# Yuppie bandicoots of inner western Sydney – in hiding or urban renewal?

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ABSTRACT

Long-nosed bandicoots *Perameles nasuta* were thought to have disappeared from inner western Sydney by the mid to late 1960s. This paper documents recent (2002-present) records of long-nosed bandicoots in the urban areas of inner western Sydney, including carcases (n=7), animals live-trapped or observed by us (n=7), and reports from the public (n=35). We also surveyed for bandicoot diggings in 88 urban parks and found 12 which contained possible diggings. Most of these records are concentrated in the suburbs of Dulwich Hill, Marrickville, Lewisham, and Petersham in an area of less than 1.9 km by 1.1 km (approximately 95 ha) in the local government area (LGA) of Marrickville, but when other scattered records are included, come from an 8.5 km x 6 km area in the LGAs of Ashfield, Canada Bay, Canterbury, and Leichhardt. A pilot radio-tracking study of two adult females found that they foraged almost exclusively in urban backyards and nested by day under old buildings. One female provided enough data for home range analysis, and had a home range of 2.7 ha (MCP) or 1.47 ha (KL95%); the core home range (KL50%) was only 0.16 ha. There were no signs that either individual avoided activity during peak hour traffic, although they often did not come out to forage for a whole night, or only foraged for a few hours within a night. We suggest that this might be a form of predator avoidance behaviour since feral and domestic cats were common in the area, and/or that they are able to obtain sufficient food in the short times they are active. We also speculate on the origins of these animals.

**Key words:** long-nosed bandicoot, ***Perameles nasuta***, urban, radio-tracking, home range, diggings

## Introduction

The long-nosed bandicoot *Perameles nasuta* is probably the most common and widespread bandicoot in eastern Australia, and it is one of the few bandicoot species that have not fared too badly since European settlement (Ashby *et al.* 1990, Dickman and Stodart 2008). The long-nosed bandicoot was abundant throughout the Sydney region until the 1960s (Marlow 1962). A previous resident of the inner west reports that bandicoots were common in backyards of the suburb of Dulwich Hill until around 1958 and along the Cooks River towards Rockdale until around 1964, but from that time on they became increasingly rare. By the 1970s they were thought to have disappeared from all of inner western Sydney. Long-nosed bandicoot populations still occur in the leafy suburbs north of the harbour where pockets of remnant bushland remain, and are still relatively common in suburbs that abut the larger national parks to the north of Sydney (see Figure 1). North of Sydney Harbour, long-nosed bandicoots still occur in Ku-ring-gai Chase, Garrigal, Sydney Harbour (North Head), and Lane Cove National Parks, Manly Dam, and Pittwater LGA (National Parks and Wildlife Service 2000, NPWS Wildlife Atlas records). The long-nosed bandicoot population at North Head was the second endangered population listed under the NSW *Threatened Species Conservation Act 1995* (NSW Scientific Committee 1997). Specifically, the determination was made on the basis that it is a disjunct population and one of the few surviving populations within the Sydney Region (NSW Scientific Committee 1997). The North Head population has been estimated to be around 100 animals (NSW Scientific Committee 1997, Banks 2004). To the south of the harbour, long-nosed bandicoots are known from Royal and Heathcote National Parks and Holsworthy Army Base (National Parks and Wildlife Service 2000). These areas still maintain extensive tracts of native vegetation. Inner western Sydney on the other hand, has virtually no remnant vegetation with the exception of a few pockets along the Cooks River and the rail corridors, and most of these are either weed infested or mangroves.

To the west of Sydney, long-nosed bandicoots are known from Blue Mountains National Park, but appear to have all but disappeared from the Cumberland Plain. During four years of intensive fauna survey in western Sydney NPWS reserves, only one long-nosed bandicoot was detected from spotlighting and one by trapping, both in Agnes Banks Nature Reserve (T. Leary unpublished data). Diggings however, were observed in two other reserves – Windsor Downs and Mulgoa Nature Reserves (T. Leary unpublished data). The survey effort in western Sydney reserves included approximately 18,000 trap nights, 12,000 hair-tube nights and over 60 hours of spotlighting, so failure to detect them was not from lack of survey effort (T. Leary unpublished data). The nearest known population in western Sydney is at Yarramundi at the base of the Blue Mountains, around 3 km from Agnes Banks Nature Reserve.

