



Wanda Beach dog off-leash area

A Review of Environmental Factors for a proposal to allow twenty four hour dog off-leash access



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1. INTRODUCTION

1.1 Introduction

Wanda Beach, north of Gate 5, has been a popular dog off-leash area for the past nine years, providing off-leash access between the hours of 4pm and 10am daily. Considering its popularity there have been ongoing requests from the community to have the area opened for twenty four hour dog off-leash access. In response to this feedback, Council initiated a trial period in August 2013 that allowed twenty four hour off-leash access on the beach. The trial proved to be very popular however a number of social and environmental concerns were raised that prompted the need for a thorough environmental review of the proposal. Wanda Beach and the adjacent sand dunes are sensitive environments used by a variety of user groups. Both the beach and users risk being negatively impacted as a result of increased dog activity.

The desire for twenty four hour dog off-leash access on Wanda Beach needs to be considered against the potential environmental impacts of the proposal. This report is a review of environmental factors (REF) that assesses the impacts of the proposal on issues such as flora, fauna, water quality, biodiversity, beach amenity, heritage and recreation.

1.2 Methodology

The findings in this REF were supported by field observations conducted on site on Friday the 13th and 20th of September between the hours of 9.30am and 11.30 am and on Saturday the 19th of October between the hours of 8.00am and 11.00am. All photographs in this report were taken during these field observations.

2. BACKGROUND

Council in its meeting of 5 October 2004 resolved to allow dogs off-leash on a time limited basis on Wanda Beach for a trial period of six months (refer EHC089-05). The resolution came about following an extensive review of dog off-leash areas in the Shire that was the subject of numerous reports between 2000 and 2004.

Following the six month trial period, Council in June 2005 resolved to maintain the trial conditions for a further two years (refer EHC294-05). The trial conditions were installed on a permanent basis in a Council meeting of 19 November 2007 (refer ENV035-08).

In its meeting of 5 August 2013, Council resolved to allow dogs off-leash on Wanda Beach all day, every day for a trial period of twelve months (refer Mayoral Minute No. 8/13-14). Following two serious dog attacks and an unprecedented number of dogs using the beach, the trial was suspended subject to an environmental review (refer Mayoral Minute No. 10/13-14). This REF constitutes that environmental review.

3. THE SITE

3.1 Site extents

The dog off-leash area is located on Wanda Beach between Gate 5 and Gate 1 (Figure 1). Gate 5 is accessible through Wanda Reserve in the south and Gate 1 is

adjacent to the 4WD park in the north. Dog owners must access the off-leash area through Gate 5 in Wanda Reserve only.

Dogs are prohibited at all times on adjacent beaches and in the dunes behind the beach extending westward to the Heritage Track. Dogs are allowed on lead in Don Lucas and Wanda Reserve and on the Heritage Track.

