Overview of Australian Local Government Domestic Cat Management Strategies 2020

Introduction

In late 2019, the Australian Institute of Animal Management (AIAM) was approached and asked to provide an overview of domestic cat management practices used by Local Governments (LGs) across Australia. Whilst domestic cat management is often anecdotally reported as a significant problem by Australian animal management professionals, little to no reliable information is available about this topic.

In response, AIAM and RSPCA Australia, with input from stakeholders, developed a 21-question online survey designed to collect information from representatives of the 537 Local Government Areas across Australia. The primary aims of the survey included:

- Identify common cat management practices used by LGs in Australia
- Identify strengths and weaknesses of current approaches used to management domestic cats
- Identify barriers to and opportunities for improvement of cat management practices in Australia
- Identify key areas for potential collaborations between LG and other organisations

Participants were recruited via a variety of channels, including social media and member communications from LG industry bodies and Not-For-Profit animal welfare organisations, as well as online discussion forums, and organically via personal networks. Approximately half of Australian LGs are considered rural or remote, with the remaining areas being either metropolitan (e.g., urban fringe localities with both rural and urban areas), and urban. Efforts were made to reach individuals from all types of communities to gather representative data from across Australia.

Participants

A total of 167 people participanted in the survey, resulting in 165 completed data sets. The distribution of participants was skewed towards the Eastern states, with participants residing in Victoria (37), Queensland (35), NSW (30), South Australia (35), Western Australia (18), the Northern Territory (9), and Tasmania (1).

Representatives from all types of community participated (Figure 1.). For ease of comparison of cat management practices across different municipalities, reported community types were grouped in to the three following categories:

- Areas of low human population density (LOW) consisting of all participants from rural, rural remote and wilderness areas (63).
- Mixed and Metropolitan communities (MIXED) consisting of all municipalities with both rural and urban/city areas (36).
- Areas of high human population density (HIGH) consisting of all city and urban areas (64)

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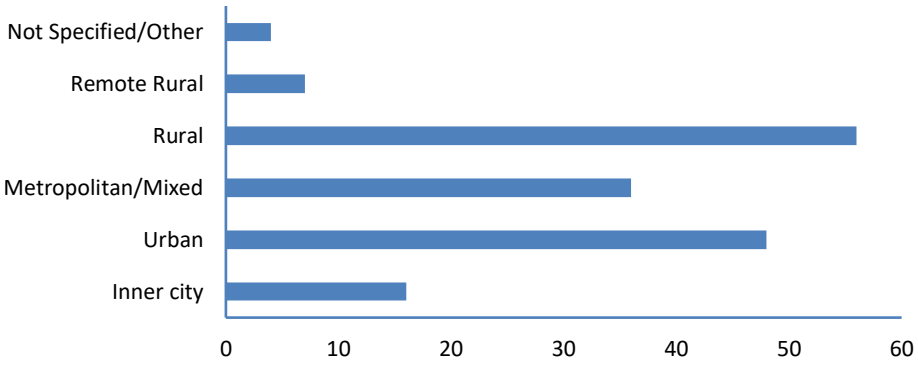

Figure 1. Survey participant numbers by type of community in which they worked.

As expected, most participants (131) worked within the LG animal management sector (Figure 2.). Job roles of participants within the 'Other' category included other roles within LG (15), roles in shelters and pounds (11), with individuals from the education, government, and environment sectors, along with several community members.

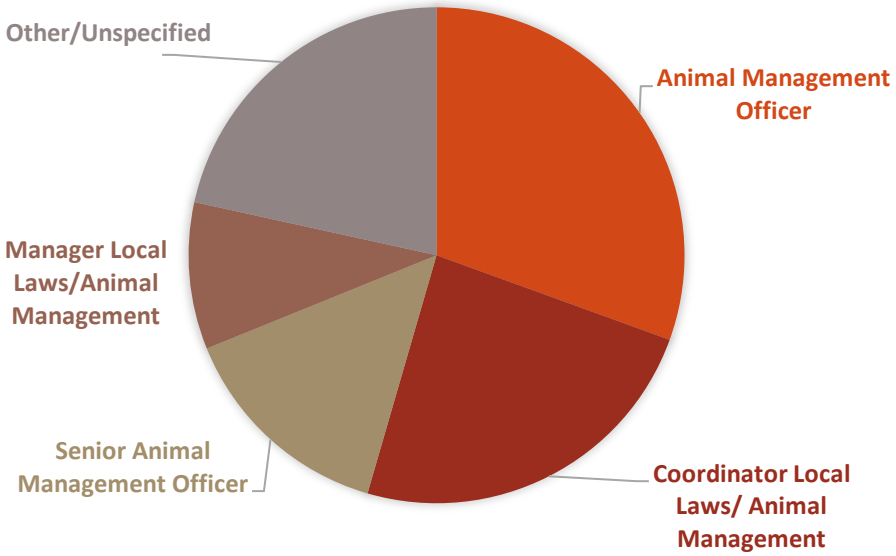

Figure 2. Job roles of survey participants

Are free-living domestic cats considered a problem by Local Government in Australia?

Just under 80% of participants either agreed or strongly agreed with the statement *"You consider unowned/semi-owned domestic cats to be a problem in your local council area",* with the remaining participants either neutral (10.2%) or in disagreement with the statement (10.2%).

