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Strays, surrenders and foster care: examining New Zealand's cat rescue landscape

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ABSTRACT

Aims: To describe the current capacity, resource limitations and challenges of cat and kitten rescue organisations (CKR) in New Zealand; to document the source and destination of the animals cared for; and to explore the role of foster programmes in cat rescue and rehoming in New Zealand.

Methods: A national cross-sectional survey was administered to companion animal rescue organisations in New Zealand in May 2022. For those engaged in CKR, the survey included questions about types and numbers of cats cared for, facilities, locations, origins and outcomes of cats in care, reasons for owner surrender, whether the CKR had a foster programme, and foster programme capacity. Descriptive statistics were provided for all quantitative study variables and free-text comments were analysed for common themes.

Results: Of the 64 organisations that indicated they cared for cats on the broader companion animal rescue survey, 50 (78%) completed the questions on CKR. At the time of the survey, these 50 organisations cared for an estimated total of 6,206 cats (median 39 (IQR 17–96) cats per CKR). The highest reported source of animals was strays (median of the CKR's reported percentage: 72%; IQR 50–93%), followed by surrendered animals (median 14.5%; IQR 5–31%). The most common reasons for owners surrendering animals were unplanned litters, lack of pet-friendly accommodation, and inability to afford to care for the animal's daily needs. An estimated median of 66% (IQR 60–80%) of cats under care in the previous year were subsequently rehomed. Most CKR were "usually" (26/50; 52%) or "always" (11/50; 22%) full to capacity. The majority of CKR that responded operated a fostering programme (40/50; 80%), with an estimated 59% (3,619/6,206) of all cats currently in the care of CKR located in foster homes. The availability of fosterers was identified by CKR as the most important factor affecting their ability to accept animals.

Conclusions and clinical relevance: These findings highlight that CKR in New Zealand currently handle a large volume of animals each year. Initiatives that focus on preventing unplanned litters, ensuring owned free-roaming cats have permanent identification through microchipping, and initiatives to prevent unnecessary owner relinquishment may help to reduce the number of animals entering care. With the majority of CKR relying on foster programmes, there is a need for further research to better understand how these operate and whether there may be opportunities to expand their capacity.

ABBREVIATIONS: CARO: Companion animal rescue organisation; CKR: Cat and kitten rescue organisation; TNR: Trap, neuter and return

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Introduction

New Zealand has one of the highest rates of companion cat ownership worldwide, with more than 1.2 million cats included as part of 41% of households across the country (CANZ 2020). About a third of these animals come from the animal rescue organisations involved in managing and rehoming New Zealand's population of stray, abandoned and surrendered animals (Gates *et al.* 2019). Cats and kittens are the most common animal cared for by New Zealand rescue organisations, with at least 37,000 passing through organisations that care for cats and kittens (CKR) per year (Roseveare and Gates 2024).

The *New Zealand Code of Welfare: Companion Cats* defines cat populations based on their interactions with humans (NAWAC 2018; Sumner *et al.* 2022). Companion cats live with humans and are dependent on humans for their welfare. Stray cats include lost or abandoned companion animals living alone or in colonies, while feral cats generally do not live around centres of human habitation or interact with humans (NAWAC 2018). Stray cats may be further defined as socialised (comfortable with people) or unsocialised (SPCA New Zealand 2024). CKR primarily work with surrendered companion cats and stray cats. Their work may include

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rehoming animals as well as conducting trap, neuter and return (TNR) programmes, where animals are desexed and then released to the location in which they were originally found (Rand *et al.* 2019).

Two Australian studies and one New Zealand study working with a specific CKR in each country identified stray populations as being their main source of cats (Rinzin *et al.* 2008; Marston and Bennett 2009; Alberthsen *et al.* 2016). In contrast, a UK study that included a broader range of CKR found that relinquishment by an owner or carer was the most common reason for cats entering rescue organisations (Stavisky *et al.* 2012). A range of factors including uncontrolled animal reproduction, animal behavioural issues, and wider social and economic conditions have been identified as potential factors contributing to cats entering CKR (Casey *et al.* 2009; Carter and Taylor 2017). We identified no recent New Zealand studies considering the main sources of CKR admissions.

