

BEHAVIOUR OF DOGS AND THEIR OWNERS AT KEY ESTUARY ECOLOGICAL SITES

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Introduction

Ramsar international significance criteria, these include the famous Godwit (*Limosa lapponica baueri*) and more well-known birds like the Oystercatchers (*Haematopus*) or Paradise Shelduck (*Tadorna variegata*). This criterion gives international significance alongside its inclusion in the East Asian Australasian Flyway Partnership (East Asian Australasian Flyway Partnership, 2018). It currently hosts 38 wetland species, some of which are nationally endangered, threatened or at risk. These species used for mahinga kai purposes. Birds bring the community together in annual events like Farewell to the Godwits and people love birdwatching and protecting what is present at the estuary. The birds provide ecological benefits and are key players in the ecosystem.

Human and Dog Disturbance

Human disturbance on birdlife studies were based on observational methods. Some research used meta-analysis, and some used surveying. The effects of this was negative, as more disturbance reduced the time birds spent incubating or foraging for food (Burger, 1981; Glover et al., 2011). Certain species were found to leave their original site altogether when disturbed, exposing them to harsher conditions and a potential lack of resources (Navedo & Herrera, 2012). Flight initiation distance (FID) was significantly impacted by the intensity of the disturbance. Walkers produced less of a response than joggers or people walking dogs because their movements are slower (Burger, 1981; Glover et al., 2011). Birds also react to proximity, where the closer the activity occurs the more likely they are to be frightened off. In extreme cases, the fitness of b

Some questions served the dual purpose of educating the public on the current by-laws and provided insight as to how they are interpreted and what is understood about the issues the estuary faces.

Results

Discussion

Our research question aimed to observe the relationship between dogs and owners at the estuary and the effect on birdlife, allowing us to review the present dog by-laws and their effectiveness. While designing our survey questions, we had to ensure the wor

Although the effects of dogs on birds are large, there are measures that can reduce this. Dogs may cause birds to relocate, leading to territorial issues, energy expenditure, reduced feeding, and more adverse effects (Figueiredo de Almeida Silver, 2020). Forest and Bird policies outline that dogs should not be present in intertidal zones or at the very least be consistently leashed (Forest and Bird, 2017). McCormacks Bay is adjacent to the intertidal zone and provides high biodiversity on the man-made islands. As Section 14 of the by-laws state in this space, dogs are prohibited, and in adjacent areas need to be under constant effective control. In this example of the estuary, it is advised that boundaries are changed to best protect ecologically valuable areas. In areas such as the rugby field at McCormacks Bay, which is directly connected to the islands, dogs must be under effective control. As defined, effective control can provide a safer zone for birds, but in addition to this it is beneficial to add barriers, which we discuss in the following section.

Natural Barriers

Multiple people mentioned seeing dogs running into the estuary in certain areas, which we also witnessed during our observations (Figure 6). From these observations, we suggest placing a natural barrier along this walkway as this will be one of the best deterrents, we must protect birds in the estuary (Figure 11). This figure outlines areas that would create more protected space for birds than is currently present. Natural barriers would not fully stop dogs



Figure 11: A mock map of what a sign could look like at the McCormacks Bay Reserve to show users of the estuary where they can and can't take their dogs (based off signs seen in Charlesworth Reserve) the asterisk shows the walkway that connects the Mt Pleasant Community Centre to the rugby fields.

from entering the estuary, but act as a visual deterrent for dogs and owners, with thicker shrub being more effective. Inserting a physical fence would prevent birds from using the estuary, so a natural barrier of salt tolerant plants would be preferable. The estuary could benefit further by using a plant such as

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carbon sequestration. Natural barriers could also be supported by signage at either end of the walkway that would let users of the know that their dogs are no allowed on the estuary (Figure 11). We know that

to influence pro- H Q Y L U R Q P H Q W D O G H F L V L R Q V Z L W K L Q W K H S X E O L F W K H \ means changing their social norms and facilitating pro-environmental decision making. Our nudge could be the use of a natural barrier and signage to deter people from walking into/close by the edge of the estuary. Ensuring dogs do not enter the wetland and roosting areas we are hoping to mitigate some of the issues, however, unless the Trust wishes to revert the grassed rugby field space back to wetlands it will not be possible to completely eliminate disturbances, so we suggest natural barriers as a way to

We think a mix of education and barriers will be most effective in ensuring that owners do not allow their