Participants from rural and rural remote areas were more likely to agree that free-living cats were problematic in their area (85.1% LOW respondents), when compared to participants from other community types. A significantly

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higher portion of participants from city/urban areas disagreed with the statement (16.7% HIGH) than those from metropolitan/mixed areas (3.2% MIXED) or rural/remote areas (7.5% LOW).

As domestic cat population densities are positively correlated with human population density (Flockhart et al., 2016), it seems unlikely that free-living cat activity patterns and associated problems are less common in urban environments. As such, this variation may reflect a difference in societal attitudes towards free-living cats across different community types. According to Toukhsati et al. (2012) and Hall et al. (2016), both cat owners and non-cat owners in Australia report concerns about domestic cat predation on wildlife. Given that urban fringe and rural areas host a wider variety of native wildlife than city centres and urban environments, it is possible that some residents of highly developed areas simply perceive free-living cats as less problematic due to reduced presence of native prey species. This is consistent with the findings of Bassett et al. (2020) who found that non-cat owning residents in New Zealand were more likely to be supportive of strict cat control measures if they lived within an environmentally significant area. As community attitudes towards cat management practices can influence that success of LG efforts, this is an area that requires further study.

Current cat management practices across the country

How are roaming cats caught?

The most reported LG responses to nuisance calls about roaming cats involve providing a cat trap to the community member (113), recommending the person hires a trap (93), or the LG directly trapping the cat themselves (60). Despite the large number of participants who report encourage or facilitate community members to trap cats, only 87 respondents (approximately 53%) reported providing education about trapping of cats (Table 7). While we do not know if community members were informally provided with detailed information about the humane use of traps at the time of contact with LG, this discrepancy between the use of traps and formal provision of education about trapping of cats indicates a potential for welfare compromises due to inappropriate trapping of cats, or handling of trapped cats, by members of the public.

The most reported Local Government responses to nuisance cat calls involve trapping or facilitating the trapping of cats

Where the cat causing nuisance has a known owner, LG responses may also include direct contact with the owner (112) or recommending that the reporting person contacts the cat owner themselves (60). Where the cat does not appear to have an owner, some LGs will provide advice on how to discourage the cat from causing nuisance (57 responses) or advise the person reporting the nuisance to make efforts to locate the cat owner themselves (36 responses). A small number of LGs make no response to nuisance cat reports (6 responses). The frequency of these responses was largely consistent across all types of communities.

Of the councils who do trap cats, only 15 respondents reported doing so as part of a systematic program to trap and either euthanise (14, primarily from LOW communities), or desex and return the cats (1 LOW respondent). Several of the LG respondents who reported systematic trapping of cats did so within a program aimed at protecting areas of environmental significance (e.g., within wildlife or bushland reserves), one of which reported working with a local animal shelter to rehome cats caught within the reserve as pets.

Some councils (18 responses) report working in collaboration with a vet clinic, rescue group, or other community organisation to trap cats. However, most councils who trapped cats did so in an ad-hoc fashion, typically in response to community reports of nuisance cats where the reporting person was unable to conduct trapping themselves.

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What happens to trapped cats?

Once cats have been contained within a trap, most councils (147 responses) report scanning the cat for a microchip, with 6 participants reporting that they do so only sometimes, and one LOW and one HIGH respondent reporting that they do not scan trapped cats for microchips. As it is impossible to distinguish between an owned cat and a free-living cat without scanning for a microchip, there is a possibility that owned cats are being trapped and euthanised by AMOs who do not scan all trapped cats prior to making decisions on their outcomes. Additionally, given the difficulty of scanning effectively through a trap or cage, it is unclear how accurate scanning of cats is being achieved for fearful animals or those with low sociability towards humans. This clearly identifies the treatment of trapped cats as an area of improvement in education and training for AMOs and LGs.

In situations where a trapped cat was sick or injured, participants reported that microchipped cats were more likely to receive veterinary care in MIXED and LOW municipalities, whereas participants from HIGH municipalities reported no discrepancy in veterinary care provided based on microchip status of the cat (Table 1.). Participants from MIXED and LOW LGs were more likely than those from HIGH LGs to report euthanising trapped cats requiring veterinary attention, with less than half of respondents from LOW areas reporting that injured cats without microchips would receive veterinary care. For those participants who reported doing 'Something else' with the cat, the most common response was immediate transfer to a partner welfare organisation (e.g., RSPCA or Animal Welfare League).

Table 1. Reported Local Government practices in veterinary care of microchipped and non-microchip cats trapped within their municipality. Municipalities were grouped according to human population density (HIGH = city and urban, MIXED = metropolitan and urban fringe, LOW = rural and rural remote)

If a trapped cat is sick or injured and requires veterinary care (but not immediate euthanasia on welfare grounds), what care is provided? (Please select all options that apply)	Percent of participant cohort from each community type who undertake practice			
	Total	HIGH	LOW	MIXED
A cat with a microchip is euthanised if sick or injured if the owner cannot be located	13.3	9.4	14.3	16.7
A cat with a microchip is provided with veterinary care if appropriate	65.5	71.9	60.3	61.1
A cat without a microchip is euthanised if sick or injured	25.5	21.9	28.6	27.8
A cat without a microchip is provided with veterinary care if appropriate	57.0	71.9	41.3	58.3
N/A, the Council does not trap cats or accept trapped cats from the public	10.3	9.4	11.1	11.1
Something else is done with the cat (please specify)	12.7	-	-	-

