine the importance of urban reserves for WRPs.

Ten reserves totalling approximately 20 hectares (15 hectares of canopy) were surveyed. Ringtails were found to be occupying all of the reserves surveyed at varying densities. The highest densities were found within the two school grounds (Busselton and West Busselton). The lowest abundance level was observed at Guerin Street.

Location	Date of Survey 1	No. WRPs Sighted	Date of Survey 2	No. WRPs Sighted	Estimated canopy extent (ha)	~WRPs/ha canopy
Guerin Street	26/05/2008	1	11/06/2008	6	1.2	5
Busselton Primary	03/06/2008	35	17/06/2008	33	1.5	23.3
Longlands Park	26/05/2008	10	12/06/2008	16	1.5	10.6
Wilmott Park	21/05/2008	11	12/06/2008	10	1.5	7.3
Mill Rd	26/05/2008	13	11/06/2008	12	0.7	18.6
Foursomes Rd	02/05/2008	14	18/06/2008	14	1.6	8.75
West Busselton Primary	04/06/2008	30	18/06/2008	34	1.6	21.2
Glenleigh Rd	26/05/2008	12	13/06/2008	9	0.9	13.3
Alan St	02/05/2008	20	19/06/2008	17	1.2	16.7
Caves Rd	05/06/2008	33	19/06/2008	34	3.3	10.3
TOTAL		**179**		**185**	**15**	**13.5**

Note: Number of WRPs/ha/canopy calculated using higher survey counts

Brushtail Possums were observed at Mill Road (one individual on 11/06/08) at Caves Road reserve (two individuals on 19/06/08)

The study confirms that the reserves surveyed represent valuable WRP habitat which constitute an important component of the WRP population in coastal Busselton.

The urban reserve survey found the selected reserves were being utilised by at least 185 mature and near-mature WRPs during the survey period (early winter 2008). The WRPs within the 20.14 ha urban reserve sample exceeds the number found in the in 50 hectare Locke Nature Reserve (Locke NR) and the average density (13.5 WRPs/ha) exceeds that of the 34 hectare 'Holy Mile' (8 WRPs/ha). The identified 185 WRPs would mean a potential of about 90 young WRPs in each annual breeding season, many of which would live and contribute to the wider population.

In terms of WRP habitat or conservation values, the ten urban reserves selected for this survey represent environmental assets of considerable value to an overall WRP population. This is especially relevant as the population is currently considered to be in a long term decline trend due to ongoing 'urban deforestation' in coastal areas within Busselton.

The basic management strategy of retaining and enhancing WRP habitat values is relevant to all urban remnants in Busselton's coastal peppermint strip. Where peppermint canopy cover is high or a mid or understorey is present it should be retained and the trees managed sensitively.

There is significant potential to upgrade WRP habitat values without compromising their recreation values in most of the surveyed reserves by strategic planting of peppermints. This is also the case in other reserves in the Busselton – Dunsborough coastal strip. Planting of peppermints to link reserves or other 'open space' in the coastal Busselton - Dunsborough strip should be a key strategy for the conservation of the WRP in the urban landscape.

Given the variability in vegetation condition and canopy density across the 10 surveyed reserves and the relatively high density of WRP, it is likely that all urban reserves with peppermint canopy are likely to provide habitat for WRP. It is therefore important that the various agencies that own the urban reserves are informed of their conservation value and encouraged to maintain and upgrade their existing WRP habitat values.

1. INTRODUCTION

This report details the results of a series of surveys for Western Ringtail Possums (WRPs) (*Pseudocheirus occidentalis*) carried out over selected urban reserves within an area of Busselton, Western Australia. The main aim of the survey work was to obtain a "snapshot" of the distribution and abundance of WRPs within the areas surveyed to provide an indication of the importance of urban reserves for WRP populations.

The study was commissioned by GeoCatch in partnership with the Western Ringtail Action Group (WRAG) who received funding through the Threatened Species Network Community Grants Programme, a joint initiative of WWF-Australia and the Australian Government, to undertake WRP surveys in Busselton urban areas and provide training to community members in WRP surveying and monitoring methodology. The project is also partially funded through the South West Catchments Council supported by the Australian Government and the Government of Western Australia as well as the Shire of Busselton.