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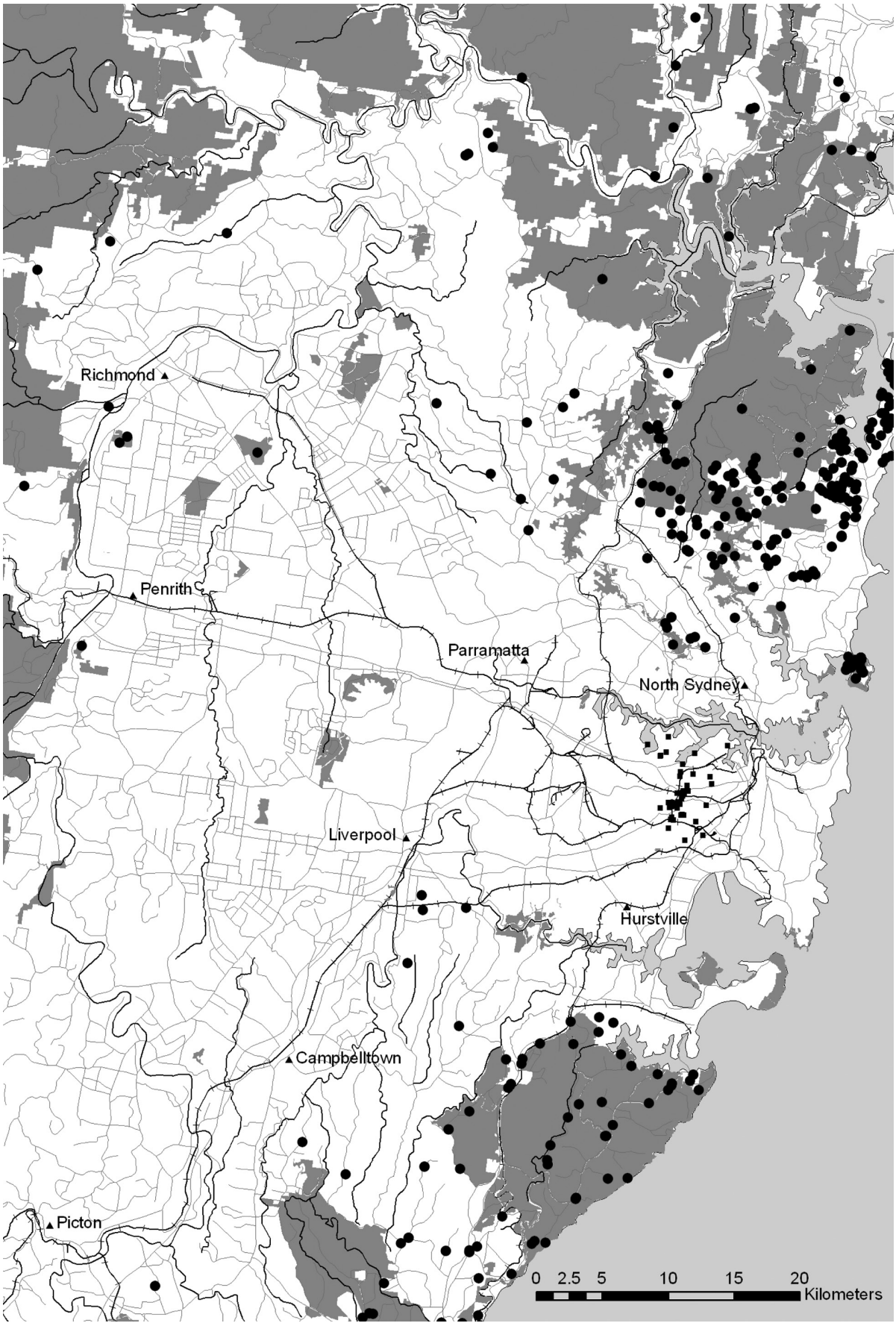


**Figure 1.** NPWS Wildlife Atlas records of long-nosed bandicoots around Sydney since 1988. Dark shaded areas represent protected areas. Pale grey lines represent major roads. Dark fine lines are major rivers and the lines with cross hair represents the rail line. Dots show Atlas records and squares show all records (diggings, public reports, sightings and radio-tracking) in the inner west.

We were therefore very surprised when, in October 2002, a report from a local resident resulted in the capture of an adult male long-nosed bandicoot in an urban backyard in Dulwich Hill, just off one of Sydney's major roads (New Canterbury Road). Despite removal of this individual from the backyard, fresh diggings appeared the next morning, suggesting that there was at least one other animal. We returned this bandicoot to the backyard and began investigations to try to determine the origins of these animals.

In 2003 we trapped and hair-tubed along the rail corridor at Dulwich Hill but caught only black rats *Rattus rattus* and house mice *Mus musculus*. We also issued a press release asking the public to inform us if they had any strange diggings in their backyards. On inspection, most of the initial reports from the public were found to be rat burrows (although a few we tentatively identified as possible diggings). We found no further traces of bandicoots until November 2006 when we received the first long-nosed bandicoot carcass killed by a car in Dulwich Hill. A series of dead animals turned up over the next 12 months in inner western Sydney. This paper presents the data we have to-date and describes the methods that we have used to try to determine whether or not there really is a population of bandicoots in the inner west.

## Methods

### Carcases, public reports, and urban park survey for diggings

We collated all records (carcasses, trapped animals, public sightings, and results of a digging survey) of long-nosed bandicoot in the inner west made between 2002 and the present. This includes information forwarded from the public in response to two media releases (November 2002 and September 2007). Many of the reports from the public were of diggings, and these were difficult to confirm as the diggings were often no longer present when we inspected, and many that were still present turned out to be rat burrows. Descriptions of sightings made by residents of live animals were impossible to verify without photographs or carcasses, and many photos / carcasses that were available were of black rats. Nonetheless we have included possible sightings when we could not exclude them as rats.