Animal rescue efforts may lead to positive outcomes for animals, including reclaim by the original owner, adoption by a new owner, or release (Stavisky *et al.* 2012), but time spent in an animal shelter has also been associated with increases in physiological and psychological distress and increased risk of disease (Kerr *et al.* 2018; Vitale *et al.* 2022). Fostering programmes that place cats and kittens temporarily in volunteers' homes are a strategy employed by CKR that may play an important role in reducing stress and disease, improving animal welfare, and increasing rescue capacity (Kerr *et al.* 2018). Cat foster programmes have also been credited for significantly reducing euthanasia rates in shelters (Kerr *et al.* 2018). While cat fostering programmes in North American CKR have been described by some studies as common (McDonald *et al.* 2022), typical (Graham 2023), and increasing during COVID (Reese *et al.* 2022), other studies have conversely described cat foster programmes as rare (Vitale *et al.* 2022). We were unable to locate any published data about the prevalence of foster programmes in CKR in New Zealand, and overall there has been little research internationally on the use of foster programmes, particularly cat foster programmes, by animal rescue organisations (Gunter *et al.* 2022).

This study is part of a broader research programme that aims to better understand the CKR context in New Zealand, and the role fostering plays within it. The main objectives were to describe the current capacity, resource limitations and challenges of CKR in New Zealand; to document the source and destination of the animals cared for; and to identify whether foster programmes play an important role in cat rescue and rehoming in New Zealand.

Materials and methods

Data collection

A national cross-sectional survey was administered to companion animal rescue organisations (CARO) in New Zealand. The study was reviewed and approved by the Massey University Human Ethics committee (SOB 21/59). The sampling frame was constructed by identifying CARO through the New Zealand charities register, national animal welfare organisations, local rescue networks, and supplementary internet searches (for full details, see Roseveare and Gates 2024). We applied a broad definition of "companion animal," adopting the CANZ definition: "*any animal that shares a living environment and relationship with humans*" (CANZ 2020). After excluding organisations focused solely on wildlife or marine life, 208 CARO were identified.

The survey was divided into four main sections. Questions were mainly closed, including multiple choice rating or ranking scales, with several open-ended questions asking for respondents' experiences in greater detail. In the first section, respondents were asked questions about the demographic characteristics of their organisation and about the types and numbers of animals they cared for, the main services they provided, their intake and euthanasia policies, resources they had available (including access to veterinary services), and main challenges they faced. The second section asked about attitudes towards a national database for rescue organisations – the likelihood that organisations would register, the kind of information they would be comfortable sharing and with whom, and any concerns they had about such a database. The results from Sections 1 and 2 were reported in Roseveare and Gates (2024).

The third section, only available to CKR, focused specifically on cat rescue activities and is reported on here. Respondents were asked about the type, source, location, and number of cats cared for, their capacity and intake process, outcomes, reasons for surrender by owners and whether they had a fostering programme. Questions were also included about the number of fosterers usually available, and if this was sufficient. Animal rescue organisations whose scope included housing or rehoming cats or the TNR of cats within New Zealand were included in the sampling frame. Organisations contracted by local authorities to carry out animal control services were not included. The process for generating the sampling frame, developing and distributing the full survey is outlined elsewhere (Roseveare and Gates 2024). A full copy of the survey is provided as Supplementary Information. The survey was emailed on 6 May 2022 and stayed open until 30 June 2022.

Data processing and analysis

All survey data were imported into R statistical software version 4.2.1 (R Development Core Team, R Foundation for Statistical Computing, Vienna, Austria) for cleaning and analysis. Any duplicate responses from the same organisation were removed. For the section of the study reported on here, analyses were restricted to the organisations that responded in the first section of the survey that they cared for cats, and responded to the third and fourth sections of the survey, which dealt with cats and fostering. As not all respondents replied to every question, the number of respondents is shown separately with each result.

Descriptive statistics were calculated for quantitative study variables. As the data were not normally distributed, medians and IQR were used. The Wilcoxon rank sum test with continuity correction was used to compare differences in numbers of animals cared for between organisations with and without foster programmes. Ranking questions were analysed by calculating a weighted average score for each factor, using both the ranking and the frequency of each factor in the survey responses. The main purpose was to allow comparison of the relative importance of each factor for the question. The original rankings were 1 to 5, or 1 to 3, with 1 being the most important. The scoring of the ranking was first reversed so that a higher final score would indicate a higher influence. A weighted score was then calculated for each factor by multiplying the reverse-scored rank by the frequency of the factor's occurrence.