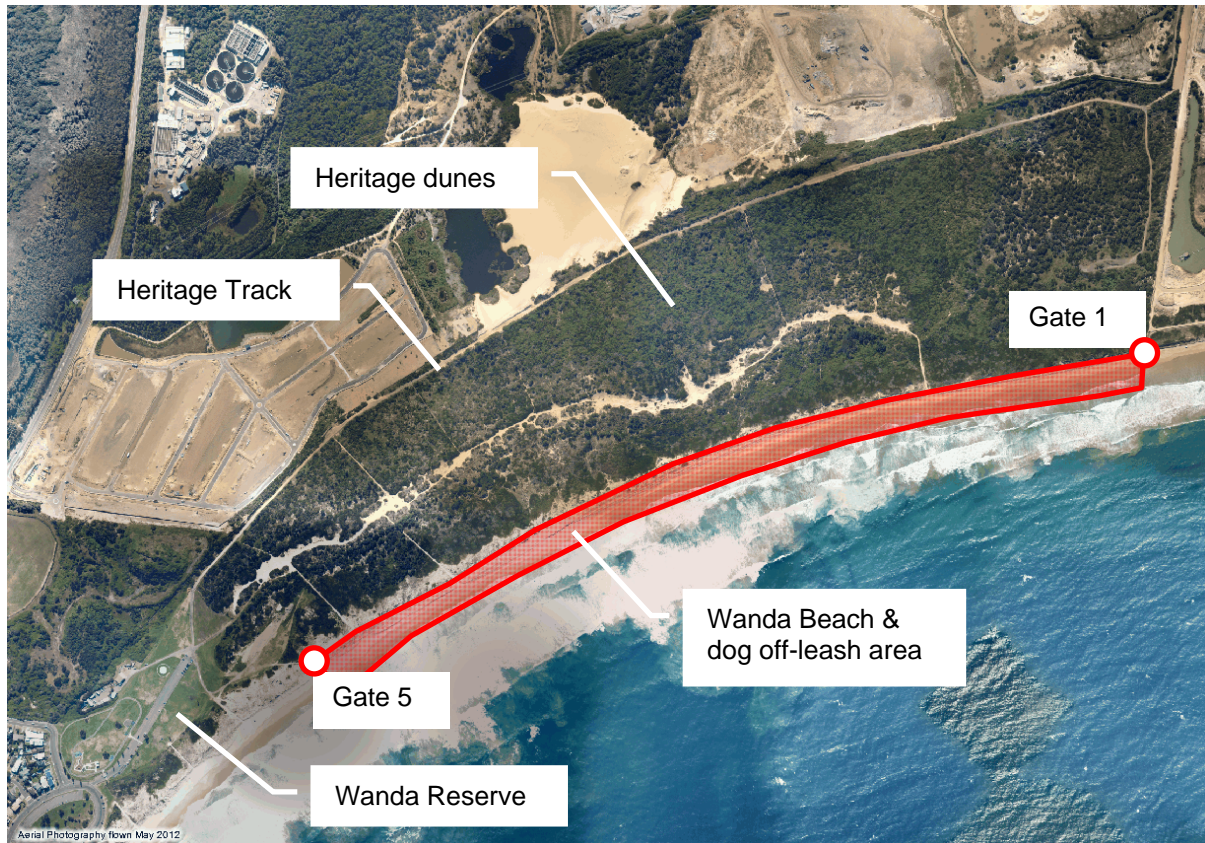


Figure 1 Aerial map showing the Wanda Beach dog off-leash area.

3.2 Land ownership & zoning

The dog off-leash area is on land identified as Crown Land owned by The Department of Primary Industries. Council is trustee of the land and is responsible for its care and control.

The area is zoned 6(a) Public Recreation (Existing) under the State Environmental Planning Policy (Kurnell Peninsula) 1989.

The objectives of this zone are:

- to identify land which is vested in the Council and which is set aside principally for the purposes of public recreation
- to identify land which is owned by the Crown and which is under the care control and management of the Council as public recreation space
- to provide a range of recreation opportunities to meet the needs of the community.

3.3 Site description

The dog off-leash area is a stretch of sandy beach 1.7km long by approximately 40 metres wide (Figure 3 & 4). The Gate 5 entrance to the off-leash area is signposted with information providing details of the time restrictions and off-leash area extents. A dog bag dispensary, waste bin and water is provided at the entrance (Figure 2).

Adjacent to the beach is a 20 metre wide strip of foredunes (Figure 5) consisting of Spinifex grassland which includes the endangered Coast Groundsel *Senecio spathulatus*. Behind these are vegetated dunes consisting of a mix of Coastal Dune Heath and weed species. The vegetation in this area is largely a result of a dune revegetation program implemented in the 60s and 70s to restore the area following its degradation from grazing and sand mining activities. This area extends to the Heritage Track that runs along the back of the dunes approximately 400m away.

Common fauna such as gulls, ravens and magpies have been observed on the beach. A variety of shorebirds such as terns, cormorants, pelicans, oyster catchers and godwits would have previously used the beach for habitat however they are less common in the area due to the urbanization of surrounding areas and the disturbance caused from beach recreational activity. They are however potentially using the beach and dunes in small numbers and they are known to be inhabiting the inlet and reefs to the north of Wanda Beach at Boat Harbour.

The sand dunes adjacent to the beach also offers habitat for a variety of other species including reptiles and common birds such as wrens and kestrels (Figure 6).

The dog off-leash area has considerable heritage significance. It is part of the 'Cronulla Sand Dune and Wanda Beach Coastal Landscape' which is listed as a State Heritage Item by the NSW Office of Environment and Heritage (OEH) (refer to Section 5.6). It has also been identified as having high archaeological sensitivity with a number of aboriginal sites having been found in the area (refer to Section 5.7).



Figure 2 Entrance to the dog off-leash area at Gate 5



Figure 3 The dog off-leash area looking north from Gate 5.



Figure 4 The dog off-leash area looking south from Gate 1.



Figure 5 Spinifex grassland and sand dunes adjacent to the dog off-leash area.



Figure 6 A Nankeen (Australian) Kestrel hovering above the dunes.

4. THE PROPOSAL

4.1 Description

The proposal is to allow twenty four hour access for dogs off-leash at Wanda Beach in the designated area. Dogs are currently allowed off-leash between the times of 4pm and 10am every day.