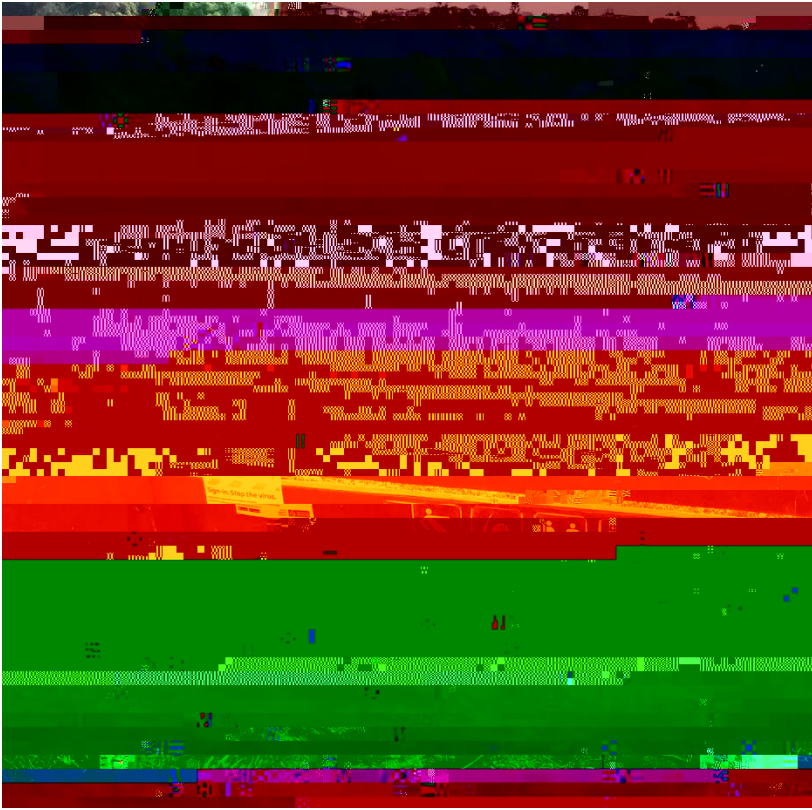


Figure 14: The McCormacks Bay Reserve sign that is found outside the rugby fields car park. It has no mention of any dog by-laws on it.

From our survey, we found that only 57% of interviewees had seen a sign regarding dogs during their time at the estuary (Figure 12). A key finding was also the high number of signs counted at Charlesworth Reserve (9) but very few signs at McCormacks Bay (3). There were three signs total, excluding the rugby club sign, and only one had information about dogs. The location of this is shown in figure 3 and denoted by the red dot. The main sign welcoming estuary users makes no mention of regulations surrounding dogs (Figure 14). 69% of estuary users acknowledged the need for clearer as well as more signs. We recommend that this is the first step

the Trust takes as we cannot expect people to follow the rules when there is no opportunity to learn what they are. Our question regarding the value of the estuary, showed us that it is highly valuable to most people, even if they do not visit regularly. Many people love the view of the estuary from their home or alternately visitors not from the area expressed a similar sentiment of valuing the estuary. This shows us that most people visiting have a high respect for our ecosystems and would be willing to take steps to care for the space better.

One sign that we found at McCormacks Bay Reserve was a two-sided educational board that explained QXPHURXV WKLQJV DERXW WKH HVWXDU\ H (figure 15). We thought that this sign could be replaced in a more high-traffic area, such as at the rugby park. The sign is currently in a relatively low traffic area and is sun-bleached, making it unattractive to look at and hard to read. A potential location change DW OF&RUPDFN\ TV ED\ IRU D QHZ LQIRIB. Clean RQ V LJ D VHQVH RI VKDUHG UHVSQRVLELOLW\ FDQ DOVR KHOS WR VKDSH estuary in a better way. The demonstration sign in figure 9 and figure 16 aims to include people in the care for the space, as well as welcoming them.