For the questions regarding the source of cats entering care and outcomes for cats under care, respondents were offered the option of reporting either the number of cats or the percentage of total cats admitted from 1 January 2021 to 31 December 2021. To enable comparisons, all responses from these questions reported as numbers were converted into percentages based on the numbers provided. Medians and IQR of the reported percentages from each CKR were then calculated. For the questions regarding where cats were housed, all responses were converted from the reported percentages into absolute numbers using the total number of animals reported to be currently in care and percentages calculated based on the pooled data. The association between available fosterers and numbers of animals currently in care was calculated using the Spearman rank-order correlation coefficient.

Data from the free-text comments for questions were analysed to highlight key issues raised by respondents. This process involved: (i) reading through all free-text responses multiple times to gain familiarity with the data; (ii) reading through the individual responses again in detail, underlining keywords, phrases, and/or ideas exemplifying major themes; and (iii) collating the coded data into categories by subjectively grouping responses with similar perceived meaning.

Results

Of 208 CARO identified in the sampling frame, 106 (51%) provided a sufficiently complete response for analysis and were included in the initial study. Of the 64 respondents who indicated that their organisations cared for cats, 11 did not complete the survey sections that dealt with cats and fostering, and one respondent completed only two questions. Two responses were identified through text comments as ineligible, with one commenting that they no longer worked with cats although they had in the past, and another indicating that they rarely worked with cats. These responses were excluded giving an overall response rate of 78% (50/64) for this study.

Nature of CKR, services, and type of animals cared for

Of the 50 CKR respondents, 12 (24%) focused solely on rehoming cats and kittens as companion animals, while 37 (74%) operated both a TNR and rehoming service. Only one respondent (2%) reported that their CKR focused solely on TNR. The majority of CKR (35/50; 70%) were registered charities and more than half of CKR had been operating for less than 5 (median 4.5; IQR 3–9) years.

In response to the question asking organisations to select all the different types of cats they cared for, 45/50 (90%) reported they accepted socialised cats, 44/50 (88%) kittens, 40/50 (80%) lactating queens, 40/50 (80%) surrendered cats, 39/50 (78%) unsocialised/stray cats, 39/50 (78%) sick or injured cats and 39/50 (78%) pregnant queens. The majority of the 50 CKR (44/50; 88%) provided services for both adult cats and kittens. In the free-text comments, some respondents noted that their CKR cared for other types of cats, including abandoned cats; unowned cats only; special needs or palliative care cats; rescue, rehabilitation, and rehoming of wild and/or stray kittens; and support to desex or microchip family pets if transport was an obstacle. Two respondents commented that care for cats was not their main focus but that they provided some services for cats alongside their other work.

Physical facilities

All 50 respondents provided information on the physical facilities they had available to house cats, with individuals allowed to select more than one option from a provided list of six options. Of these, 42 (84%) reported the availability of individual housing; 32 (64%) had

Table 1. Total number and median (IQR) percentage of animals in the care of New Zealand cat and kitten rescue organisations (CKR; n = 50) responding to an online survey, by current location of the animals.

Location of animals	Number of CKR[a]	Total animals (%)	Median[b] (IQR) percentage
In CKR's own facilities	31	2,425 (39%)	57 (23–90)
In foster care	38	3,619 (59%)	74 (30–100)
Private catteries or boarding facilities	2	30 (< 1%)	0 (0–0)
Other locations	7	132 (2%)	13 (0–36)
Total		6,206[c] (100%)	

[a]Number of organisations with > 0 animals currently in that location. Respondents could select more than one location option.
[b]Median of percentages reported for each individual CKR.
[c]This sum is 30 > total animals currently in care as in four responses the number of animals by location summed to more than reported animals currently in care. As the differences were very small the data has been left as reported.

group housing, and 17 (34%) had an isolation ward. Nine respondents (18%) indicated they had a neonatal ward and 4 (8%) had a hospital ward or veterinary clinic. Six of the 14 respondents (14/50; 28%) who responded "other," commented in the free-text option that they had a network of foster homes or were foster-based. Free-text comments also described other facilities available at their CKR, for example an outdoor area, an area for "timids," and a therapy room. One noted that they had re-purposed private home facilities; and another that cats were socialised in communities within a home-like shelter.