Reported behavioural assessment practices for trapped cats varied across councils, with approximately 50% of respondents reporting that cats are given care for at least three days prior to and during assessment (Table 2.), consistent with current best practice in sheltering (see the ASPCA Pro Feline Spectrum Assessment). The provision of at least 72 hours of care in humane housing conditions is the minimum time required for scared but socialised cats to demonstrate affiliative behaviours towards caretakers, allowing the differentiation of truly feral cats from those that are socialised but experiencing considerable confinement-related stress (Slater et al., 2013). LGs from LOW areas were less likely to assess cat behaviour at all, and when they did assess, were slightly less likely than LGs in other types of communities to care for cats for a full three days prior to assessing behaviour.

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Information about how cat behaviour was assessed by LGs across Australia is beyond the scope of this survey, however this is an area of interest given that assessment methods used impact strongly on results for sociability assessments and therefore eventual outcomes of trapped cats (Vojtkovská et al., 2020).

Table 2. Reported Local Government practices in behavioural assessment of microchipped and non-microchip cats trapped within their municipality. Data presented includes whole cohort results and those from rural and rural remote communities (LOW)

If a trapped cat appears healthy and has no owner or the owner will not collect the cat, what behavioural assessment occurs? (Please select all options that apply)	Percent of participant cohort from each community type who undertake practice, according to microchip status of cat			
	Total, m'chipped	Total, not m'chipped	LOW, m'chipped	LOW, not m'chipped
No cat is behaviourally assessed	10.9	9.7	19.0	20.6
This cohort of cats is not behaviourally assessed	11.5	7.3	14.3	12.7
The cat undergoes behavioural assessment within the first 48 hours	20.0	27.9	12.7	22.2
The cat is given care and a quiet place to hide / settle for at least 3 days, then is behaviourally assessed	50.3	50.9	46.0	41.3
N/A, the Council does not trap cats or accept trapped cats from the public	10.3	10.9	9.5	11.1
The cat is released at the location the cat was trapped with no behavioural assessment	5.5	0.6	9.5	0.0

For healthy and sociable trapped cats that were identified by microchips but remained unclaimed by their previous owners, at least half of respondents reported that their LG facilitated the adoption of these cats either directly via the council pound, or by transfer to a partner rescue group or animal shelter (Table 3.). LGs from HIGH communities (40.6% of respondents) were reported to be twice as likely to directly adopt out sociable cats than those from LOW communities (20.6% respondents). LGs from LOW areas were more likely (33%) than their MIXED (27.8%) and HIGH (21.9%) area counterparts to transfer sociable, healthy, previously owned cats to nearby shelters for rehoming. It is unclear why regional LGs are less likely to directly place healthy and sociable cats back into their communities, however one possible reason could be limited access to veterinary services used to prepare animals for rehoming.

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Of the respondents who selected the option 'Something else is done with the cat', most reported that all trapped cats were transferred to partner organisations on intake, so they did not know which cats had identification and what their outcomes were.

Table 3. Reported Local Government practices for treatment of unclaimed, previously owned cats trapped in their municipality. Municipalities were grouped according to human population density (HIGH = city and urban, MIXED = metropolitan and urban fringe, LOW = rural and rural remote)

If a trapped cat has a microchip, is healthy and sociable and the owner is contacted but the cat is not reclaimed, please indicate which of the following are undertaken by your local council:	Percent of participant cohort from each community type who undertake practice			
	Total	HIGH	LOW	MIXED
N/A, the Council does not trap cats or accept trapped cats from the public	9.1	7.8	11.1	8.3
N/A, trapped cats are not scanned for microchips	0.6	1.6	0.0	0.0
Something else is done with the cat (please specify)	9.7	10.9	11.1	5.6
The cat is euthanised	2.4	1.6	4.8	0.0
The cat is put up for adoption at the Council pound	32.1	40.6	20.6	33.3
The cat is released at the location the cat was trapped	2.4	0.0	6.3	0.0
The cat is transferred to a cat rescue group for adoption	16.4	17.2	19.0	11.1
The cat is transferred to an animal shelter for adoption	27.3	21.9	33.3	27.8
Not specified	0.6	1.6	0.0	0.0

Where trapped cats did not have a microchip, approximately 1 in 7 LGs reported transferring apparently healthy cats to partner organisations without behaviour assessments (Table 4). For the same cohort of cats, almost half of councils euthanised apparently healthy unidentified cats that were deemed unsocialised following behavioural assessment. A small number of councils from HIGH and MIXED areas reported desexing and then returning physically healthy, unsocialised cats back to the place of trapping under the care of members of the public. While Trap, Neuter,

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Release (TNR) is gaining increasing community support (Riley, 2018), it is not currently legal in Australia (Rand et al., 2018). As such, LGs participating in TNR programs where cats are not registered to an individual on return may be at risk of breeching state or federal laws relating to the control of declared pest species.

Where respondents selected 'Something else is done with the cat', most indicated that non-microchipped cats who are apparently healthy were transferred to partner organisations on intake, so they did not know the outcomes. One respondent worked with a private community member who worked with unsocialised cats over an extended period in an outdoor enclosure, with the aim of adoptive placement once they are deemed behaviourally suitable. Another participant declined to answer as information about their LGs cat management practices is not released to the public.