In September 2007 we searched every local park and recreational area from the Cooks River to West Concord (Figure 2). The north-western boundary was chosen because we had an unconfirmed report of a small population of long-nosed bandicoots at the repatriation hospital on Major's / Yaralla Bay in the 1990s (J. Sanders, DECCW, pers. comm. 2007). We reasoned that if bandicoots had dispersed from that area, the parks, the water canal and the railway corridor would make a likely dispersal route. The southern boundary was chosen to incorporate another potential source area for animals - the Cooks River, which according to a local resident was once known to support bandicoots. We visited 88 urban parks and if they had shrub cover or other potential refuge areas (such as easy access to old buildings) they were searched on foot (a total of 50 parks) for signs of digging.

### Pilot radio-tracking study

When we became aware of a small population of between four and seven animals on a church property in Lewisham, we fitted two adult females (weighing 990 g and 750 g) with tail-mounted radio-transmitters (Sirtrack two-stage transmitters, New Zealand), to gain insight into their activity and habitat use and to try to determine whether or not the rail corridor was an important foraging area. The transmitters weighed approximately 9.5 g, which represented <1% and 1.3% of the body weight of females 1 and 2 respectively and were attached using paper hypo-allergenic sports tape. Animals were tracked on foot during August and September 2007 using a Yagi three element antenna and either a TR-2 receiver (Telonics, Mesa, Arizona, USA) or an Australis 26k scanning receiver (Titley Electronics, Ballina, NSW). One animal was tracked for four nights (over a nine day period) before she dropped her transmitter, and the second female was tracked for four consecutive nights, and then intermittently for a further three nights and to her day-time nest a further eight times over the following three weeks. We obtained between five and nine fixes on these nights, and fixes were no less than one hour apart. Day-time nests were located on a total of five and 15 days for animals 1 and 2 respectively. This gave a total of 13 and 45 fixes (including the trap location) for females 1 and 2 respectively. Locations were triangulated from known points. We calculated the home range area for the single animal for which we had enough data (female 2) using both the fixed kernel method (KL) and minimum convex polygon (MCP) using Arc View 3.3 software (Environmental Systems Research Institute, Redlands, California, USA) and the Animal Movement SA Version 2 extension of ArcView (Hooge and Eichenlaub 1997). The 95%KL estimate was defined as the home range and the 50%KL was defined as the core usage area.

## Results

### Bodies, public reports and urban park survey for diggings

Figure 3 shows the locations of the live and dead bandicoots, and reports from the public. Seven live animals have been confirmed from trapping (n = 2 adult + 1 sub-adult females; 2 adult males) with a further two individuals of unknown sex observed (all in the suburbs of Dulwich Hill and Lewisham). Seven dead adult/sub-adult bandicoots have been confirmed from the suburbs of Dulwich Hill (1 male + 2 decomposed of unknown sex), Lewisham (1 male + 1 female), Marrickville (1 male) and Five Dock (1 male). Two additional reports of dead bandicoots (Petersham - 1, Five Dock - 1) may represent double reporting of the carcases we collected from these suburbs. The cause of death of the carcasses we examine were: vehicle impact (4), mauling by domestic dog in an urban backyard (1), and probably fox predation (although dogs or cats cannot be ruled out) (2). The reports from the public