Location of cats in care

All 50 respondents provided data on the known number or estimated number of cats or kittens currently under their care (including in foster homes) at the time of the survey (Table 1). This ranged from 0 to > 500 (median 38.5; IQR 17–96) animals. The total across all 50 organisations was an estimated 6,206 felines, with numbers reported as known by 40 (80%) and estimated by 7 (14%) respondents. Of these animals, 3,619 (59%) were located in foster homes, 2,425 (39%) in their own organisational facilities, and the remaining 162 (2%) in other locations. Of the 50 respondents, 40 (80%) reported that their CKR had a foster programme. For the CKR with cats or kittens currently in foster homes, the median percentage of their total animals housed in foster homes was 74% (IQR 30–100%). CKR with a foster programme had significantly more animals currently in care (median 49; IQR 28–130) than those without one (median 13; IQR 1–24; w = 58, p = 0.002).

Capacity, demand, and the role of foster care

The majority of respondents reported being "always" (11/50; 22%) or "usually" (26/50; 52%) full to capacity with 20% (10/50) being "sometimes" full. Only 2/50 (4%) were never full to capacity and one (2%) did not know. Respondents reported receiving the most requests for their services between December and April, with a peak in the summer months of December to March (Figure 1).

Respondents were asked to rank the most important factors that determined their ability to accept cats into care, from a list of five options including an "other – please specify" option. Table 2 shows the weighted average scores. The availability of foster

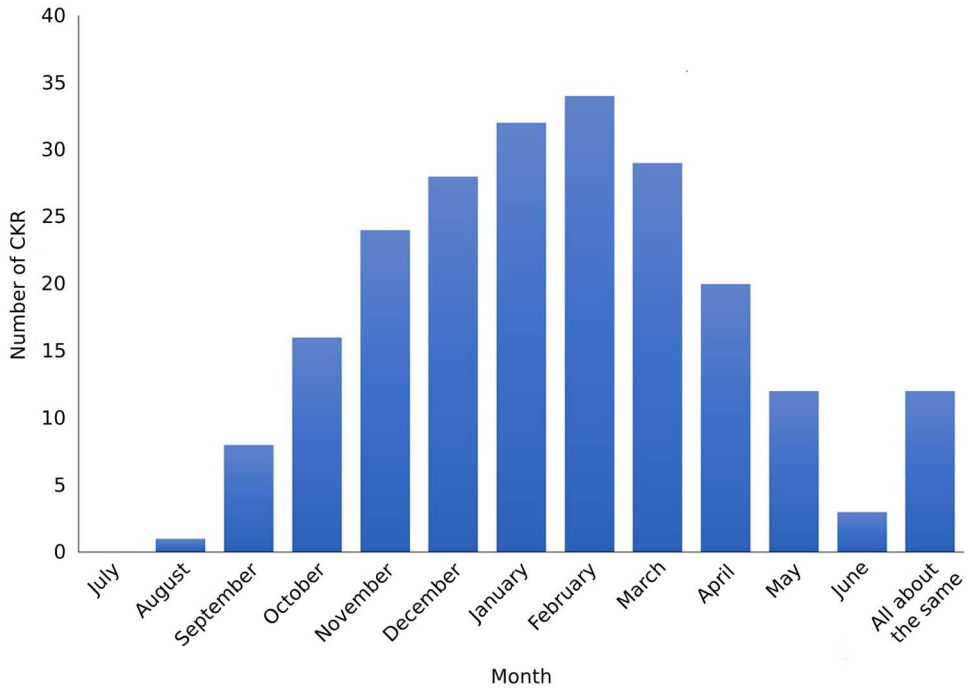

Figure 1. Month or months in which New Zealand cat and kitten rescue organisations (CKR; n = 50) that responded to an online survey reported that the greatest number of requests to take in cats occurred.

Table 2. Ranking of factors determining capacity to accept cats into care by cat and kitten rescue organisations (CKR; n = 50) in New Zealand that responded to an online survey.

Factor	Number of CKR responses	Rank1 (%)	Rank 2 (%)	Rank 3 (%)	Rank 4 (%)	Rank 5 (%)	Weighted score[a]
Foster homes	35	24 (69%)	5 (14%)	4 (11%)	1 (3%)	1 (3%)	155
Finances	35	10 (29%)	14 (40%)	7 (20%)	4 (11%)	0 (0%)	135
Type/age of cat	33	2 (6%)	15 (45%)	9 (27%)	4 (12%)	3 (9%)	108
Veterinary services	23	0 (13%)	3 (13%)	10 (43%)	10 (43%)	0 (0%)	62
Other	9	6 (67%)	1 (11%)	0 (0%)	0 (0%)	2 (22%)	36

[a]Calculated as a weighted average where rank 1 = 5, rank 2 = 4, rank 3 = 3, rank 4 = 2, and rank 5 = 1.

homes was the most important factor overall, followed by finances. These factors were more important than the type or age of the cat or the availability of veterinary services. In the free-text comments, the "other" factors listed included availability of space, cages or other resources in the centre, the health of animals already in care, and whether animals were from the local area.

