

Reducing Dog Disturbance to Wildlife

What strategies are effective to encourage responsible dog owner behaviour to protect bird life?



UNIVERSITY OF CANTERBURY

GEOG309 Research for Resilient Environments and Communities

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Table of Contents

Executive Summary	3
Introduction	4
Background	4
Problem	4
Research Question and Aims	5
Literature Review	6
How bylaws regarding wildlife have influenced behaviours	6
Educational activities in ensuring compliance with bylaws to protect wildlife	6
An overview of wildlife and non-human rights	6
The significance of RAMSAR sites (wetlands of international importance)	7
How signage has helped guarantee wildlife welfare and environmental protection	7
Methods	7
Data Collection	7
Data Analysis	9
Results and Discussion	10
Most common dog walking areas and the correlation with recognition of signage	10
Prototype Posters	11
Participants' awareness of dog regulations within Christchurch	13
Participants' social and environmental responses	13
Ideas on other strategies	14
Limitations	14
Recommendations	15
Acknowledgements	16
References	17
Appendix 1	20

Executive Summary

- Coastal areas are essential in New Zealand for a range of activities such as supporting wildlife habitat, environmental processes and recreation. The Avon-Heathcote Estuary is an important coastal area located off the east coast of Christchurch in the South Island.
- As the Avon-Heathcote Estuary edge is accessible to the public by walkers and dogs, birds inhabiting the estuary tend to be disturbed by dogs which reduces breeding success.
- Working with the Avon-Heathcote Estuary Ihutai Trust and the Christchurch City Council this report aims to determine if signage is effective to encourage responsible dog owner behaviour to protect birdlife.
- Due to concerns from Mana Whenua, the research process had to be adapted in the location context. This research aims to gather information from wider areas concerning dog owners and dog walkers and apply these findings to the Avon-Heathcote Estuary.
- Dog walkers and owners around Christchurch were surveyed in person and online to collect qualitative and quantitative data.
- Signage that was clear, concise and respectful was found to be the most effective at encouraging responsible dog owner behaviour.
- Limitations included prestige bias, lack of diversity between participants, and research locations.
- Future research should seek perspectives from wider demographics to increase the reliability of findings and test other strategies such as educational activities and advertisement campaigns.

Introduction

Background

The Avon-Heathcote Estuary serves as an essential habitat for many native New Zealand shorebird species. There are concerns that dog walkers are not following the bylaws in the Avon-Heathcote Estuary. The Christchurch City Council Parks Unit is in the process of designing signage to be used in the area in hopes of reducing dog disturbance and protecting bird populations. Our research process was adapted away from the Avon-Heathcote Estuary and instead conducted at parks around Christchurch to comply with concerns from Mana Whenua.

Estuaries, river mouths and beaches serve as important wintering grounds where shore birds congregate to feed in the intertidal zones and prepare for migration (Burger et al., 2004; Dit Durell et al., 2005; West et al., 2002). During winter periods shore birds are vulnerable as they are required to build up fat reserves necessary for the survival of migration periods (Dit Durell et al., 2005; Lafferty, 2001). Therefore, shorebirds are the estuarine wildlife most at risk from disturbance from human activities.

A bird that has been disturbed tends to fly or move away from its area and be more vigilant and thus spends less time conducting activities necessary for survival and reproduction (Lafferty, 2001; Randler, 2006). Disturbance to shorebirds can increase mortality rates and reduce body condition (Dit Durell et al., 2005). Humans alone have significant disturbance to migrant birds, for example, 60% of birds flew away from humans and did not return in response to this disturbing interaction (Burger et al., 2004). However, unrestrained dogs cause significantly more disturbance to birdlife than restrained dogs (Lafferty, 2001). Fewer larger disturbances have less damage to a bird's fitness and survival processes than many small disturbances (Goss-Custard et al., 2006; West et al., 2002). The constant presence of humans and dog walkers causes many small disturbances and thus, emphasises the importance of dog prohibition in areas where birds are vulnerable.

Problem

Current bylaws in estuaries are not effective in reducing birdlife disturbance from unrestrained dogs such as the Avon-Heathcote Estuary. The recent observational study by Figueiredo (2020) found that estuary users tended to ignore signs. The dog bylaws in place at the Avon-Heathcote Estuary include specific areas where dogs are prohibited and must be on a leash or under effective control (Figure 1). These bylaws are currently communicated through online resources such as the Christchurch City Council website and signage around the estuary. However, the effectiveness of dog bylaws is dependent on dog owner and walker compliance (Lafferty, 2001). It is unclear how effective signage is as a tool to communicate dog walking bylaws to encourage compliant behaviour.