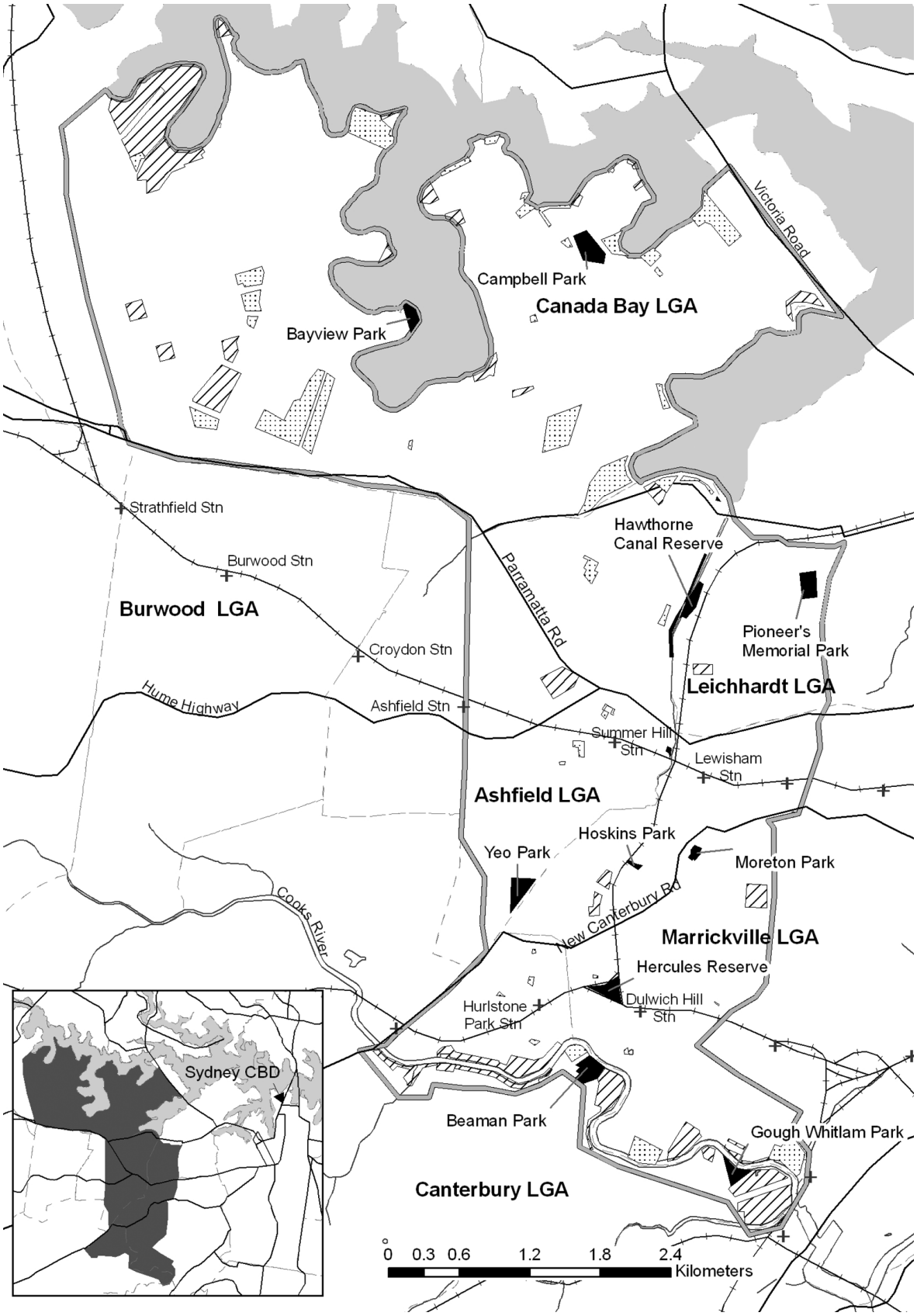


**Figure 2.** Area searched for bandicoot diggings showing urban parks searched. The boundary of the search area is shown by a wide grey line. Diagonal hatching shows parks that were inspected on foot where no diggings were found. Stippled areas show those parks inspected from the vehicle and deemed not to have suitable habitat. Solid black shapes show parks in which "possible diggings" were found and are identified by name where known. Dashed grey lines show local government area boundaries. Solid black lines show major roads, grey solid lines show drainage and lines with cross hairs represent the rail line. The inset shows the search area in relation to the Sydney Central Business District (CBD).