4.2 Legislative requirements and current situation

Under the NSW Companion Animals Act 1998, at least one public place must be designated as a dog off-leash area per local government area (Section 13,6).

There are currently five dog off-leash areas in the Sutherland Shire. Three areas provide twenty four hour access (including one beach) and two areas are time restricted. A summary is shown below.

| Dog Off-Leash Areas | | |
|---------------------------------|---|------------------|
| Location | Off-leash times | Description |
| Wanda Beach, Cronulla | 4pm – 10am daily | Beach |
| Silver Beach, Kurnell | No time restrictions | Beach |
| Hordens Beach, Bundeena | May – August: 24 hrs daily Sept – April: Before 8.30am and after 4.30pm Monday to Friday | Beach |
| Helena Street Reserve, Kirrawee | No time restrictions | Fenced reserve |
| Carina Bay Reserve, Como | No time restrictions | Unfenced reserve |

Unless designated a dog off-leash area, dogs are prohibited from all other beaches in the Sutherland Shire.

5. IMPACTS OF THE PROPOSAL

5.1 Introduction

Dog activity within a sensitive natural environment such as the Wanda coastal landscape will have some level of environmental impact. These may include impacts on flora and fauna, water quality and public health, visual amenity, heritage and impacts on other users and surrounding areas.

During the trial period it was estimated that between 1,000 and 1,500 dogs used the beach on Saturdays and Sundays. This was a significant increase from the estimated 200 dogs that used the beach on these days prior to the trial period. Based on this data, allowing twenty four hour access will significantly increase the number of dogs using the beach. An increased number of dogs over a twenty four hour time period will have the effect of increasing the intensity of dog activity on the beach and the potential for environmental impact.

The potential impacts identified in this report are based on impacts *already occurring*. The conclusion can be drawn that if twenty four hour access is allowed, the increased number of dogs using the beach will mean that, without mitigation measures, the negative impacts already occurring will continue on a greater scale. These impacts are discussed further below.

5.2 Flora

The vegetation in the dunes adjacent to the beach contains Spinifex grassland and a variety of coastal dune heath species. Of particular significance is the Coast Groundsel *Senecio spathulatus* which occurs on the foredunes adjacent to the beach (Figure 7). This species is listed as endangered under the NSW Threatened Species Conservation Act 1995.

Observations reveal dogs are accessing the dunes despite it being a restricted area (Figure 8). Dogs running and digging in the dunes have the potential to reduce the quality of the endangered Coastal Groundsel population. This is significant as the Wanda Dunes is the only location where Coast Groundsel occurs within the Sutherland Shire.

The likelihood of dogs accessing the dunes and impacting Coast Groundsel will be increased with the introduction of twenty four hour dog off-leash access. While the impact may be small in comparison to damaging natural events such as storms, any impact is undesirable and if possible should be avoided considering the rarity of the species and its endangered status.



Figure 7 Coast Groundsel *Senecio spathulatus* (yellow flowers) on the dunes.



Figure 8 Dogs in the restricted dune area

5.3 Fauna

There are no recent records of shorebirds or other significant fauna at Wanda Beach that Council is aware of. The urbanisation of Cronulla, Wanda and the Kurnell Peninsula has introduced pressures that has reduced the habitat potential of the beach and adjacent dunes. However it is likely that prior to urbanization this beach offered important roosting habitat for some species of shorebirds including the Bar-tailed Godwit, Grey-tailed Tattler, Double-banded Plover, Red Knot, Red-necked Stint, Little Tern and Sooty Oystercatcher (Coughlan 2012). There is potential some of these species are still using or attempting to use the beach during quiet times. A number of these birds are considered threatened or are protected under international agreements.

Despite the absence of significant fauna on the beach, the area would offer suitable habitat and refuge for a number of shorebird species if left undisturbed. Lifting the time restrictions of the dog off-leash area will further reduce any remaining potential the beach has in offering habitat or refuge for shorebird species. This impact is undesirable and should be avoided, particularly considering there has been a significant decline in shorebird numbers in Sydney over the past fifty years (ed. Straw 2003).

5.4 Water quality

The 2012-13 *NSW State of the Beaches* report by the NSW Office of Environment and Heritage (OEH) lists the suitability of Wanda Beach for recreational swimming as 'good'. OEH describes Wanda Beach as being 'suitable for swimming most of the time, with few potential sources of pollution'. The beach has shown a marked improvement in water quality since the upgrade of the Cronulla Sewage Treatment Plant in April 2001.

Dog faeces has been observed on the beach below the high tide mark during all site visits (Figure 9). The increase in dogs that will come from twenty four hour access from will most likely result in increased volumes of faeces being left on the beach. This has the potential to compromise the high level of water quality found at this beach. While evidence suggests the risk to overall water quality is low, there will always be some localized contamination of water when it is exposed to faecal matter. This has more serious implications for public health which is described below.