WRP are listed as *Vulnerable* under the 2008 IUCN Red List of Threatened Species; *Threatened* under the WA Wildlife Conservation Act (1950); and *Vulnerable* under the Federal Environment Protection and Biodiversity Conservation Act (1999). Factors contributing to the decline of the species include habitat loss and/or modification, predation by introduced animals and changing fire regimes.

The information gained from this assessment will be useful to estimate current population numbers of WRP in the Busselton area and to provide data to facilitate on-ground management of public lands and strategic planning for habitat retention and enhancement.

Readers should refer to Jones *et al* (2007) for further information on WRP ecology with particular reference to the Busselton region. For information on surveying WRPs in coastal Busselton refer to Appendix C "An introduction to surveying ringtail possums in coastal Busselton." *Barbara Jones, May 2008*

1.1 PROJECT AREA

The population survey study was undertaken within ten separate reserves totalling approximately 20 hectares in an area of coastal strip in Busselton. The project area boundaries are the Buayanyup Drain in the west, the northern boundary of the Broadwater, New River and Vasse-Wonnerup wetlands, the eastern boundary of the locality of Geographe to the east and Geographe Bay to the north. Figure 1 shows the extent of the project area and the location of each reserve. Details of the ten identified survey areas, as provided by GeoCatch, are listed in Table 1.

Figure 1 – Project area and reserve location (see CD for full size version)

1.2 SCOPE OF WORKS

The scope of works was to undertake assessment of abundance of WRP in the required reserves. This included, but is not restricted to undertaking:

- Two night surveys in each reserve for area counts of WRP (pedestrian head torching with an appropriate light)

Output: Produce a report for GeoCatch with results from WRP population assessments, incorporating feedback from the project working group, which will include:

- Numbers of WRP in the project area
- Survey report with discussion of results

Provide digital data sets of raw data from all surveys which include information from each habitat patch on:

- Two night surveys (on non-consecutive nights)
- Night survey weather conditions

- WRP numbers divided into adults and sub-adults
- Other observations e.g. other fauna species such as Brushtail Possum, Quenda, cats, dogs, foxes, evidence of recent fire etc.

1.3 METHODOLOGY

Day Survey

A diurnal inspection of each site was carried out with the principal aim of recording the location of dreys or potential hollows (and individuals if sighted). In addition habitat photographs were taken at a minimum of 5/ha. The diurnal search involved a series of close spaced traverses on foot using a GPS equipped PDA for guidance and as a data recorder.

Nocturnal Counts

Nocturnal counts involve systematic searching of the habitat of each reserve by way of close spaced traverses, on foot using a head torch (with 6V incandescent bulb). The nocturnal counts were carried out using a GPS equipped PDA for guidance and as a data recorder. Each site was searched twice on non-consecutive nights.

Nocturnal count methods were consistent with those used in Jones et al (2007).

2. SURVEY CONSTRAINTS

The effectiveness of survey work will vary from site to site and can be dependent on factors such as the total area surveyed, topography, access, location, vegetation type/density, weather, the season in which the survey work was undertaken, equipment used, the experience of the person carrying out the survey and the number of individual surveys done at each site. The consequences of identified survey limitations should however be considered in the context within which the results will be used.

The assessments reported on here have included a diurnal inspection to categorise vegetation and search for evidence of WRPs and two, non- consecutive nocturnal counts aimed at locating WRPs within each of the survey sites. WRP habitat at each site varies in its characteristics and significant differences in accessibility and therefore ease and comparative effectiveness of survey work were evident.

A number of the reserves contain areas of dense midstorey which can make night survey work difficult as light penetration is limited. WRPs were also noted as using the dense sedges present at some locations for daytime refuges, so the dreys recorded do not necessarily fully reflect the areas being utilised for daytime rest sites. Some of the older peppermints (and other tree species) also potentially contain hollows or similar structures suitable for WRPs to use for refuge.

Some of the WRPs sighted during night work may also have daytime refuge sites located outside of the reserves boundary and vice-versa. The results obtained for some of the sites surveyed appears to have been influenced by the fact that a proportion of the WRPs may have home ranges that cross the identified survey area boundaries. The variations in the nocturnal counts may be a reflection of this.