When asked to describe their fostering capacity, over half of the respondents with foster programmes (23/40; 57%) indicated that their CKR could use more fosterers, with a further third (12/40; 31%) replying that they mostly had enough but could always use more. Only two respondents (2/40; 5%) indicated that they always or nearly always had enough fosterers, while two (2/40; 5%) responded "other," with one non-response. In the free text "other" option, one respondent commented that their fostering model did not require a pool of fosterers, and the other that both the options "mostly have enough" and "we are short of fosterers" applied. They further noted that their challenge was not just the number of fosterers, but also their skill level, experience, and ability to provide an appropriate foster home environment. The median number of fosterers available at any one time was 6 (IQR 4–20). There was a moderate correlation ($r_s = 0.51$, $p = 0.001$) between the number of animals currently in care and the number of available fosterers, but with some variation within this trend.

Origins and outcomes

A summary of the source and reported outcomes for animals that entered CKR care over the year 1 January to 31 December 2021 is shown in Table 3. The most common origin of animals was "found as stray" (median 72% (IQR 50–93%) of animals entering care) followed by "surrender" (relinquishment) by an owner or carer (median 14.5%; IQR 5–31%). Other sources included transfer from another rescue organisation, veterinary clinics, or confiscation for welfare reasons. In the free-text comments for the "other" category, additional potential sources of animals included "dumped" animals or animals that other rescue organisations would not accept.

Respondents were asked about the outcomes for animals that had entered their care in the previous year (Table 3). The most common outcome was rehoming (median 66% (IQR 60–80%) of animals entering care). The second most common outcome was that animals were still in the care of the CKR (median 10% (IQR 4–20%) of animals entering care). This was followed by animals that were released as part of TNR projects (median 8%; IQR 2–15%). A relatively small proportion of cats were reported as being euthanised (median 3%; IQR 2–8%). The remainder had died, were reunited with their owners, or had been transferred to another organisation.

Table 3. Median percentage (IQR) for sources of, and outcomes for, animals admitted between 1 January 2021 and 31 December 2021 reported by cat and kitten rescue organisations (CKR; n = 50) in New Zealand that responded to an online survey.

	Number of CKR	Median percentage (IQR)
Source		
Found as stray	49	72 (50–90)
Owner surrender	40	14.5 (5–31)
Other rescue	32	3 (0–5)
Veterinary clinic	33	3 (1–5)
Confiscation for welfare concerns	20	0 (0–0)
Outcome		
Re-homed	43	66 (60–80)
Still in care	34	10 (4–20)
Released	31	8 (2–15)
Returned to owner	27	3 (1–5)
Euthanised	37	3 (2–8)
Died	24	2 (1–4)
Other	5	1 (1–5)
Transfer to another organisation	22	0 (0–8)

Most common reasons for surrender

Respondents were asked to rank the three most common reasons that cats were surrendered to their CKR from a list of eight, along with an "other" option (Table 4). The highest weighted ranking choice was unwanted animals (e.g. accidental litters) (weighted score: 83), followed by lack of pet-friendly accommodation (weighted score: 43), the owner's inability to afford to care for the animal's daily needs (weighted score: 32), and the owner moving into residential care (weighted score: 18). Overseas relocation, the owner not being able to afford veterinary care for a medical condition or injury, behavioural issues, or the owner dying were all selected as reasons, but less frequently, with total weighted scores of < 15.

Table 4. Ranking of most common reasons cats are surrendered, reported by cat and kitten rescue organisations (CKR; n = 50) in New Zealand that responded to an online survey.