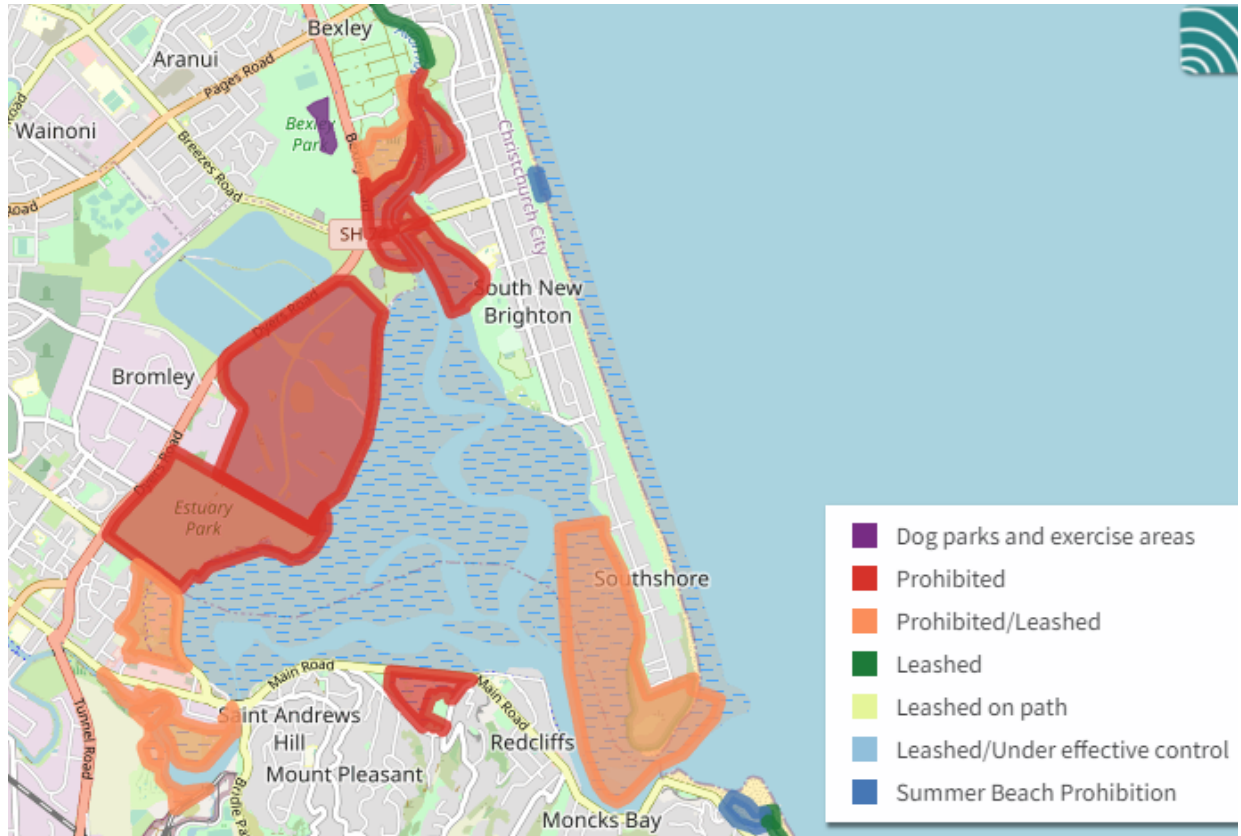


Figure 1. Dog bylaws as applied to specific areas surrounding the Avon-Heathcote Estuary, Christchurch, New Zealand (Christchurch City Council, n.d.).

It appears that dog owners who do not follow dog regulation bylaws are contributing to unnecessary birdlife disturbance. Seven endemic bird species rely on estuaries in New Zealand, reducing birdlife disturbance is therefore necessary to mitigate these long-term time and energy costs (West et al., 2002; Dowding & Moore, 2006). Endemic species such as the New Zealand dotterel and the black stilt are threatened and the New Zealand pied oystercatcher is at risk (Robertson et al., 2021). New Zealand also houses internationally important migrant shore birds such as the Bar-tailed godwit, Lesser knot, Pacific golden plover, Red-necked stint and Turnstone (Dowding & Moore, 2006).

Research Question and Aims

This report aims to investigate if signage is effective in encouraging responsible dog owner behaviour and what other strategies can be used in conjunction to protect birdlife. This project worked with the Avon-Heathcote Estuary Ihutai Trust and the Christchurch City Council to gather information on the public's perception of dog control signs and other dog control strategies.

Dog owners and dog walkers were surveyed online and in person at parks around Christchurch to assess signage preferences. Signage options provided by Christchurch City Council were

used to determine the effectiveness of compliance and responses to dog bylaws. Surveys and interviews explored perceptions of alternative strategies to protect birdlife from dog disturbance.

Literature Review

Literature reviews were conducted on five relevant sub-themes to assess current literature and understanding of strategies that could target dog owner behaviour. These reviews identify key themes and strategies to incorporate within the research process to protect the vast range of birdlife living within the Avon-Heathcote Estuary.