Concerningly, some respondents reported euthanising healthy, sociable cats that remained unclaimed after a stray hold period, regardless of the presence of identification. 2.4% of the total cohort, including respondents from both HIGH and LOW areas, report that their LG euthanises healthy, sociable trapped cats that have microchips but remain unclaimed by their owners (Table 3). Where healthy trapped cats with no identification remained unclaimed after a mandatory hold period, 4.8% of all respondents reported euthanising the cats without behaviour assessment (Table 4). The percentage of LOW area LGs reported to euthanise healthy, unidentified adult cats without behavioural assessment (9.5%) was 3 to 6 times higher than those in HIGH (1.6%) and MIXED (2.8%) municipalities. As most LGs in all types of communities completed behaviour assessment of trapped cats and many facilitated rehoming of healthy, sociable cats, it is unlikely that resource constraints are responsible for the difference in euthanasia practices of LGs that euthanise healthy, sociable cats. More survey respondents from rural and rural remote areas than those from metropolitan or urban areas indicated that they consider free-living cats problematic, so this pattern may reflect a difference in attitudes towards cats in different community types.

Table 4. Reported Local Government practices for treatment of apparently healthy, unidentified trapped cats within their municipality. Municipalities were grouped according to human population density (HIGH = city and urban, MIXED = metropolitan and urban fringe, LOW = rural and rural remote)

If the trapped cat does not have a microchip (or trapped cats are not scanned for a microchip), but the cat is healthy, please indicate which of the following are undertaken by your local council (please select all that apply):	Percent of participant cohort from each community type who undertake practice			
	Total	HIGH	LOW	MIXED
N/A, the Council does not trap cats or accept trapped cats from the public	10.3	9.4	12.7	8.3
The cat is desexed and returned to their site of trapping to be monitored by semi-owners or cat colony carers with no behavioural assessment	0.0	0.0	0.0	0.0
The cat undergoes behavioural assessment and, if deemed unsociable, is desexed and returned to their site of trapping to be monitored by semi-owners or cat colony carers	1.2	1.6	0.0	2.8
The cat is euthanised with no behavioural assessment	4.8	1.6	9.5	2.8
The cat undergoes behavioural assessment and, if deemed unsociable, is then euthanised	44.2	45.3	44.4	41.7
The cat is put up for adoption at the Council pound with no behavioural assessment	4.2	1.6	7.9	2.8
The cat is transferred to local rescue group/animal shelter for adoption with no behavioural assessment	13.9	14.1	17.5	8.3

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The cat undergoes behavioural assessment and, if deemed socialised or able to be socialised/rehomed, is fostered and/or rehomed from the pound	40.6	48.4	31.7	38.9
The cat undergoes behavioural assessment and, if deemed socialised or able to be socialised/rehomed, is transferred to local rescue group/animal shelter for adoption	43.6	48.4	42.9	36.1
Kittens only are transferred to a local rescue group/animal shelter for adoption (adult cats are not)	3.0	1.6	6.3	0.0
The cat is released at the location the cat was trapped without being desexed	0.0	0.0	0.0	0.0
Something else is done with the cat (please specify)	10.3	9.4	14.3	5.6

Where participants gave details of the non-veterinarians who performed euthanasia, council employees were the most common people identified, followed by staff of partner organisations. One respondent did not answer this question as this information is not released to the public by their LG. Respondents from LOW and MIXED areas were less likely to use veterinarians for cat euthanasia than those in HIGH areas, possibly indicating a lower availability of veterinary services in these areas, consistent with information available from the veterinary industry (see https://vetpracticemag.com.au/country-vets-thin-ground/ and https://www.vetvoice.com.au/ec/veterinary-careers/rural-veterinary-services/).

Table 5. Reported Local Government practices relating to staff performing euthanasia of cats trapped within their municipality. Municipalities were grouped according to human population density (HIGH = city and urban, MIXED = metropolitan and urban fringe, LOW = rural and rural remote)

When cats are euthanised, this is performed by:	Percent of participant cohort from each community type who undertake practice			
	Total	HIGH	LOW	MIXED
Veterinarian	86.7	92.4	82.1	87.1
Non-Veterinarian	10.8	6.1	13.4	12.9
Not specified	2.4	1.5	4.5	0.0

Cat-related education and support provided to residents

Community education and support for cat owners and caretakers provided by LGs are largely biased towards owned cats and those considered 'semi-owned' (e.g., they have a known caretaker who does not consider themselves as the cat's owner) (Table 7). In some states such as Queensland, this is because legislation deems all non-owned cats a pest species and limits what actions can be taken with these cats (Rand et al., 2019). In other states, the focus on cat ownership practices to address the problem of free-living cats is less easy to explain, however free-text responses to this survey such as "*Cull unowned cats*", "*Authorise community member to kill cat trapped at property and dispose of it*", and '*This Council authority has illustrated its position that there is no such thing as a semi-owned cat - realistically, the concept is absurd, an animal either has an owner (be they responsible or otherwise) or is un-owned - an un-owned animal which is non-native is a feral animal and is treated accordingly. This Councils by-laws do not have latitude for wandering, semi owned or released (post de-sexing) cats as they pose to great a risk to natural environment and primary industry*" indicate overt support from some individuals in LG for culling of free-roaming cats. Additionally, several respondents also expressed that cat-management education is not, or should not be, the responsibility of Local Government. This disparity between the identified problem and practices used to address it is key to improving free-living cat management in Australia, and as such, requires more investigation.