Reason	Number of CKR	First choice (%)	Second choice (%)	Third choice (%)	Weighted average[a]
Unwanted animals (e.g. accidental litters)	33	20 (60.6%)	11 (33.3%)	2 (6.1%)	84
Lack of pet friendly accommodation	23	8 (34.8%)	4 (17.4%)	11 (47.8%)	43
Owner cannot afford to care for the animal's daily needs	16	3 (18.8%)	10 (62.5%)	3 (18.8%)	32
Owner moving into residential care	10	2 (20%)	4 (40%)	4 (40%)	18
Other	7	5 (71.4%)	1 (14.3%)	1 (14.3%)	18
Relocation overseas	7	1 (14.3%)	4 (57.1%)	2 (28.6%)	13
Owner cannot afford veterinary care for medical condition or injury	10	0 (0%)	2 (20%)	8 (80%)	12
Behavioural issues	5	1 (20%)	2 (40%)	2 (40%)	9
Owner deceased	4	0 (0%)	0 (0%)	4 (100%)	4

[a]Calculated as a weighted average where first choice = 3, second choice = 2, and third choice = 1.

Intake process for cats

Of the 50 respondents, 43 (86%) reported that their CKR's intake process included parasite control, 39 (78%) a temperament assessment, 37 (74%) a health check by staff and 34 (68%) a health check by a veterinarian. Microchipping, vaccination, and a quarantine period as part of the intake process were reported by 39 (78%). Five selected the "other" option. In the free-text comments, the other processes noted were scanning for signs of previous ownership, pre-surrender counselling, matching with an appropriate foster parent, and registration on the New Zealand Companion Animals Register (NZCAR). One respondent noted that a health check by a veterinarian, vaccination, microchipping and desexing happened at a later stage.

Final comments

Twenty respondents out of 50 (40%) took the opportunity to share a final comment. Two notable themes in these comments related to (1) the efforts organisations made to ensure animals were matched with appropriate owners; and (2) the limitations in being able to fully represent either their capacity or changing workload with how the questions and options were structured in the survey. Considering what successful re-homing required, one respondent commented on the importance of matching within the context of a fostering model:

> All our cats and kittens are placed directly in the foster home most suitable for their initial needs. They are moved on to one (or more) different foster parents as their needs change … We consider this robust socialisation and matching feline with potential adopter is the reason for so few returns.

Another noted the care taken to match an animal to a suitable home and the value of ongoing support:

> We screen our potential homes with great care, we offer great back up support and guidance during the settling process, and with most of our adoptions going to people who own their homes or homes where we speak to the landlords before we adopt, in 2 years we have had two returns for change in personal circumstances.

In relation to the numbers requested, one respondent commented "*how many cats we can house at once … varies tremendously*," another that "*capacity also needs to take into account resource availability (e.g. staff and volunteer numbers, neonatal kits and equipment etc.). Due to the above, maximum capacity is not simply a mirror of number of cages and/or foster carers*." A third noted that it was "*difficult to put in numbers as I work in community but also collaborate with other rescues who capture information*."

Other comments highlighted distinctive features of the rescue, such as that they were still new or that cat rescue was not the central focus of their organisation, but something they did sometimes.

Finally, the comment below highlights typical rescue concerns, activities and the inter-connection between human and companion animal health and wellbeing:

> We are most proud of our community desex programme, we desex the queen at no cost if a litter is signed into our care, we are trying to stop those "free" kittens from being next season's producers. We help with a lot of basics of flea and worm treatments and food support if people are struggling, we are trying so hard to help the cats in our community as well as the people who own them. We just wish we could do more.

Discussion

To our knowledge, this is the first published national cross-sectional survey to collect detailed information about animal rescue organisations in New Zealand that provide rehoming services to stray, abandoned and surrendered cats and kittens. This study provides an insight into their nature and capacity, highlighting the significant role that foster programmes play. The study also describes the main sources of cats and kittens, some of the factors leading to their relinquishment, and the outcomes of their stay. It also provides a valuable comparison to Stavisky's (2012) study of rescue organisations rehoming cats or dogs in the

United Kingdom, on which some of the questions in our survey were based. As with any cross-sectional survey, there is potential for information bias if individuals who responded were part of CKR that differed systematically from those that did not respond (Gates *et al.* 2019).