How bylaws regarding wildlife have influenced behaviours

The literature suggests that harsher enforcement is required to mitigate non-compliant behaviour with bylaws (Edelblutte et al., 2022). Harsher punishment is suggested as non-compliant dog walkers often believe that their dog is under effective control and thus exempted from bylaws (Bowes et al., 2015). This literature shaped the research as it prompted the use of signs disclosing punishment for non-compliance when interviewing or surveying dog walkers' responses. Harsher enforcement options to target non-compliant behaviours, such as dog patrol surveillance or security cameras, provides alternative strategies for the Estuary Trust to explore.

Educational activities in ensuring compliance with bylaws to protect wildlife

This set of literature indicated that materials such as camps, regular classes, workshops, and signage could increase participants' knowledge of bylaws in the short term (Hawkins & Williams, 2017). Findings by White et al. (2018) have shown that providing environmental education opportunities can increase children's awareness of local wildlife. However, education must be ongoing and long-term research is needed to assess the retention and impact of these education initiatives to ensure compliance when protecting wildlife. This has shaped the research as participants were asked about their thoughts on other strategies, such as educational activities to encourage the engagement of responsible dog owner behaviour. Educational activities could be implemented by the Estuary Trust or Christchurch City Council by placing informational posters with QR codes, increasing education and awareness of dog control bylaws.

An overview of wildlife and non-human rights

The literature highlighted the lack of research and understanding of wildlife welfare, with animal welfare legislation applying primarily to domesticated animals. Knight (2020) determined that although animal welfare standards in New Zealand were similar to overseas standards, the welfare of animals in New Zealand was not necessarily better. A weakness of these studies was that they primarily focused on domesticated animals rather than wildlife. There is a lack of literature specific to New Zealand birdlife and, even more so, to current animal welfare

legislation specific to these species, such as those inhabiting the Avon-Heathcote Estuary. The literature gap on wildlife rights created a lack of findings, making it difficult to define wildlife and non-human rights when assessing strategies to protect birdlife within the Avon-Heathcote Estuary. The gap in research surrounding wildlife and non-human rights provides an opportunity for the Trust to explore funding for researchers to undertake some studies specific to New Zealand on human rights concerning wildlife.

The significance of RAMSAR sites (wetlands of international importance)

Existing literature explored wetlands of international importance (RAMSAR sites) and strategies to protect the site and animals inhabiting the estuary. Strategies include the Estuary Trust hosting public involvement and community education by running dog walking events, native birdlife education courses, or fundraising. Findings showed that increased community education on wetland environments and active public involvement in birdlife conservation changed perceptions and protected birdlife living in these RAMSAR sites (Fernández & Jokimäki, 2001). To encourage active public involvement and community education, the survey and interview questions had the option to ask participants their thoughts on community events around the estuary.

How signage has helped guarantee wildlife welfare and environmental protection

Literature indicated that high-quality signs could potentially promote behavioural change in dog owners (Kim et al., 2022). Zhu et al. (2021) argue the importance of understanding the socio-demographics of the intended audience to best target this behavioural change which can be applied through signage in the estuary. The survey questions asked respondents to rate and discuss the effectiveness of our six dog control signage options while recording their age and ethnicity to explore possible patterns in sign choice. The results from this research can be used to create high-quality signs that target the intended audience most commonly interacting with the estuary.

Methods

Data Collection

The survey consisted of 13 questions divided into 4 sections (Appendix 1) which were shaped based on existing literature and was conducted on dog owners and walkers.

The first section was demographic questions where participants were asked their age, gender, and ethnicity. The aim of this section was to find out if there were any correlation between the participants' demographics and their answers to investigate if behaviours and ideas differed between the different groups.

The second section was aimed at investigating the participants' current understanding of bylaws and their behaviours. These questions were worded to encourage honest answers. Section two explored the level of understanding dog owners and walkers have about regulations and whether regulations are effective enough to ensure compliance. The research assesses social pressure or influence from other dog owners or walkers that could influence the participants in compliance or non-compliance to bylaws.

The third section examined participants' ideas on other strategies for promoting positive dog owner behaviour which could support signage. Responses from the target audience are important, providing information on the most effective initiatives and strategies.

The final section was aimed at asking participants' thoughts on prototype signage. The Christchurch City Council supplied six different signs as pictured in Figure 2. This section aims to give insights into what important elements need to be present in creating effective signage.