The aim of the survey work reported on here was to provide sufficient information to allow for an estimate of the distribution and abundance of WRPs at each of the sites to be made. It is the Author's opinion, taking into account the limitations encountered, that the survey was conducted to a standard suitable for its intended use and complies with the requested scope of works.

3. WESTERN RINGTAIL POSSUM ASSESSMENT RESULTS

3.1 WESTERN RINGTAIL POSSUM HABITAT WITHIN SURVEY SITES

A brief description of the vegetation present at each site is provided below and complements data provided by GeoCatch in Table 1. Two photographic plates for each reserve are presented within the report to illustrate the nature of vegetation. These and additional photographs for each site are held on CD in Appendix 1. The location and direction of each photograph are detailed in Figures 2 to 11. Each photograph is watermarked with MGA coordinates, time and date. A Google Earth kmz file is also provided that allows users to locate the position at which each photograph was taken and display a thumbnail image by using Google Earth (requires internet connection and Google Earth software).

Guerin Street

Peppermint open woodland over a mosaic of retained native groundcover and midstorey vegetation and cleared parkland. Understorey vegetation consists of mainly Basket Bush (*Spyridium globulosum)* and Coastal Sword Sedge (*Lepidosperma gladiatum*) that has been retained around groves of trees separated by grass or relatively bare sand. Canopy connectivity is almost continuous across the entire site. See Figure 2 and Plates 1 and 2.

Busselton Primary

The majority of the vegetation present on this site consists of parkland cleared Peppermint open woodland over mown grass. A limited amount of groundcover (Coastal Sword Sedge) and midstorey vegetation (e.g. Basket Bush and *Hardenbergia*) is present along the western boundary and a section in the north of the study area adjacent to the tennis courts. The Peppermint occurs as a series of groves and therefore canopy connectivity is not totally continuous across the entire site but is complemented by buildings and some fence lines. See Figure 3 and Plates 3 and 4.

Longlands Park

Longlands Park contains a combination of cleared parkland with wide spaced trees and a Peppermint woodland over a dense understorey vegetation consisting of mainly Basket Bush (*Spyridium globulosum)* and Coastal Sword Sedge (*Lepidosperma gladiatum*). Canopy connectivity is very good within the woodland area but it has been noted that some of the Peppermint trees are dying or are dead, the reason for which is under investigation by university researchers from the Centre of Excellence for Climate Change, Woodland and Forest Health. See Figure 4 and Plates 5 and 6.

Wilmott Park

Parkland cleared, Peppermint open woodland, along with a small number of other local and exotic tree and large shrub species (mainly along southern boundary). Ground cover is mowed lawn. Canopy connectivity is not continuous across the entire site and WRPs would need to come to ground if moving across the site any significant distance. See Figure 5 and Plates 7 and 8.

Mill Rd

This site is located on the beach front. The near coastal section of the reserve contains relatively low open woodland of stunted Peppermints over sparse dunal low open shrubland. The density and size of the Peppermints increases inland where ground cover and midstorey vegetation becomes very dense in some areas. The reserve is bisected by a dual use pathway. Canopy connectivity is continuous across the site and is supplemented by vegetation, building and fences within adjoining residential properties.

Landowners adjoining the reserve to the south appear to have planted a range of exotic species within sections of the reserve while other small areas appear to have been partly cleared to improve views and extend manicured lawns and gardens into the reserve. See Figure 6 and Plates 9 and 10.

Foursomes Rd

The reserve at Foursomes Road contains a Peppermint woodland over a variety of understorey vegetation. The bulk of the site has understorey consisting of Basket Bush (*Spyridium globulosum)* and Coastal Sword Sedge (*Lepidosperma gladiatum*) and other ground and midstorey species. Understorey vegetation in the northern block of the park has been cleared and now contains mown lawn. Canopy connectivity is good across the bulk of the site apart from a gap created by a road in the north and an area in the south that contains only sparse shrubs. See Figure 7 and Plates 11 and 12.

West Busselton Primary

The majority of the vegetation present on this site consists of parkland cleared Peppermint woodland over mown grass. There is also a single large Tuart in the central area of the school. This vegetation is supplemented in some limited areas by planted gardens of exotic plant species. The Peppermint canopy is continuous in between the main groups of trees and is also complemented by buildings. See Figure 8 and Plates 13 and 14.