Although several CKR indicated that they specialised in caring for particular kinds of cats (e.g. kittens only, stray cats only, unsocialised stray cats only), most organisations cared for and rehomed a wide range of animals including cats and kittens, socialised and unsocialised stray animals, and both sick and healthy animals. It was interesting to note that 74% of CKR in New Zealand operated TNR programmes in addition to their work with rehoming animals. While TNR programmes are used internationally as a cat management tool (Zito *et al.* 2018), they also generate controversy, in part because of concerns about their negative impacts on the welfare of cats as well as local wildlife. Learning more about how rescues work with unsocialised strays (e.g. what criteria they use to determine which animals to socialise and rehome and which to release back into their location of origin or euthanise) would be a useful focus for future research (Crawford *et al.* 2019; Calver *et al.* 2022; Glen *et al.* 2023). Our survey did not specifically ask respondents about their work with managed colonies of stray cats, which is another commonly used strategy for managing cat populations that also comes with welfare implications (Zito *et al.* 2019).

At the time of the study (May to June 2022), the 50 CKR reported caring for 6,206 cats and kittens between them. These numbers are likely to vary over the course of the year with higher numbers of animals under care during the Southern Hemisphere summer "kitten season" (December to March). This seasonal peak has been noted in earlier research from New Zealand (Rinzin *et al.* 2008) and Australia (Alberthsen *et al.* 2016). We purposefully avoided distributing the survey during this busy period for CKR to increase the likelihood of response. However, this may mean that the numbers reported as currently in care underestimates the true volume of animals that CKR handle on a regular basis.

Our study also highlights the significant role that foster programmes play in New Zealand feline rescue, with 80% of organisations that responded having a foster programme, and 59% of all cats currently in the care of CKR located with fosterers. This may explain why the availability of fosterers was identified by cat rescue organisations as the most important factor that affected their ability to accept animals. Our findings contrast with earlier research from the United Kingdom where the majority of cats were housed in either facilities owned by the rescues or other private facilities, with only a very small percentage in foster care (Stavisky *et al.* 2012). While we cannot rule out between-country differences in how CKR manage cats, our findings also add support to other more recent observations that fostering programmes for kittens and cats are becoming more common and widespread (McDonald *et al.* 2022; Graham 2023) rather than "rare" (Vitale *et al.* 2022).

While cat fostering programmes may promote both animal and human welfare (Roseveare *et al.* 2023; Powell *et al.* 2024), there are also potential risks. For example, although fostering programmes may be beneficial in getting animals out of shelter environments that carry a high risk of disease transmission (Dolan *et al.* 2021; McDonald *et al.* 2022; Campbell *et al.* 2024), little is currently known about the biosecurity practices and transmission risks in foster homes. Foster animals often have a high prevalence of enteric pathogens (Andersen *et al.* 2018) and may carry diseases such as ringworm (Moriello 2019). Providing fosterers with appropriate training and protocols for cleaning and disinfection is important to prevent the transmission of diseases between animals (Möstl *et al.* 2013; Pandey 2022; Rehme *et al.* 2022). Adequate training and support are also important to ensure that fosterers have the knowledge, skills and environments to provide animals with appropriate socialisation and care (Campbell *et al.* 2024; Graham *et al.* 2024).

Most of the CKR in our study were "usually" or "always" full to capacity, demonstrating that the pressures under which such organisations operate is an ongoing issue, as identified by Stavisky *et al.* (2012) more than a decade ago. Our study found that having a foster programme was associated with having more animals in care. While this might reflect the ability of a foster programme to increase capacity, the relationship may be confounded by foster care organisations being larger overall and having more resources. The low overall median number of fosterers available at any one time in part represents the existence of a number of small organisations with access to relatively few fosterers. However, some smaller organisations reported access to a relatively high number of fosterers, and some larger organisations operated with fewer than might be expected, based on the number of animals currently under their care. Most CKR with fosterers responded that they currently needed, or could always use more fosterers.

Cats found as strays were identified as the most common source of animals coming into CKR. This is similar to reports from Australian animal rescues (Rinzin *et al.* 2008; Marston and Bennett 2009; Alberthsen *et al.* 2016) and highlights the international importance of finding strategies to better manage these populations. Unowned, semi-owned, and lost or abandoned companion cats can all be considered stray cats in New Zealand (Sumner *et al.* 2022). CKR must assess incoming strays to determine appropriate

management pathways, including whether cats are potentially owned but lost, and their degree of socialisation. Although about half of New Zealand's cats are currently believed to be microchipped (CANZ 2020), the CKR in our study reported that the proportion of stray animals that were reunited with owners was low. In future studies, it would be useful to ask CKR about the proportion of stray cats that had registered microchips or other signs of previous ownership. This may better determine both the proportion of strays entering CKR that are owned, and the effectiveness of microchipping and registration in reuniting cats with owners. A parliamentary sub-committee in New Zealand recently recommended developing a nationwide cat management framework (NZVA 2023). A comprehensive framework that covers both stray and companion cat populations could support efforts to address the intake challenges faced by CKR.