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Approximately half of LGs across all community types actively encourage cat semi-owners to desex the cat they are caring for, however significantly fewer LOW area (7.1%) and MIXED area (9.7%) LGs than HIGH area LGs (22.7%) provide financial support to help people pay for desexing (Table 6). Given that residents in rural and remote areas are more likely to experience income inequality (National Rural Health Alliance Inc., 2014) and less likely to have access to veterinary services, the combined effect of less access to desexing services and that these have a greater cost is a significant hurdle to the desexing of semi-owned cats in LOW areas.

Table 6. Reported Local Government practices relating to community education and desexing subsidies for semi-owned cats. Municipalities were grouped according to human population density (HIGH = city and urban, MIXED = metropolitan and urban fringe, LOW = rural and rural remote)

	Percent of participant cohort from each community type who undertake practice			
Answer	Total	HIGH	LOW	MIXED
Are cat semi-owners (people who feed a roaming cat they think is unowned) actively encouraged to desex these cats?				
YES	50.9	53.0	49.3	51.6
NO	44.3	40.9	46.3	48.4
No answer	4.8	6.1	4.5	0.0
If yes to the question above, do council provide subsidies to owners to help pay for desexing?				
YES	14.4	22.7	7.1	9.7
NO	18.0	18.2	14.3	19.4
No answer	67.7	59.1	78.6	71.0

In general, LGs in MIXED areas were less likely to provide educational materials or resources for cat owners or caretakers than LGs in LOW and HIGH areas (Table 7). The five most common cat-related topics that LGs provided educational information and resources for related to identification, desexing and containment of owned cats, followed by trapping of cats in the community and cat impacts on wildlife. While 1 in 5 LGs in HIGH areas provided materials or resources related to desexing of unowned cats, which are the target population for free-living cat management practices, only 8% of LGS in LOW areas and 3% of LGs in MIXED areas did the same.

Table 7. Reported Local Government practices relating to cat-related education and resources for constituents. Municipalities were grouped according to human population density (HIGH = city and urban, MIXED = metropolitan and urban fringe, LOW = rural and rural remote)

In terms of education materials/resources, on what topics about the welfare and management of owned, unowned, and semi-owned cats does your local council provide	Number of participants (percent) in each cohort who reported providing education materials or resources for the listed topics

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educational materials for the public (please select all that apply):	TOTAL	HIGH	LOW	MIXED
Cat owner legal responsibilities	116 (70.3)	49 (76.6)	45 (71.4)	21 (58.3)
Microchipping cats	114 (69.1)	45 (70.3)	47 (74.6)	22 (61.1)
Registration of owned cats	103 (62.4)	51 (79.7)	34 (54.0)	18 (50.0)
Desexing owned cats	97 (58.8)	38 (59.4)	40 (63.5)	19 (52.8)
Keeping cats happily contained to the owner's property	88 (53.3)	41 (64.1)	27 (42.9)	20 (55.6)
Trapping cats	87 (52.7)	37 (57.8)	30 (47.6)	20 (55.6)
Ways to prevent /reduce impacts of cats on wildlife	66 (40.0)	31 (48.4)	19 (30.2)	16 (44.4)
Cat containment solutions	60 (36.4)	29 (45.3)	17 (27.0)	14 (38.9)
Engaging with neighbours to solve cat nuisance problems	51 (30.9)	24 (37.5)	19 (30.2)	8 (22.2)
Strategies to help owners find their lost or wandering cat	48 (29.1)	20 (31.3)	13 (20.6)	15 (41.7)
What to do if a cat strays from home or is lost	46 (27.9)	21 (32.8)	15 (23.8)	10 (27.8)
Options for rehoming cats	45 (27.3)	22 (34.4)	15 (23.8)	8 (22.2)
Contact details for local cat rescue groups	43 (26.1)	22 (34.4)	16 (25.4)	5 (13.9)
Cat management services available in the local area	35 (21.2)	22 (34.4)	11 (17.5)	2 (5.6)
Desexing semi-owned cats	28 (17.0)	14 (21.9)	9 (14.3)	5 (13.9)
Strategies to help find owners of wandering cats	26 (15.8)	8 (12.5)	10 (15.9)	8 (22.2)
Desexing unowned cats	19 (11.5)	13 (20.3)	5 (7.9)	1 (2.8)
Phone App for lost and found pets	9 (5.5)	4 (6.3)	3 (4.8)	2 (5.6)

Perceived effectiveness of common cat management techniques

When asked to identify which of the current commonly used cat management techniques they felt were most effective at controlling free-living cat populations, respondents perceived programs aimed at desexing of owned cats and ad hoc trapping followed by systematic trapping of cats within their municipalities to be the most effective strategies (Table 8). Less than 1 in 5 respondents perceived a positive benefit from programs aimed at encouraging semi-owner to desex or take responsibility for cats, or systematic programs for trapping and rehoming healthy community cats. Less than 1 in 20 supported the idea of desexing healthy community cats. As no information was gathered about what measures participants were using to determine effectiveness, it is unclear how this question was interpreted.