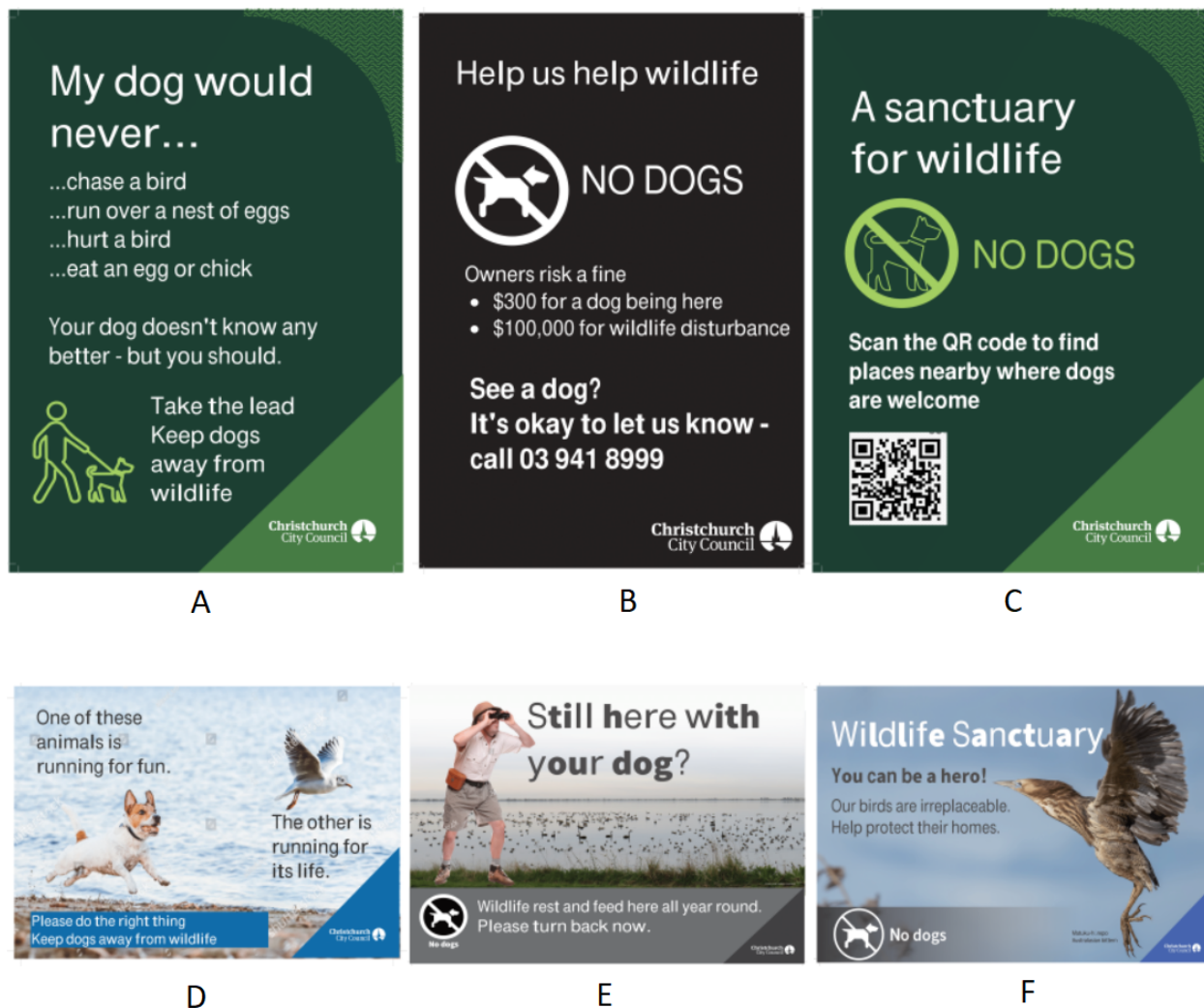


Figure 2. The six prototype signs that survey participants were asked to rank in order of effectiveness.

Participants were either dog owners or walkers and were surveyed online and in person. The survey was made available online by posting on Facebook Groups targeted towards dog owners, walkers, and enthusiasts who live locally to the Avon-Heathcote Estuary. In-person survey data collection stationed surveyors at various public parks across Christchurch to ensure the findings are applicable to the Avon-Heathcote Estuary.

Data Analysis

The survey collected both quantitative and qualitative data. For the quantitative data, the participants were asked to rank the posters from most effective to least effective. Rankings were tallied and the poster with the most votes was deemed the most effective poster. For the Likert scale questions, participants' answers were tallied again to examine where the spread was leaning towards.

For qualitative data, participants were asked for a reason for the top and bottom choices for signage options. With their responses, a thematic analysis was conducted by pulling out the themes from each response and grouping them into key themes. This gave the key elements the participants identified as important to effective signage. Finally, the participants were asked to give examples of other strategies to promote compliant dog owner behaviour. Common themes for other strategies and initiatives were identified. This provides the ability to put the different ideas each participant had and group them together into one strategy.

Results and Discussion

The surveys received a total of 47 responses: 37 online responses and 10 in-person responses.

Most common dog walking areas and the correlation with recognition of signage

The survey found that the majority of participants usually walk their dogs at parks (Figure 3) which have shown to be where signs are most commonly placed (Christchurch City Council, n.d.). Other common walking areas included roads and trails. These locations may have had signage around, but not as frequently placed, and hence missed by dog walkers, potentially explaining why signage was not seen (Figure 4).