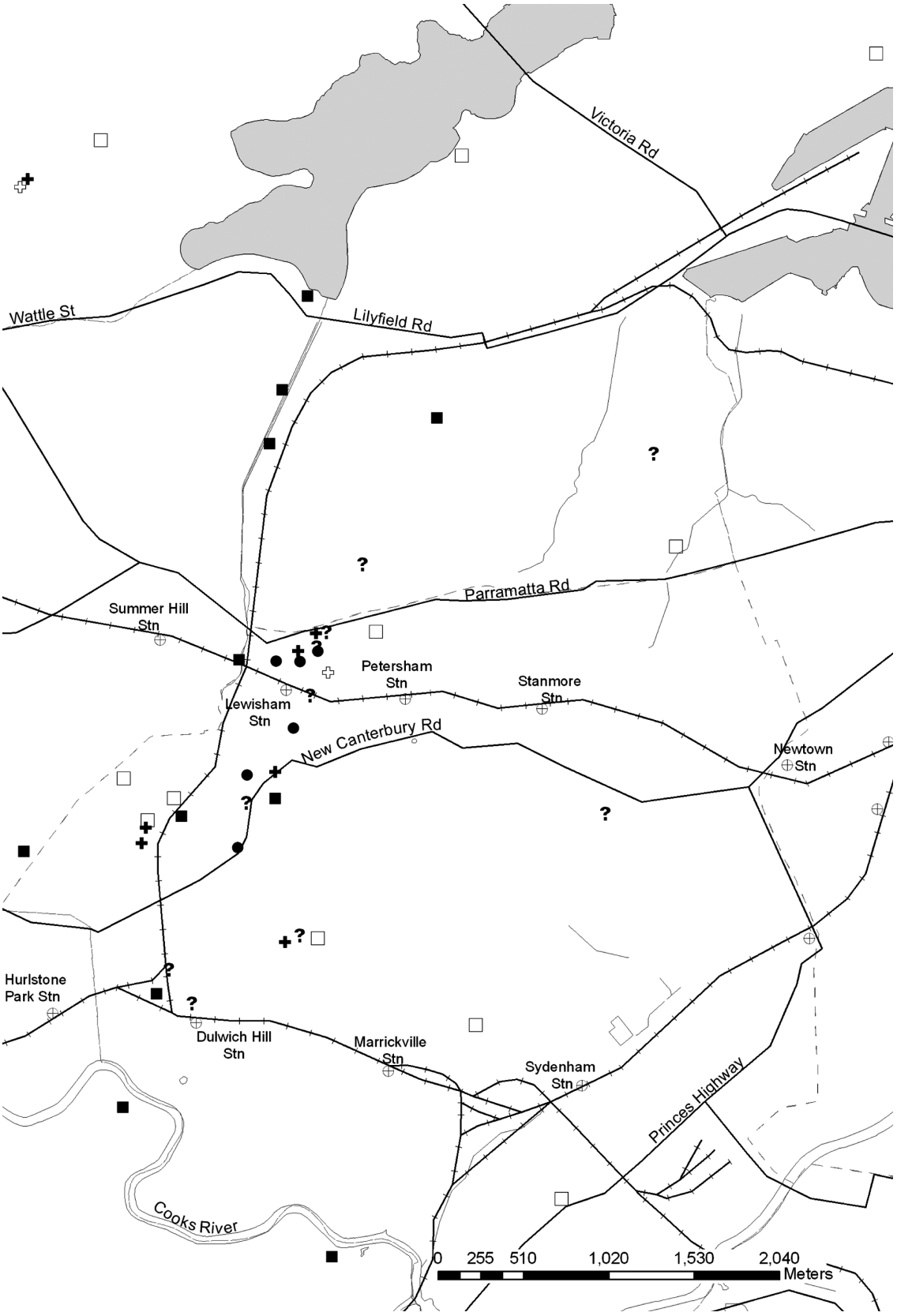


**Figure 3.** Location of carcases, live animals, and reports from the public. Solid circles indicate animals trapped or radio tracked (animals radio-tracked are shown by a single dot in the vicinity of the church property for simplicity). Crosses indicate bandicoot carcases (solid crosses are confirmed records and open crosses are unconfirmed records). Squares indicate locations of diggings. Solid squares show parks where "possible" diggings were recorded by us, and open squares indicate reports of diggings from the public. The question marks indicate unconfirmed sightings reported by the general public. Dashed grey lines show local government area boundaries. Solid black lines show major roads, solid grey lines show drainage lines and lines with cross hairs are the rail line.

that appear likely to be bandicoot diggings or sightings have come mostly from the suburbs of Dulwich Hill (8), Marrickville (5), Petersham (10), Lewisham (3), Five Dock (3), and Annandale (2). There are also single reports from the suburbs of Leichhardt, Enmore, Tempe, Lilyfield and Balmain, but as the diggings were no longer present when we inspected, we were unable to confirm that these were not made by rats.

Table 1 shows the number of parks searched in each local government area. We observed pied currawongs *Strepera graculina* making "conical diggings" in loose mulch similar to bandicoot diggings. These "bandicoot-like" diggings were made if the pied currawong was successful in retrieving larvae with a single peck. Consequently we cannot say with certainty that the diggings we have observed are definitely bandicoot diggings, so we have labelled these as "possible" diggings. "Possible" diggings were recorded in 12 parks in five LGAs (Figure 2).

Collectively the reports from the public and the parks where "possible diggings" were recorded during survey cover an area of 3,209 ha (calculated as a minimum convex polygon) approximately 8.5 km by 6 km, in five LGAs. However, most of the records confirmed by live animals and carcasses (excluding the carcass at Five Dock) lie in a smaller core area of around 95 ha, (approximately 1.9 km by 1.1 km) lying within a single LGA - Marrickville.

### *Radio tracking*

At the church property where the animals were trapped for radio-tracking, we discovered that at least two residents of the retirement village were leaving out food for the bandicoots. How this impacts the radio-tracking study is uncertain.

## Female 1

### *Nights 1 and 2*

For the first two nights, female 1 remained in her nest, which was underneath an old hospital building on the church property. The nesting area was underneath a concrete staircase which she accessed through a crack approximately the size of half a brick. Underneath the staircase was open to a space that could be entered by us, except for the lowest step, which only had a small opening (roughly 30cm in length). The lowest step was essentially a hollow concrete rectangle and contained her nest, which was a shallow depression lined with shreds of vegetation.

### *Nights 3 to 5*

On night 3 she foraged in the garden beds and lawns of the church property until 4:00am, at which time she was observed to cross the road and enter the garden of a Federation-aged house, under which she nested for the day. No radio-tracking was conducted for the next two nights.

### *Night 6 to 9*

On the sixth night we were unable to find her at her last known location. After 4 hours of systematically searching the streets her signal was picked up in the yard of another Federation terrace approximately 420 m from her original location, and on the other side of the railway line. We inspected under the house the following day, and she appeared to be nesting in a crawl space that we could not access. While we were under the house the signal direction changed, indicating that she may have moved next door or into another inaccessible crawl space. Three days later the signal was still coming from that location, and we believe she dropped her transmitter in a space we could not reach. The transmitter was pulsing at 60 ppm rather than the 80 ppm that it should be pulsing at in motionless mode. We initially thought that this may have been an interference signal from an unidentified source; however the signal was no longer detected in March 2008 (when the battery would almost certainly have been flat).

In total, female 1 used three different nest sites under three buildings.

## Female 2

We tracked female 2 intermittently over a month, during which time she spent the majority of her time foraging in the church property (Figure 4). On several occasions she was active as early as 18:00, which was only half an hour after sunset. However, on some nights she either did not come out to forage or only foraged for an hour or two. This was often followed by a full night of foraging. She made three small excursions foraging in the backyards of different houses and a local park in adjacent streets (Figure 4).

Most days she nested under the same old hospital building in the church property as female 1, but in a different section. She also nested under at least three other old buildings of either Federation or 1930s age in adjacent streets. Her home range was estimated to be 2.7 ha and 1.47 ha using the MCP and 95%KL method respectively. The core usage area 50%KL was considerably smaller at 0.16 ha (Figure 4).