When community type is considered, participants from HIGH communities perceive strategies for providing low-cost vet care and adoption pathways for cats more positively than those from LOW and MIXED communities; this is consistent with earlier results indicating greater comparative access to veterinary care and a more positive attitude towards free-living cats in these areas. Mandatory desexing of owned cats and ad hoc trapping and euthanising of cats were most strongly supported strategies for free-living cat control by respondents from MIXED communities.

Table 8. Percent of respondents who perceived positive benefit of strategies currently used by Local Governments in Australia to control free-living cat populations. Municipalities were grouped according to human population density (HIGH = city and urban, MIXED = metropolitan and urban fringe, LOW = rural and rural remote)

If the following strategies are used in your area, please indicate how effective they have been in managing semi-owned/unowned cats.	**Respondents perceiving positive effect of strategy (%)**			
	Total	**HIGH**	**LOW**	**MIXED**
Low cost desexing programs for owned cats (to prevent the birth of unwanted kittens which are likely to become unowned/semi-owned cats/surrenders to the Council pound or shelter)	31.1	36.6	22.4	22.6

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Mandatory desexing of owned cats (to prevent the birth of unwanted kittens which are likely to become unowned/semi-owned cats/surrenders to the Council pound or shelter)	30.5	27.3	29.9	38.7
Ad hoc trapping and euthanising of cats	25.1	16.7	28.4	35.5
Ad hoc trapping and adopting out of cats	24.0	24.2	23.9	22.6
Systematic program trapping and euthanising of cats	17.4	10.8	19.4	25.8
If a cat is reasonably determined as to be unowned, support is offered with a low-cost desexing program to enable semi-owners to become the owners and/or take full responsibility for the cat(s)	16.8	25.8	9.0	16.1
Providing strategies to semi-owners to search effectively for the cat's owner and offering low cost desexing, identification and ways to keep the cat safely on the owners' property	13.2	15.5	10.4	12.9
Systematic program trapping and adopting out of cats	13.2	13.6	13.4	12.9
Trapping and returning healthy unowned and semi-owned cats to site of their trapping to be monitored by semi-owners or cat colony carers	4.2	7.5	3.0	3.2

Common sources of information on cat management practices

Participants were asked *"When you are considering/investigating putting together new strategies/programs/local laws to manage unowned/semi-owned domestic cats, where do you go to get your information?"*

The most heavily relied-upon sources of information about free-living cat management practices were LGs themselves, government publications, and Not-For-Profit (NFP) organisations, followed by online searches and Local Government and Animal Management industry bodies (Figure 3). The most named NFP organisations were the Royal Society for the Prevention of Cruelty to Animals (RSPCA), the Animal Welfare League (both state and national bodies mentioned), and the national Getting 2 Zero program, with few respondents referring to international NFP organisations known to specialise in cat welfare and management. A small number of participants reported consulting academic references or had sought expert opinion (e.g., veterinary input) when investigating free-living cat management strategies.

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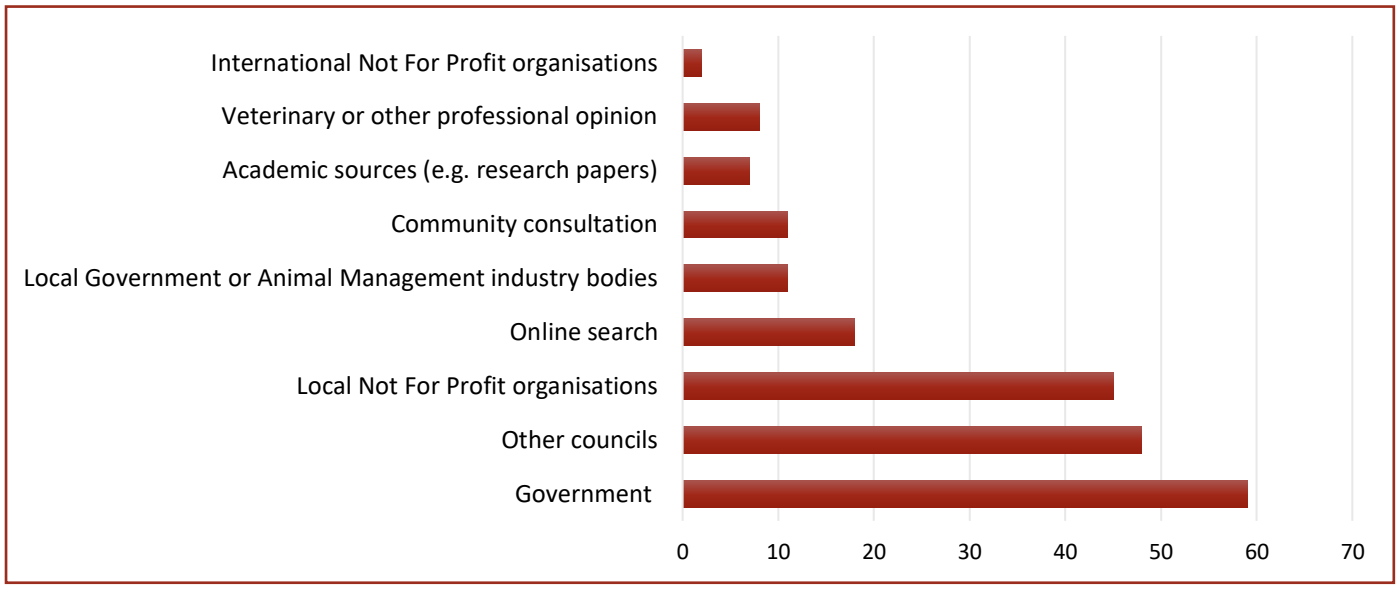