5.5 Public health

Dog faeces contains disease causing micro-organisms called pathogens which can be transferred to humans through water. These pathogens cause gastroenteritis and infections of the eye, ear, skin and upper respiratory track. Scientific studies provide evidence that dog faeces represents the largest animal source of the pathogen enterococci to recreational beach areas, compared with other potential sources such as humans and shorebirds.

Dog faeces can also contain worms and parasites which can infect humans. Humans become infected by coming into direct contact with dog faeces and ingesting worm and parasite eggs. This can occur even when the dog faeces has been discarded weeks earlier. Some groups of users, particularly children and tourists, are more susceptible to infection than others. This is of particular concern considering children and tourists are frequent visitors to beach areas.

As beach recreation naturally involves close contact with sand and water, the risk of beach users coming into contact with dog faeces is high. The problem is compounded by the ease in which faeces or dog bags can become partially buried or mixed in sand, becoming undetectable to beach users. This increases the potential for people to unwittingly come into contact with dog faeces. Children playing or digging in the sand would be particularly vulnerable. This is a significant health risk considering children are one of the groups most susceptible to infection.

A report on dog-related misconduct at Wanda Beach noted that failure to dispose of dog faeces appropriately was the most common misused rule on Wanda Beach (Cook 2011). This trend is likely to continue and on a greater scale if twenty four hour access is allowed. This will increase the volume of faeces contaminating the water and sand and increase the risk of infection from pathogens, worms and parasites. As the public health implications are serious, particularly for vulnerable user groups, the risk of beach users coming into contact with faecal matter or contaminated water should be minimized where possible. The most effective solution would be to limit dog activity on the beach.



Figure 9 Dog faeces encountered on the beach during one site visit.

5.6 Natural heritage and visual amenity

The dog off-leash area occurs within the State listed heritage area called the 'Cronulla Sand Dunes and Wanda Beach Coastal Landscape' (Figure 10). In its statement of significance, the NSW State Heritage Register describes this area as 'surviving as an important coastal landscape, synonymous with Cronulla.' The unique visual amenity of the site is also recognized as having 'aesthetic qualities that are held in high esteem by the community'.

While having a legacy of disturbance from grazing and sand mining activities, the large dune system adjacent to the beach has been restored to the point where it provides a unique natural environment with significant heritage and aesthetic quality. The area offers a rare glimpse of the area's natural history in an otherwise highly developed part of Sydney. Its place as an attractive natural landscape will continue to strengthen as the surrounding areas become more heavily developed.

Dog activity and pollution occurring from dog faeces and dog bags in the heritage area has the potential to undermine the heritage significance of the site (Figures 9 & 11). It negatively impacts on the visual amenity of the natural area and creates distractions that prevent people from fully appreciating its unique heritage and aesthetic values. People seeking these qualities of Wanda Beach are currently able to do so undisturbed by dog activity during the majority of the day. This opportunity will be lost if the beach becomes an unrestricted dog off-leash area and the risk is that the heritage values of the site will be diminished. Considering the heritage of Wanda Beach is recognized as having State significance and is therefore highly valued, this should not be risked by the increased impacts that will come from twenty four hour dog off-leash access.