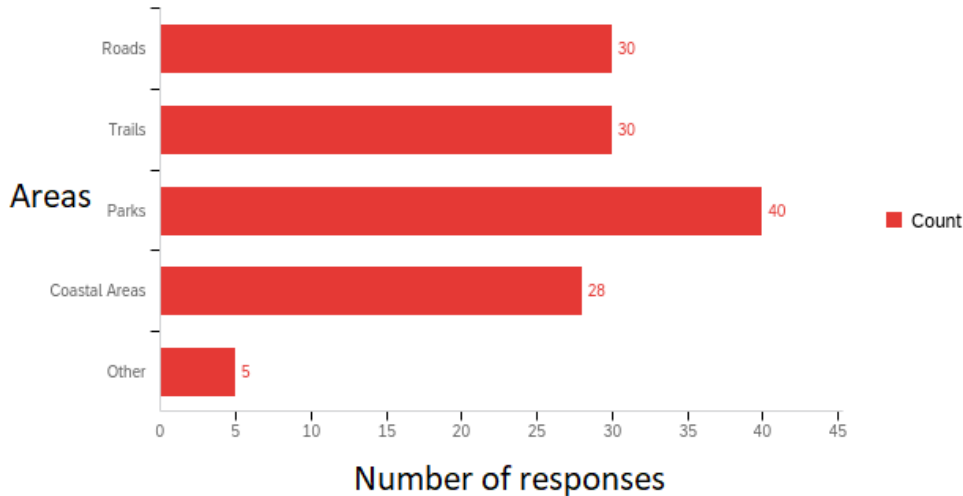


Figure 3. Survey output indicating what areas participants tended to walk their dogs.

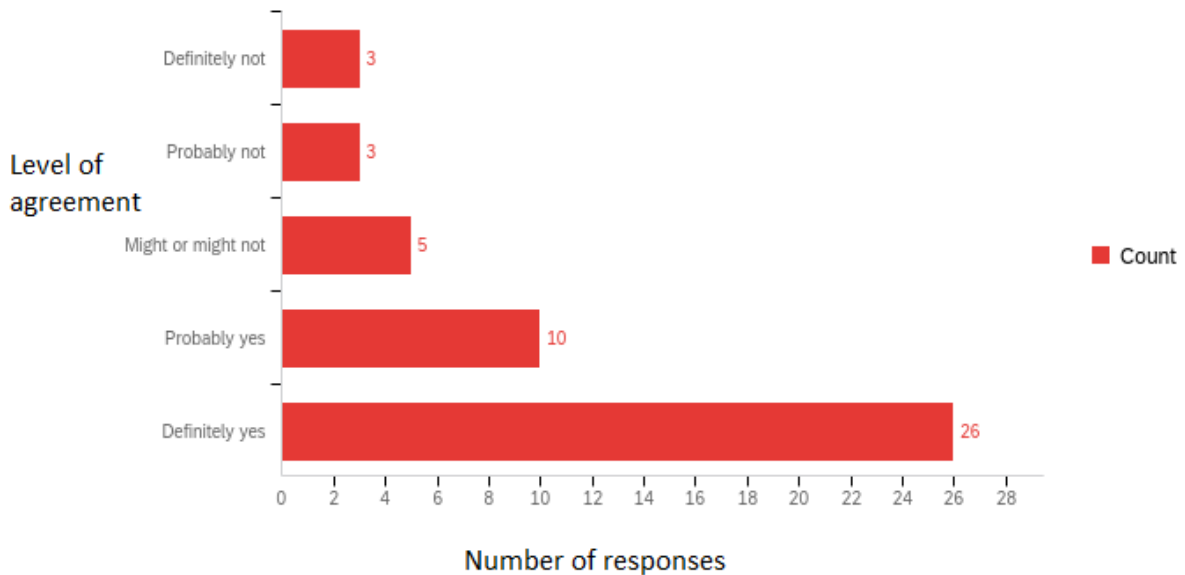


Figure 4. The number of survey responses indicating how likely participants are to have seen signage regarding dogs in the places they walk their dogs.

Prototype Posters

Regarding participants' thoughts on the prototype signs, Figure 5 showed that the most effective sign that people would follow if seen while walking their dog was Sign C, and the least effective being Signs E and F, as pictured in Figure 2. Participants' reasoning for their first choice include that Sign C was 'eye-catching, clear and concise and showed authority while also being emotive and respectful'.