Figure 3. Sources of information about free-living cat management used by survey participants when investigating practices for managing unowned and semi-owned cats in their municipality

Barriers to implementing more effective free-living domestic cat management strategies

Survey participants were asked to rank 12 common challenges to effective free-living cat management, according to importance within their municipality. Lack of funding was identified as the primary challenge by both the entire cohort and all sub-groups based on community type (Table 9), while lack of staff (LOW), community concern regarding cat predation (MIXED) and state legislative requirements (HIGH) were all identified as the second most important challenges for LGs from different community types.

As expected, rural and remote councils (LOW areas) ranked lack of access to low-cost veterinary care as a more significant challenge than LGs from MIXED and HIGH communities. Participants from both LOW and MIXED also identified lack of access to rescue groups or adoption partners as a notable barrier to improved cat management in their locality, while respondents from HIGH areas ranked lack of access to adoption avenues of least importance.

Lack of access to low-cost vet care and rescue partners were more problematic for rural/remote Local Governments than those in urban or mixed type communities.

LGs from city and urban areas (HIGH) identified lack of community support for any proactive cat management as a moderate concern (7/12), unlike LGs from MIXED and LOW areas which both ranked this challenge as the least important on the list.

Current perceived 'ideals' in domestic cat management

Finally, participants were asked to identify their ideal cat management practices, given no resource or other limitations and the freedom to implement any control method of their choice. Responses were given in free text and 13 general themes were identified. These themes are represented below in Figure 4, with pet cat containment, mandatory desexing of pet cats, euthanasia of all free-living cats, and community education about cat ownership being the four most common themes.

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Interestingly, when given the opportunity to pick any cat management practice, multiple participants identified strategies that specifically target free-living cat populations: provision of low-cost cat desexing (28), TNR of all free-living cats (25), and free desexing of cats (15). This indicates that although current practices focus heavily on enforcement of 'responsible pet ownership' practices for owned cats, there is already some acceptance and appetite for practices aimed at managing free-living cat populations using non-lethal methods within the LG sector.

Table 9. Mean rank of challenges to effective cat management by local governments in Australia, according to survey participants. Municipalities were grouped according to human population density (HIGH = city and urban, MIXED = metropolitan and urban fringe, LOW = rural and rural remote)

Please rank the main challenges in your local area for the humane and effective management of unowned/semi-owned domestic cats (with the option ranked 1 being the most important and 12 the least important):	Mean rank of challenge as scored by participants			
	Total	HIGH	LOW	MIXED
Lack of funding	1	1	1	1
Lack of staff	2	3	2	3
Local community concern regarding these cats causing nuisance / predating on native wildlife	3	4	3	2
State legislative requirements	4	2	6	5
Lack of public support for humane cat management strategies	5	5	5	6
Safety and benefits of desexing cats before 4 months of age are not well known or accepted	6	6	8	4
Local vets do not support low cost desexing	7	8	4	7
Cats are not valued	8	9	9	10
General public objection to any cat management (i.e., cats should be left alone and not managed)	9	7	12	12
No local animal welfare group to work with	10	11	7	9
Councillors' and/or managers' negative attitudes toward cats	11	10	11	11
Nowhere to take trapped cats for adoption	12	12	10	8

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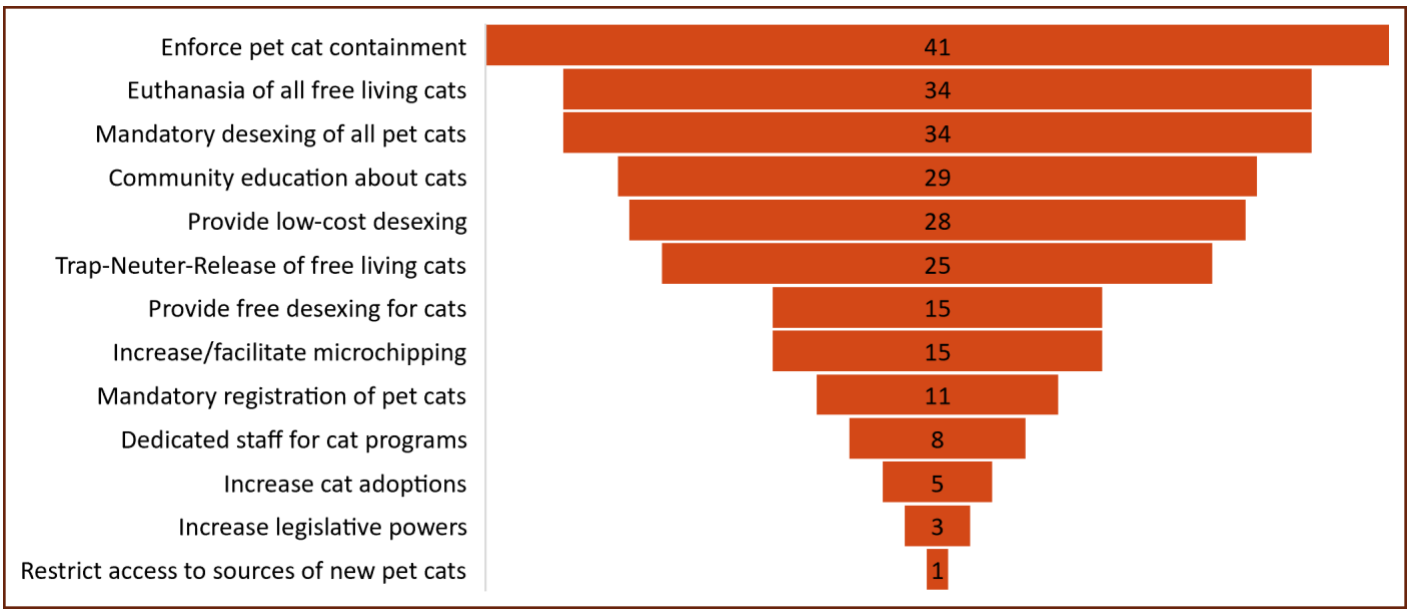