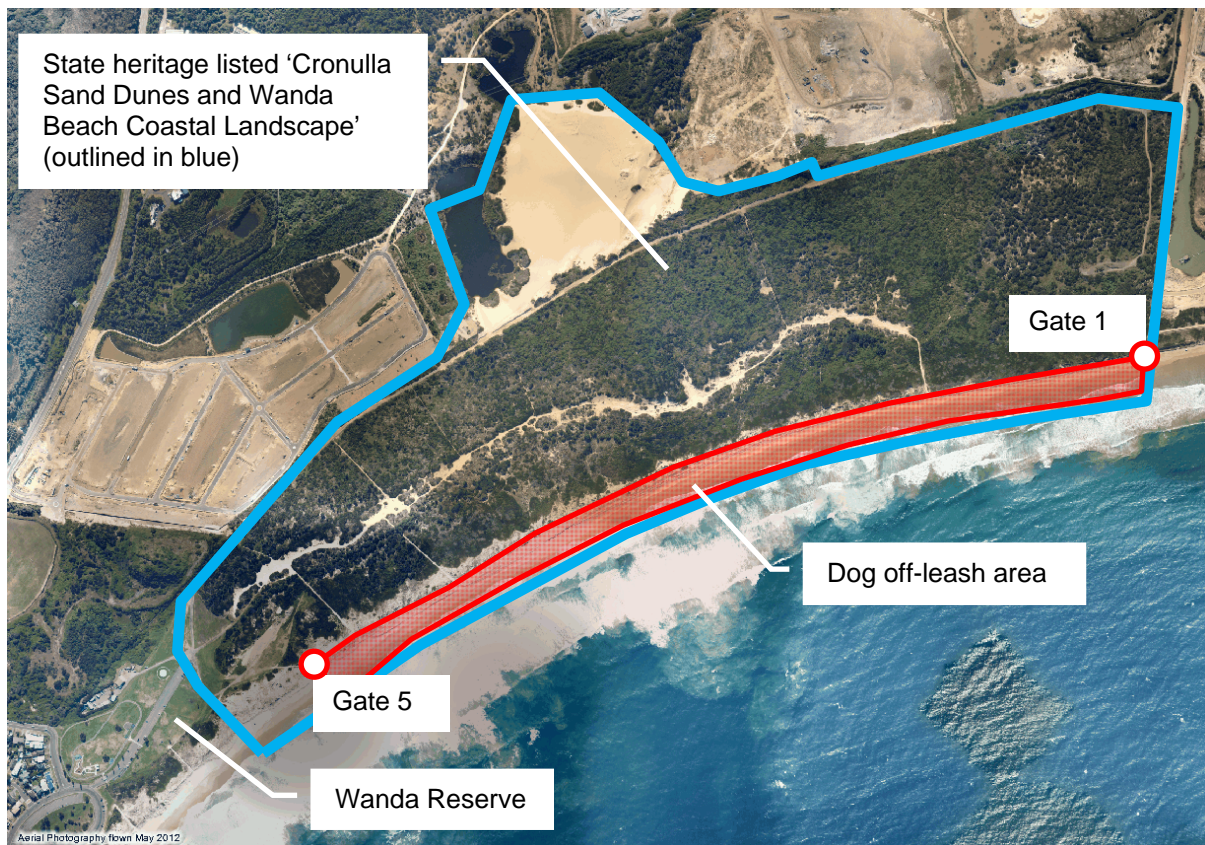


Figure 10 Aerial map showing the dog off-leash area within the heritage landscape.