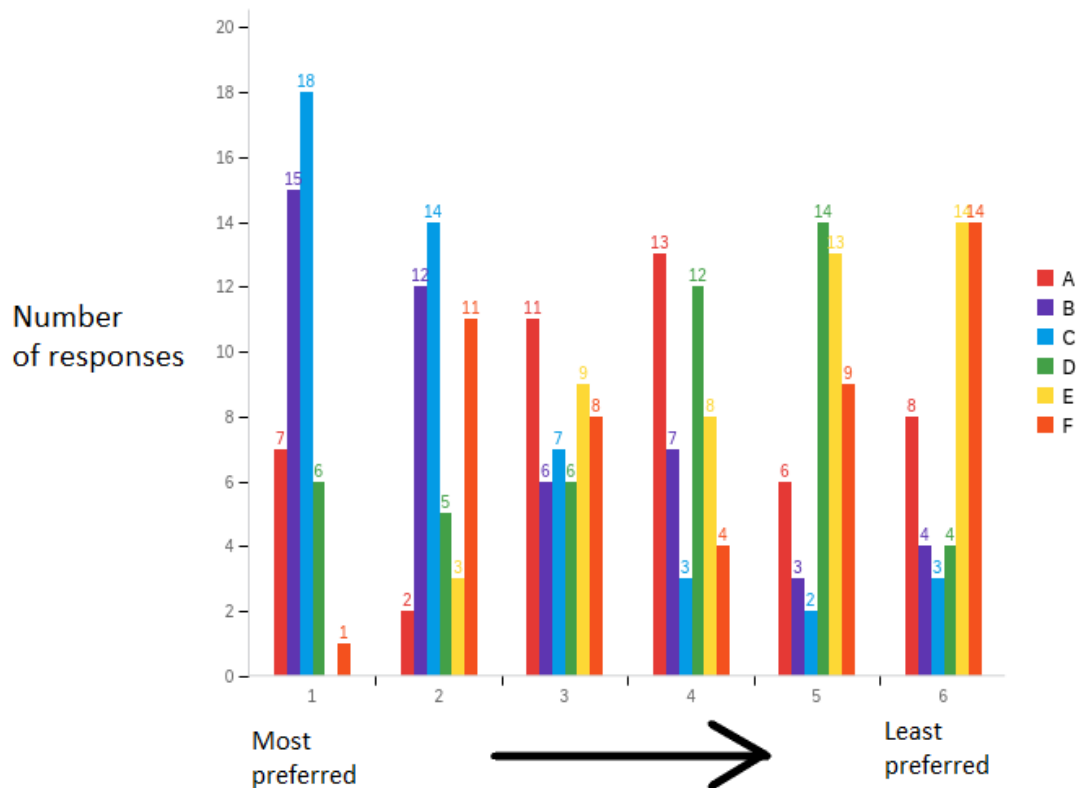


Figure 5. The prototype signs (A to F) ranked in the level of effectiveness at changing people's behaviour regarding dog behaviour.

The reasons for the least effective signs were that they were either anti-dog and/or disrespectful, sometimes confusing and unclear what the message was trying to be portrayed as. For example, participants mentioned that pictures on some signs made them look messy and did not make participants want to read what the sign said. Other responses stated that these signs just weren't interesting or eye-catching.

After splitting the responses into age demographic, 50% of participants aged 18-24 chose Sign D as the most favoured sign. This showed that the age demographic of dog walkers influenced what signage was preferred or more likely to be followed. This demographic's reasoning for this choice was contradictory to the reasoning for why other age groups did not like Signs E and F, considering Sign D was very similar in terms of pictures, colouring and text. One favourable response said, "it shows clearly what dogs do, chasing birds for fun. Some dog owners think this is ok because the dogs don't catch the birds. They don't realise the dog is bothering the birds." Whereas an unfavourable response commented, "The last 3 [D, E, F] I put are too busy people won't want to stop and find the info between the graphics."

Though the most favoured sign was different for a younger demographic, this demographic's least favoured sign (Sign E) was aligned with all age groups and so can be ruled out as an effective sign for dog regulation.

Participants' awareness of dog regulations within Christchurch

The survey included a question of if people knew of regulations regarding dogs and where these rules may apply. This question addresses if people are openly ignoring these signs or if they do not have any knowledge of what bylaws are. The results showed that 85% of participants did know of dog regulations, and only 15% of people did not. Participants were then asked what regulations they know of around Christchurch. The most common response given was "under effective control" however this was a fairly broad 'regulation', as there is no legal definition stating effective control. The vagueness of effective control creates confusion and varying interpretations and thus does not encourage lead use or compliance with dog control bylaws.

Other regulations that participants knew of included picking up after their dogs, dog-restricted areas, registering their dogs yearly and following dog regulation signage. However, similar studies overseas have indicated that dog regulations are not often followed (Burger et al., 2004). This is not consistent with the survey results where participants state their compliance with dog regulations. Survey participants may have felt social pressure to lie or not state their actual behaviour within our questionnaire (Schultz, 2011).