Figure 4. General themes of free text answers given by survey participants in response to the question *"What would you like to implement in terms of cat management, if you had no limitations and the freedom, resources etc. to do anything?"*

Key findings

This survey provided information on current and perceived ideal cat management techniques with the aim of controlling free-living cats in their communities used by participating Australian LGs.

While engagement with this survey was encouraging with 167 participants from a variety of community types across Australia, most participants resided in Eastern states and more than 30 participants were from non-LG backgrounds. At such, the data collected in this survey represents views from approximately ¼ of the 537 LG bodies across Australia. Given the nature of voluntary participation in online surveys, in that they require a time commitment and willingness to engage with the content (see Kılınç and Fırat 2017), it is likely that respondents who participated in this survey had an interest in the topic of free-living cat management and therefore may not be an accurate representation of views of the broader LG sector. Therefore, the data presented provides preliminary information about cat management in Australia and should be used to inform further work in this space.

Most participants from all community types reported that free-living cats were a concern, with the largest percentage of agreement coming from rural and remote participants. In contrast, 1 in 6 participants from urban and city areas disagreed with the statement that free-living cats were a concern in their communities. This result is consistent with previous research indicating that residents of areas with higher environmental significance report higher levels of concern about free-living cats predating on wildlife.

Summary of key points

- The most common current approaches to free-living cat management in Australia involved ad-hoc trapping of cats in response to complaints from local communities. Few councils reported systematic programs for cat management, and those that did were most commonly focusing on a defined area of environmental significance.

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- Trapped cats were most often checked for identification including microchips and then behaviourally assessed prior to determination of outcomes. However, no information was provided on how these checks were performed, and several participants primarily from rural and remote areas reported euthanising all trapped cats regardless of health, existing identification and behaviour demonstrated post-trapping.
- Participants from rural and remote areas reported a lack of access to rehoming partners.
- Most councils reported that euthanasia was performed by a vet, or by staff of a partner animal welfare organisation. However, almost 20% of rural or remote participants reported that non-vets performed cat euthanasia and lack of access to vet care was a barrier noted by the same cohort of participants as a barrier to efficient adoption programs, and fewer programs were reported in these communities to support owners in desexing their cats through low cost or free desexing programs.
- Lack of funding and staff resources were to two primary concerns for participants from all community types. Community attitudes towards cat management programs and state legislation limiting cat management practices were rated as the next two most problematic barriers for participants wanting to implement free-living cat management.
- Lack of access to rehoming partners including rescue groups and animal shelters and having nowhere to take cats available for adoption was a notable barrier for participants from rural and remote areas, and to a degree, also for participants from mixed community types.
- Despite free-living cats being the primary population of concern, both current and perceived ideal controls focused almost exclusively on owned cats except for trapping and euthanising cats (either ad-hoc or systematically).
- While participants reported their perceptions of which current techniques they considered effective, none reported a process for data collection or any methods by which their programs were being assessed. This is a widespread problem that has previously been recognised (and was a driving force for the development of this survey).

  Few respondents reported the use of cat-specific expertise (e.g., international bodies that specialise in free-roaming cat management) when investigating cat management techniques and developing programs for their communities.

Overall, two primary findings arose from the information collected through this survey. Firstly, there are several apparent differences in both community attitudes towards free-living cats and access to resources and services required to manage cats between different types of communities across Australia. While this is not unexpected given previous research investigating domestic cat ecology and reliance on humans for food resources, it is an area that requires greater research in the Australian context before we can draw comparisons between data collected about cat control practices used in other countries, and what will work best in different communities within Australia.

Secondly, it is apparent that we lack process for defining the problems caused by free-living cats and the methods used to manage them in Australia. As a result, most LGs rely on resident complaints as a driver of cat control practices; this forces councils into a reactive response to cat management and limits their ability to tailor practices to most effectively address the specific characteristics of their communities that affect free-living cat management.

As such, the core finding of this survey is that we urgently require the development of systems to collect and analyse data on free-living cat populations and associated factors in Australian communities. Without this, the problem is poorly defined and resource poor local government bodies in charge of performing free-living cat management are unable to properly assess what existing practices for managing free-living cats may work best for their specific communities, and if their efforts have been successful.

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