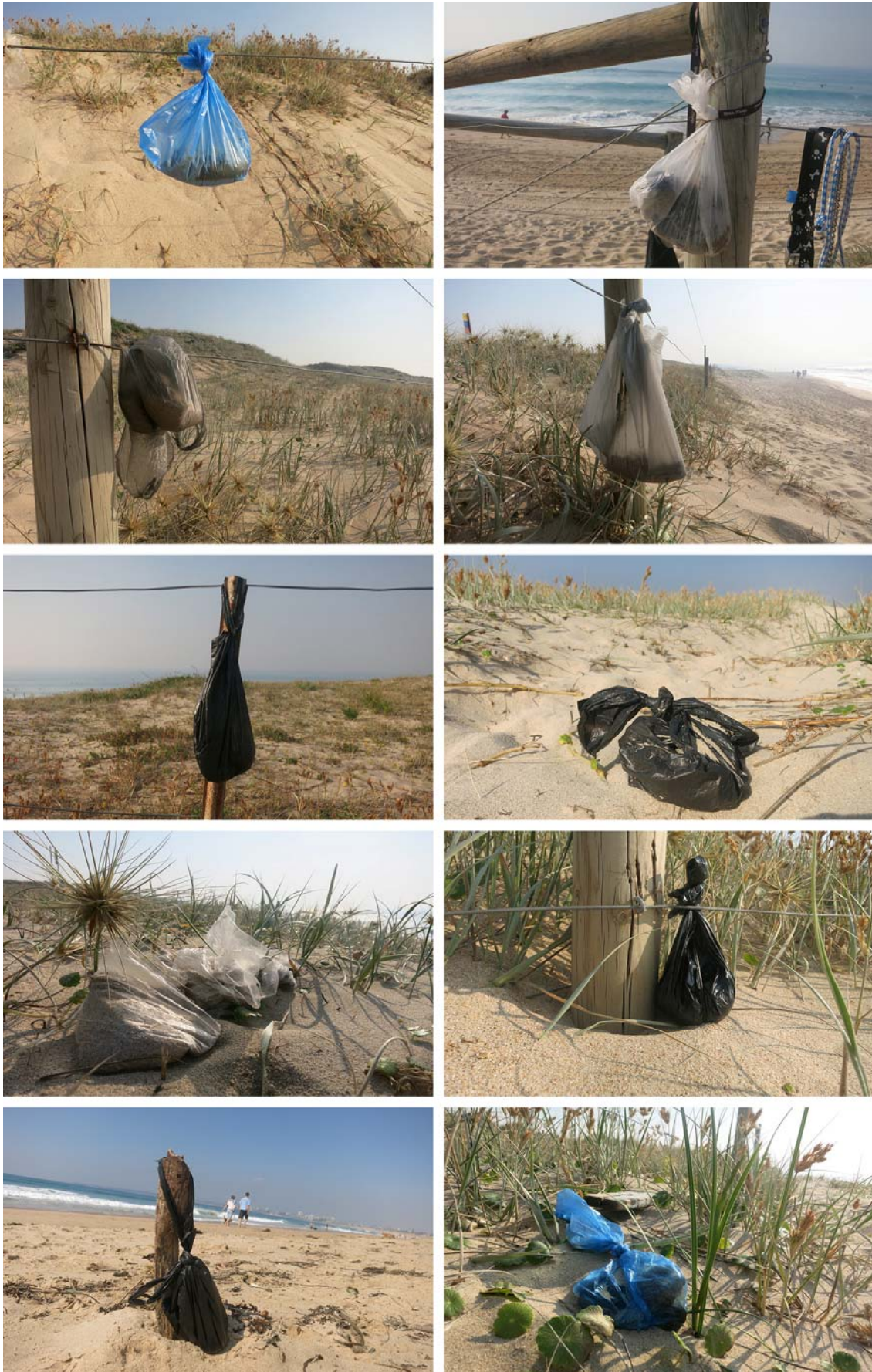


Figure 11 Highly visible dog bags impacting on the visual amenity of the heritage landscape. The bags were found during one site visit.

5.7 Aboriginal heritage

The NSW State Heritage Register's assessment of significance notes the following:

The Cronulla Sand Dune has the potential to yield further information on the Aboriginal habitation of this area. The drifting nature of the dune ensures that it entombs burials and environmental material as it moves. The Cronulla Sand Dune has been acknowledged as having some potential to contain archaeological material such as shell middens, artifacts or burial sites.

A search of the OEH Aboriginal Heritage Information Management System (AHIMS) database reveals four aboriginal archaeological sites recorded on the edge of the dog off-leash area. These include one burial site and three middens. An Aboriginal Heritage Impact Statement commissioned for the nearby Heritage Track identifies such sites as likely to 'represent extensive, continuous Aboriginal occupation of the whole Wanda Dune.' The potential for the site to have Aboriginal heritage value should be recognized.

There is a risk dog activity could negatively impact on Aboriginal heritage by disturbing Aboriginal archaeological sites. This could occur from activity such as digging and trampling, particularly in the dunes. While presently this risk may be low, allowing greater numbers of dogs on the beach increases this risk. Considering its potential to yield further information on Aboriginal heritage in the area, a sensitive approach to recreational use is best adopted and the potential for disturbance should be minimized where possible.

5.8 Coastal biodiversity

There is substantial evidence showing the dunes, which is a restricted area, are being accessed by dogs. A well worn path stretches the entire length of the foredune which occurs immediately adjacent to the off-leash area (Figure 12). Dog tracks, dog bags and dog faeces (Figure 16) have been observed on this track and other parts of the dunes during site visits. Dogs have been observed entering the dunes on numerous occasions (Figure 8 & 15).

The dunes adjacent to the dog off-leash area plays a significant role in contributing to the region's unique biodiversity. The NSW State Government's Coastal Dune Management Manual (Department of Land and Water Conservation 2001) states: 'Dune vegetation is recognised widely as an integrated botanical system exhibiting interdependence in both community structure and floristics and providing food and shelter for a variety of fauna. The need to protect, maintain and restore these intrinsic ecosystem values is a key element in conserving biodiversity.'

The prevalence of dog faeces and dog bags has been observed to be higher in the dunes than on the beach itself. An explanation for this could be that the high, vertical berm of the adjacent foredune prevents owners from easily observing and controlling their dogs in this area (Figure 13). It also makes it easier for dog faeces and dog bags to be left behind in obscured parts of the dunes. Dogs accessing the dunes potentially creates a number of impacts including:

- loss of amenity in the dunes due to rubbish and dog faeces
- habitat loss from trampling of vegetation and disturbance of burrows and nests

- reduced food supply for shorebirds and other fauna from dog foraging and disturbance
- reduced numbers of shorebirds and other fauna from dog threats and attacks.