Relinquished animals were the second most common source of admissions. While unwanted litters were the most frequent reason for relinquishment, the lack of pet-friendly accommodation and inability to pay for the animal's daily needs were the second and third. These issues highlight the broader factors contributing to both human and animal health and welfare (McDowall *et al.* 2023), and impacting on the ability to maintain relationships with companion animals (Toohey and Rock 2018; McLennan *et al.* 2022; Muldoon and Williams 2024). Our results must be interpreted with some caution for several reasons. Firstly, they were based on respondents' perceptions of the most common reasons that owners relinquished pets to their CKR. Although these perceptions may have been based on formal data collected by the CKR, we did not ask for this as part of the question. Secondly, reasons for surrender may be complex and not easily summarised under a single heading (Koralesky *et al.* 2023). Additionally, some owners may be reluctant to share their true reason for relinquishing the animal for fear of being negatively judged by the CKR staff or from concern that it may impact the outcome for their animal.

In our study, CKR reported a median rate of 66% of cats rehomed. This rate is similar to recent US shelter data, although those figures represent overall pooled outcomes rather than medians (Shelter Animals Count 2023). Compared to an earlier UK study, our median rehoming rate was lower than their reported 84.5% (Stavisky *et al.* 2012). While both studies used similar methods, the intake populations differed notably, with Stavisky *et al*. reporting a median of 56% surrendered cats and 36% stray cats across individual CKR, compared to our medians of 14.5% and 72%, respectively. Despite these differences in intake sources, both studies found similar patterns in euthanasia rates. Both our study and Stavisky *et al.* (2012) found low median rates across individual CKR (3% and 1%, respectively), lower than recent US pooled data (9%) (Shelter Animals Count 2023). However, Stavisky *et al.*'s pooled data showed a euthanasia rate of 13%, suggesting overall euthanasia percentages may be higher than individual medians. We were unable to conduct a pooled analysis with our data. Finally, our study revealed a relatively high median of 10% of animals still in care from the previous year's admission. It would be useful to explore length of stay metrics in future studies.

The data reported relied on a range of different record-keeping methods by busy CKR. The establishment of a national database with consistent categories would support more accurate estimates of outcomes, and previous research suggests this type of initiative would be well supported by CKR in New Zealand (Roseveare and Gates 2024).

A limitation of our survey was that we did not specifically ask if the CKR was solely foster-based or had a dedicated physical shelter building. This makes responses to the question about facilities difficult to interpret and highlights the need to collect future data in a way that reflects the New Zealand rescue context. Unlike the USA where "rescues" are defined as non-profit organisations without a physical shelter, our research included in the "rescue" category all CKR other than animal control agencies. This includes groups that maintain their own dedicated shelter facilities as well as those that solely run volunteer community-based foster programmes. Thus, responses to our questions about facilities are potentially misleading. For example, questions about isolation facilities are based on the importance of isolation facilities for preventing disease spread in physical shelters (Stavisky *et al.* 2012). In our study, a respondent may not have reported that they had an isolation facility because they did not operate a dedicated shelter, rather than because they did not have processes in place to prevent the spread of disease. In support of this idea, the majority of CKR in our study implemented some form of health checks, parasite control, vaccination, and/or quarantine periods as part of their intake processes for animals.

Conclusions

Our study findings highlight that CKR in New Zealand handle a large volume of animals each year. With stray cats representing the majority of intakes, there is a need for initiatives that focus on reducing the size of stray populations, including microchipping to support the return of stray animals to their owners. CKR also frequently manage cats that are relinquished for many reasons including unplanned litters, financial pressures, and a lack of pet-friendly accommodation. Policy initiatives promoting the desexing of owned cats at an early enough age to prevent unwanted

litters, and to therefore prevent unnecessary owner relinquishment, may help to reduce the number of animals needing to enter care. A recent New Zealand parliamentary sub-committee's recommendation for a nationwide cat management framework could support efforts to address both stray and owned cat populations. As most CKR in New Zealand rely on foster programmes to house a significant portion of animals in their care, further research is needed to understand how these foster programmes operate and to identify potential opportunities for expanding their capacity to meet the high demand for CKR services.

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