Glenleigh Rd

Parkland cleared, Peppermint low open woodland, along with a small number of non local and exotic tree and large shrub species. Ground cover is mowed lawn. Canopy

connectivity is discontinuous but complemented by adjoining residential blocks (buildings, fences and overhanging shrubs/trees). See Figure 9 and Plates 15 and 16.

Alan St

This reserve contains Peppermint woodland over dense understorey vegetation consisting of mainly Basket Bush (*Spyridium globulosum)* and Coastal Sword Sedge (*Lepidosperma gladiatum*). Canopy connectivity is very good over the majority of the area. The reserve is dissected by several narrow tracks and some adjoining landowners appear to have cleared small sections of the reserve for their own personal use. See Figure 10 and Plates 17 and 18.

Caves Rd

This reserve contains Peppermint woodland over very dense understorey vegetation consisting of mainly Basket Bush (*Spyridium globulosum)* and Coastal Sword Sedge (*Lepidosperma gladiatum*). Canopy connectivity is very good over the majority of the area. A power line dissects the reserve along its northern boundary. See Figure 11 and Plates 19 and 20.

Table 1: Reserve Details (source GeoCatch, modified G Harewood)

Reserve Name/Number & Locality	Vesting/Class	Landuse	Size (ha)	Estimated Canopy Extent (ha) (G Harewood)	Parkland Cleared	Understorey Vegetation	Within 500m of other patch >5000m²	Connecting corridors
Guerin St (Guerin St/Harwood Rd), R38690, Geographe	Unvested reserve (DPI), C	Recreation	1.4	1.2	Yes (part)	Yes (part)	Yes	Yes
Busselton Primary (Avocet Blvd/Armitage Dr), Lot 10 on diagram 92762, Geographe	Freehold - Education Dept		1.94	1.5	Yes		Yes	
Longlands Park (East of Willmott St/Honeyeater Cr), R44758, Geographe	Shire of Busselton, C	Recreation	3.0	1.5	Yes (part)	Yes (part)		
Wilmott Park (Hester St/Webb St), R31975, Geographe	Shire of Busselton, C	Recreation	2.8	1.5	Yes		Yes	
Mill Rd (Foreshore East of Mill Road), R37813, West Busselton	Shire of Busselton, C	Recreation	1.1	0.7		Yes	Yes	Yes
Foursomes Rd (Between Foursomes Rd & Falkingham Rd), Lot 422+R41554, West Busselton	Unallocated Crown Land (DPI) + Shire of Busselton, UCL(1.9ha)+C (0.3ha)	No landuse +Recreation	2.2	1.6		Yes	Yes	Yes
West Busselton Primary (Bower Rd/Manson st), R26617, West Busselton	Unvested reserve (Education Dept/DPI), C	Children; School; primary	2	1.6	Yes		Yes	Yes
Glenleigh Rd/Heseltine Reserve (Glenleigh Rd/Seagrott Rd) , R34260, West Busselton	Unvested reserve (DPI), C	Recreation	1.4	0.9	Yes			
#Alan St/Bussell Hway (North Caves Rd from Alan St West Opp Drive-in), R3882, Broadwater	Shire of Busselton, C	Recreation	1	1.2		Yes	Yes	Yes
Caves Rd Roberts Rd/Peppermint Park (South Caves Rd from Drain to Roberts Rd turnoff), Road Reserve, Abbey	Unknown, Caves Road (Shire of Busselton)		3.3	3.3		Yes	Yes	Yes
		Total (ha)	20.14	15.0				

#Note: Area of bush directly adjacent to Alan Street Reserve has been included in canopy cover calculation and surveyed for WRPs.

3.2 DIURNAL SITE INSPECTIONS

The results of the daytime site inspections are summarised in Table 2 below and shown diagrammatically on Figures 12 to 21.