Participants' social and environmental responses

One of the questions asked people whether or not they would follow leash regulations if other people around them were not doing so, and our results showed that most people would be highly unlikely to take their dog off a lead even if other people's dogs were (Figure 6). However, there were a few participants who stated that people would take their dog off a lead in a situation where it would be 'safer' for both dogs to be off the lead i.e. if the dog off the lead were to run up to a leashed dog. Other reasons people leash their dogs is due to a lack of trust in their dog's behaviour and training to not disturb wildlife or people, or if they are near a place where it is dangerous for the dog such as near busy roads. Only a few answers stated the idea of 'peer pressure' or the influence of others not having their dog on a lead that they felt it was okay to take their dog off of one, even whilst seeing signs that state otherwise.

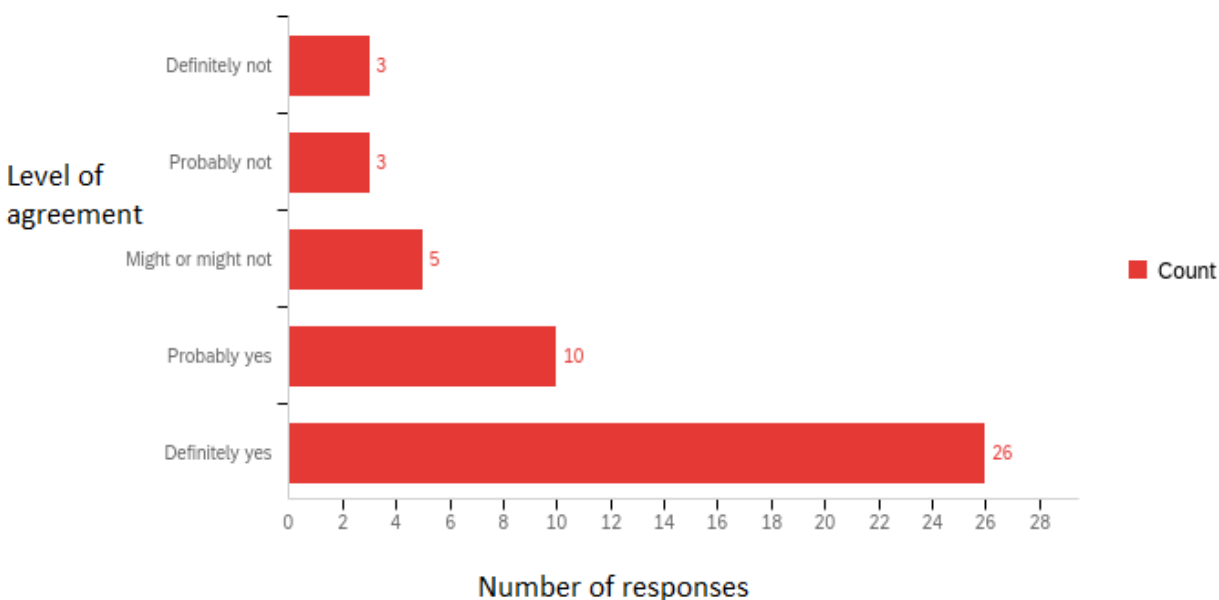


Figure 6. How likely the survey participants would be to have their dog on a lead in areas where dogs must be leashed if other dog walkers were not leashing their dogs.

Ideas on other strategies

Finally, participants were asked for other suggestions that the participants may have to help encourage responsible dog owner behaviours. The results showed that the majority of people were interested in receiving some form of education. This includes a pamphlet given when registering their dogs, or through advertisement campaigns on social media channels such as YouTube, Instagram, Facebook, or a specific dog owner app that could provide useful and interesting information on dog regulations. Other common suggestions from participants were the enforcement of fines and surveillance. For example, adding cameras or hiring security guards.

Limitations

There are disadvantages associated with both in-person and online surveying. The surveys that were conducted in person may have an element of prestige bias. This is where participants tried to make their answers more socially acceptable as people may not be willing to admit to their flaws. An example of this is when someone at Hagley Park was explaining that their dog was well-behaved and never chased after birds, so their dog was able to be unleashed. During the survey, the dog proceeded to chase after nearby ducks. This is consistent with Donnelly et al. (2021) findings, where participants' desire to appear socially acceptable may reduce the genuinity of responses. However, online surveys may have limited the depth of answers received as there was not anyone in person helping participants elaborate on their answers.

During data analysis, it was found that some responses were one-worded or even left blank which does not provide the level of detail needed to address the research.

Another limitation was the lack of diverse demographics among survey participants. Out of the 47 participants, 46 were female and only one was male. The majority of surveys were completed online, compared to in person. Around 80% of the people completing the surveys were also New Zealand European so there wasn't much variation in ethnicity. This could potentially result in selection bias where the survey participants may not accurately represent the target audience of dog walkers around the Avon-Heathcote Estuary. This is consistent with Bethlehem (2010), where lack of access to computers and the internet prevented the representation of groups and communities. Although time intensive, it may have been beneficial to focus on in-person surveys to gain greater variation in our responses.