The cumulative effect of the above is a reduction in the quality of the dune environment and a threat to its biodiversity. This threat is not limited to the immediate dune area only but also extends to neighbouring landscapes. The Coastal Dune Management Manual (Department of Land and Water Conservation 2001) states “It is important to recognise the links between the dune ecosystems and those other coastal landscapes nearby. Beaches and dunes may host fauna ...as they seek food and nesting material” It is well known that several species of migratory shorebirds, some threatened, inhabit Boat Harbour approximately 2km to the east of the dunes.

The Wanda Beach area still has the potential to offer suitable habitat for a number of shorebirds that are now listed as threatened under the NSW Threatened Species Conservation Act 1995. Under this legislation and other Federal and international agreements, Council is obliged to protect the habitat of these threatened species. This is particularly important considering an Australia-wide decline in shorebird numbers that has occurred over the past fifty years. This decline and its cause is identified in the report *Status and Management of Migratory Shorebirds in Sydney* (Sydney Olympic Park Authority 2003) which states “Nowhere has the decline been as dramatic as in the area around Sydney. It is clear that one of the main factors behind this decline has been the loss of habitat and through disturbance at feeding and roosting sites.” It is very likely disturbance at Wanda Beach from dogs off-leash has contributed to a decline in shorebird numbers. This is supported by a number of scientific papers that conclude dog walking in natural habitats adversely affects bird diversity and abundance.

There is the risk the biodiversity of the dunes will be negatively impacted by the proposal to allow twenty four hour dog off-leash access at Wanda Beach. The proposal will allow more dogs on the beach and increase the potential for the dunes and shorebird habitat to be disturbed. While the area has already been affected by urbanisation and recreational activity, the more an area is left undisturbed the greater its chance to be reclaimed as habitat. This would be a highly favourable result but increased numbers of dogs on the beach will put further pressures on the dunes and exclude this outcome. Considering the well documented decline in shorebird numbers in the Sydney region and Council’s obligation to protect threatened species, no further pressures from dog activity should be introduced to this area of potential habitat.



Figure 12 The foredunes adjacent to off-leash area showing a worn path.



Figure 13 The sand dune berm obscuring the view of the dunes behind.



Figure 14 Dog tracks leading into sand dunes through the dune fencing.



Figure 15 A dog in the prohibited dune area.



Figure 16 Dog faeces found in the dune area during one site visit.

5.9 Conflict with other users

The area north of Wanda is an important recreational resource in the Shire and is used at all times of the day for a range of recreational activities. These activities include walking, jogging, bird watching, fishing, swimming, surfing and picnicking (Figure 17 & 18). On occasion the beach is also used for organized sporting events such as beach runs.

Many user groups wish to partake in recreational activity on the beach without disruption from dogs. While dogs should be under effective control at all times, many dogs do not remain under effective control and can disturb other beach users. A particular annoyance for joggers is being chased by dogs along the beach and surfers complain of dogs urinating on surfboards. Other groups such as kite flyers, the elderly and parents of small children can also be easily aggrieved by uncontrolled dogs.

The quality of the beach experience for those wishing to use the beach for recreation can be negatively affected by uncontrolled dogs and annoyances such as dog faeces, discarded bags, noise and dogs in prohibited areas. A negative experience can be a source of frustration for beach users and lead to animosity towards dogs and dog owners. Introducing dog activity on the beach at all hours of the day has the potential to undermine the quality of other recreational experiences, create conflict and potentially exclude other users. The risk is that the area will lose its potential to support a wide range of recreational opportunities and maintain the sense of harmony and inclusivity that the beach is well known for.



Figure 17 A mix of recreation activities in the dog off-leash area.



Figure 18 Surfers using Wanda Beach within the dog off-leash area.

5.10 Educational opportunity

The Wanda Beach area offers an excellent opportunity to learn about Sydney's coastal vegetation, coastal processes and biodiversity. The quality and extent of the dune system and its accessibility makes it a well regarded educational resource. The beach and dunes are frequently visited by teachers and students from educational facilities around Sydney.

Introducing twenty four hour dog off-leash access risks diminishing the educational value of Wanda Beach. Those currently using the beach for education can do so undisturbed by dogs during the majority of the day. Twenty four hour dog off-leash access would limit the opportunity for teachers, students and other groups to observe the coastal landscape free of distractions from dog faeces, dog bags and dog activity in general. Such distractions would affect the quality of the natural area being researched and reduce the effectiveness of teaching and learning in the field. This is not desirable considering the high educational value the beach offers for teachers and students of all levels.