**Table 1.** Urban parks searched in each local government area for diggings.

| Local Government Area | Parks have no suitable habitat | Parks checked but no diggings | Parks with "possible diggings" | Total number of parks checked |
|---|---|---|---|---|
| Ashfield | 7 | 2 | 4* | 13 |
| Canada Bay | 24 | 20 | 2 | 46 |
| Canterbury | 5 | 8 | 2 | 15 |
| Leichhardt | 0 | 1 | 2* | 3 |
| Marrickville | 3 | 9 | 3 | 15 |

(Note: * One park lies in two local government areas).

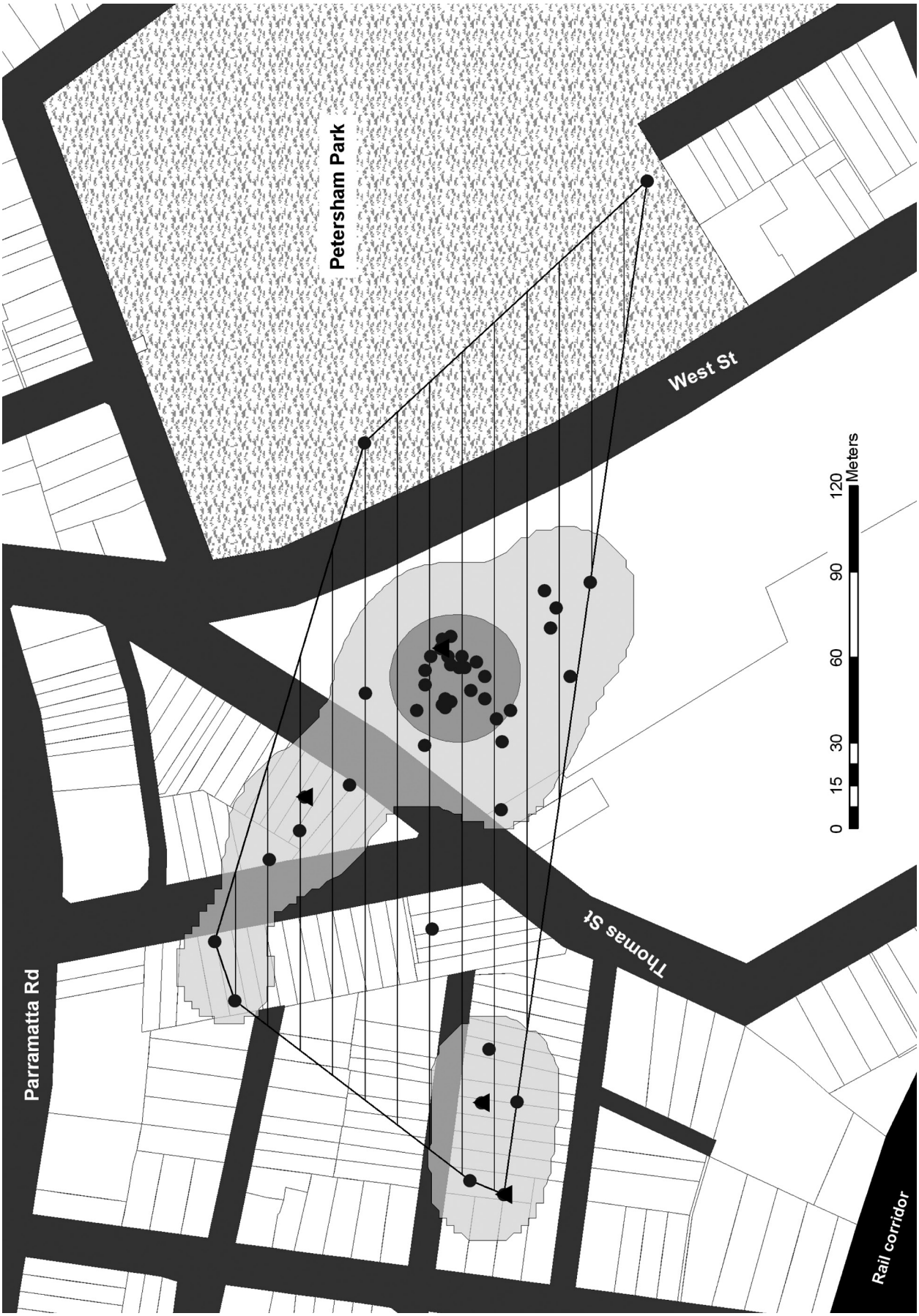


**Figure 4.** Radio-tracking fixes and home range of female 2. Solid circles show radio-tracking fixes of animals whilst active and triangles show nest sites. The diagonal hatched area shows home range area as a MCP. The light grey shaded area shows the KL95% and the dark grey area shows the KL50% (core use area).

We retrieved her shed transmitter from the main nest. This was the most frequently used nest and was in a crawl space, which she accessed via a small hole in the brick-work. The nesting area was in a relatively open sub-floor space, roughly 5 m wide by 10 m in length, filled with old building material and loose soil. The nest itself was underneath a piece of circular spongy-plastic-mesh, covered by loose dirt. One end of the mesh was embedded into the soil, while the other served as an entrance. A kidney-shaped scrape was dug underneath the mesh roughly 20 cm at its deepest and 25-30 cm at its longest and widest. In total she used four different nest sites during the 15 days that she was tracked to her nest.