Table 2: Diurnal Inspection Results

Location	Date of Survey	No. Dreys	Other Observations
Guerin Street	26/04/2008	12	3 WRPs in dreys, 1 in a tree
Busselton Primary	21/04/2008	32	6 WRPs in dreys
Longlands Park	26/04/2008	15	1 WRP in drey
Wilmott Park	26/04/2008	10	2 WRPs in dreys
Mill Rd	27/04/2008	8	2 WRPs in dreys
Foursomes Rd	27/04/2008	14	1 WRP in drey
West Busselton Primary	21/04/2008	19	1 WRP in drey
Glenleigh Rd	27/04/2008	7	-
Allan St	27/04/2008	20	4 WRPs in dreys, 1 in Sword sedge
Caves Rd	28/04/2008	42 natural, 14 artificial	11 WRPs in natural dreys, 5 WRPs in artificial dreys, 1 WRP in a hollow

Evidence of Southern Brown Bandicoots (diggings) were found at the Caves Road reserve adjacent to Peppermint Park. Suitable habitat (type and extent) for this species is also present at Mill Road, Alan Street and Longlands Park.

3.3 NOCTURNAL COUNTS

The results of the nocturnal counts are summarised in Table 3 below and shown diagrammatically on Figures 32 to 41. The estimate of WRPs per hectare are based on the area of canopy cover shown in Table 1 and has been calculated using the highest night count results.

Table 3: Nocturnal Count Results

Location	Date of Survey 1	No. WRPs Sighted	Date of Survey 2	No. WRPs Sighted	Estimated canopy extent (ha)	~WRPs/ha canopy
Guerin Street	26/05/2008	1	11/06/2008	6	1.2	5
Busselton Primary	03/06/2008	35	17/06/2008	33	1.5	23.3
Longlands Park	26/05/2008	10	12/06/2008	16	1.5	10.6
Wilmott Park	21/05/2008	11	12/06/2008	10	1.5	7.3
Mill Rd	26/05/2008	13	11/06/2008	12	0.7	18.6
Foursomes Rd	02/05/2008	14	18/06/2008	14	1.6	8.75
West Busselton Primary	04/06/2008	30	18/06/2008	34	1.6	21.2
Glenleigh Rd	26/05/2008	12	13/06/2008	9	0.9	13.3
Alan St	02/05/2008	20	19/06/2008	17	1.2	16.7
Caves Rd	05/06/2008	33	19/06/2008	34	3.3	10.3
TOTAL		**179**		**185**	**15**	**13.5**

Note: Number of WRPs/ha/canopy calculated using higher survey counts

Brushtail Possums were observed at Mill Road (1 individual on 11/06/08) at Caves Road reserve (two individuals on 19/06/08). Cats (assumed to be roaming domestic cats) were observed at Longlands Park (one individual on 26/05/08) and at Busselton Primary (three individuals on 17/06/08).

3.4 WEATHER DURING SURVEY PERIOD

Weather conditions on each survey day or night are tabled in Appendix B. Nocturnal counts were not undertaken during periods of rain or strong winds.

4. CONCLUSION

The aim of the survey work was to document the distribution and abundance of WRPs in 10 urban reserves within Busselton's near coastal strip and to provide an indication of the importance of urban reserves for WRP populations.

Ringtails were found to be occupying all of the reserves surveyed at varying densities. The highest densities were found within the two school grounds (Busselton and West Busselton). The lowest abundance level was observed at Guerin Street.

In the Siesta-Kealy study (Jones *et al* 2007), lower ringtail densities were very evident in regrowth Peppermint stands, while ringtail activity levels peaked in habitat with a substantial element of mature and older-growth trees, with the variations in habitat type being attributed to varying fire regimes.

The presence of higher densities of more mature trees can explain some of the variation in WRP abundance levels seen in this study. The highest WRP densities were seen at the two school sites which contain a significant number of larger, more mature trees with broad canopies. The lowest densities were found at the Guerin Street reserve, where individual trees tend to have a "pole" habit (long thin trunks with relatively sparse canopy of limited extent) and are relatively young. The nature of vegetation within adjoining and nearby residential properties should be taken into consideration when considering WRP abundance as these have the potential to be supplementing (or not) the habitat present in the actual reserves themselves.

5. DISCUSSION

The study confirms that the reserves surveyed represent valuable WRP habitat which constitute an important component of the WRP population in coastal Busselton.