Seasonal Signs

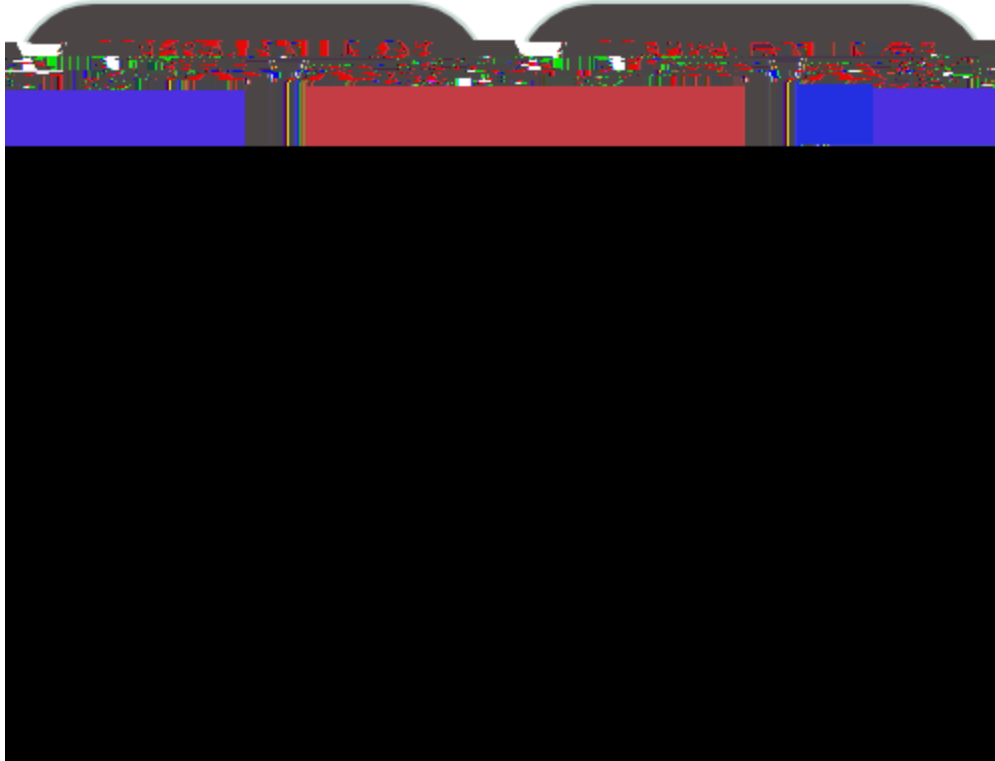


Figure 17: A mock-up of the warning signs that the estuary trust could use to inform people that they need to put their dog on a leash to avoid bird disturbance.

Our third recommendation links to the second and was recommended by multiple people we spoke to around the estuary. Many estuary users thought that even if more signs are placed around the estuary, that they become a part of the scenery. Placing signs seasonally at the estuary would mean it is more visually engaging and would allow people to become more familiar with bird species and cycles around the estuary. We were made aware in the literature review that dogs disturb birds especially during nesting times, they cause site shifts and decrease time spent in the nest, likely decreasing nesting success (Navedo and Lord). Anecdotally, many people believed that their dog had no impact on birds because they were well behaved, even when off the leash. This did not always align with observations or prove steadfast. Dogs can disturb birds even on-leash initiating flight and disturbance, and often off leashed dogs that are believed to be under effective control, can lose control (Navedo, 2012). Providing signage explaining what the effects of dogs on birds are and why this is so vital, would allow people to understand that the effect of dogs on birds is complex.

Placing Signs with pictures of specific birds as well as information would be interesting to many members of the public. This is like the signs up at the port hills when it comes to lambing season. Not only will people be aware of the wildlife at the estuary, but they can begin to understand why some of the by-laws are in place. We understand that a challenge of this is that people may disturb nesting birds after they see the signs as they want to see the birds for themselves or take photos. The Trust has

found that they need to keep the hatching period of the Little Blue Penguin secret for this reason. We recommend that the Trust does not disclose locations on the signs and makes a specific request not to

Conclusion

This report aims to explore the way dogs behave at the estuary and their owners' understanding of the dog by-laws. In the future, it would be beneficial to investigate a wider range of variables that influence birdlife at the estuary, such as cats which many respondents believed had a large, if not greater, impact on surrounding birds than dogs. The recommendation of including natural barriers also would help to decrease the impact of dogs on birds by providing extra protected space and other environmental benefits, we believe the implementation of this would be highly beneficial. Another future research opportunity would be in terms of the signage around the estuary. From our recommendations, a new design layout may be necessary to J U D E S H R S O H T T E S D W E Y S H O W T H A T M O S T estuary users would like signage to be clearer. Having distinct, informative, and engaging signs would be beneficial for the public, raising the level of education. The last research gap is the implementation of the by-laws. Som H U H V S R Q G H Q W W H I S R E P O R T I Q U A L I T Y O N E 3 Z K H Q W D O N L Q J D E R X W I R O O R Z L by-laws, this shows a lack of enforcement perceived around the estuary. Enforcing the by-laws 24/7 is a difficult task and has many limitations, therefore educating the public on why the rules are there in the first place is essential. This research could be influential for the wider community as we continue to see significant losses of biodiversity worldwide.

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Appendix

Appendix A Detailed explanation on Section 3.2 of the Dog By-laws