## Discussion

Our radio-tacking study suggests that, like yuppies, these bandicoots seem to like old buildings in need of renovation. They appear to be foraging primarily in backyard gardens and urban parks, and we found no evidence from radio-tracking that these bandicoots are using areas such as the rail corridor for shelter or dispersal. We had initially hypothesised that the rail corridor would be important for nesting as they are the only places that had dense vegetative cover, which is preferentially used by bandicoots at North Head, even if comprised of introduced plant species (Chambers and Dickman 2002). Our preliminary radio-tracking data suggest that such cover may not be as important as we first thought, provided there are buildings that have external access (cracks and holes) to the sub-floor space. It also seems that they can find adequate food in urban backyards (possibly supplemented by food from local residents) and are not reliant on remnant vegetation for foraging. This is supported by the fact that all of the animals that we examined were heavy and appeared healthy (including those carcasses that we autopsied). The extensive use made of garden beds and grassed backyards by the animals radio-tracked is in keeping with microhabitat use at North Head where they preferentially and extensively used open grassed areas for foraging at night (Scott 1995, Scott *et al.* 1999).

Since the majority of the confirmed records are within 700 m of the rail corridor, its role in dispersal should not be discounted despite lack of evidence from radio-tracking and our trapping efforts. The rail corridor forms a relatively continuous strip of dense vegetation (albeit largely of weeds) which may provide a less hostile environment for dispersal, and the discovery of two dead bandicoots and signs of diggings (this study; AMBS 2007) suggest that at least some use is made of it.

The home range estimate for the single female for which we had enough data was similar (at least using the 95%KL method) to that found for long-nosed bandicoots at North Head (1.7 ± 0.2 ha) (Scott 1995, Scott *et al.* 1999). The core-use area was much smaller (0.16 ha), which may have been partly because at least two residents in the retirement village were feeding meat to the bandicoots. Supplementary feeding often results in contraction of home ranges (Boutin 1990), although supplementary feeding of the southern brown bandicoot *Isoodon obesulus* resulted in an expansion of home range (Broughton and Dickman 1991). Clearly, more animals need to be radio-tracked to determine whether the home range area and habitat use is representative of other long-nosed bandicoots within the inner west.

Since writing the first draft of this paper, the NSW Scientific Committee made the final determination listing the long-nosed bandicoot *Perameles nasuta* Geoffroy, 1804, in inner western Sydney as an endangered population (NSW Scientific Committee 2008). Under this determination, the population was defined as occurring within the Local Government Areas of Marrickville and Canada Bay, "with the likelihood that it also includes Canterbury, Ashfield and Leichhardt LGAs". The primary reasons for this listing include the disjunct distribution of the animals in the inner west, the inferred number of mature individuals being low, and significant threats to the bandicoots resulting from existence in a highly urbanised environment (vehicle collisions, and predation by cats, dogs, and foxes).

### The origin of the inner west bandicoots and threats to the population

In total, we have confirmed seven dead animals and seven live animals. There is a number of possible explanations for the presence of these animals in the inner west. Firstly, they could represent animals dispersing from "good habitat" elsewhere into a "sink" where some animals may temporarily establish a territory (and perhaps even reproduce) before being killed (by cars, dogs, cats, foxes or rat poison). If this is true, it would suggest that the inner west long-nosed bandicoot population is not a self-sustaining population in the long-term and/ or that there is a larger population not too far away. However, we have been unable to determine the location of any source population. The nearest known populations are separated by the Georges River and Botany Bay to the south (Holsworthy Army Base – 19 km, and Royal National Park - 20 km); or separated by the Parramatta River or Sydney Harbour to the north (Lane Cove National Park- 11km, and both North Head, Sydney Harbour National Park and Garrigal National Parks- 15 km); or are a long way west through extensive urban environments (Yarramundi – 53 km).

Yaralla / Major's Bay, initially suggested as a possible source, did not reveal any signs of bandicoots during our searches. We did record "possible" diggings in two small parks on the Cooks River, but the area of diggings was not extensive, so it is unlikely that this is the location of a source population. Since our search we have received unconfirmed reports of diggings in Lilyfield and Balmain. We recommend that our search area be expanded to incorporate these areas, particularly Callan Park. The search area should also be expanded to include further east along the Cooks River, and further south along Wolli and

Bardwell Creeks. Cursory searches of parts of Wolli Creek by the first author had yielded no signs of bandicoots and recent survey work there (Department of Environment and Climate Change 2008) found no signs of bandicoots.

The second explanation for the presence of these animals is that they are indeed part of a self-supporting population that is either newly established or a remnant population that has persisted from the 1950s in low numbers and has recently become more abundant (hence deaths of animals and diggings in backyards are more noticeable). It is clear from radio-tracking that bandicoots can find both shelter and adequate food in this area, and that most people were unaware when bandicoots were nesting under their homes, so it is possible that bandicoots could have remained undetected for many years. It is also possible that a remnant bandicoot population could have persisted at some of the industrial sites in the inner west (such as the flour mills and old warehouses) that have recently been re-developed as high density housing, and may have been pushed out as a consequence of these re-developments. For instance, the trapping of the first bandicoot in a backyard was not far from, or long after, the re-development of a flour mill complex in Dulwich Hill which lies adjacent to the rail corridor.