The urban reserve survey found the selected reserves were being utilised by at least 185 mature and near-mature WRPs during the survey period (early winter 2008). The WRPs within the 20 hectare urban reserve sample exceeds the number found in the in 50 hectare Locke Nature Reserve (Locke NR) and the average density (13.5 WRPs/ha) exceeds that of the 'Holy Mile' (8 WRPs/ha). The lowest abundance of 5 WRPs/ha was found at the Guerin Street reserve which is higher than populations found in the Jarrah forest. This abundance is also higher than the 3.4 WRPs/ha estimated in the Locke Nature Reserve in Jones *et al* 2007 which is considered a very important population.

Locke Nature Reserve is the only area in coastal Busselton where WRPs occur in a relatively large peppermint stand in a conservation reserve. The Locke NR population was about 100 WRPs (2 WRPs/ha) in autumn 1991 (Jones *et al* 1994b) and about 170 WRPs (3.4 WRPs/ha) in 2006 (Jones *et al* 2007). WRPs were found to be more numerous in the partly 'developed' beachside strip to the north of Locke NR, with around 270 ringtails on about 34 ha (8 WRPs/ha) of the 'Holy Mile' in autumn 2006.

Compared to surrounding residential areas WRP habitat at each of the reserves is comprised of prominent canopy patches, especially in the more heavily developed

localities of West Busselton and Geographe. A sample of at least 185 WRPs, with the species norm of 50% females breeding in stable habitat, would mean a potential of about 90 young WRPs in each annual breeding season, many of which would live and contribute to the wider population inhabiting adjoining backyard habitat.

In terms of WRP habitat or conservation values, the ten urban reserves selected for this survey represent environmental assets of considerable value to the overall WRP population. This is especially relevant as the population is currently considered to be in a long term decline trend due to ongoing 'urban deforestation' in coastal areas within Busselton.

While to a certain extent variable, the 15 hectares of peppermint canopy on the ten urban reserves is dominated by mature and older trees and signs of different types of 'tree distress' and some older dieback were becoming evident within the surveyed habitat over 2007-08. Peppermint trees in coastal Busselton have been and will continue to be pruned, removed or simply die of disease or old age. If the urban reserves in West Busselton and Geographe are to remain WRP strongholds, then specialist management of these stands and of individual trees is needed within the coming decade to ensure suitable habitat keeps growing on the site in the short and longer-term.

The basic management strategy of retaining and enhancing WRP habitat values is relevant to all urban remnants in Busselton's coastal peppermint strip. Where peppermint canopy cover is high or a mid or understorey is present it should be retained and the trees managed sensitively.

There is significant potential to upgrade WRP habitat values without compromising their recreation values in most of the surveyed reserves by strategic planting of peppermints. This is also the case in other reserves in the Busselton – Dunsborough coastal strip. Planting of peppermints to link reserves or other 'open space' in the coastal Busselton - Dunsborough strip should be a key strategy for the conservation of the WRP in the urban landscape.

Public education on the importance of WRP and their habitat will form an important component of any long term management strategy. There is an excellent opportunity for this to be initiated via WRP specific programmes at the various Busselton schools with significant WRP populations.

Habitat within school yards has specific needs as these areas are under current use and there is a potential for development at the expense of WRP habitat. As with other reserve areas the trees comprising the schoolyard stands require specialist care and ongoing management to ensure their habitat values are maintained while ensuring other important requirements are still met (e.g. safety issues - falling limbs).

It is recommended that where adjacent landholders have illegally damaged a reserve, the Shire instigates appropriate action in accordance with existing local laws and policies.

Given the variability in vegetation condition and canopy density across the 10 surveyed reserves and the relatively high density of WRP, it is likely that all urban reserves with peppermint canopy are likely to provide habitat for WRP. It is therefore important that the various agencies that own the urban reserves are informed of their conservation value and encouraged to maintain and upgrade their existing WRP habitat values.

6. REFERENCES

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FIGURES

PLATES

APPENDIX A

SITE PHOTOGRAPHS, REPORT AND REPORT DATA (ARCVIEW FILES) ON CD

APPENDIX B

WEATHER RECORDS DURING SURVEY PERIOD

APPENDIX C

"AN INTRODUCTION TO SURVEYING RINGTAIL POSSUMS IN COASTAL BUSSELTON."

BARBARA JONES, MAY 2008

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