Physical research was unable to be conducted at the Avon-Heathcote Estuary. Therefore, the people who are participating in our survey may not frequent coastal or estuary environments and so the findings may not be fully applicable to use at the Avon-Heathcote Estuary. The estuary is a significant habitat for native wildlife and birds, compared to the parks surveyed at which were significant for recreational purposes. The type of environment may alter the way people behave. This means that it is unknown how well the survey sites can represent the actual site of interest. It may have been more beneficial to place signs around the Avon-Heathcote Estuary to observe without interference and gain an accurate portrayal of how dog owners would respond.

Recommendations

Existing literature suggests that signage is a successful method of encouraging behavioural change (Marschall et al., 2017). To be most effective, signage needs to have clear and concise writing along with eye-catching visuals. The survey responses have shown the most preferred sign had straightforward writing with limited visual clutter.

To encourage long-term responsible dog owner behaviour, other strategies could also be implemented to support signage. It was suggested in our surveys that more education should be provided for dog owners. This education could include leash regulations, dog-friendly areas, or dog-restricted areas. Education could be provided through community events such as dog walking events. The public may feel more connected to their community and local environments through this involvement and therefore have a greater understanding of how their behaviour impacts birdlife.

Another potential strategy would be campaigns such as advertising relevant bylaws for new dog owners. For example, one survey response recommended that informational pamphlets could be provided the first time you register your dog. As dog registration is compulsory, this would reach a majority of the target audience by educating and familiarising new dog owners with bylaws to protect wildlife.

Stricter enforcement is beneficial in promoting dog owner behavioural change as proven by the literature. This could include monitoring and surveillance such as having a security camera set up in the estuary to monitor non-compliance with bylaws. Although this recommendation targets behavioural change, there are recognised labour and maintenance costs associated which may not be feasible for the Estuary Trust.

Conclusion

This report investigated what strategies are effective at encouraging responsible dog owner behaviour. The results indicate clear and concise signage with high-quality visuals that can target behavioural change in dog walkers. Other strategies that have been highlighted by participants include educational activities, advertisement campaigns and increased enforcement of bylaws. Further research assessing New Zealand's specific wildlife welfare, how effective bylaws actually are at protecting birdlife, testing of other strategies, and assessing views of wider demographics such as different ethnicities will increase the reliability of these findings to reflect the community.

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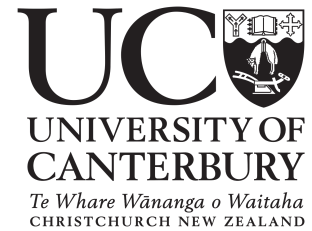
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Appendix 1

We are from the University of Canterbury and we are working with the Avon-Heathcote Estuary Ihutai Trust to research if signage is an effective tool to encourage dog owner behaviour to protect bird life. We are trying to determine if the provided prototype signs by the City Council are fit for purpose. The research we are doing will result in a report for the Estuary Trust and CCC Parks Visitor Engagement Unit to recommend changes to existing and future signage and initiatives, to minimise conflict between dogs, their owners, and vulnerable wildlife species. As this is an anonymous survey it will not be possible to withdraw your information after you have completed the survey.



1. Age

- 18-24 years old.
- 25-34 years old.
- 35-44 years old.
- 45-54 years old.
- 55+ years old.

2. Gender

- Male
- Female
- Gender diverse
- Prefer not to say

3. Ethnicity

- NZ European/ Pakeha
- Maori
- Pacific
- Asian
- MELAA
- Other

4. Which of these areas do you usually walk your dog?

- Roads
- Trails
- Parks
- Coastal Areas
- Other

5. Have you seen any dog regulation signage around the areas stated above?

6. Thinking of a place where you walk your dog off the lead, which sign would be the most effective in changing people's behaviour and put their dog on a lead Rank these signs from 1 to 6 (1 = the most effective, 6 = the least effective)

A	B	C	D	E	F

7. What are your reasons for your first choice?

8. What are your reasons for your last choice?

9. Do you know of any rules surrounding dogs and leashing in public areas?

10. If yes, what is your understanding of them?

11. If you were walking your dog where you knew there was a rule that dogs needed to be on a lead and other dog owners were not following this rule, how likely would you have your dog on a lead? Why/Why not?

Extremely unlikely	Somewhat unlikely	Neutral	Somewhat likely	Extremely likely
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12. Rank these strategies on a scale of 1-5 that would encourage responsible dog owner behaviors around vulnerable wildlife habitats (1 = most preferred , 5 = the least preferred option)

Education programs	Community Events	Increased fines	Frequent patrols	Signs

13. What are your other ideas for encouraging responsible dog owner behaviors around vulnerable wildlife habitats?