5.11 Impacts to surrounding areas

Dogs and dog owners accessing the off-leash area are in close proximity to Don Lucas and Wanda Reserve as well as the entrance to the Heritage Track. It has been observed during site visits and patrols that some dog owners allow their dogs to be off-leash in Wanda Reserve between Gate 5 and the car park. Dogs are also being allowed off-leash in Don Lucas Reserve and frequently in the Heritage Track which is further away from public view. Over the trial period in August, 180 people were cautioned for not having their dogs on a leash in areas where a leash was required. The report by Cook (2011) noted that dogs walking off-leash in Don Lucas Reserve and in the car park was frequently observed.

There is a likelihood that dogs walking off-leash in prohibited areas such as Wanda Reserve, Don Lucas Reserve and the Heritage Track is having a similar impact as already described, including:

- damage to adjacent dunes
- disturbance to fauna
- pollution from dog faeces and dog bags
- increased causes of annoyance for other users from dog faeces, discarded dog bags, noise and uncontrolled dogs
- conflict between dog owners and other users
- limiting the recreational potential of surrounding areas.

The risk of these impacts occurring will be increased with the introduction of twenty four hour dog off-leash access. While on a smaller scale, the effects will be the same and contribute to a compromised coastal environment and a reduction in the quality of experiences for other recreational users.

6. MITIGATION MEASURES

A number of measures could be implemented to assist in mitigating the potential environmental impacts described above in Section 5. These include:

- installing more bins to encourage dog waste disposal
- installing educational signage explaining the importance of protecting dunes and coastal vegetation
- installing more regulatory signage particularly on the Heritage Track behind the dune
- installing directional and gate signage to better indicate the location of the entry to the off-leash area
- conducting more patrols from Council Inspectors.

It cannot be assured however that these mitigation measures will be effective in reducing the potential impacts of twenty four hour dog activity. Impacts are already occurring despite bins, dog bag dispensers, signage and fencing already installed in strategic areas. The provision of a large bin and a dog bag dispensary at Gate 5 has not stopped dog bags or dog waste being left on the beach. Ongoing observations of dogs walking off-leash in prohibited areas or at the wrong time shows that signs are being ignored or misinterpreted by many dog owners. Dune fencing is not preventing dogs accessing the dunes. Council Inspectors are currently patrolling five days a week for two hour periods but are unable to be present at all times to regulate prohibited activity.

The effectiveness of mitigation measures cannot be assured unless implemented with thorough planning and ongoing funding. However employing considerable resources may not even be enough to lessen the impacts from intensive dog activity such as that seen on the beach during the trial period. The unpredictable actions of dogs not under effective control are hard to prevent regardless of the number of bins and signs installed and patrols conducted. The most effective and manageable option for mitigation therefore may be to focus on limiting those impacts already being caused by dog activity under the current off-leash time restrictions.

7. CONCLUSION

This review concludes that the current dog off-leash activity occurring on Wanda Beach between the hours of 4pm to 10am is already having a negative impact on the environment and other users and this impact will be made greater with the provision of twenty four hour access. Dog off-leash activity is risking public health and affecting the amenity of the beach through the ongoing presence of dog faeces and discarded dog bags. It is also impacting on the amenity, flora and fauna of the adjacent sand dunes. These impacts are having larger cumulative effects on such things as biodiversity and heritage significance and the recreational and educational potential of the area. The risk is that twenty four hour access will cause these negative impacts to occur on a greater scale. The implications of this make it an unacceptable risk.

The end result of the potential impacts from twenty four hour dog off-leash access is not only a decrease in the quality of the natural environment but a decrease in the quality of experience for other beach and reserve users. Dog activity and its impacts can be the cause of a number of annoyances for other users and lead to conflict. This can have the effect of detracting from someone's ability to enjoy a recreational area to its full potential. In an area known for its inclusivity and support for a diverse range of recreational opportunities, this is undesirable.

The installation of additional infrastructure such as bins, dog bag dispensaries, signage and fencing is an option to mitigate the potential impacts of the proposal. However considering the extent of impacts described in Section 5 and the unassured effectiveness of future mitigation measures, adopting a mitigative approach will not be a solution that makes twenty four hour dog off-leash access acceptable. The report however recommends that measures be investigated to mitigate the impacts already occurring on Wanda Beach as a result of dog off-leash activity. Appropriate resources should be allocated to enable the proper planning and implementation of these measures to effectively preserve the many qualities of this natural area.

8. RECOMMENDATIONS

This review recommends the following:

1. That the Wanda Beach dog off-leash area not provide twenty four hour off-leash access.
2. That consideration be given to reducing the hours available for dogs off-leash on Wanda Beach to minimise the current impacts being caused by off-leash activity.
3. That additional resources and funding be allocated to support measures to minimise the current impacts being caused by dog off-leash activity ie. Regulatory staff, signage.

9. REFERENCES

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