If long-nosed bandicoots have managed to persist in the inner west, it raises the question of why they have not been able to persist in outer western Sydney? This may relate to the differences in the scale and time frame of urban development in the two areas and the type of houses constructed. In the inner west, suburbs are characterised by a mix of different aged housing. Whole suburbs or large areas were not necessarily all developed at once, so vacant blocks may have been interspersed with houses for periods of time. In contrast, much of the outer west has been characterised by the development of entire new suburbs in a relatively short space of time. The prevalence of cement slabs and the lack of cracks or missing bricks which offer access to sub-floor spaces in the outer west may have meant that as suitable shelter (dense remnant vegetation) was lost there were no alternative sub-floor shelter opportunities available for bandicoots, unlike the inner western suburbs where sandstone footings and aging brickwork offer many opportunities for under-house access.

Another possible source for the inner west bandicoot population is that these animals have been released by a mischievous person, or inadvertently escaped from a wildlife carer. We have checked with all the major wildlife rescue and rehabilitation organisations in this area, and none report any escapes of bandicoots or in fact carers looking after bandicoots. We think that this is the least likely explanation since fourteen animals seems too many animals for a person to illegally obtain or inadvertently release, although it is theoretically possible that all of these bandicoots are offspring from a single pair.

Long-nosed bandicoots are extremely fecund. For example, at North Head around 85% of females breed each year and it has been estimated that the 45 females could produce 197 young each six months, although juvenile mortality probably always exceeds 75% (Puddephatt and Miller 1996, Scott *et al.* 1999, Banks 2004). Juvenile bandicoots disperse widely from their mother's home range (Cockburn 1990) and long-range movements of re-introduced bandicoots have been recorded. For example, 85% of golden bandicoots *Isoodon auratus* dispersed up to 4 km within the first week of release (Christensen and Burrows 1994) and western barred bandicoots *Perameles bougainville* moved up to 4 km within one year of release (Richards 2006). It is therefore feasible that long-nosed bandicoot progeny from a single pair of animals could have dispersed over the 8.5 km x 6 km area of our records. One of the females that we radio-tracked had previously bred, but we do not known whether she bred where she was caught or elsewhere. The younger female although of adult size, had not yet bred and could have feasibly been her daughter. Residents of the church property report seeing an adult (which they presumed to be a female) with three offspring as early as Easter 2006.

Levels of mortality of animals in the inner west seem to be high (seven dead animals in a 12 month period). Unless there is a more secure source population, the prognosis for the inner west population is probably bleak. The endangered long-nosed bandicoot population at North Head sustains mortality from collision with vehicles of around 5.25 animals per six months (Banks 2004), although true adult mortality was considered double that since some animals may have crawled away from roads to die, and were consequently undetected. Long-nosed bandicoots at North Head have been found to be extremely sensitive to even small increases in mortality (e.g. 1, 4 and 6 additional deaths per annum increased the probabilities of the populations' extinction within 20 years from 10% to 15%, 24%, and 32% respectively) (Banks 2004). Mortality rates of 25% were enough to drive a population of 150 eastern barred bandicoot *Perameles gunnii* to rapid extinction at Hamilton (Minta *et al.* 1990, Clark *et al.* 1995).

There is no evidence that the inner west bandicoots are avoiding the busiest traffic periods to reduce the risk of vehicle collision – both reports from residents and our radio-tracking data show that the bandicoots are often active at or shortly after dusk in an extremely busy traffic area less than one block from Parramatta Road. Our radio-tracking data did show that on some nights the animals remained in the nest or only foraged for a few hours. This may be a predator avoidance strategy as the inner west and the church property where we radio-tracked in particular have high numbers of cats, some of which are feral. Maintaining these bandicoots may depend upon encouraging responsible pet ownership, particularly keeping cats and dogs in at night, and perhaps instigating traffic calming measures and signage to reduce the likelihood of death by vehicle impact. Banks (2004) found that increases in traffic flow and adult mortality would have a far greater impact on bandicoot persistence at North Head than would small changes in habitat area.

## Further research

Apart from what is reported here, we know nothing else about the animals living in the inner west. NSW Scientific Committee (2008) highlights the need for further research to determine the distribution of the population, and we have outlined above, additional areas that we recommend be searched for signs of bandicoots.

At present we have no idea whether there is a focal area for this population on publicly owned land, nor whether the vegetated rail corridor and water canals are of importance for foraging or dispersal. A more detailed understanding of the use of these areas is needed to determine whether measures other than those outlined above (e. g. traffic calming devices and responsible pet ownership) might be needed to ensure the conservation of the population. Given that the majority of records are on private property and the population appears to be at low density, obtaining an estimate of population size, distribution and more general habitat use is problematic. However, use of automated digital infra-red surveillance cameras may provide some insight into the use of areas such as the rail corridor by bandicoots, having been successfully used to detect bandicoots in south-eastern Australia with scent attractants such as truffle oil (David Paull, UNSW@ADFA, pers. comm.). Use of these cameras may also aid verification of diggings in backyards and help to clarify the distribution of the population.

Lastly, we recommend that tissue samples (e.g. ear punches) be taken from any further animals located, to enable genetic studies to be undertaken. Such studies may help clarify how closely related the inner west population is to other more distant populations (e.g. the North Head endangered population) and also whether the animals are descended from a single pair.

We will continue to try to answer some of the questions raised here, and are seeking further information (including historical information) from the public about bandicoots in inner western Sydney. Any information should be forwarded to the first author.

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